



A. INVITATION FOR BIDS

Project Name: **2026 Stormwater Management Basin Maintenance Program**

Project No. 25-024-CIP

The City of Dublin, Ohio will receive sealed bids for the materials and labor necessary for the construction of the **2026 Stormwater Management Basin Maintenance Program Project**. Bids shall be received by City of Dublin via Bid Express until 01:00 PM local time on September 9, 2026.

The City of Dublin may choose to not award the bid—and bidders shall hold bids open—until sixty days after the bid opening. The work for which bids are invited consists of: The rehabilitation and installation of storm structures throughout the City of Dublin. This includes the restoration of pavement and soil in part thereof. The cost estimate for the Project is \$465,960.

Documents are available online at www.bidexpress.com at no charge. By downloading the attachments, you will immediately become a plan holder. This ensures you receive addendums that may be issued.

As a bidder, you must register, set up to bid, and review each solicitation you intend to bid electronically on before bidding. Note: Navigation of the Bid Express service is FREE unless you select a solicitation for bidding and complete your purchase.

Each bidder is required to furnish with its proposal a Bid Guaranty in accordance with Section 153.54 of the Ohio Revised Code. Bid security furnished in Bond form shall be issued by a surety company or corporation licensed in the State of Ohio to provide said surety.

Each proposal must contain the full name of the party or parties submitting the proposal and all persons interested therein. Each bidder must submit evidence of its experience on projects of similar size and complexity. The owner intends and requires that this project be completed by May 1, 2027.

All contractors and subcontractors involved with the project will to the extent practicable use Ohio products, materials, services and labor in the implementation of their project. Payment of Prevailing Wages required for this Project.

The City of Dublin reserves the right to accept or reject any or all bids, to waive any informalities or irregularities in the bidding process and to enter into a contract with the bidder whom, in its opinion, offers the lowest and best bid.

Each bidder must ensure that all employees and applicants for employment are not discriminated against based on race, color, religion, sex, or national origin.

By order of the Council of the City of Dublin, Ohio.

Publish date: August 14, 2026

B. INSTRUCTIONS TO BIDDERS

1. PRELIMINARY MATTERS

- a. The Project owner is the City of Dublin, Ohio. The Owner's Representative is Paul A. Hammersmith P.E., Director of Engineering / City Engineer. All questions or request for information shall be submitted through Bid Express.
- b. In connection with the Legal Notice, the City of Dublin (hereinafter called the "City"), issues this Request for Bids for all labor, material, and services necessary for constructing the **2026 Stormwater Management Basin Maintenance Program Project** (the "Project"), as more fully described in the Contract Documents.
- c. Definitions. The word uses here shall have the following meanings:
 - i. "City" or "Owner" shall mean the City of Dublin, Ohio.
 - ii. "Bidder" or "Contractor" shall all mean an entity or person that submits a bid for the Project and ultimately the entity or person awarded the contract as applicable.
 - iii. "Contract Documents" shall mean the documents included with this bid solicitation and listed as Contract Documents in the City/Contractor Agreement.
 - iv. "O.R.C." shall mean the OHIO REVISED CODE.
- d. Estimate of Cost [O.R.C. 153.12(A)].
 - i. The total estimated construction cost for the base bid Work for the Project for which the City is soliciting bids at this time is \$176,000.

2. CONTRACTOR QUALIFICATIONS, REGISTERED CONTRACTORS, INCOME TAX, PERMITTING

- a. A Bidder may be a person, private entity, or any combination of such entities supported by a letter of intent to enter into an agreement or under an existing agreement in association in the form of a joint venture or other consortium. In the case of a joint venture or other consortium:
 - i. All members shall be jointly and severally liable for the execution of the Contract, and
 - ii. The association shall nominate a representative who shall have the authority to conduct all business for and on behalf of any and all the members of the joint venture or the consortium during the bidding process and, in the event the joint venture or consortium is awarded the Contract, during Contract execution.
- b. Threshold Qualifications. Every Contractor, before entering a contract with the City, must demonstrate the following:
 - i. Registered Contractors. Any person or company (including subcontractors) intending to do work under these Contract Documents shall be required to meet the City of Dublin laws for Contractor Registration, if any, contained in the Codified Ordinances of the City of Dublin as applicable to the particular classification of work to be performed.

- ii. Licensed Contractors. Bidders and subcontractors for work requiring licenses under the O.R.C. shall submit evidence of such licensing in accordance with O.R.C. Chapter 4740.
 - iii. Foreign Corporations. Business entities formed outside of the state of Ohio shall present proof of registry with the Ohio Secretary of State and demonstrate the existence of an Ohio statutory agent.
- c. Income Taxes. All persons or entities performing work under these Contract Documents shall comply with the requirements set forth in the Codified Ordinances of the City of Dublin.
- d. Permits and Regulations - Unless otherwise previously or subsequently specified, the Contractor shall procure and pay for all permits, licenses, inspections and approvals necessary for the execution of his contract. The City will obtain the required building permit for permanent structure.
 - i. The Contractor shall comply with all laws, ordinances, rules, orders and regulations relating to the performance of the work required to complete the Project.
 - ii. The Contractor's attention is directed to the "Safety and Health Regulations for Construction" of the Occupational Safety and Health Administration, U.S. Department of Labor and to its responsibilities thereunder.

3. GENERAL INSTRUCTIONS

- a. City expects the Bidder to examine all instructions, forms, terms, and specifications in the Request for Bids. Each Bidder is solely responsible for conducting its own due diligence and investigation in support of the preparation of Bids, negotiation of agreements, and the subsequent delivery of all services it will provide. Bidder's failure to furnish all information or documentation required by the Bidding Documents may result in the City rejecting the Bid.
- b. Public Information. The City considers all information, documentation and other materials requested to be submitted in response to this solicitation to be a non-confidential and/or non-proprietary nature and therefore subject to public disclosure under the Ohio Public Records Laws except as specifically exempted by those laws. [O.R.C. Chapter 149].
- c. Bidder should carefully read the information contained herein. It is the Bidder's responsibility to submit a complete response to all requirements and questions. Any information submitted by Bidders shall become the property of the City and submitted at the Bidder's sole expense. The City shall not pay any stipend for any submissions related to the bidding process. The City will not provide compensation to Bidders for any expenses incurred for Bid preparation or for any presentations made.
- d. The City may disqualify bids that are qualified with conditional clauses, or alterations, or items not called for in the bid documents, or irregularities and deviations from the requirements of the Contract Documents.
- e. The City makes no guarantee that an award will be made because of this bid, and reserves the right to accept or reject any or all bids, waive any formalities or minor

technical inconsistencies, or delete any item/requirements from this bid or resulting contract when deemed to be in the City's best interest.

4. INTERPRETATION

- a. All questions or request for information related to the Project or Contract Documents shall be submitted through Bid Express. The City will make any interpretation of the proposed documents by Addendum only, duly signed by the City, and a copy of such Addendum will be delivered via Bid Express to each Bidder receiving a set of Contract Documents. The City will not be responsible for any other explanation or interpretation of the proposed documents.
- b. In interpreting the Contract Documents, the Bidder shall interpret words describing materials that have a well-known technical or trade meaning, unless otherwise specifically defined in the Contract Documents, in accordance with the well-known meaning recognized by the trade.

5. DOCUMENTS TO SUBMIT WITH BID

- a. The Bidder shall submit the following completed forms with its response to this Request for Bids:
 - i. Bid Form
 - ii. Bid Guaranty and Contract Bond
 - iii. Affidavit of Authority (if applicable)
 - iv. Personal Property Tax Affidavit
 - v. Bidder's Qualification Statement
 - vi. Insurance Certificate
 - vii. Noncollusion affidavit
 - viii. State of Ohio Bureau of Workers' Compensation Certificate
 - ix. Proposed Supervisory Personnel List
 - x. Proposed Subcontractor List
 - xi. Bidder's and Subcontractors' Certificate(s) of licensure, if applicable
- b. In addition to the foregoing requirements, Bids submitted by a joint venture or other consortium shall include a copy of the joint venture/consortium agreement entered into by all members. Alternatively, a binding letter of intent or similar irrevocable instrument to execute a joint venture/consortium agreement in the event of a successful Bid shall be signed by all members and submitted with the Bid, together with a copy of the proposed joint venture/consortium agreement.
- c. Each Bidder shall submit its Bid through the Bid Express system. The Bidder's Bid shall be digitally signed as provided by the Infotech system in Bid Express.
- d. After the City opens the Bids, it may require the Bidders to make available additional financial information, including, but not limited to, financial statements from the previous three years for review of the City. Such financial statements shall be audited financial statements to the extent available or, if not available, at least be reviewed financial statements. At the City's discretion, it may obtain a copy of such financial information. To the extent the City maintains copies of such documents,

the City shall keep additional financial information it receives pursuant to a request under this paragraph confidential to the extent possible, except under proper order of a court. The additional financial information should not be a public record under section 149.43 of the Revised Code. (See O.R.C. 9.312).

6. CLARIFICATION OF BIDS

- a. To assist in the examination, evaluation, and comparison of the Bids and the qualifications of the Bidders, the City may ask any Bidder for a clarification of its Bid. Any clarification submitted by a Bidder that is not in response to a request by the City shall not be considered. The City's request for clarification and the response shall be in writing. No change in the prices or substance of the Bid shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the City in the evaluation of the Bids.

7. BONDS

- a. Each bidder shall submit one of the statutorily required forms of bid security as set forth in O.R.C. Section 153.54 on the form included with the Contract Documents. There are two ways to meet these requirements:
 - i. **OPTION #1:** Submit the Combined Bid/Performance/Payment Bond on the form included with the Contract Documents along with the Bid; or,
 - ii. **OPTION #2:** Submit a certified check, cashier's check, or letter of credit pursuant to Chapter 1305 of the Revised Code, conditioned to provide that if the bid is accepted, the bidder, after the awarding or the recommendation for the award of the contract, whichever the contracting authority designates, will enter into a proper contract in accordance with the bid, plans, details, specifications, and bills of material. Any letter of credit shall be revocable only at the option of the City. The amount of the certified check, cashier's check, or letter of credit shall be equal to ten per cent of the bid. Any of the foregoing instruments shall be submitted with the City of Dublin listed as the payee or beneficiary. If the Bidder chooses option ii and is awarded the Contract, the Bidder shall then submit a Bond using the form included with the Contract Documents.
- b. With any Bond required here, the Bidder shall submit or ensure:
 - i. *Ohio Department of Insurance Certificate.* Proof that the bond is issued by a surety company ("Surety") authorized by the Ohio Department of Insurance to transact business in the State of Ohio and acceptable to the City in the form of a certificate.
 - ii. *A Financial Statement.* Proof that the bond is issued by a Surety capable of demonstrating a record of competent underwriting, efficient management, adequate reserves, and sound investments. These criteria will be deemed to be met if the Surety currently has an A.M. Best Company Policyholders rating of "A-" better and has or exceeds the Best Financial Size Category of Class VI. Other Sureties may be acceptable to the City, in its sole discretion.
 - iii. *Proper signatures, credentials, and Power of Attorney.* The bond shall be signed by an authorized agent of an acceptable Surety and by the Bidder; and, include credentials showing the Power of Attorney of the agent.

- iv. The name, address, and telephone and fax numbers of the Surety and the Surety's Agent should be typed or printed on each bond.

8. EXECUTION OF CONTRACT

- a. Within 10 days after award of the Contract, the successful Bidder shall execute and deliver to the City an original of the City/Contractor Agreement, based upon the City's form. Such contract shall include the terms required by Ohio law and documents required by the Instructions to Bidders and Contract Documents for the Project. The successful Bidder shall have no property interest or rights under the City/Contractor Agreement until the Agreement is properly executed by the City.

9. STATE SALES AND USE TAXES

- a. The City is a political subdivision of the State of Ohio and is exempt from taxation under the Ohio Sales Tax and Use Tax Laws. Building materials that the successful Bidder purchases for incorporation into the Project will be exempt from state sales and use taxes if the successful Bidder provides a properly completed Ohio Department of Taxation Demolition Contract Exemption Certificate to the vendors or suppliers when acquiring the materials. The City will execute properly completed certificates on request.

10. COMPLETION DATE

- a. Each successful Bidder shall have its Work on the Project Complete as follows: May 1, 2027. The Contract Time shall run from the date of the Notice to Proceed or if there is no Notice to Proceed from the Effective Date of the City/Contractor Agreement.

11. MODIFICATION/WITHDRAWAL OF BIDS

- a. Modification. A Bidder may modify its Bid in Bid Express up to the time set for Bids to be submitted. No further modifications shall be made after the time set for submission of Bids. Modifications made outside the Bid Express system will not be considered. All modifications must be complete at the time set for submission of bids. Bidders accepts the risk of late or incomplete modifications and the City will not be obligated to consider late or incomplete modifications.
- b. Withdrawal. Bids may be withdrawn with permission of the City or in strict accordance with O.R.C. Section 9.31 which generally commands that Bidders may withdraw their bids from consideration if the price of the bid was substantially lower than the other bids, providing the bid was submitted in good faith, and the reason for the price bid being substantially lower was a clerical mistake as opposed to a judgment mistake, and was actually due to an unintentional and substantial arithmetic error or an unintentional omission of a substantial quantity of work, labor, or material made directly in the compilation of the bid. Notice of a claim of right to withdraw such bid must be made in writing filed with the City within two business days after the conclusion of the bid opening procedure.

12. PREVAILING WAGES

- a. Bidder IS required to comply with all applicable Ohio Prevailing Wage requirements and labor laws for this Project.**
- b. If Prevailing Wage applies to this Project, the determination of the prevailing rates of wages of mechanics and laborers in accordance with section 4115.05 of the Revised Code for the class of work called for by the Project, in the locality where the work is to be performed, shall be attached to and made part of the Contract Documents.
- c. If Prevailing Wage applies to this Project, the Contractor must pay at least the wage rates subsequently listed in the Wage determinations. The Contractor must submit properly executed copies of the Contractor's and subcontractor's payrolls to the City's Prevailing Wage Coordinator in accordance with the requirements of Section 4115.071 of the O.R.C. Payroll records shall be kept current as failure to do so will delay the Owner's approval for payment of any pending estimates.

13. ALTERNATES

- a. The City may request bids on alternates. If the City requests bids on alternates, the Bidder should include the cost of the alternates requested on its Bid Form.
- b. At the time of awarding the contract, the City will select or reject alternates as it determines is in its best interest. A Bidder's failure to include in its Bid Form the cost of an alternate selected by the City and applicable to the Bidder's work may render the bid non-responsive and be grounds for the rejection of the bid. Otherwise, the failure to include the cost of an alternate will not be deemed material.
- c. The Bidder acknowledges that although there is an estimate for the cost of the Project, the market conditions may and frequently do result in the estimate being different from the sum of the bids received, either higher or lower. The Bidder understands that the City may include alternates, which may include deduct alternates as well as add alternates, to give it flexibility to build the Project with the funds available. The Bidder further understands and acknowledges that use of add and deduct alternates is a long held customary practice in the construction industry in the State of Ohio. The Bidder also acknowledges that the City will not make a decision about the alternates on which to base the award of contracts until the bids are received, and the City can compare its available funds with the base bids and the cost or savings from selecting different alternates. The Bidder understands that the award to the Bidder submitting the lowest and best bid will be based on the lowest and best base bid plus selected alternates, and may result in an award to a Bidder other than the Bidder that submitted the lowest base bid. The bidder also acknowledges that its, and other bidders', bids may become responsive or non-responsive based on whether the bidders bid and are qualified for all base work and alternates; and, the City's selection of alternates. The City will evaluate bids to determine the lowest and best bid after it selects the alternates.
- d. If, during the progress of the Work, the City desires to reinstate any alternate not included in the Contract, the City reserves the right to reinstate the alternate at the price bid by the Contractor if such action is taken in sufficient time so as not to delay the progress of the work or cause the Contractor additional expense.

14. UNIT PRICES

- a. Where unit prices are requested in the Bid Form, the Bidder should quote a unit price. Unless otherwise expressly provided in the Bid Documents, such unit prices shall include all labor, materials, and services necessary for the timely and proper installation of the item for which the unit prices are requested. The unit prices quoted in the bid shall be the basis for any Change Orders entered into under the City/Contractor Agreement, unless the Design Professional determines that the use of such unit prices will cause substantial inequity to either the Contractor or the City.
- b. The estimated quantities shown herein are approximate only and the City assumes no responsibility for the accuracy of the estimates. Bidders are cautioned to make their own investigations and determinations of the conditions under which the work will be performed and to base their bids accordingly.

15. ADDENDA

- a. The City reserves the right to issue Addenda changing, altering, or supplementing the Contract Documents before the time set for receiving bids. The City will issue the Addenda to clarify bidders' questions and/or to change, alter, or supplement the Contract Documents.
- b. Any explanation, interpretation, correction, or modification of the Contract Documents will be issued in writing in the form of an Addendum, which shall be the only means considered binding. Any explanations, interpretations, or other representations made by any other means shall not be legally binding. All Addenda shall become a part of the Contract Documents.
- c. Bidders shall submit written questions to the City in sufficient time in advance of the bid opening to allow sufficient time for the City to respond. All Addenda will be issued, and made available through the Bid Express System as provided in 15.d below.
- d. Copies of each Addendum will be sent via Bid Express only to the Bidders to whom Contract Documents have been issued. Receipt of Addenda shall be indicated by Bidders in the space provided on the Bid Form. Bidders are responsible for acquiring issued Addenda in time to incorporate them into their bid. Bidders should contact the City before the bid opening to verify the number of Addenda issued.
- e. Each Bidder shall carefully read and review the Contract Documents and immediately bring to the attention of the City any error, omission, inconsistency, or ambiguity therein.
- f. If a Bidder fails to indicate receipt of all Addenda through the last Addendum issued by the Design Professional on its Bid Form, the bid of such Bidder will be deemed to be responsive only if:
 - i. The bid received clearly indicates that the Bidder received the Addendum, such as where the Addendum added another item to be bid upon and the Bidder submitted a bid on that item; or
 - ii. The Addendum involves only a matter of form or is one that has either no effect or has merely a trivial or negligible effect on price, quantity, quality, or delivery of the item bid upon.

16. PREFERENCE FOR PUBLIC IMPROVEMENT CONTRACTS (As Selected)

- a. ☒ With respect to the award of this Contract, the City shall give preference to a contractor having its principal place of business in Ohio over a contractor having its principal place of business in a state that provides a preference in favor of contractors of that state for the same type of work. Where a preference is provided by another state for contractors of that state, a contractor having its principal place of business in Ohio is to be granted by the City the same preference over them in the same manner and on the same basis and to the same extent as the preference is granted in letting contracts for the same type of work by the other state. If one party to a joint venture is a contractor having its principal place of business in Ohio, the joint venture shall be considered as having its principal place of business in Ohio.
- b. ☐ With respect to the award of this Contract, the City shall not give preference to a contractor having its principal place of business in Ohio over other contractors.

17. METHOD OF AWARD

- a. In evaluating Bids, the City may conduct such investigations as are deemed necessary to establish the qualifications and financial ability of the Bidder and its subcontractors and suppliers. The Bidder authorizes the City and its representatives to contact the owners, design professionals, and others having knowledge (collectively "Contacts") on projects on which the Bidder has worked and authorizes and requests such Contacts to provide the City with a candid evaluation of the Bidder's performance. By submitting its Bid, the Bidder agrees that if it or any person, directly or indirectly, on its behalf or for its benefit brings an action against any of such Contacts or the employees of any of them as a result of or related to such candid evaluation, the Bidder will indemnify and hold such Contacts and the employees of any of them from any claims whether or not proven that are part of or are related to such action and from all legal fees and expenses incurred by any of them arising out of or related to such legal action. This obligation is expressly intended for the benefit of such Contacts and the employees of each of them.
- b. All Bids shall remain open for acceptance for 60 days following the day of the Bid opening, but the City may, in its sole discretion, release any Bid and return the Bid Guaranty before that date.
- c. The City reserves the right to reject any, part of any, or all Bids and to waive any informalities and irregularities. The Bidder expressly acknowledges this right of the City to reject any or all Bids or to reject any incomplete or irregular Bid. The City will award a single contract for each of the Bid packages listed above, unless it determines to reject one or more Bid packages. Bidders must furnish all information requested. Failure to do so may result in disqualification of the Bid.
- d. Determination of the Bidder Submitting the Lowest and Best Bid. Subject to the right of the City to reject any or all Bids, the City will award the Contract for the Work to the Bidder submitting the lowest and best Bid, taking into consideration accepted alternates.
 - i. Buy Ohio/American and Ohio Contractor Bid Preference. If selected above, the City shall apply a domestic Ohio bid preference as outlined below.
 - 1. Bids will first be evaluated to determine that a bidder's offering is for a domestic source end product as defined in 48 CFR Pt. 25.003 and

as required by Section 106.09 of the General Conditions. Information furnished by the Bidder in its Bid shall be relied upon in making this determination. Any Bidder's offering that does not offer a domestic source end product shall be rejected, except where the City determines that certain articles, materials and supplies are not mined, produced, or manufactured in the United States in sufficient and reasonably available commercial quantities and of a satisfactory quality.

- a. Following the determination as to domestic source end products, remaining bids and proposals shall be evaluated as set forth below, so as to give preference to Ohio bids or bidders who are located in a border state, provided that the border state imposes no greater restrictions than contained in this rule.

2. Buy Ohio Act compliance

- a. Where the preliminary analysis of bids identifies the apparent low bid as an Ohio bid or a bid from a border state, the City shall proceed with its standard contract award practices and procedures as set forth in the Instructions to Bidders.
 - b. Where the preliminary analysis identifies the apparent low bid as one other than an Ohio bid or bid from a border state, the City shall consider the following factors:
 - i. Whether the goods or services can be procured in-state in sufficient and reasonably available quantities and of a satisfactory quality;
 - ii. Whether an Ohio bid has been submitted;
 - iii. Whether the lowest Ohio bid, if any, offers a price to the City deemed to be an excessive price (defined as a price that exceeds by more than five per cent the lowest non-Ohio bid submitted);
 - iv. Whether the lowest Ohio bid, if any, offers a disproportionately inferior product or service.
 - c. Where the City determines that selection of the lowest Ohio bid, if any, will not result in an excessive price or disproportionately inferior product or service, the City shall include that Bidder in its lowest and best analysis.
 - d. Where the City otherwise determines it is advantageous to propose the award of a contract to other than an Ohio bidder or bidder from a border state, the City shall include that Bidder in its lowest and best analysis.
- ii. In addition to the forgoing, City may consider the following criteria in determining the lowest and best bidder; and, in its discretion, may consider and give such weight to these criteria as it deems appropriate:
 1. Past Contract Performance

- a. Whether Bidder has failed to perform a contract within the last five years from the date of Bid submission based on all information including fully settled disputes or litigation. A fully settled dispute or litigation is one that has been resolved in accordance with the dispute resolution mechanism under the respective contract, and where all appeal instances available to the Bidder have been exhausted.
- b. Whether Bidder has failed to sign a contract after submitting a bid security in the past five years.
- c. All pending litigation shall in total not represent more than ten percent (10%) of the Bidder's net worth and shall be treated as resolved against the Bidder.
- d. Bidder's history of making claims against others or having claims made against it; and, if the Bidder's management operates or has operated another construction company, the work history of that company in determining whether the Bidder submitted the lowest and best Bid.

2. Financial Ability

- a. The Bidder's financial ability to complete the Contract successfully and on time without resort to its Surety.
- b. The City may request Bidder provide for its review audited financial statements, to the extent available, and if not available, reviewed financial statements including balance sheets, income statements, and cash flow statements, or other financial statements acceptable to the City, for the last three years to demonstrate the current soundness of the Bidder's financial position and its prospective long term profitability.
 - i. The Bidder's average coefficient of Current ratio (Current Assets/Current Liabilities) compared to 1. The greater, the better.
 - ii. The Bidder's average coefficient of Debt ratio (Total Debt/Total Assets) compared to 1. The lesser, the better.

3. Experience

- a. Whether the Bidder has experience under contracts in the role required by this Contract for at least the last five years before the Bid submission deadline, and with activity in at least nine months each year.
- b. Whether the Bidder has participated as in the role required by this Contract in at least two contracts within the last five years, each with a value of at least 85% of the stated estimate for this Project, that have been successfully and substantially completed and that are similar to the proposed Works. Similarity shall be based on the physical size, complexity,

methods, technology or other characteristics as described in the Contract Documents.

- c. For the above or other contracts executed during the period stipulated in above, whether the Bidder has experience in the following key activities: Sediment removal, tree & brush removal, embankment construction, storm structure & storm pipe installation.
 - d. Whether the Bidder has a record of consistent customer satisfaction and of consistent completion of projects, including projects that are comparable to or larger and more complex than the Project, on time and in accordance with the applicable Contract Documents.
 - e. The Bidder's prior experience on other projects with the City of Dublin and with other public owners, including the Bidder's demonstrated ability to complete its work on these projects in accordance with the Contract Documents and on time, and will also consider its ability to work with the City as a willing, cooperative, and successful team member.
- 4. Whether the Bidder possesses or can obtain sufficient equipment and facilities to complete the Project.
- 5. The adequacy, in numbers and experience, of the Bidder's work force to complete the Contract successfully and on time.
- 6. The Bidder's compliance with federal, state, and local laws, rules, and regulations, including but not limited to the Occupational Safety and Health Act, Prevailing Wage laws, and Ethics laws.
- 7. The Bidder's participation in a drug-free workplace program acceptable to the City, and the Bidder's record for both resolved and unresolved findings of the Auditor of State for recovery as defined in Section 9.24 of the O.R.C..
- 8. The City's prior experience with the Bidder's surety.
- 9. The Bidder's interest in the Project as evidenced by its attendance at any pre-Bid meetings or conferences for Bidders.
- 10. Depending upon the type of the work, other essential factors, as the City may determine and as are included in the Specifications.
- 11. The foregoing information with respect to each of the Subcontractors and Suppliers that the Bidder intends to use on the Project.
- e. With its Bid, the Bidder will complete and submit to the City a completed Contractor's Qualification Statement (using the format included in Bid Express for the project), and thereafter will provide the City with such additional information as the City may request regarding the Bidder's qualifications.
- f. The failure to submit requested information on a timely basis may result in the determination that the Bidder is not the lowest and best Bidder.

- g. With its Bid, the Bidder shall submit a list of proposed subcontractors using the form included with the Contract Documents. Subcontract work shall not total more than % of the Contractor's Contract with the City.
- h. The City reserves the right to reject proposed Subcontractors before the Contract is awarded. The Bidder shall replace rejected subcontractors with subcontractors acceptable to the City with no change in the amount of the Bid submitted by the Bidder to City. After approval by the City of the list of proposed Subcontractors, Suppliers, and manufacturers submitted by the successful Bidder, the list shall not be changed unless written approval of the change is authorized by the City. The City reserves the right to reject Subcontractors after the Contract is awarded. In that instance, the City shall only be liable to the Contractor for the difference in Contract Price between the rejected subcontractor and the replacement subcontractor. The Contractor's markup on the replacement subcontractor shall be equal to or less than the markup on the rejected subcontractor contract.
- i. With its Bid, the Bidder shall submit a list of supervisory personnel with which it intends to staff the Project indicating their respective roles on the Project. The City reserves the right to reject proposed personnel both before and after the Contract is awarded with no additional cost to the City. Once the personnel list is approved by the City, it shall not be changed without the written consent of the City.
- j. No Bidder may withdraw its Bid within sixty (60) days after the date Bids are opened. The City reserves the right to waive any formalities or irregularities or to reject any or all Bids.
- k. The City reserves the right to disqualify Bids, before or after opening, upon evidence of collusion with intent to defraud or other illegal practices on the part of the Bidder.
- l. By submitting its Bid, the Bidder agrees that the City's determination of which Bidder is the lowest and best Bidder shall be final and conclusive, and that if the Bidder or any person on its behalf challenges such determination in any legal proceeding, the Bidder will indemnify and hold the City and its employees and agents harmless from any claims included or related to such legal proceeding, whether or not proven, and from legal fees and expenses incurred by the City, its employees, or agents that arise out of or are related to such challenge.
- m. Award of Contract. The award and execution of the Contract, when required, will only be made pursuant to the legal process applicable to the City for awarding contracts of this nature.

END OF INSTRUCTIONS TO BIDDERS

C. COMBINED BID/PERFORMANCE/PAYMENT BOND

CITY OF DUBLIN

2026 Stormwater Management Basin Maintenance Program Project

KNOW ALL PERSONS BY THESE PRESENTS, that we, the undersigned _____ (the "Principal") and

_____ (the "Surety"), are hereby held and firmly bound unto the CITY OF DUBLIN, Ohio as obligee in the penal sum of the dollar amount of the bid submitted by the Principal to the CITY OF DUBLIN on _____, 2026 to undertake the project known as the **2026 Stormwater Management Basin Maintenance Program Project**.

The penal sum referred to herein shall be the dollar amount of the Principal's bid to CITY OF DUBLIN, incorporating any additive or deductive alternate proposals made by the Principal on the date referred to above to the CITY OF DUBLIN, which are accepted by the CITY OF DUBLIN. The penal sum shall be equal to the full amount of the Principal's bid, including alternates.

For the payment of the penal sum well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors, and assigns.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH, that whereas the above-named Principal has submitted a bid for the **2026 Stormwater Management Basin Maintenance Program Project**.

NOW, THEREFORE, if the CITY OF DUBLIN accepts the bid of the Principal and the Principal fails to enter into a proper contract in accordance with the bid, plans, details, specifications, and bills of material; and in the event the Principal pays to the CITY OF DUBLIN the difference not to exceed ten percent of the penalty hereof between the amount specified in the bid and such larger amount for which the CITY OF DUBLIN may in good faith contract with the next lowest bidder to perform the work covered by the bid, or in the event the CITY OF DUBLIN does not award the contract to the next lowest bidder and resubmits the project for bidding, the Principal will pay the CITY OF DUBLIN the difference not to exceed ten percent of the penalty hereof between the amount specified in the bid, or the costs, in connection with the resubmission, of printing new contract documents, required advertising and printing and mailing notices to prospective bidders, whichever is less, then this obligation shall be null and void, otherwise to remain in full force and effect; if the CITY OF DUBLIN accepts the bid of the Principal and the Principal within ten days after the awarding of the contract, enters into a proper contract in accordance with the bid, plans, details specifications, and bills of material, which said contract is made a part of this bond the same as though set forth herein.

NOW ALSO, if the Principal shall well and faithfully do and perform the things agreed by Principal to be done and performed according to the terms of said contract; and shall pay all lawful claims of subcontractors, material men, and laborers, for labor performed and materials furnished in the carrying forward, performing, or completing of said contract; we agreeing and assenting that this undertaking shall be for the benefit of any material man or laborer having a just claim, as well as for the CITY OF DUBLIN herein; then this obligation shall be void; otherwise the same shall remain in full force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall in no event exceed the penal amount of this obligation as herein stated.

The Surety hereby stipulates and agrees that no modifications, omissions, or additions, in or to the terms of said contract or in or to the plans or specifications therefore shall in any wise affect the obligations of the Surety on the Surety's bond, and the Surety does hereby waive notice of any such modifications, omissions or additions to the terms of the contract or to the plans or specifications.

Signed this _____ day of _____, 2026.

PRINCIPAL:

By: _____ (Signature)

Print Name: _____

Title: _____

Address:

Telephone: () _____

SURETY:

By: _____ (Signature)

Print Name: _____

Title: _____

Address:

Telephone: () _____

SURETY AGENT:

By: _____

(Signature)

Print Name: _____

Title: _____

Address:

Telephone: () _____

D. ALTERNATE BID SECURITY FORM

Bidder Name:

Project Name: **2026 Stormwater Management Basin Maintenance Program Project**

The undersigned Bidder hereby submits with its bid the following bid security equaling 10% of the total amount of the bid as required by Ohio Revised Code Section 153.54:

[] A Certified

Check [] A

Cashier's Check

[] A Letter of Credit pursuant to Chapter 1305 of the Ohio Revised Code

A bid guaranty filed under this form shall be conditioned to provide that if the bid is accepted, the bidder, after the awarding or the recommendation for the award of the contract, whichever the CITY OF DUBLIN designates, will enter into a proper contract in accordance with the bid, plans, details, specifications, and bills of material. All bid guaranties filed hereunder shall be payable to the CITY OF DUBLIN, be for the benefit of the CITY OF DUBLIN, and be deposited with, and held by, the CITY OF DUBLIN.

Bidder Signature: _____

Print Name: _____

E. CITY OF DUBLIN/CONTRACTOR AGREEMENT

STANDARD AGREEMENT CITY OF DUBLIN, OHIO

I. INTRODUCTION

This Agreement is entered into on _____, by and between the CITY OF DUBLIN, OHIO ("Owner"), located at 5555 Perimeter Drive, Dublin, Ohio 43017, and ("Contractor"), _____ for the CITY OF DUBLIN **2026 Stormwater Management Basin Maintenance Program Project** ("Project").

THIS DOCUMENT HAS IMPORTANT LEGAL CONSEQUENCES. CONSULTATION WITH AN ATTORNEY IS ENCOURAGED WITH RESPECT TO ITS EXECUTION, COMPLETION AND MODIFICATION.

The Owner, a political subdivision of the State of Ohio, and the Contractor have entered into this Owner-Contractor Agreement ("Agreement") as of the date set forth above. The Owner and the Contractor agree as follows:

1 WORK.

1.1 The Contractor shall furnish all the labor, services, materials, plant, equipment, tools, scaffolds, appliances, transportation, and all other things (collectively called the "Work") necessary for the timely and proper completion of the Work described in the Contract Documents for the Project. The Contractor shall provide the Performance and Payment Bonds on the forms and in the manner described in the Contract Documents.

1.2 CLEANUP. Contractor shall cleanup, repair, restore and otherwise return any site or location provided by Owner to the condition in which it was delivered to Contractor. Contractor shall repair, at its sole expense, any property it damages, whether part of the work or not, to a condition acceptable to Owner.

1.3 COMPLETION. The Project shall be finally completed by: **May 1, 2027**. The Contractor shall at all times furnish sufficient skilled workers, materials, and equipment to perform the Work in strict conformance with the Contract Documents and to the entire satisfaction of the Owner, so as to complete the Project by the Date for Final Completion. All materials and equipment provided shall be new, free from all defects, fit for the purpose for which intended, and merchantable.

1.4 SUPERVISION. The Contractor shall assign a competent Project Supervisor who shall be present on site. At the Owner's request and without additional charge to Owner, the Contractor shall replace the Project Supervisor. The Owner's Representative shall not be responsible for the acts or omissions of the Project Supervisor or his assistants. At a minimum, the Project Supervisor shall be present on site whenever any Contractor or Subcontractor personnel are present on site.

1.5 TAXES AND FEES. Contractor is subject to and responsible for paying fees to obtain all applicable licenses, permits, and other permissions necessary to perform its obligations under this Contract. Contractor is responsible for paying federal, state, and local taxes. Contractor agrees to withhold all income taxes due or payable under the provisions of Income Tax Ordinances of the Owner, for qualifying wages, salaries, and commissions paid

to its employees and further agrees that any of its sub-contractors shall be required to agree to withhold any such income taxes due for services performed under this Contract.

2 CONTRACT DOCUMENTS.

2.1 The Contract Documents consist exclusively of:

- This Agreement Addenda
- Invitation to Bid
- Instructions to Bidders
- Prevailing Wage Rates (if Applicable)
- Proposal
- Bid Schedule
- Performance and Payment Bonds
- Delinquent Personal Property Tax & Noncollusion Affidavit
- Affidavit of Authority (If applicable)
- List of Subcontractors
- Contractor Qualification Statement
- The current version of the CITY OF DUBLIN General Conditions Division 100
- Supplemental or Special General Conditions
- The current version of the CMS, Specification sections 200 through 1000
- Specifications
- Supplemental Specifications
- Notice of Award to Bidder
- Notice to Proceed
- Final Affidavit of Compliance with Prevailing Wages
- Plans and Drawings

3 OWNER'S REPRESENTATIVE.

3.1 The City Engineer and/or his designee is the Owner's Representative with respect to all matters involving the Owner.

3.2 Except as specifically stated to the contrary elsewhere in this Agreement, the Contractor shall direct all communications to the Owner through the Owner's Representative, although the City Manager and Fiscal Officer of the Owner are also authorized to send written communications to the Contractor.

3.3 The Owner's Representative will monitor the progress of the Contractor's Work and will conduct regular inspections of the progress of the Work as provided in the Contract Documents. Such inspections shall not relieve the Contractor of any of its obligations under the Contract Documents.

3.4 The Contractor shall at all times provide the Owner's Representative access to the Work.

4 TIME FOR COMPLETION AND PROJECT COORDINATION.

4.1 Project Time Schedule. The Owner anticipates that Work on the Project will begin upon its issuance of a Notice to Proceed and be completed by **May 1, 2027**, unless the Owner and Contractor agree to different commencement and completion dates.

4.2 Contractor is responsible for scheduling its subcontractors and for any delay resulting from their performance.

4.3 TIME IS OF THE ESSENCE. THE DATES IN THE PROJECT TIME SCHEDULE ARE

OF THE ESSENCE OF THIS AGREEMENT. THE CONTRACTOR SHALL PROSECUTE ITS WORK IN ACCORDANCE WITH THE PROJECT TIME SCHEDULE, INCLUDING ANY AMENDMENTS THERETO.

5 DELAYS AND ACCELERATIONS.

5.1 NOTICE OF DELAYS. The Contractor shall give the Owner written notice of any delay affecting its Work within 24 hours of the commencement of the delay as required in 104.03.B of the General Conditions. The failure to give the required notice or include the required "NOTICE OF DELAY" language shall constitute an irrevocable waiver of the Contractor's right to seek an extension of time and/or additional compensation/damages for the delay. The Owner, in its sole and reasonable discretion, shall determine whether a delay shall entitle the Contractor to an extension of time, additional payment, or both.

5.2 ACCELERATION OF THE WORK. If the Contractor fails to perform as required by the Contract schedule, the Owner may require the Contractor to accelerate its Work by adding workers or working additional shifts, extended shifts or overtime, so that the Work is in final form before the Date for Final Completion. If the Owner requires the Contractor to accelerate its Work, the Contractor shall take the required action within two days of the Notice. If the acceleration is not due to fault of the Contractor, Owner shall issue a Change Order increasing the Contract Sum to pay the Contractor for the Contractor's additional costs of accelerating its Work so that the Work is in final form before the Date for Final Completion. If there is a dispute as to whether the Contractor is entitled to a Change Order for accelerating its Work, the Contractor shall proceed to accelerate its Work without waiting for a Change Order or payment of any additional compensation, but may reserve its right to make a claim against the Owner for its additional costs incurred in accelerating its Work. The Contractor's additional costs for accelerating its Work shall be determined in accordance with Paragraph 5.2.2.

5.2.1 OWNER'S OBLIGATION TO PAY. The Owner shall pay the Contractor, as provided in this Paragraph, for the Contractor accelerating its Work so that its Work is in final form before the Date for Final Completion so long as the acceleration is not required as a result of the Contractor's failure to stay on schedule. The Owner shall not be required to compensate the Contractor for accelerating its Work based on the Contractor's own decision so that the Work is in final form by the Date for Final Completion.

5.2.2 COMPENSATION FOR ACCELERATION OF THE WORK. To the extent that the Owner requires the Contractor to accelerate its Work and is obligated to pay under Section 5.2.1, the Owner shall pay the Contractor for the Contractor's additional costs of accelerating its Work, as determined in accordance with this Paragraph. The additional costs of accelerating the Work shall be (a) any premium for overtime, additional shift work, or extended shift work, (b) the cost of any additional supervision required by the acceleration, (c) out of pocket cost of any additional equipment required for the acceleration, and (d) overhead, including home office overhead, and profit equal to ten percent (10%) of the total amount of items (a) and (b) for which additional compensation is permitted under this Paragraph. The foregoing shall be the only additional compensation and/or damages the Contractor shall be entitled to receive for accelerating its Work so that it is complete before the Date for Final Completion. As a condition precedent to its recovery of additional compensation, the Contractor shall

provide the Owner with full information about the costs of accelerating its Work in the form and format requested by the Owner.

6 CORRECTIVE ACTION.

6.1 If the Owner determines that the Contractor is not cooperating or coordinating its work properly with its subcontractors, not supplying sufficient skilled workers, not cleaning up the Project, not furnishing the necessary materials, equipment, or any temporary services or facilities to perform the Work in strict conformance with the Contract Documents, or the Contractor is not on schedule, or is not otherwise performing its obligations under the Contract Documents, THE CONTRACTOR SHALL IMMEDIATELY, AND IN NOT LESS THAN FORTY-EIGHT (48) HOURS AFTER NOTICE OF SUCH DETERMINATION, OR SUCH LESSER TIME AS MAY BE PROVIDED IN THE CONTRACT DOCUMENTS, (1) COMMENCE SUCH ACTION AS IS NECESSARY TO CORRECT THE DEFICIENCIES NOTED BY THE OWNER, (2) PROCEED TO USE ITS BEST EFFORTS TO CORRECT SUCH DEFICIENCIES WITHIN THIRTY (30) DAYS OF SUCH NOTICE OR BY THE DEADLINE FOR COMPLETION OF THE PROJECT SET FORTH IN THIS AGREEMENT WHICHEVER IS SOONER AND/OR, (3) IF THE OWNER INSTRUCTS THE CONTRACTOR TO TAKE SPECIFIED CORRECTIVE ACTION, SHALL IMMEDIATELY TAKE SUCH

CORRECTIVE ACTION, including but not limited to increasing the number of skilled workers, providing temporary services or facilities, and cleaning up the Project. Such corrective action shall be taken and continued uninterruptedly without waiting to initiate any dispute under Paragraph 11 of this Agreement or the resolution of any dispute initiated under such paragraph.

7 CONTRACT SUM. The lump sum Contract Sum to be paid by the Owner to the Contractor, as provided herein, for the satisfactory performance and completion of the Project and all of the duties, obligations and responsibilities of the Contractor under this Agreement and the other Contract Documents will be \$. The Contract Sum includes all federal, state, county, municipal, and other taxes imposed by law, including but not limited to any sales, use, and personal property taxes payable by or levied against the Contractor because of the Work or the materials incorporated into the Work. The Contractor shall pay any such taxes.

8 LIQUIDATED DAMAGES.

8.1 The Contractor shall have its Work completed by the Completion Date stated in Paragraph 1.3; the timeline may be varied following award of the contract based upon the Contractor's ability to perform the work on a different timeline acceptable to the Owner. By entering into this Agreement, the Contractor agrees that the period for performing the Work is reasonable and that the Contractor's Work can be substantially complete by the date stated in this Agreement.

8.2 If the Contractor does not have its Work on the Project complete by the Completion Date or as otherwise agreed by the parties, the Contractor will pay the Owner (and the Owner may set off from sums coming due the Contractor) liquidated damages as set forth in 108.07 of the General Conditions.

8.3 The Contractor acknowledges by signing this Agreement with the Owner that the amount of liquidated damages represents a reasonable estimate of the actual damages the Owner

would incur if the work is not substantially complete by the foregoing date and that the damages that may result from the failure to substantially complete the work by the foregoing date are uncertain and difficult to ascertain. These liquidated damages are damages for loss

of use of the Project, and the Contractor in addition to the liquidated damages will be obligated to indemnify and hold the Owner harmless from any claims, and if the Work on the Project is accelerated because of delay, for all costs related to the acceleration of the Work, as provided in the Contract Documents. In addition to such Liquidated Damages, the Contractor shall indemnify, defend and hold the Owner and its employees and agents harmless from any and all claims, whether or not such claims are proven, and from all costs and expenses incurred, as a result of or related to such claims, including but not limited to attorneys' and consultants' fees and expenses, provided that such claims arise out of or are related to the Contractor's failure to Substantially Complete its Work by its Date for Substantial Completion. These Liquidated Damages are in addition to any other remedies available to the Owner under the Contract Documents.

9 LIMITATION AND LIABILITY.

9.1 The Owner's total liability under this Agreement shall be limited to the amount set forth in the Finance Director's certificate accompanying this Agreement. Under no circumstances shall the elected officials, officers, employees, council members, or agents of the Owner be personally liable for any obligations or claims arising out of or related to this Agreement.

10 PAYMENT

10.1 APPLICATIONS FOR PAYMENT. Payment applications shall be submitted on a monthly basis and shall reflect the amount of work completed as of the date the application for payment is submitted. On or before Completion, the Contractor shall submit to the Owner, an itemized payment application for such period in the following format and with one copy of the following documentation: 1) Invoice for work performed and materials and equipment provided for the previous pay period; 2) Current list of the Contractor's Subcontractors and suppliers showing their respective contract sums, amount paid, and amount due; 3) Contractor's Affidavit of Release of Liens with and lien releases in the format provided by the Owner for all the Contractor's Subcontractors and suppliers current through the date of the Contractor's previous Application for Payment; 4) Such other supplemental information as the Owner may require. Such other information may include a schedule of all materials and equipment stored on site.

10.2 The Owner may withhold payment in whole or in part, and may demand that the Contractor refund amounts previously paid, to protect the Owner from loss because of: 1) The Contractor's default or failure to perform any of its obligations under the Contract Documents, including but not limited to: failure to provide sufficient skilled workers; Work, including equipment or materials, which is defective or otherwise does not conform to the Contract Documents; failure to conform to the Project Time Schedule; and failure to follow the directions of or instructions from the Owner; 2) The Contractor's default or failure to perform any of its obligations under another contract that it has with the Owner; 3) The filing of third party claims, or reasonable evidence that third party claims have been or will be filed; 4) The Work has not proceeded to the extent set forth in the application for payment; 5) Any representations made by the Contractor are untrue; 6) The failure of the Contractor to make payments to its Subcontractors; 7) Damage to the Owner's property or the property of another person or laborer; 8) The determination that there is a substantial possibility that the Work cannot be completed for the unpaid balance of the Contract Sum; and/or 9) Liens filed or reasonable evidence indicating the probable filing of such liens.

10.3 The Owner will pay the Contractor within 30 days after receipt of the

Contractor's payment application, provided that the payment application has been properly submitted on a timely basis and is accompanied by all of the required documentation. The Owner may establish a cut-off date for the submission of the payment application.

11 RETAINAGE.

11.1 AMOUNT OF PAYMENTS. Subject to Paragraph 8.1, the amount of the payments to the Contractor shall be determined in accordance with the following paragraphs:

11.2 PAYMENTS. Payments under the contract shall be made at the rate of 95% of the amount set forth in the Contractor's payment application and approved by the Owner until the Work is 50% complete. When more than fifty percent (50%) of the Work has been completed, the amount retained may be reduced at the City's sole discretion. The Engineer may also, at any time, increase retainage by any amount needed to protect the City's interests with respect to any incomplete, defective or unsatisfactory Work; costs or damages incurred by the City that are subject to the Contractor's indemnification obligations; or back charges that the City may assess against the Contractor.

11.3 DOCUMENTATION. Upon request, the Contractor immediately shall supply the Owner with such information as may be requested so as to verify the amounts due to the Contractor, including but not limited to original invoices for materials and equipment and documents showing that the Contractor has paid for such materials and equipment, and so as to verify that amounts due laborers, subcontractors, and materialmen have been paid to them.

11.4 FINAL PAYMENT.

11.4.1 The final application for payment shall be itemized, and the Contractor shall ensure that the final application for payment shall contain one (1) copy of each of the following documents, if not previously delivered to the Owner: 1) All items from Paragraph 10.1; 2) Consent of the Contractor's Surety to Payment; 3) An assignment to the Owner of all warranties obtained or obtainable by the Contractor from manufacturers and suppliers of equipment and materials incorporated into the Work by written instrument of assignment in a form acceptable to the Owner; and 4) Such other documentation as required by the Contract Documents, the Owner, or applicable law.

11.4.2 The making of Final Payment by the Owner shall not constitute a waiver of Claims by the Owner for the following: 1) Liens, Claims, security interests, or encumbrances arising out of the Contract Documents that are unsettled; 2) Failure of the Work to comply with the requirements of the Contract Documents; 3) Terms of special warranties required by the Contract Documents; 4) Claims for Indemnification; 5) Claims about which the Owner has given the Contractor written notice; or 6) Claims arising after Final Payment.

11.5 ESCROW ACCOUNT. The Owner and the Contractor agree that no escrow account shall be required in connection with this Agreement and that retained funds will not earn interest.

12 CHANGE ORDERS.

12.1 A Change Order is a written instrument signed by the Owner and the Contractor stating their agreement upon a change in the Work, the amount of the adjustment or the method for computing the amount of the adjustment of the Contract Sum, if any, and the

extent of the adjustment in the Project Time Schedule, if any.

13 GENERAL.

13.1 MODIFICATION. No modification or waiver of any of the terms of this Agreement or of any other Contract Documents shall be effective against a party unless set forth in writing and signed by or on behalf of a party, which in the case of the Owner shall require the signature of the Owner's Representative acting under the authority of a specific resolution of the Owner. Under no circumstances shall forbearance, including the failure or repeated failure to insist upon compliance with the terms of the Contract Documents, constitute the waiver or modification of any such terms. The parties acknowledge that no person has authority to modify this Agreement or the other Contract Documents or to waive any of its or their terms, except as expressly provided in this Paragraph.

13.2 ASSIGNMENT. The Contractor may not assign this Agreement without the written consent of the Owner, which the Owner may withhold in its sole discretion.

13.3 THIRD PARTIES. Nothing contained in this Agreement shall create a contractual relationship with or a cause of action in favor of a third party against either the Owner or the Contractor.

13.4 LAW AND JURISDICTION. All questions regarding the validity, intention, or meaning of this Agreement or any modifications of it relating to the rights and obligations of the parties shall be construed and resolved under the laws of the State of Ohio. Any suit, which may be brought to enforce any provision of this Agreement or any remedy with respect hereto, shall be brought in the Common Pleas Court of Franklin County, Ohio, and each party hereby expressly consents to the jurisdiction of such court.

13.5 STATUTE OF LIMITATIONS. Regardless of any provision to the contrary, the statute of limitations with respect to any defective or non-conforming Work that is not discovered by the Owner shall not commence until the discovery of such defective or non-conforming Work by the Owner.

13.6 NOTICES. Notices, requests, or demands by either party shall be in writing, unless otherwise expressly authorized, and shall be personally served, forwarded by expedited messenger service, sent by facsimile transmission, or be given by registered or certified mail, return receipt requested, postage prepaid, and, in the case of the Owner, addressed to the address/FAX number set forth at the beginning of this Agreement marked "Urgent, deliver to Owner's Representative/Designee," and, in the case of the Contractor, addressed to its address/FAX number set forth at the beginning of this Agreement. Any party may change its address/FAX number by giving notice hereunder. All notices, requests, and demands shall be deemed received upon receipt in the case of personal delivery or delivery by expedited messenger service, including leaving the notice at the address provided herein during normal business hours; upon the expiration of forty-eight (48) hours from the time of deposit in the United States mail; or, in the case of a notice given by facsimile transmission, upon the expiration of twenty-four (24) hours after the transmission is sent.

13.7 CONSTRUCTION. The parties acknowledge that each party has reviewed this Agreement and the other Contract Documents and has voluntarily entered into this Agreement. Accordingly, the normal rule of construction to the effect that any ambiguities are to be resolved against the drafting party shall not be employed in the interpretation of this Agreement, the other Contract Documents, or any amendments or exhibits to it or them.

13.8 APPROVALS. Except as expressly provided herein, the approvals and

determinations of the Owner shall be subject to the sole discretion of the Owner and will be valid and binding on the Contractor, provided only that they be made in good faith, i.e., honestly. If the Contractor challenges

any such approval or determination, the Contractor shall have the burden of proving by clear and convincing evidence that it was not made in good faith.

13.9 PARTIAL INVALIDITY. If any term or provision of this Agreement is found to be illegal, unenforceable, or in violation of any laws, statutes, ordinances, or regulations of any public authority having jurisdiction, then, notwithstanding such term or provision, this Agreement shall remain in full force and effect, and such term shall be deemed stricken; provided this Agreement shall be interpreted, when possible, so as to reflect the intentions of the parties as indicated by any such stricken term or provision.

13.10 COMPLIANCE WITH LAWS AND REGULATIONS. The Contractor, at its expense, shall comply with all applicable federal, state, and local laws, rules, and regulations applicable to the Work. Including, but not limited to Ohio's Prevailing Wage law if applicable.

13.11 PROJECT SAFETY. The Contractor shall follow all applicable safety and health regulations during the progress of the Project and shall monitor all of its employees and its subcontractors for compliance with such safety and health regulations. In undertaking the responsibilities set forth in this Paragraph, the Contractor does not assume any duty or responsibility to the employees of any Subcontractor or supplier, regardless of tier. The Owner assumes no responsibility for the development, review, or implementation of any project safety plan or for Project safety and has no authority to direct the means and methods of the Contractor.

13.12 EQUAL OPPORTUNITY. Contractor agrees that, in the hiring of employees for the performance of work under the Contract or any subcontract, no contractor, subcontractor, or any person acting on a contractor's or subcontractor's behalf, by reason of race, creed, sex, disability or military status as defined in section 4112.01 of the Revised Code, or color, shall discriminate against any citizen of the state in the employment of labor or workers who is qualified and available to perform the work to which the employment relates. Contractor further agrees that neither it, its subcontractors, or any person on the Contractor's or subcontractor's behalf, in any manner, shall discriminate against or intimidate any employee hired for the performance of work under the contract on account of race, creed, sex, disability or military status as defined in section 4112.01 of the Revised Code, or color. That there shall be deducted from the amount payable to the Contractor by the Owner under this Agreement a forfeiture of twenty-five dollars (\$25.00) as required by O.R.C. Section 153.60 for each person who is discriminated against or intimidated in violation of this Agreement. That this Agreement may be canceled or terminated by the Owner and all money to become due hereunder may be forfeited for a second or subsequent violation of the terms of this section of this Agreement.

13.13 USE OF OWNER'S FACILITIES. The Contractor shall ensure that neither its employees, nor its Subcontractor's or material supplier's employees, regardless of tier, do any of the following without the express prior written consent of the Owner: use the Owner's cafeteria, rest rooms, or phones; use or bring any alcoholic beverages, controlled substances, or firearms on any property owned by the Owner. The Owner will not tolerate any such actions and any such action observed or made known to the Owner shall be dealt with severely.

13.14 ETHICS. By signing and entering into this agreement with the Owner, the

Contractor represents that it is familiar with all applicable ethics law requirements, including without limitation Sections 102.04 and 3517.13 of the O.R.C., and certifies that it is in compliance with such requirements. The Contractor understands that failure to comply with the ethics laws is, in itself, grounds for termination of this contract and may result in the loss of other contracts with the Owner.

13.15 PROPERTY TAX AFFIDAVIT. The Contractor's affidavit given under ORC Section 5719.024 is incorporated herein.

13.16 ENTIRE AGREEMENT. This Agreement and the other Contract Documents constitute the entire agreement among the parties with respect to their subject matter and will supersede all prior and contemporaneous, oral or written, agreements, negotiations, communications, representations, and understandings with respect to such subject matter, and no person is justified in relying on such agreements, negotiations, communications, representations, or understandings.

CITY OF DUBLIN, OHIO

By: _____

Its: _____

Date: _____

By: _____

Its: _____

Date: _____

APPROVED AS TO FORM:

Date: _____

CITY OF DUBLIN, CITY ATTORNEY

CERTIFICATE OF AVAILABILITY OF FUNDS

I Matthew Rubino, hereby certify that I am the fiscal officer for the CITY OF DUBLIN, OHIO and that the amount of money to wit \$ _____ required to meet the cost of the attached Contract between the City and _____ has been or will be, before the ordering of any materials, lawfully appropriated for the purpose of said Contract and the money so appropriated is on deposit or in process of collection to the credit of the appropriate fund free from any previous encumbrances. Moneys due in excess of the Contract Sum and any Contingency amount assigned thereto shall require an additional and separate Fiscal Officer's Statement of Availability which shall not be given unless the Contract adjustment is directly attributable to one of the express methods for increasing the Contract Sum under the Contract Documents; and, such process is completed in the manner required by the Contract Documents.

Date

Matthew Rubino, CFO/Finance Director

F. OWNER EXECUTION CHECKLIST

The following list highlights and serves as a reminder of actions required to execute the Contract with the selected bidder.

Notice of Award

- ☐ Complete the form once bidder selected
- ☐ Mail form to bidder
- ☐ Collect acceptance from bidder

Notice of Award to Surety and Surety's Agent

- ☐ Complete the form once bidder selected
- ☐ Send the bond to legal counsel for double-check of validity
- ☐ Send notice form to Surety and Agent at the addresses listed on the Bond form

Bid Tabulation Sheet

- ☐ If Prevailing Wage applies, ensure that the Bid Tabulation Sheet is completed and in your Project file

Prevailing Wage

- ☐ Check the date of the Determination Letter included with the Contract Documents. If it has expired, issue new prevailing wage rates to the Contractor.

Owner/Contractor Agreement

- ☐ Have the Contractor sign the Agreement
- ☐ Have the Law Director review and sign the Agreement
- ☐ Have the Fiscal officer sign the Agreement
- ☐ Have the CITY OF DUBLIN representative sign the Agreement

Notice of Commencement

- ☐ Complete the Notice of Commencement form and put it in the Project file
- ☐ Must produce it if requested but no filing requirement

Notice to Proceed

- ☐ Issue the Notice to Proceed

Bidder's and Subcontractors' Certificate(s) of Licensure

- ☐ If applicable, Collect from Bidder if not submitted with Bid

G. NOTICE OF AWARD TO BIDDER

Date: _____

PROJECT: 2026 Stormwater Management Basin Maintenance Program Project

The CITY OF DUBLIN (Owner) has considered the Bid submitted by you for the above-described work in response to the Legal Notice dated (When Council approves)

You are hereby notified that your Bid has been accepted for items in the amount of \$_____.

You are required by the Instructions to Bidders to execute the Contract and furnish the required documents within ten (10) calendar days from the date of this notice to you.

If you fail to execute said Contract within ten (10) days from the date of this notice, Owner may—at its discretion—exercise its rights with respect to your Bid guaranty and be entitled to such other rights as may be granted by Law.

You are required to return an acknowledged copy of this Notice of Award to the Owner. Dated this _____ day of _____, 2026.

Sincerely,

Paul A. Hammersmith P.E.
Director of Engineering / City Engineer

ACCEPTANCE OF NOTICE

Receipt of the above Notice of Award is hereby acknowledged.

Bidder_____

This _____ day of _____, 2026

By: _____

Title: _____

A. NOTICE OF AWARD TO SURETY AND SURETY'S AGENT

(Surety)_____

(Address)_____

(City/State/Zip)_____

(Surety's Agent)_____

(Address)_____

City/State/Zip)_____

Date: _____

SENT BY REGULAR U.S. MAIL

RE: NOTICE OF AWARD OF CONTRACT

To Whom It May Concern:

You are notified that your principal,_____, has been awarded a contract for the **2026 Stormwater Management Basin Maintenance Program Project**, in the amount of \$_____ by the CITY OF DUBLIN, OHIO.

Sincerely,

Paul A. Hammersmith P.E.
Director of Engineering / City Engineer

B. NOTICE TO PROCEED

To:

Date: _____

Project: **2026 Stormwater Management Basin Maintenance Program**

Owner: CITY OF DUBLIN, OHIO
5555 Perimeter Drive, Dublin, Ohio 43017

You are hereby notified to commence Work in accordance with the City/Contractor Agreement dated

, and you are to complete the Work in the time required by the Contract Documents. Within ten (10) days from this Notice to Proceed date, you will begin physical, on-site improvements. You are required to return an acknowledged copy of this Notice to Proceed, to the Owner, indicating Acceptance of this Notice to Proceed.

Paul A. Hammersmith P.E.
Director of Engineering / City Engineer

ACCEPTANCE OF NOTICE TO PROCEED

Receipt of the above NOTICE TO PROCEED is hereby acknowledged by _____, this the day of _____, 2026.

By: _____

Print Name: _____

Title: _____

C. NOTICE OF COMMENCEMENT OF PUBLIC IMPROVEMENT (O.R.C. §1311.252)

NOTICE IS HEREBY GIVEN OF THE COMMENCEMENT OF A PUBLIC IMPROVEMENT AS FOLLOWS:

1. The public improvement is identified as the CITY OF DUBLIN, **2026 Stormwater Management Basin Maintenance Program** located at Dublin, OH.
2. The public authority and Owner responsible for the public improvement is the CITY OF DUBLIN, OHIO, 5555 Perimeter Drive, Dublin, Ohio 43017.
3. The principal contractor(s) for the public improvement are as follows:

 , .
4. The date the CITY OF DUBLIN first executed a contract with a principal contractor for this public improvement is .
5. The name and address of the representative for the CITY OF DUBLIN upon whom service may be made for the purposes of serving an affidavit pursuant to Section 1311.26 of the Ohio Revised Code is Paul A. Hammersmith P.E., Director of Engineering / City Engineer for the CITY OF DUBLIN, OHIO, 6555 Shier-Rings Road, Dublin, Ohio 43016.

Paul A. Hammersmith P.E.
Director of Engineering / City Engineer

Date

The foregoing instrument was acknowledged before me this __, day of _____, 20__ by Paul A. Hammersmith P.E., Director of Engineering / City Engineer for the CITY OF DUBLIN, OHIO.

Signature and Seal of person taking acknowledgement:

D. PREVAILING WAGE BID TABULATION SHEET

Please print and complete this form. Keep it with your records until the contract has been awarded. Once the contract has been officially awarded, check mark which company was awarded the contract for the project and send or fax a copy to the Wage and Hour Division at 614-728-8639.

Contracting Public Authority: the CITY OF DUBLIN, OHIO		
Project Name: 2026 Stormwater Management Basin Maintenance Program		
Project No.: 25-024-CIP	Bid Date: September 9, 2026	Estimate: \$465,960

Contract Description: ☒ General ☐ HVAC ☐ Electrical ☐ Plumbing ☐ Asbestos ☐ Other_

Awarded to (check)	List of Bidding Contractors	Total Bid Amount

Submitted By

Submit Questions to: Zachary Wilson Telephone Number: 614-410-4755	Submit Questions to: Zachary Wilson E-Mail: ZWilson@dublin.oh.us
Title: Director of Engineering / City Engineer Print Name: Paul A. Hammersmith P.E. Date: _____	Signature: _____ Paul A. Hammersmith P.E.

II. ADDITIONAL PROJECT FORMS

A. PAYROLL INFORMATION

PROJECT: **2026 Stormwater Management Basin Maintenance Program**

I, _____ (Name),
_____, (Title) of _____
(Company Name), state the following:

1. That I pay or supervise the payment of the persons employed by _____ (Company Name) on the above-referenced project.

2. That during the payroll period commencing on the _____ day of _____, 2026, and ending on the _____ day of _____, 2026, all persons employed on said project have been paid the full weekly wages earned; that no rebates have been or will be made either directly or indirectly to or on behalf of said

(Contractor/Subcontractor) from the full weekly wages earned by such persons; and that no deductions have been made either directly or indirectly from the full wages earned by such persons, other than permissible deductions as defined in Regulations, Part 3 (29 CFR Subtitle A), issued by the Secretary of Labor under the Copeland Act, as amended (48 Stat. 948, 63 Stat. 108, 72 Stat. 967; 76 Stat. 357; 40 U.S.C. 276c), and described below:

3. That any payrolls otherwise under this Agreement for Construction (the "Agreement") required to be submitted for the above period are correct and complete; that the wage rates for laborers or mechanics contained therein are not less than the applicable wage rates contained in the specifications as supplied by the Department of Industrial Relations or any wage determination incorporated into the Agreement; and that the classifications set forth therein for each laborer or mechanic conform with the work he performed.

4. That any apprentices employed in the above period are duly registered in a bona fide apprenticeship program registered with the Ohio Apprenticeship Council.

5. That (check applicable box):

- ☐ a. WHERE FRINGE BENEFITS ARE PAID TO APPROVED PLANS, FUNDS, OR PROGRAMS:

In addition to the basic hourly wage rates paid to each laborer or mechanic listed in the above-referenced payroll, payments of fringe benefits listed in the Agreement have been or will be made to appropriate programs for the benefit of such employees, except as noted in Section 4 below.

☐ b. WHERE FRINGE BENEFITS ARE PAID IN CASH:

Each laborer or mechanic listed in the above-referenced payroll has been paid as indicated on the payroll, and amount not less than the sum of the applicable basic hourly wage rate plus the amount of the required fringe benefits as listed in the Agreement, except as noted in Section 4 below.

c. Exceptions:

Exception (Craft):

Explanation:

Remarks:

(Signature)

(Print Name and Title)

The willful falsification of any of the above statements may subject the Contractor or Subcontractor to fines as described in Section 4115.99 of the O.R.C.

B. FINAL AFFIDAVIT OF COMPLIANCE WITH PREVAILING WAGES

PROJECT: **2026 Stormwater Management Basin Maintenance Program**

STATE OF _____

COUNTY OF _____,

SS:

I, _____, (Name of person signing the affidavit)

_____ (Title) do hereby certify that the wages paid to all employees of

_____ (Company Name) for all hours worked on project the CITY OF DUBLIN **2026 Stormwater Management Basin Maintenance Program** located in Dublin, OH during the period from

_____ to _____ are in compliance with the Prevailing Wage requirements of Chapter 4115 of the Ohio Revised Code. I further certify that no rebates or deductions have been or will be made, directly or indirectly, from any wages paid in connection with this project, other than those provided by law.

(Signature of Affiant)

(Print Name)

Sworn to and subscribed in my presence this _____ day of _____, 2026.

Notary Public

The above affidavit must be executed and sworn to by the officer or agent or the Contractor/Subcontractor who supervised the payment of employees, before the CITY OF DUBLIN, OHIO will release the surety and/or make final payment due under the terms of the Agreement.

C. CONTRACTOR'S LIEN WAIVER AND RELEASE AGREEMENT

Project: **2026 Stormwater Management Basin Maintenance Program**

The undersigned hereby acknowledges receipt of payment from the City for all Work on the Project through the date of its prior Application for Payment. The undersigned acknowledges and agrees that the terms in this Agreement shall have the same meaning as in the Contract Documents for the Project.

In return for said payment, and/or pursuant to certain contractual obligations of the undersigned, the undersigned hereby waives and releases any rights it has or may have through the date of its last Application for Payment to any and all Claims and liens related to the Project, including without limitation: Claims of payment, mechanic's liens, liens against funds, surety bond Claims, and Claims for breach of contract or unjust enrichment. The sole exception to this waiver and release is for any Claims the undersigned has made by properly and timely submitting a Claim as required by the Contract Documents. The undersigned acknowledges and agrees that this waiver and release is intended to be a comprehensive release of all Claims and liens related to the Project, including without limitation all Claims against the City, and the employees, board members, agents and representatives of any of the foregoing persons. The undersigned further certifies that this Agreement covers Claims and liens by all persons with which it did business related to the Project, including without limitation subcontractors and suppliers, through the date of its last Application for Payment. The undersigned represents that all such persons have signed an agreement in the form of this Agreement releasing any and all Claims and liens related to the Project, except for any Claims made by properly and timely submitting a Claim as required by the Contract Documents, a copy of which has been delivered to the City. The undersigned hereby represents and warrants that it has paid any and all welfare, pension, vacation, or other contributions required to be paid on account of the employment by the undersigned of any laborers on the Project.

This Agreement is for the benefit of, and may be relied upon by the City. The undersigned hereby agrees to indemnify, defend and hold harmless each of the foregoing, the Project, work or improvement, and real property from any and all Claims, or liens that are or should have been released in accordance with this Agreement.

ContractorName: _____

Authorized Signature: _____

Title: _____

The foregoing instrument was acknowledged before me this _____, day of _____, 20_____ by _____.

Signature and Seal of person taking acknowledgement:

2026 STORMWATER MANAGEMENT BASIN
MAINTENANCE PROGRAM
25-024-CIP
PROPOSAL NOTES

CONTRACT SPECIFICATIONS

All contract specifications in this section are to be considered a part thereof.

CITY OF COLUMBUS

City of Columbus and Ohio Department of Transportation Construction and Material Specifications, current edition, and any supplements thereto, shall govern all construction items unless otherwise noted.

RESPONSIBLE PARTIES

The term OWNER in this specification shall mean the City of Dublin, Ohio, 5555 Perimeter Drive, Dublin, Ohio, 43017.

The term PROJECT ENGINEER in this specification shall mean Mr. Thomas Fuqua, City of Dublin, 6555 Shier Rings Road, Dublin, Ohio 43016, Ph: 614-410-4734, E-mail: tfuqua@dublin.oh.us.

The term CITY ENGINEER in this specification shall mean Mr. Paul Hammersmith, PE, Director of Engineering/ City Engineer, City of Dublin, 6555 Shier Rings Road, Dublin, Ohio 43016, Ph: 614 410-4617, E-mail: phammersmith@dublin.oh.us.

The term INSPECTOR in this specification shall mean Mr. Doug Fleck, Engineering Project Inspector, City of Dublin, 6555 Shier Rings Road, Dublin, Ohio 43016, Ph: 614-410-4668.

NOTICE TO PROCEED

Dublin City Council will give formal approval for Paul Hammersmith, P.E., Director of Engineering/City Engineer to enter into a contract on or after September 28, 2026. The Successful Bidder will be given a Notice To Proceed on or after September 29, 2026 from The City of Dublin. These dates are subject to change.

PRE-CONSTRUCTION MEETING

The General Contractor shall attend a pre-construction meeting on October 5, 2026 @ 10 a.m. at City of Dublin Engineering, 6555 Shier Rings Road, Dublin, OH, 43016. The date and time are subject to change.

PRE-BID MEETING

No pre-bid meeting is required as part of this project.

PROGRESS MEETINGS

The General Contractor and appropriate Sub-Contractors along with OWNER, PROJECT ENGINEER, and INSPECTOR shall attend a weekly progress meeting as established at the Pre-Construction Meeting or as determined by the CITY ENGINEER.

CONSTRUCTION PERIOD

The construction period for this project shall begin on October 5, 2026 and shall end on the completion date May 1, 2027. The construction period includes an allocation for inclement weather. Any request for extension of the construction period due to inclement weather shall be presented to the CITY ENGINEER for consideration as soon as the contractor foresees the need for an extension to the construction period. This request must be supported by documentation showing the days lost due to the inclement weather. All work including all restoration shall be completed by the completion date.

Tree clearing operations shall not occur after March 31, 2027.

SUBMITTALS

A Separate Cover Sheet such as the form bound in these Specifications, including the Item Number, the Specification Section of reference for each submittal, and a brief description of each submittal included, shall be provided by the CONTRACTOR for each separate item submitted. Review of these submittals shall not relieve the CONTRACTOR from responsibility for compliance with the specifications. The CONTRACTOR shall incorporate the submittal review process time and make the necessary scheduling adjustments so that completion of the work within the Contract Time is not affected.

WORKING HOURS

The Contractor is permitted to work between 7:00 a.m. and 7:00 p.m., Monday through Friday. Permission to work on weekends and holidays must be requested in writing and approved by the City Engineer.

COORDINATION

1) Service Interruptions, Outages, and Maintenance of Traffic

- a) Any schedule interruption to public services associated with this contract requires a minimum 10-day notice provided to the City in order to allow for proper consideration of adjacent projects.
- b) Unscheduled interruptions shall be communicated immediately to the City of Dublin so appropriate action can be taken. Should an incident occur during off hours, the contractor is responsible to initiate their emergency response plan and notify the City in addition to any emergency services that may be necessary to minimize the interruption.
- c) Every effort is made by the project contractors to ensure safe accessible conditions are maintained at all times. A Schedule and Maintenance of Traffic (MOT) shall be provided by the contractor at the Preconstruction meeting outlining the areas impacted by the work being performed by this contract and the anticipated timeframes of the impacts. No Maintenance of Traffic setups can be

installed on the project until this plan has been submitted and reviewed by the City of Dublin. All traffic maintenance efforts shall be completed in accordance with Item 614 CMSC Maintenance of Traffic, OMUTCD and other applicable specifications.

The Contractor must provide notification to all affected residents of work approximately 7 (seven) calendar days prior to work being performed that will have an effect on residents. The pre-notification must be in writing and it must include: (1) Contractor name and 24 hour phone number; (2) a description of work being performed; (3) instructions to effected residents; (4) specific dates of work and start times.

A second written communication to residents must be made immediately upon completion of work.

Both notifications will be submitted to the City of Dublin for approval at least twenty one (21) calendar days prior to work beginning. Written notification shall be approved by the City of Dublin before providing to the residents.

UTILITIES

Contractor shall review and familiarize their staff with the plans in coordination with this project. Contractor shall coordinate with all utility providers within project limits.

MAINTENANCE OF TRAFFIC

The Contractor shall be responsible to provide traffic control throughout the project areas. One lane, two-way traffic shall be maintained at all times unless otherwise approved by the City Engineer, Project Engineer or designee.

At no time shall the work performed by the Contractor affect rush hour traffic on priority routes. Rush hours are generally 7:00 a.m. – 9:00 a.m., 11:00 a.m. – 1:00 p.m. and 4:00 p.m. – 6:00 p.m. Monday through Friday. If it becomes necessary to close any portion of any road during the course of this work, all contractor set-ups, teardowns, and operational activities must be completed between the hours of 9:00 am and 4:00 pm unless otherwise authorized by the City Engineer, Project Engineer or designee(s).

The cost of traffic control shall be included in the bid proposal.

Nighttime work will be prohibited in the residential sections of this project. All work must conclude by 7:00 pm, Monday - Friday unless agreed upon in advance by the City of Dublin.

CLEAN-UP/RESTORATION OF PROPERTY

The Contractor must make considerable efforts to protect private property from damage and destruction during the project. The contractor will be responsible for restoration of property and will be responsible to correct any/all repairs at no charge to the City of Dublin. All repairs must be satisfactorily completed by the end of the project before the final payment is made by the City of Dublin.

The Contractor is responsible to document the condition of all work areas prior to and following any work. The documentation shall consist of video and pictures, as well as written comments. A copy of the pre-work documentation must be submitted to the City of Dublin prior to work being

performed. A copy of the post work documentation must be submitted to the City of Dublin within two weeks after work is completed.

STAGING AREA

Under no circumstances will equipment or materials be permitted to be staged overnight, within the project area unless prior approval is obtained from the City Engineer or Project Engineer or designee(s).

The Contractor may use staging areas as shown within the construction documents.

All areas disturbed shall be fully restored to their original conditions or better to the satisfaction of the City of Dublin. The contractor at his expense shall perform all site restorations.

ACCESSIBILITY FOR OBSERVATION

All work shall be made accessible to the INSPECTOR. If assistance is required for the INSPECTOR to safely access the work, the CONTRACTOR shall furnish labor to assist the INSPECTOR. The cost of this labor shall be included in the Total Base Bid.

PROPOSAL

No extra compensation will be paid to the Contractor by reason of compliance with any of the requirements indicated in the Specifications, but payment shall be deemed to be included among the several items, as bid upon, unless otherwise specifically provided.

WATER SUPPLY

Water for the purpose of this contract must be obtained by the CONTRACTOR through the direct local arrangements with the PROJECT ENGINEER and/or INSPECTOR. The CONTRACTOR shall furnish and supply all necessary temporary piping and valves in connection with such water supply. All connections to the public water supply system shall contain a back-flow prevention device approved by the INSPECTOR.

HYDRANT PERMITS

The Contractor shall be responsible for obtaining hydrant and water permits from the City of Dublin and City of Columbus Department of Power and Water. There will be no cost for the City of Dublin hydrant permit. City of Columbus fees for hydrant permits are the responsibility of the Contractor.

ELECTRICAL SUPPLY

The CONTRACTOR shall pay all fees, obtain necessary permits, and have meters installed for power and lights as may be required for the prosecution of this work. The CONTRACTOR shall furnish and install all necessary temporary service drops, wiring, connections, etc. necessary for

temporary service required by the CONTRACTOR. All costs associated with any temporary electric service required by the CONTRACTOR shall be included in the Total Base Bid.

STORAGE OF EQUIPMENT AND MATERIALS

No materials, including pipe, shall be stored within twenty (20) feet of any intersecting street, parking lot or driveway. During non-working hours, storage of equipment shall comply with these same requirements and shall not in any way relieve the Contractor of their legal responsibilities or liabilities for the safety of the public.

CONSTRUCTION NOISE

Any device shall not be operated at any time in such a manner that the noise created substantially exceeds the noise customarily and necessarily attendant to the reasonable and efficient performance of such equipment.

SANITARY FACILITIES

The CONTRACTOR shall, at the beginning of the work, provide on the premises suitable temporary sanitary toilet, wash-up, decontamination facilities, and changing facilities for the use of workers and shall maintain same in a sanitary condition and remove same when directed by the OWNER. The cost of these sanitary facilities shall be included in the Total Base Bid. The CONTRACTOR is advised that the OWNER is in the business of providing potable water and the CONTRACTOR'S sanitary arrangements shall not endanger the OWNER'S facilities.

OHIO DEPARTMENT OF TRANSPORTATION (ODOT) PREQUALIFICATION

ODOT prequalification is required for this project.

CITY OF DUBLIN, FRANKLIN COUNTY, OHIO
PLANS
FOR
DUBLIN BASIN
MAINTENANCE PROGRAM
2026

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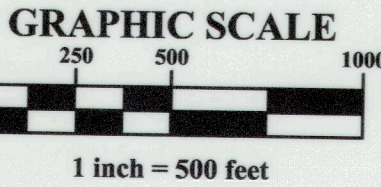
BENCH MARKS
(NAVD 1988)

BM#1	Chiseled "X" on the south flange bolt of fire hydrant located on the north side of May Apple Court, being the first hydrant (160 feet) west of the intersection with Red Bay Court.	Northing = 774551	Easting = 1798358	Elev. = 844.05
BM#2	Chiseled "X" on the east flange bolt of fire hydrant located on the west side of Yellow Wood Drive at the end of the cul-de-sac.	Northing = 772357	Easting = 1798422	Elev. = 856.82
BM#3	Chiseled "X" on the east flange bolt of fire hydrant located on the west side of the cul-de-sac of Oak Wood Court.	Northing = 772588	Easting = 1798811	Elev. = 862.36
BM#4	Chiseled "X" on the west flange bolt of fire hydrant located on the east side of Linden Lane, being in front of residence #7361.	Northing = 772202	Easting = 1799929	Elev. = 884.27

STANDARD CONSTRUCTION DRAWINGS

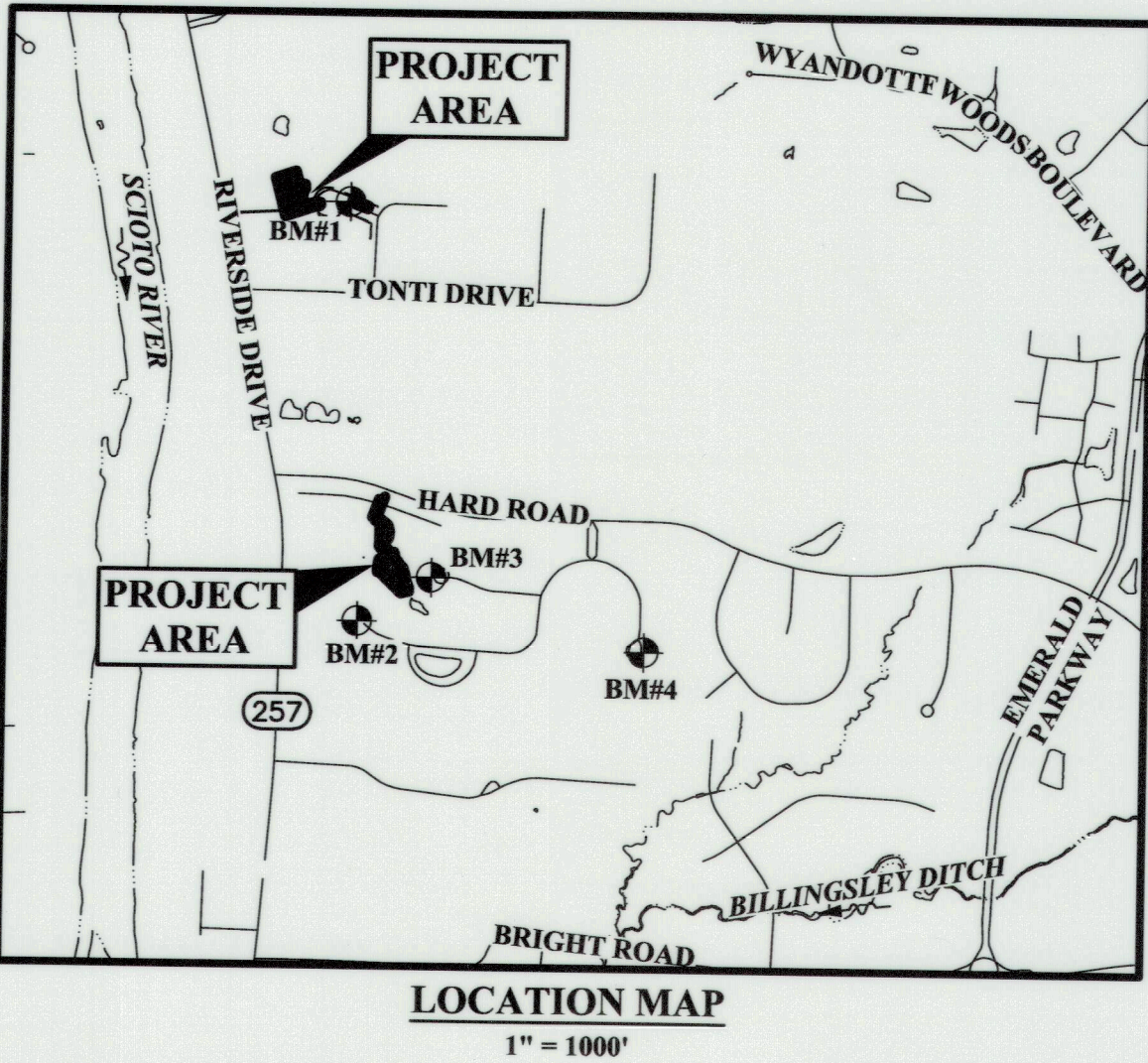
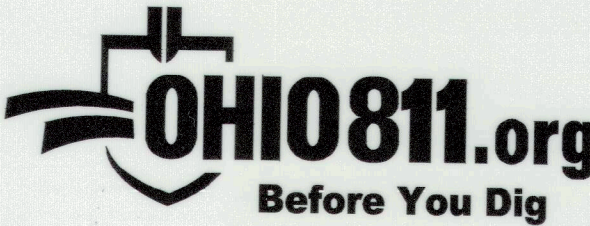
The Standard Construction Drawings listed on these plans are to be considered a part thereof.

City of Columbus	City of Dublin	ODOT
AA-S102	ERO-11	CB-2-6
AA-S151	RDW-01	
AA-S153	RDW-02	
AA-S161	RDW-03	
AA-S168	RDW-05	
	RDW-07	
	RDW-15	
	STM-01	
	STM-02	
	STM-03	
	STM-04	
	STM-05	
	STM-08	



OWNER

City of Dublin
6555 Shier Rings Road
Dublin, Ohio 43016
Tel: (614) 410-4740



MUNICIPALITY APPROVAL

The signatures below signify only concurrence with the purpose and general location of the project and does not constitute assurance to operate as intended. All technical details remain the responsibility of the Professional Civil Engineer preparing the plans.

Approved:

Paul A. Hammersmith
Director of Engineering/City Engineer
City of Dublin, Ohio
Paul A. Hammersmith, P.E.

8-12-2026
Date

CITY OF DUBLIN

CITY OF DUBLIN, FRANKLIN COUNTY, OHIO
PLANS
FOR
DUBLIN BASIN MAINTENANCE
PROGRAM 2026
TITLE SHEET



DATE
AUGUST 2026

SCALE
AS NOTED

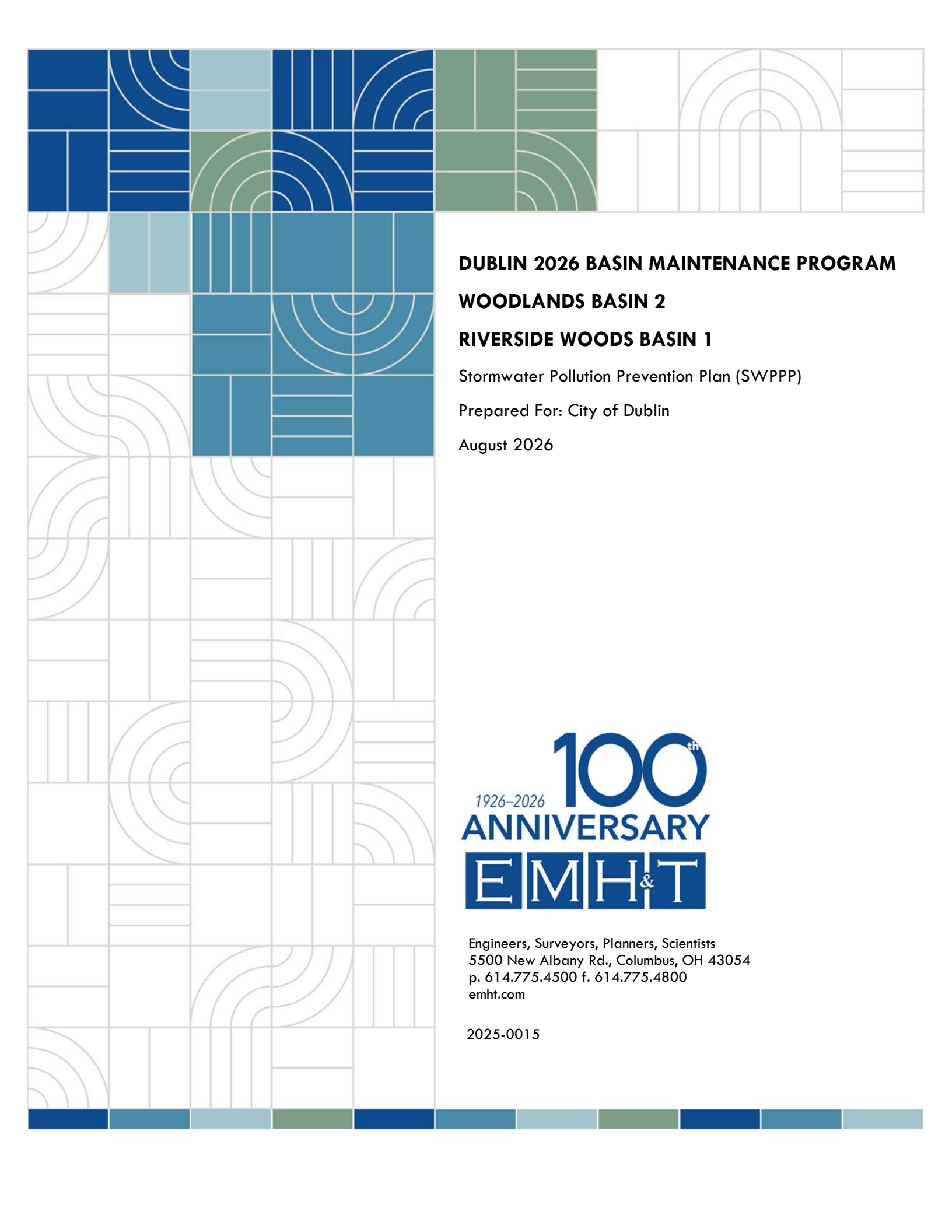
JOB NO.
2025-0015

SHEET
01/29



Registered Engineer: Alex Jensen, P.E., CFM
5500 New Albany Road, Columbus, Ohio 43054
Telephone: (614)-775-4500
Email: ajensen@emht.com

8/7/2026
Date



DUBLIN 2026 BASIN MAINTENANCE PROGRAM

WOODLANDS BASIN 2

RIVERSIDE WOODS BASIN 1

Stormwater Pollution Prevention Plan (SWPPP)

Prepared For: City of Dublin

August 2026



Engineers, Surveyors, Planners, Scientists
5500 New Albany Rd., Columbus, OH 43054
p. 614.775.4500 f. 614.775.4800
emht.com

2025-0015

Stormwater Pollution Prevention Plan (SWP3)

For Construction Activities At:

Dublin 2026 Basin Maintenance Program
Woodlands Basin 2
Riverside Basin 1
City of Dublin, Franklin County, Ohio

SWP3 Prepared For:

City of Dublin
Michael Hendershot, P.E., CSSBB
Director of Utilities and Stormwater Management
6555 Shier Rings Road
Dublin, Ohio 43016
614.410.4657
mhendershot@dublin.oh.us

SWP3 Prepared By:

EMH&T
James Akins, CPESC
5500 New Albany Road
Columbus, Ohio 43054
(614) 775-4389
jakins@emht.com

SWP3 Preparation Date:

08/07/2026

Estimated Project Start Date:

October 2026

Estimated Project Completion Date:

June 2027

Spill Emergency

Spills or other unintended releases in excess of reportable quantities that discharge hazardous substances into surface waters of the state shall be contained and reported as required within section 40 of the Code of Federal Regulations Part 117 and Part 302. Spills are to be immediately reported to the **Ohio EPA Emergency Spill Hotline (1-800-282-9378)**. Petroleum product spills of 25 gallons or more shall be immediately reported to the Ohio EPA and the local fire department.

Plan Availability

This plan shall be kept onsite and shall be made available immediately upon request of the Ohio EPA director or his authorized representative and MS4 operators or their authorized representative during working hours. The permittee must provide the most recent copy of the SWP3 within 7 days upon written request by the Ohio EPA director or the director's authorized representative; the local agency approving sediment and erosion plans, grading plans, or stormwater management plans; or in the case of a stormwater discharge associated with construction activity which discharges through a municipal separate storm sewer system with an NPDES permit, to the operator of the system.

Notice to the public: All NOIs, general permit approval for coverage letters, and SWP3s are considered reports that shall be available to the public in accordance with the Ohio Public Records law. The permittee shall make documents available to the public upon request or provide a copy at public expense, at cost, in a timely manner. However, the permittee may claim to Ohio EPA any portion of an SWP3 as confidential in accordance with Ohio law.

Amendment Log

This SWP3 shall be amended whenever there is a change in design, construction, operation, schedule, or maintenance, which has a significant effect on the potential for the discharge of pollutants to surface waters of the state or if the SWP3 proves to be ineffective in achieving the general objectives of controlling pollutants in stormwater discharges or to correct deficiencies as directed by Ohio EPA or the local MS4. The signature of the authorized operator attests that the amendment information is true and accurate. Previous authors are not responsible for the revisions by operators.

[illegible]

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SECTION 1: CONTACT INFORMATION

Operator(s):

City of Dublin
Michael Hendershot, P.E., CSSBB
Director of Utilities and Stormwater Management
6555 Shier Rings Road
Dublin, Ohio 43016
614.410.4657
mhendershot@dublin.oh.us

SWP3 Site Coordinator/Primary Contact:

City of Dublin
Michael Hendershot, P.E., CSSBB
614.410.4657
mhendershot@dublin.oh.us

Emergency 24-Hour Contact:

City of Dublin
Michael Hendershot, P.E., CSSBB
614.400.9008

SECTION 2: SITE AND CONSTRUCTION ACTIVITY ASSESSMENT

2.1 SITE LOCATION

Project Name and Address

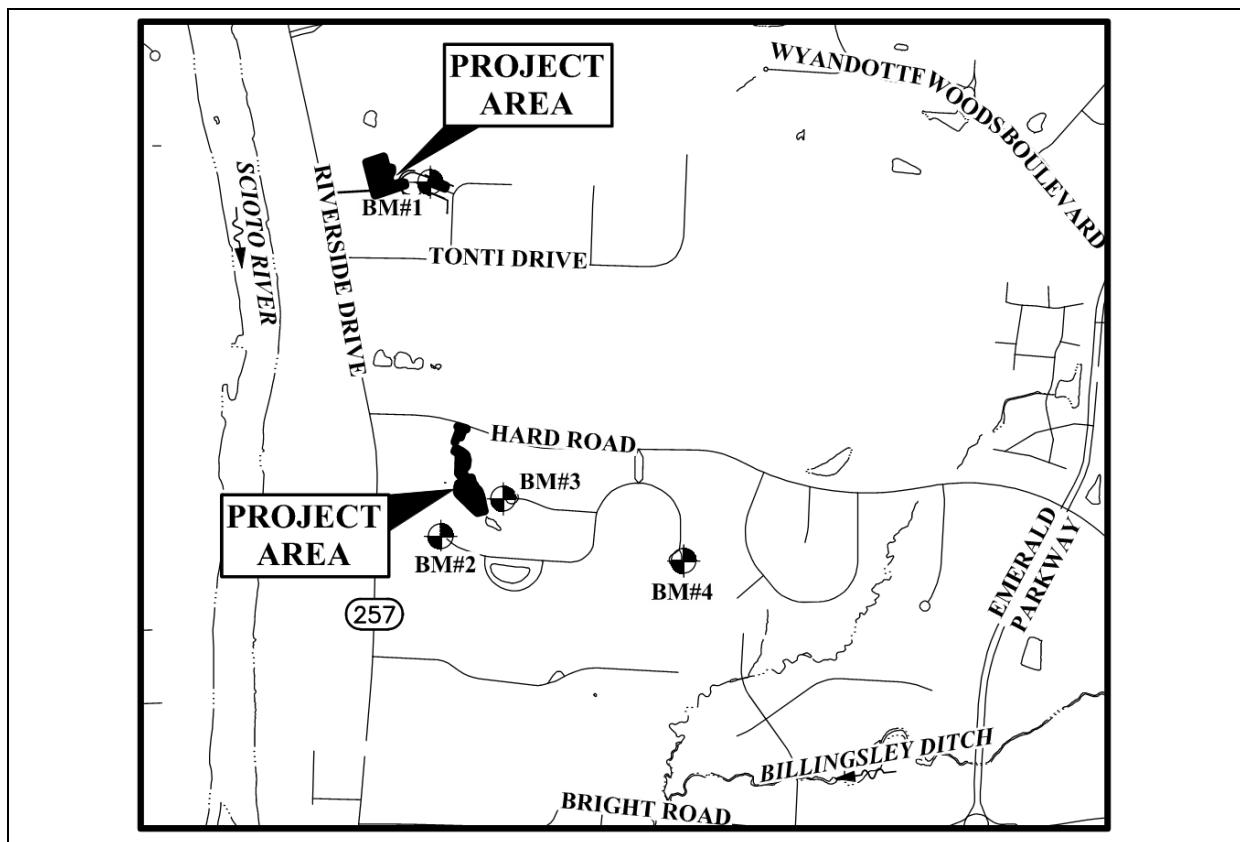
Dublin 2026 Basin Maintenance Program
Woodlands Basin 2
Riverside Basin 1
City of Dublin, Franklin County, Ohio

Project Latitude/Longitude

Woodlands Basin 2
Latitude: 40.124999 Longitude: -83.109759

Riverside Woods Basin 1
Latitude: 40.119673 Longitude: -83.107629

Project Location Map



2.2 SITE DETAILS

Description of Prior and Existing Land Use

Woodlands Basin 2 – Dry detention basin constructed in the late 1980's designed to provide stormwater runoff detention for the Woodlands subdivision. The basin embankment has failed, and excessive vegetation is present within the basin footprint. Basin maintenance activities associated with the City's 2026 maintenance programs consist of removing the excessive vegetation, reconstructing the embankment, and modifying the outlet structure to include an underdrain to assist with keeping the bottom of the basin dry between rain events so the basin can be routinely maintained.

Riverside Woods Basin 1 - Dry detention basin constructed around 2005 designed to provide stormwater runoff detention and water quality treatment for a portion of the Riverside Woods subdivision. The basin has excessive vegetation present within the basin footprint. Basin maintenance activities associated with the City's 2026 maintenance programs consist of removing the excessive vegetation and modifying the outlet structure to include an underdrain to assist with keeping the bottom of the basin dry between rain events so the basin can be routinely maintained.

Description of Existing Site Drainage

Woodlands Basin 2 – The basin discharges managed stormwater runoff to a non-jurisdictional ephemeral stream tributary to the Scioto River.

Riverside Woods Basin 1 - The basin discharges managed stormwater runoff to a non-jurisdictional ephemeral stream tributary to the Scioto River.

Description of Soil Types and Conditions

Soil erosion rates increase as the existing cover is removed resulting from construction activities. Sediment controls are to be installed and properly maintained as indicated within this plan to minimize sediment laden runoff from flowing offsite.

Soil Map Unit	HSG	Hydric Rating	Soil Erosion K Factor	Flooding Freq. Class
<u>Woodlands Basin 2</u> : Gwe5B2– Glynwood clay loam, end moraine, 2 to 6 percent slopes, eroded	D	6	0.32	None
<u>Riverside Woods Basin 1</u> Gwd5C2 – Glynwood clay loam, 6 to 12 percent slopes, eroded Ross silt loam, 0-2% slopes	D	0	0.37	None

Contaminated Soils

Construction activities on sites with soil contamination from previous activities may result in stormwater discharges exceeding Ohio Water Quality Standards. Such discharges are not authorized under the NPDES general permit.

Contaminated soils are not expected to be encountered on this project. If found during site work, disposal will be in accordance with local, state, and federal regulations.

Description of On-site Streams

The basins discharge managed stormwater runoff to non-jurisdictional ephemeral streams tributary to the Scioto River.

Description of On-site Wetlands

There are no wetlands within the Limits of Disturbance.

2.3 RECEIVING WATERS

Point of Discharge ID as reflected in the plans	The name or description of the first receiving surface water or municipal separate storm sewer system (MS4) and first named surface water that receives stormwater directly from the point of discharge and/or from the MS4 that the point discharges into.
Woodlands Basin 2 – Basin Outlet Structure	The basin discharges managed stormwater runoff to a non-jurisdictional ephemeral stream tributary to the Scioto River
Riverside Woods Basin 1 – Basin Outlet Structure	The basin discharges managed stormwater runoff to a non-jurisdictional ephemeral stream tributary to the Scioto River

2.4 CONSTRUCTION ACTIVITY DETAILS

Type of construction: ☐ New development
☐ Redevelopment of existing impervious surfaces originally constructed
☒ MS4 maintenance activities

General Description of the Construction Activity

Woodlands Basin 2 – Basin maintenance activities associated with the City's 2026 maintenance programs consist of removing the excessive vegetation, reconstructing the embankment, and modifying the outlet structure to include an underdrain to assist with keeping the bottom of the basin dry between rain events so the basin can be routinely maintained.

Riverside Woods Basin 1 - Basin maintenance activities associated with the City's 2026 maintenance programs consist of removing the excessive vegetation and modifying the outlet structure to include an underdrain to assist with keeping the bottom of the basin dry between rain events so the basin can be routinely maintained.

Construction Site Summary – Both Basins

Size of Property (acres)	±1 Acre
Total Area Expected to be Disturbed by Construction Activities (acres)	±1 Acre
Maximum area expected to be disturbed at any one time, including on-site and off-site construction support areas (acres)	±1 Acre
Impervious area before construction (acres)	0 Acres
Runoff coefficient (Rv) before construction	0.05
Proposed on-site impervious area (acres)	0 Acres
Proposed runoff coefficient (Rv)	0.05

Construction Support Activities

There will be a staging area for contractor parking, trailers, portable restrooms, fueling and equipment maintenance. This area will be located by the contractor once construction begins. Contractor proposed location adjustments must be approved by the City Engineer and the SWP3 shall be modified to reflect the approved adjustments.

2.5 IDENTIFICATION OF POTENTIAL SOURCES OF POLLUTION

The following sources of pollution may affect the quality of stormwater discharges from the site. Operators shall implement the Best Management Practices (BMPs) described later in this SWP3 to reduce the pollutants and impact of stormwater discharges during construction and pollutants associated with the post-construction land use to ensure compliance with ORC Section 6111.04, OAC Chapter 3745-1, and Ohio EPA's NPDES Construction Stormwater General Permit.

Pollutant-Generating Construction Activity (e.g., grading, paving, painting, roofing, landscaping operations)	Pollutants or Pollutant Sources (e.g., sediment, fertilizers, pesticides, paints, caulks, sealants, solvents, fuels)
Sediment within construction site runoff	Sediment basins, sediment fence, storm sewer inlet protection, temporary and permanent seeding and mulching
Sediment associated with dewatering activities	Placement of intake hose shall be positioned at the top of the water level. Discharge hose shall be directed into a sediment basin or a filter bag with a sufficient existing vegetative buffer prior to the stormwater outfall
Dust	Water trucks or other acceptable means of managing dust from construction traffic approved by the local governing authority
Fuels	Fuel tanks shall be stored away from surface waters and storm sewer inlets within a diked area. Spills shall be contained as soon as possible upon notification and material removed from the site. Fuel containers shall be closed when not in use so not to expose to stormwater.

Pollutant-Generating Construction Activity (e.g., grading, paving, painting, roofing, landscaping operations)	Pollutants or Pollutant Sources (e.g., sediment, fertilizers, pesticides, paints, caulks, sealants, solvents, fuels)
Grease & Oil	Spills shall be contained as soon as possible upon notice and material removed from the site. Containers shall be closed when not in use so not to expose to stormwater. Empty containers shall be removed from the site and properly disposed of.
Fertilizers/Pesticides	Applied at the required rates and not on impervious areas.
Alkalinity	Concrete trucks shall utilize areas to washout trucks. Accumulated concrete shall be removed from the site and disposed of properly. Alternatively, contractors shall use a roll off box with a liner.

2.6 AUTHORIZED NON-STORMWATER DISCHARGES

All discharges must be composed entirely of stormwater except for the following authorized non-stormwater discharges. Discharges of material other than stormwater or the authorized non-stormwater discharges listed above must comply with an individual NPDES permit or an alternative NPDES general permit issued for the discharge. All authorized non-stormwater discharges must be discharged in a manner that will not cause erosion and will not come into contact with other pollutant sources.

Authorized Non-Stormwater Discharge	Proposed BMP to address Discharge
Fire hydrant flushing	Not Expected to Occur
Landscape irrigation and lawn watering	Not Expected to Occur
Water used to wash vehicles and equipment (soaps/solvents are not used)	Not Expected to Occur
Water used to control dust	Dust Control Water Trucks may be utilized by the contractor as needed. Water will be sourced by the Contractor.
Potable water including uncontaminated water line flushing	Not Expected to Occur
Routine external building washdown (soaps/solvents are not used and external surfaces do not contain hazardous substances)	Not Expected to Occur
Pavement wash waters (where spills or leaks of toxic or hazardous materials have not occurred unless all spilled material has been removed and where detergents are not used)	Not Expected to Occur
Uncontaminated air conditioning or compressor condensate	Not Expected to Occur
Uncontaminated, non-turbid discharges of groundwater or spring water	Not Expected to Occur
Foundation or footing drains where flows are not contaminated with process materials such as solvents	Not Expected to Occur

Authorized Non-Stormwater Discharge	Proposed BMP to address Discharge
Uncontaminated construction trench, excavation, or well point dewatering water	Any dewatering of water via a construction trench/excavated area will be pumped into a dewatering filter bag or directed to the sediment basins.

2.7 SEQUENCE OF MAJOR CONSTRUCTION OPERATIONS AND BMP IMPLEMENTATION SCHEDULE

This BMP implementation schedule describes the sequence of major construction operations and the BMPs that are to be implemented during each operation in the sequence. See sections 3 through 8 for detailed descriptions of each BMP.

Estimated Timeline	Construction Operation and description of BMPS to be implemented
Oct. 2026 – June 2027	Site Earthwork Contractor
	1. Contractor to establish construction entrance and staging area. Ensure the open public roadways are kept clean of any tracked sediment. 2. Install inlet protection on any existing storm sewer inlets and install the construction/tree protection perimeter controls and timber/structural matting as shown on the plans. 3. If basin is holding water, begin dewatering the basin by pumping down the water from the surface. Clean water can be directed to the existing channel. If discharge is muddy or expected to become muddy, ensure the dewatering filter bag is utilized. 4. Install compost filter sock along the perimeter of the site and at the basin outlet structure. Commence with clearing and grubbing. 5. Remove vegetation and sediment from the basin and haul offsite. 6. Grade basin and install the proposed outlet structure, underdrain, storm sewer, headwall, and rock channel protection. 7. Once grading work is completed, permanently stabilize the disturbed areas with erosion control matting and seeding as directed. 8. Repair sidewalk, curb, and storm sewer inlet if damaged. 9. Remove perimeter controls and timber matting. Fine grade and permanently stabilize the remaining disturbed areas. 10. Once permanent vegetation is established, remove the remaining erosion and sediment controls.

SECTION 3: PRESERVATION METHODS

Operators shall minimize the disturbed area, preserve natural features, and preserve soil quality as much as feasible.

BMP	Description	Installation Timing	Maintenance	Responsible Party
Stream Setback	An undisturbed, vegetative buffer area between the edge of the disturbed area and the adjacent surface water feature. Shown on the erosion and sediment control plan sheets.	Shall be avoided throughout construction.	Shall be inspected during routine inspections to ensure the limits of disturbance are maintained and followed per plan.	General Contractor, Site Earthwork Contractor.

SECTION 4: EROSION CONTROLS AND SOIL STABILIZATION

4.1 VEHICLE TRACKOUT CONTROL

Operators shall control the trackout of dirt and mud from the site onto paved roads, sidewalks, or other paved areas outside of the site by vehicles to the extent feasible. Remove any track-out that occurs by sweeping, shoveling, or vacuuming these surfaces, or by using other similarly effective means of sediment removal. Operators are prohibited from hosing or sweeping trackout sediment into any constructed or natural site drainage feature, storm drain inlet, or receiving water.

BMP	Description	Installation Timing	Maintenance	Responsible Party
Construction Entrance	A 6-inch thick ODOT No. 2 Stone rock drive with a length of at least 70 feet at each construction entrance/exit where any site traffic will enter and exit. Locations and details noted on the Erosion and Sediment Control Plan and Detail Sheets.	Shall be installed prior to any site work begins.	Shall be cleaned daily and additional stone added as needed. Maintenance work must be performed within 3 days of inspection noted maintenance needed.	General Contractor, Earthwork Subcontractor
Street Sweeping	Mechanical Street Sweeping of any paved roadways offsite where construction traffic may track mud.	Shall be implemented throughout construction, daily as needed to ensure mud is removed from offsite paved roadway.	Daily Street Sweeping as needed.	General Contractor, Earthwork Subcontractor
Wheel Wash Station (If Needed)	Proprietary wheel wash station or manual wheel wash of vehicle wheels	Shall be installed as needed if construction entrance and street sweeping is not sufficient.	Daily Wheel Wash Station during above freezing temperatures	General Contractor, Earthwork Subcontractor

4.2 DUST CONTROL

Operators shall control fugitive dust from leaving the site to the extent feasible. Operators are prohibited from using oil as dust control.

BMP	Description	Installation Timing	Maintenance	Responsible Party
Dust Control Water Trucks	Water trucks utilized to spray water over disturbed areas to keep dust from becoming airborne.	Shall be implemented during dry weather conditions as needed.	Daily Dust Control as needed during dry weather.	General Contractor, Earthwork Subcontractor

4.3 SOIL STABILIZATION

Soil Stabilization is the most effective means to minimize erosion and the discharge of sediment from construction activity. Stabilized soils have vegetation or other types of cover left during construction or replaced immediately following disturbance. The operator shall re-establish vegetation or suitable cover on all disturbed areas of the site in accordance with the methods and timeframes below.

TEMPORARY STABILIZATION		
Description	Temporary seeding and mulching applications shall be utilized to stabilize disturbed areas throughout the construction process	
Installation Timing	Any disturbed areas within 50 feet of a surface water of the state and not at final grade	Within two days of the most recent disturbance if the area will remain idle for more than 14 days
	Any disturbed areas that will be dormant for more than 14 days but less than one year, and not within 50 feet of surface waters of the state	Within seven days of the most recent disturbance within the area For residential subdivisions, disturbed areas must be stabilized at least seven days prior to transfer of permit coverage for the individual lot(s).
	Disturbed areas that will be idle over winter	Prior to the onset of winter weather
Maintenance	Seeded areas shall be inspected upon rain events to ensure areas are not washing out. Washed out areas shall be repaired and reseeded. Temporary sediment controls and/or erosion control matting may need to be utilized if washout problems routinely occur. Maintenance work must be performed within three days of the inspection	
Responsible Party	General Contractor/Earthwork Subcontractor	
Areas likely to require temporary stabilization during site development: Graded areas that are to remain idle for more than 14 days.		

PERMANENT STABILIZATION		
Description	Permanent seeding and mulching applications shall be utilized to permanently stabilize disturbed areas that are not likely to be disturbed during future site development.	
Installation Timing	Any areas that will lie dormant for one year or more	Within seven days of the most recent disturbance
	Any areas within 50 feet of surface waters of the state and at final grade	Within two days of reaching final grade
	Other areas at final grade	Within seven days of reaching final grade within that area
Maintenance	Seeded areas shall be inspected upon rain events to ensure areas are not washing out. Washed out areas shall be repaired and reseeded. Maintenance work must be performed within three days of the inspection	
Responsible Party	General Contractor/Earthwork Subcontractor	

STABILIZATION OF CRITICAL EROSION AREAS

BMP	Description	Installation Timing	Maintenance	Responsible Party
Outfall Stabilization	Rock Channel Outlet Protection utilized at basin outfall locations.	Installation shall happen immediately once constructed to prevent erosion.	Maintenance is required within 3 days of notification	General Contractor/Earthwork Subcontractor
Soil Stockpile Stabilization	Stockpiles, if idle, shall be stabilized with temporary cover such as straw mulch or hydromulch cover.	The stockpile shall be stabilized in areas that are idle within 14 days.	Maintenance is required within 3 days of notification	General Contractor/Earthwork Subcontractor
Slope Stabilization	Slopes along the perimeter are to be stabilized with erosion control matting as shown on the erosion and sediment control plan.	Disturbed slopes around the perimeter of the site shall be stabilized within 2 days if within 50 feet of a surface water feature or within 7 days if at final grade.	Maintenance is required within 3 days of notification	General Contractor/Earthwork Subcontractor
Basin Side Slope Stabilization	Side Slopes within the Basin footprint are to be stabilized with erosion control matting as shown on the erosion and sediment control plan	Disturbed side slopes within the Basin footprint shall be stabilized within 7 days if at final grade.	Maintenance is required within 10 days of notification	General Contractor/Earthwork Subcontractor

SECTION 5: SEDIMENT CONTROLS

Operators shall use structural practices to trap sediment in stormwater runoff. Sediment control practices must be capable of ponding runoff.

Controls / BMPs	Description	Installation Timing	Maintenance	Responsible Party
Sediment Barrier (Compost Filter Socks)	Perimeter Sediment Controls such as compost filter sock installed along the perimeter of the site to manage runoff from the localized slopes.	Shall be installed prior to initial grading activities.	Accumulated sediment must be removed from the sock when the sediment reaches ½ the above ground height of the sock. Undermined or overtopped sock must be repaired or replaced with a rock check dam. Maintenance work must be performed within 3 days of the inspection.	General Contractor/Earthwork Subcontractor
Storm Drain Inlet Protection	Storm Drain Inlet Protection installed on storm drains to manage runoff from the localized drainage areas	Shall be installed once storm sewer ins installed.	Maintenance is required within 3 days of notification	General Contractor/Earthwork/Utilities Subcontractor

5.1 SEDIMENT POND SPECIFICATIONS

Sediment Basin	
Contributing Drainage Area to the BMP (Acres)	N/A
Disturbed Drainage Area to the BMP (Acres)	N/A
Required Dewatering (detention) Volume (Acre-Feet)	N/A
Required Sediment Storage Volume (Acre-Feet)	N/A
Provided Dewatering (detention) Volume (Acre-Feet)	N/A
Provided Sediment Storage Volume (Acre-Feet)	N/A
Length to Width Ratio	N/A
Dewatering Time (Hours)	N/A
Skimmer Orifice Size (inches)	N/A

The project consists of maintaining existing stormwater detention basins and the use of sediment basins to manage runoff from the limited work area is not feasible.

SECTION 6: POST-CONSTRUCTION STORMWATER MANAGEMENT

6.1 POST-CONSTRUCTION STORMWATER MANAGEMENT PLAN

Woodlands Basin 2 – Dry detention basin constructed in the late 1980's designed to provide stormwater runoff detention for the Woodlands subdivision prior to the OEPA's post-construction water quality requirements. The proposed construction activities consist of maintaining the existing basin and additional impervious areas won't be constructed because of the maintenance activities.

Riverside Woods Basin 1 - Dry detention basin constructed around 2005 designed to provide stormwater runoff detention and water quality treatment for a portion of the Riverside Woods subdivision. The proposed construction activities consist of maintaining the existing basin and additional impervious areas won't be constructed because of the maintenance activities. The basin will continue to provide water quality treatment per its original design.

SECTION 7: OTHER POLLUTANT CONTROLS

No solid (other than sediment) or liquid waste, including building materials, shall be discharged in stormwater runoff. BMPs must be implemented to prevent the discharge of non-sediment pollutants to the drainage system of the site or surface waters of the state or an MS4 as follows.

7.1 DEWATERING AND GROUNDWATER CONTROL

There shall be no turbid discharges to surface waters of the state resulting from dewatering activities. Trench or groundwater that contains sediment shall pass through a sediment settling pond, filter bag, or other equally effective sediment control device. Groundwater that does not contain sediment or other pollutants is not required to be treated prior to discharge; however, care must be taken that discharging groundwater does not become pollutant-laden by traversing over disturbed soils or other pollutant sources.

Description	Dewatering Filter Bag
Installation Timing	Installed when needed during any muddy water encountered during excavation.
Maintenance	Maintenance must be completed within 3 days of notification
Responsible Party	General Contractor/Earthwork Subcontractor

7.2 WASHOUT OF CONCRETE, STUCCO, PAINT, AND OTHER MATERIALS

Under no circumstance shall wastewater from the washout of concrete trucks, stucco, paint, form release oils, curing compounds, and other construction materials be discharged directly into a drainage channel, storm sewer, or surface waters of the state.

Description	Concrete trucks shall have a designated wash-pit or sump with no potential for discharge to ensure that the concrete wash shall not enter storm drains and waters of the state.
Installation Timing	Shall be installed once any concrete work begins, as needed
Maintenance	Maintenance must be completed within 3 days of notification
Responsible Party	General Contractor/Earthwork Subcontractor

7.3 FUELING AND MAINTENANCE OF EQUIPMENT OR VEHICLES

No pollutants from vehicle fuel, oils, or other fluids can be discharged to surface waters of the state.

Description	Equipment fueling and maintenance shall be performed away from watercourses, ditches or storm drains, in an area designated for that purpose. The designated area shall be equipped for recycling oil and catching spills. Secondary containment shall be provided for all fuel oil storage tanks. These areas must be inspected every seven days and within 24 hours of a 0.5 inch or greater rain event to ensure there are no exposed materials which would contaminate storm water. Site operators must be aware that Spill Prevention Control and Countermeasures (SPCC) requirements may apply. An SPCC plan is required for sites with one single aboveground tank of 660 gallons or more, accumulative aboveground storage of 1330 gallons or more, or 42,000 gallons of underground storage
Installation Timing	Shall be implemented once construction begins
Maintenance	Maintenance shall be completed immediately as needed
Responsible Party	General Contractor/Earthwork Subcontractor

7.4 STORAGE, HANDLING, AND DISPOSAL OF CONSTRUCTION WASTES AND TRASH

Operators must minimize the exposure of construction wastes and trash (e.g., packaging materials, scrap construction materials, demolition debris, and other trash or discarded materials to precipitation, stormwater runoff, and snow melt).

Waste disposal by open burning is prohibited.

Description	Containers shall be provided for the proper collection of all waste material. Construction and demolition debris (CD&D) must be disposed of in accordance with Ohio Revised Code 3714 at an approved Ohio EPA CD&D landfill. Temporary sanitary water facilities additionally must be provided and maintained. Dumpsters shall be closed or covered when not in use (non-operating hours) to limit the temporarily stored waste to storm water exposure and ensuring that no liquid wastes or wastes saturated with significant materials are allowed to be accumulated in trash dumpsters
Installation Timing	Shall be implemented once construction begins
Maintenance	Maintenance shall be completed immediately as needed
Responsible Party	General Contractor/Earthwork Subcontractor

7.5 STORAGE, HANDLING, AND DISPOSAL OF PESTICIDES, HERBICIDES, INSECTICIDES, AND FERTILIZERS

Operators must minimize the exposure of fertilizers, pesticides, insecticides, and herbicides, to precipitation, stormwater runoff, and snow melt. No exposure to stormwater is recommended.

Description	The storage and mixing of pesticides, herbicides, insecticides, and fertilizers shall be performed in a designated area away from waterways and storm sewer inlets. Pesticide, herbicide, insecticide, and fertilizer containers shall be properly stored on-site to ensure that they are not exposed to rain events. Empty containers shall be properly disposed of off-site at an approved facility.
Installation Timing	Shall be implemented once construction begins
Maintenance	Maintenance shall be completed immediately as needed
Responsible Party	General Contractor/Earthwork Subcontractor

7.6 STORAGE, HANDLING, AND DISPOSAL OF DIESEL FUEL, OIL, HYDRAULIC FLUIDS, AND OTHER PETROLEUM PRODUCTS

Description	The storage and mixing of diesel fuel, oils, hydraulic fluids, and other petroleum products shall be performed in a designated area away from waterways and storm sewer inlets. Fuel, oil, and other fluids and petroleum product containers shall be properly stored on-site to ensure that they are not exposed to rain events. Empty containers shall be properly disposed of off-site at an approved facility. Equipment maintenance and refueling areas are to be located away from storm water conveyance channels and surface waters. A Spill Prevention Control and Countermeasure Plan (SPCC) must be provided by the Contractor if on-site temporary fuel tanks exceed 660 gallons or if the combined storage is above 1320 gallons.
Installation Timing	Shall be implemented once construction begins
Maintenance	Maintenance shall be completed immediately as needed
Responsible Party	General Contractor/Earthwork Subcontractor

7.7 STORAGE, HANDLING, AND DISPOSAL OF HAZARDOUS OR TOXIC CHEMICALS

Operators must minimize the exposure of hazardous or toxic chemicals (e.g., paints, caulks, sealants, fluorescent light ballasts, solvents, petroleum-based products, wood preservatives, additives, curing compounds, and acids) to precipitation, stormwater runoff, and snow melt.

Description	The storage and mixing of chemicals shall be performed in a designated area away from waterways and storm sewer inlets. Chemical containers shall be properly stored on-site to ensure that they are not exposed to rain events. Empty containers shall be properly disposed of off-site at an approved facility.
Installation Timing	Shall be implemented once construction begins
Maintenance	Maintenance shall be completed immediately as needed
Responsible Party	General Contractor/Earthwork Subcontractor

7.8 SANITARY WASTE

Operators must minimize the exposure of sanitary waste to precipitation, stormwater runoff, and snow melt.

Description	The site will utilize portable restrooms. These restrooms will be located away from any watercourses or stormwater infrastructure.
Installation Timing	Shall be implemented once construction begins
Maintenance	Maintenance shall be completed immediately as needed. Tipped over portable toilets shall be repaired as soon as possible to ensure sanitary waste is not spilled onsite.
Responsible Party	General Contractor/Earthwork Subcontractor

7.9 SPILL PREVENTION AND RESPONSE

Spills on pavement shall be absorbed with sawdust, kitty litter or other absorbent material and disposed of with the trash at a licensed sanitary landfill. Hazardous or industrial wastes such as most solvents, gasoline, oil-based paints, and cement curing compounds require special handling. Spills shall be reported to Ohio EPA (1-800-282-9378). Spills of 25 gallons or more of petroleum products shall be reported to Ohio EPA (1-800-282-9378), the local fire department, and the Local Emergency Planning Committee within 30 min. of the discovery of the release. All spills, which result in contact with waters of the state, must be reported to OHIO EPA's Hotline.

SECTION 8: INSPECTION, MAINTENANCE, AND CORRECTIVE ACTION

8.1 INSPECTION PERSONNEL

The operator shall assign qualified inspection personnel to conduct inspections to ensure that the control practices directed under this SWP3 are functional, adequate, and properly implemented or whether additional control measures are required.

Inspection personnel shall be knowledgeable in the principles and practice of erosion and sediment controls, possessing the skills to assess all conditions at the construction site that could impact stormwater quality and the effectiveness of any sediment and erosion control measures selected to control the quality of stormwater discharges from the construction activity.

8.2 INSPECTION SCHEDULE

At a minimum, all controls on the site must be inspected:

- after any storm event greater than one-half inch of rain per 24-hour period by the end of the next calendar day, excluding weekends and holidays unless work is scheduled; and
- once every seven calendar days.

The inspection frequency may be reduced to at least once every month for dormant sites if the entire site is temporarily stabilized or runoff is unlikely due to weather conditions for extended periods (e.g., the site is covered with snow or ice, or the ground is frozen). The beginning and ending dates of any reduced inspection frequency shall be documented in the grading and stabilization log.

Once a definable area has achieved final stabilization, the area may be marked on the SWP3, and no further inspection requirements shall apply to that portion of the site.

8.3 INSPECTION PROCEDURE

At a minimum, the inspection shall include the following.

- Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of or the potential for pollutants entering the drainage system.
- Erosion and sediment control measures identified in this SWP3 shall be observed to ensure that those are operating correctly.
- Discharge locations shall be inspected to ascertain whether erosion and sediment control measures are effective in preventing significant impacts to the receiving waters.
- Locations where vehicles enter or exit the site shall be inspected for evidence of off-site vehicle tracking.

During each inspection, the checklist included in Appendix J must be completed and signed by the qualified inspection personnel representative. Inspection reports may be prepared, signed, and kept electronically, rather than in paper form, if the records are: (a) in a format that can be read similarly to a paper record; (b) legally dependable with no less evidentiary value than their paper equivalent; and (c) immediately accessible to the inspector during an inspection to the same extent as a paper copy stored at the site would be if the records were stored in paper form. For additional guidance on the proper practices to follow for the electronic retention of inspection report records, refer to this general permit's Fact Sheet at <https://epa.ohio.gov/divisions-and-offices/surface-water/permitting/storm-water-discharges-from-small-and-large-construction-activities--general-permit>.

8.4 CORRECTIVE ACTION DEADLINES

If the inspection reveals that a control practice needs repair or maintenance, with the exception of a sediment settling pond, it shall be repaired or maintained within **3 days** of the inspection. Sediment settling ponds shall be repaired or maintained within **10 days** of the inspection.

If the inspection reveals that a control practice fails to perform its intended function and that another, more appropriate control practice is required, the SWP3 shall be amended, and the new control practice shall be installed within **10 days** of the inspection.

If the inspection reveals that a control practice has not been implemented in accordance with this SWP3, the control practice shall be implemented within **10 days** from the date of the inspection. If the inspection reveals that the planned control practice is not needed, the record shall contain a statement of explanation as to why the control practice is not needed.

8.5 RECORD KEEPING

The NPDES permittee shall maintain for three years following the submittal of a notice of termination form, a record summarizing the results of the inspection, names(s), and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the SWP3 and a certification as to whether the facility complies with the SWP3 and the permit and identify any incidents of non-compliance. The record and certification shall be signed.

SECTION 9: CERTIFICATION

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

I certify this document complies with the requirements of the stormwater management program of the City of Dublin.

SWPPP Prepared By:

Name: James Akins, CPESC No. 3998 Title: Water Quality Manager

Signature:  Date: 07/31/2026

Operator:

Name: _____ Title: _____

Signature: _____ Date: _____

SWP3 APPENDICES

Appendix A – Ohio EPA Notice of Intent (NOI) Application

Appendix B – Ohio EPA NPDES Permit Approval Letter

Appendix C – Ohio EPA NOI Co-Permittee Application Guidance

Appendix D – Ohio EPA Notice of Termination (NOT) Application Guidance

Appendix E – Contractor and Subcontractor Acknowledgement Form

Appendix F – Erosion and Sediment Control Plan & Best Management Practice Details

Appendix G – Land Disturbance and Stabilization Activities Log

Appendix H – Inspection Reports & Corrective Action Log

Appendix I – Surface Water Impact Permits

Appendix A – Ohio EPA Notice of Intent (NOI) Application



Division of Surface Water - Notice of Intent (NOI) For Coverage Under Ohio Environmental Protection Agency General NPDES Permit

(Read accompanying instructions carefully before completing this form.)

Submission of this NOI constitutes notice that the party identified in Section I of this form intends to be authorized to discharge into state surface waters under Ohio EPA's NPDES general permit program. Becoming a permittee obligates a discharger to comply with the terms and conditions of the permit. Complete all required information as indicated by the instructions. Do not use correction fluid on this form. Forms transmitted by fax will not be accepted. A check for the proper amount must accompany this form and be made payable to "Treasurer, State of Ohio." (See the fee table in Attachment C of the NOI instructions for the appropriate processing fee.)

I. Applicant Information/Mailing Address

Company (Applicant) Name: City of Dublin

Mailing (Applicant) Address: 6555 Shier Rings Road

City: Dublin

State : OH

Zip Code: 43016

Country: USA

Contact Person: Paul Hammersmith

Phone: (614) 410-4617

Fax:

Contact E-mail Address: phammersmith@dublin.oh.us

II. Facility/Site Location Information

Facility/Site Name: Woodlands Basin 2 and Riverside Basin 1 Maintenance

Facility Address: May Apple Ct. and Oak Wood Ct.

City: Dublin

State: OH

Zip Code: 43016

County: Franklin

Township:

Facility Contact Person: Michael
Hendershot

Phone: (614) 410-4657

Fax:

Facility Contact E-mail Address: mhendershot@dublin.oh.us

Latitude: 40.12504726

Longitude: -83.10965485

Facility/Map Attachment NOI Map.pdf

Receiving Stream or MS4: Unnamed tributary streams to the Scioto River

III. General Permit Information

General Permit Number: OHC000006

Coverage Type: New

Type of Activity: Construction Site Stormwater General Permit

SIC Code(s):

Existing NPDES Facility Permit Number: 4GC11366*AG

ODNR Coal Mining Application Number:

If Household Sewage Treatment System, is system for:

New Home Construction:

Replacement of failed existing system:

Outfall	Design Flow (MGD):	Associated Permit Effluent Table:	Receiving Water :	Latitude	Longitude

Are These Permits Required?

PTI: NO

Individual 401 Water Quality Certification: NO

Individual NPDES: NO

Isolated Wetland: NO

U.S. Army Corp Nationwide Permit: NO

Proposed Project Start Date(if applicable): October 01, 2026

Estimated Completion Date(if applicable): June 01, 2027

Total Land Disturbance (Acres): 1.0000

MS4 Drainage Area (Sq. Miles):

SWP3 Attachment(s): <None>

IV. Payment Information

Check #:

For Ohio EPA Use Only

Check Amount:

Check ID(OFA): _____

ORG #: _____

Date of Check:

Rev ID: _____

DOC #: _____

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

Applicant Name (printed or typed):

Title:

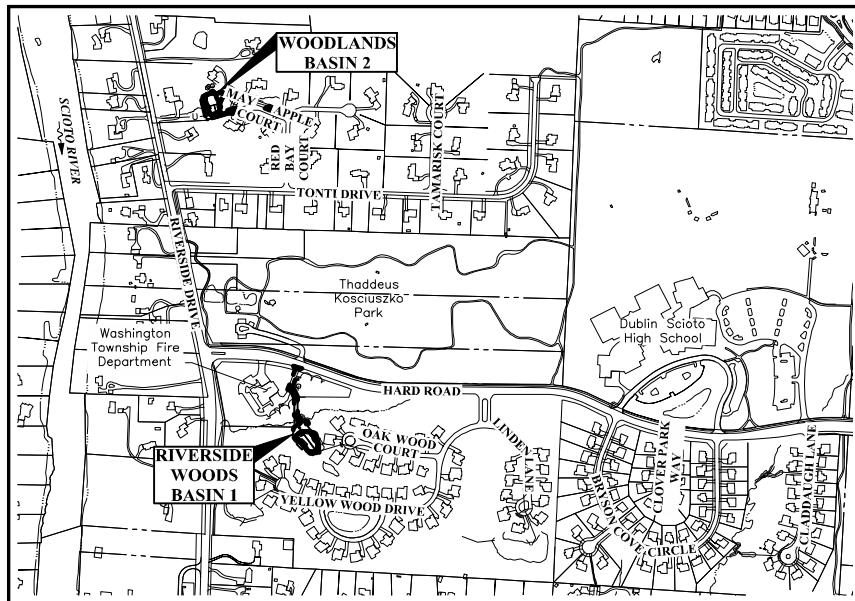
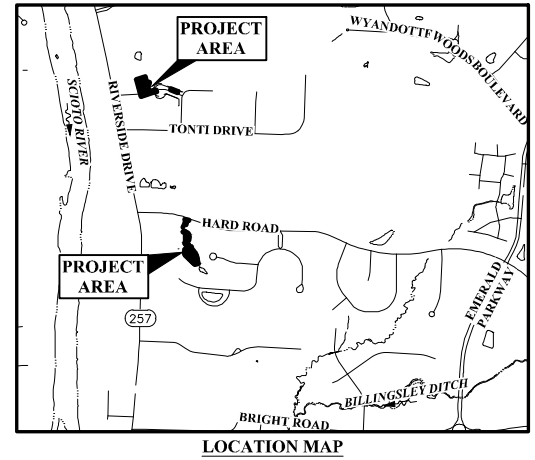
Signature:

Date:

ADDITIONAL INFORMATION

Please add any additional comments or attachments below.

CITY OF DUBLIN, FRANKLIN COUNTY, OHIO
OEPA NOI MAP
Woodlands Basin 2 & Riverside Basin 1
Maintenance Activities



Appendix B – Ohio EPA NPDES Permit Approval Letter



August 6, 2026

City of Dublin
Paul Hammersmith
6555 Shier Rings Road
Dublin OH 43016

Re: Approval Under Ohio EPA National Pollutant Discharge Elimination System (NPDES) – Construction Site Stormwater General Permit – OHC000006

Dear Applicant,

Your NPDES Notice of Intent (NOI) application is approved for the following facility/site. Please use your Ohio EPA Facility Permit Number in all future correspondence.

Facility Name:	Woodlands Basin 2 and Riverside Woods Basin 1 Maintenance
Facility Location:	May Apple Ct. and Oak Wood Ct.
City:	Dublin
County:	Franklin
Ohio EPA Facility Permit Number:	4GC11366*AG
Permit Effective Date:	August 6, 2026
Permit Expiration Date:	April 22, 2028

Please read and review the permit carefully. The permit contains requirements and prohibitions with which you must comply. A copy of the general permit may be viewed or downloaded from [here](#). Coverage under this permit will remain in effect until a renewal of the permit is issued by the Ohio EPA.

If more than one operator (defined in the permit) will be engaged at the site, each operator shall seek coverage under the general permit. Additional operator(s) shall submit a Co-Permittee NOI to be covered under this permit. There is no fee associated with the Co-Permittee NOI form.

Please be aware that this letter only authorizes discharges in accordance with the above referenced General Permit. The placement to fill into regulated waters of the state may require a 401 Water Quality Certification and/or Isolated Wetlands Permit from Ohio EPA. Failure to obtain the required permits in advance is a violation of Ohio Revised Code 6111 and potentially subjects you to enforcement and civil penalties.

If you need assistance or have questions, please call (614) 644-2001 and ask for Construction Site Stormwater General Permit support or visit our website at epa.ohio.gov.

Sincerely,

John Logue
Director

Appendix C – Ohio EPA NOI Co-Permittee Application Guidance

Where one operator has already submitted an NOI prior to other operator(s) being identified, the additional operator shall request modification of coverage to become a co-permittee. In such instances, the co-permittees shall be covered under the same facility permit number.

Operator: The party has day-to-day operational control of all activities at a project which are necessary to ensure compliance with a SWP3 for the site and all permit conditions including the ability to authorize modifications to the SWP3, construction plans and site specification to ensure compliance with the General Permit

Appendix D – Ohio EPA Notice of Termination (NOT) Application Guidance

All permittees shall submit a NOT form within 45 days of completing all permit requirements.

A NOT shall be submitted to the Ohio EPA upon meeting the following requirements:

- All disturbed areas resulting from the construction have been permanently stabilized
- Temporary sediment controls have been removed
- The post-construction water quality BMP has been installed per plan and an Operation and Maintenance Plan has been provided to the post-construction operator

Appendix E – Contractor & Subcontractor Acknowledgement Form

"I have been informed of the terms and conditions of Ohio's storm water general permit for construction activities (the "Permit") and have reviewed and understand the conditions and responsibilities of this Stormwater Pollution Prevention Plan ("SWP3"); I acknowledge my responsibilities under the Permit and SWP3."

[illegible]

Appendix F – Erosion and Sediment Control & Best Management Practice Details

PLAN DESIGNER:	EMH&T Inc. Alex Jensen, PE, CFM 5500 New Albany Road Columbus, Ohio 43054 Tel: (614) 775-4500 Fax: (614) 775-4800
OWNER:	City of Dublin 6555 Shier Rings Road Dublin, Ohio 43016 Tel: (614) 410-4740
PROJECT DESCRIPTION:	The project includes sediment removal, clearing and grubbing, installation of underdrains and new outlet structures, and regrading of the existing basin extents and spillways for both the Woodlands Basin 2 and Riverside Woods Basin 1.
EXISTING SITE CONDITIONS:	Pre-development conditions of the sites include overgrowth of woody vegetation and sediment accumulation within the extents of the existing basins.
RECEIVING STREAM:	Unnamed Tributaries to the Scioto River.
ADJACENT AREAS:	The Woodlands Basin 2 site is bordered by Riverside Drive to the west, Tonti Drive to the south, and Red Bay Court to the east. The Riverside Woods Basin 1 site is bordered by Riverside Drive to the west, Yellow Wood Drive to the south, and Hard Road to the north.
DISTURBED AREA:	The total disturbed area is 1.00 ± acres. 0.40 acres will be disturbed on the Woodlands Basin 2 site and 0.60 acres will be disturbed on the Riverside Woods Basin 1 site.
EROSION AND SEDIMENT MEASURES:	Erosion and sediment control for the project will be managed in 1 phase(s).
MAINTENANCE:	Once construction has been completed, all components, including seeding and planting materials, shall be inspected weekly by the Contractor and after significant rainfalls for a period of 12 months. Any damaged or impaired items are to be replaced or repaired immediately as necessary.
CONSTRUCTION SEQUENCE:	<u>CONSTRUCTION SEQUENCING</u>

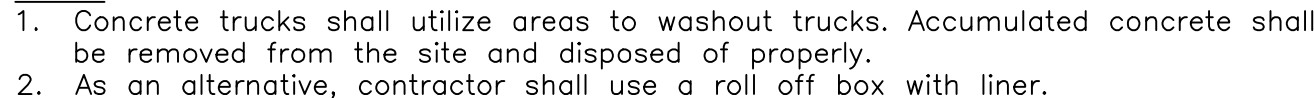
- Note:**
The construction sequence provided above is for NPDES permit coverage compliance only. The Contractor will be responsible for determining their own project schedule and shall not solely rely on the stated sequence of construction for bidding.

The Contractor shall provide a schedule of operations to the Owner. Sedimentation and erosion control features shall be placed in accordance with this schedule.

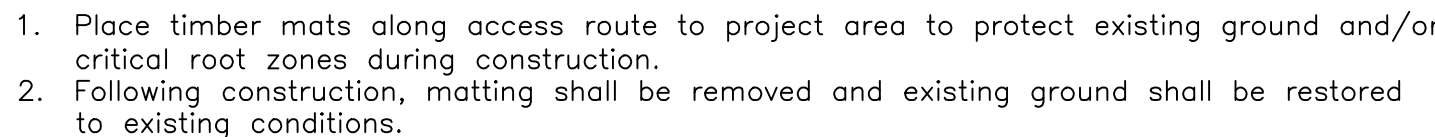
4GC11366*AG

Michael Hendershot, PE
City of Dublin
(614) 410-4657

This plan must be posted on-site. A copy of the SWPPP plan and the approved Ohio EPA Stormwater Permit (with the site-specific NOI number) shall be kept on-site at all times.

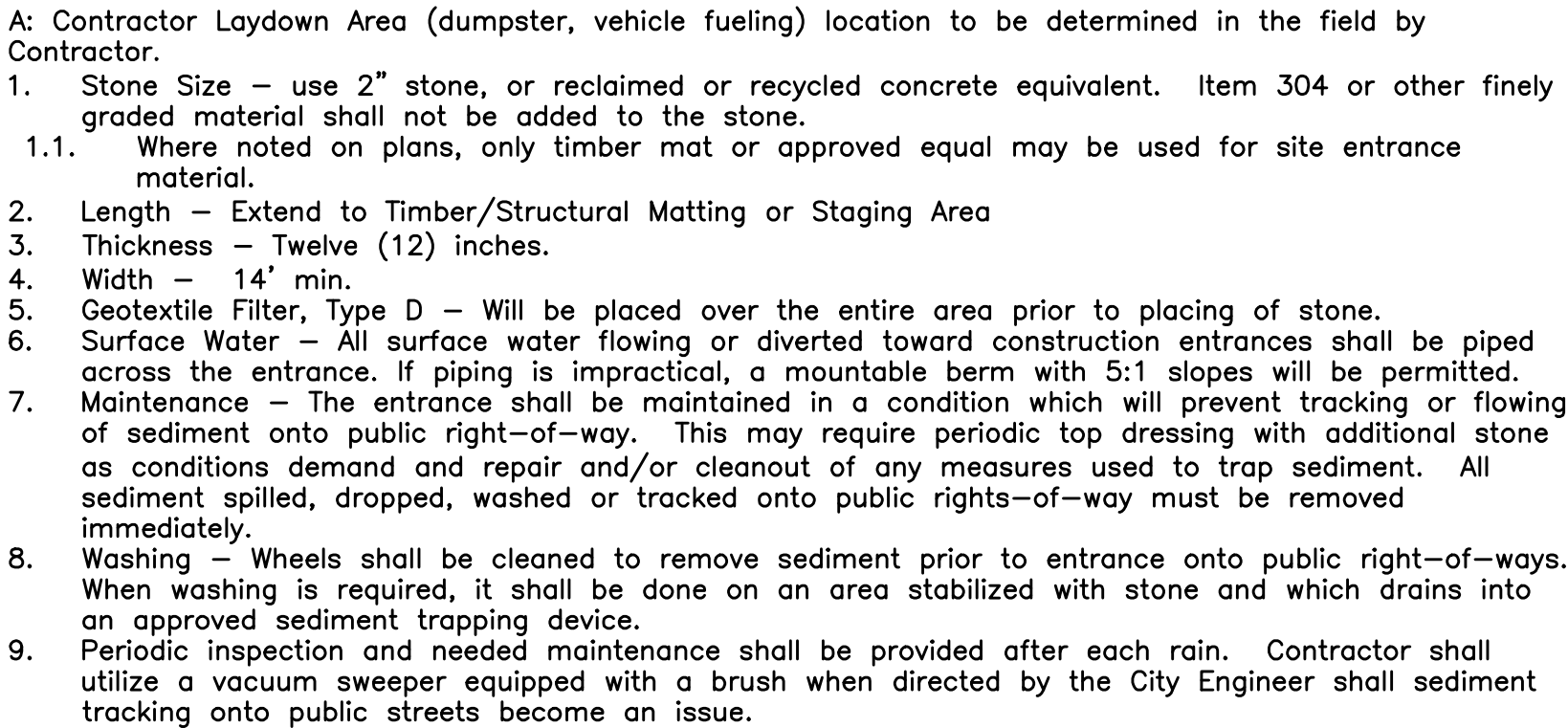


Not to Scale



NOT TO SCALE

AREA REQUIRING PERMANENT STABILIZATION	TIME FRAME TO APPLY EROSION CONTROL
Any areas within 50 feet of a surface water of the state and not at final grade	Within two days of the most recent disturbance if the area will remain idle for more than fourteen days
For all construction activities, any disturbed areas that will be dormant for more than 14 days but less than one year, and not within 50 feet of a surface water of the state	Within seven days of the most recent disturbance within the area
	For residential subdivisions, disturbed areas must be stabilized at least seven days prior to transfer of permit coverage for the individual lot(s)
Disturbed areas that will be idle over winter	Prior to the onset of winter weather



Not to Scale

CITY OF DUBLIN

CITY OF DUBLIN, FRANKLIN COUNTY, OHIO

**CITY OF DUBLIN, FRANKLIN COUNTY, OHIO
PLANS
FOR
DUBLIN BASIN MAINTENANCE
PROGRAM 2026**

EROSION & SEDIMENT CONTROL NOTES & DETAILS

EMHT
Everts, Meschwart, Hambleton & Tilton, Inc.
Engineers • Surveyors • Planners • Scientists
5500 New Albany Road, Columbus, OH 43054
Phone: 614.775.4500 Toll Free: 888.775.3648
emht.com

DATE
AUGUST 2026

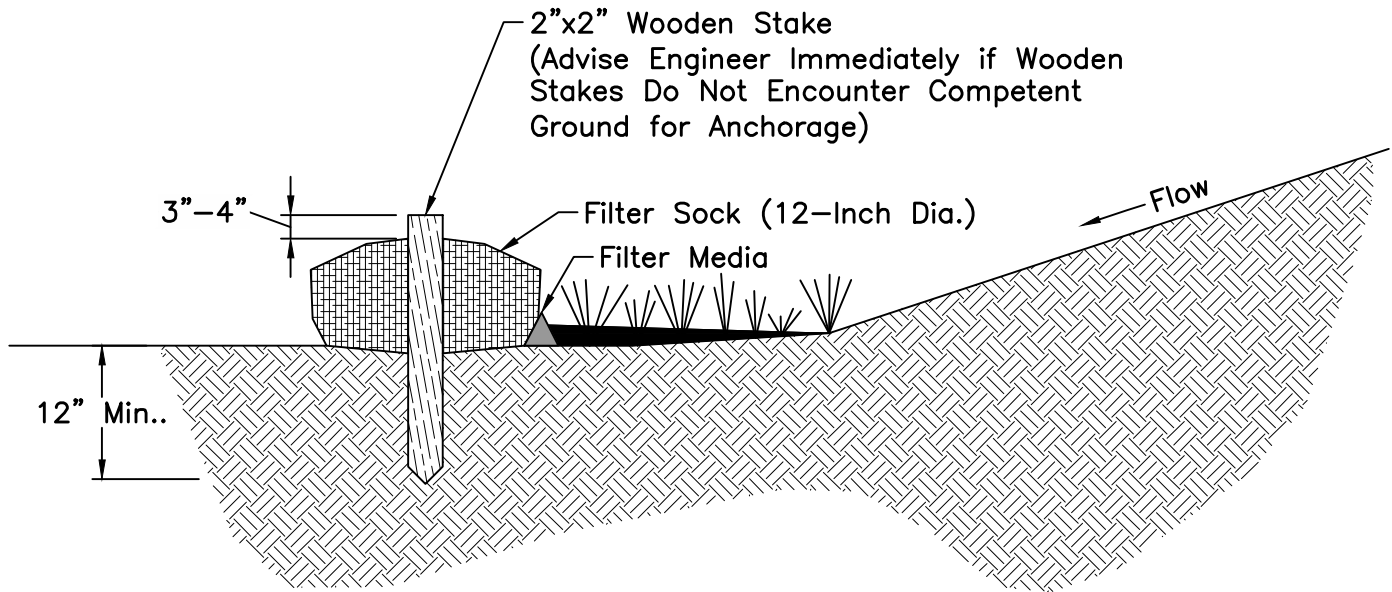
SCALE

NONE

JOB NO.
2025-0015

SHEET

18/29



1. Materials – compost used for filter socks shall be weed, pathogen and insect free and free of any refuse, contaminants or other materials toxic to plant growth. they shall be derived from a well–decomposed source of organic matter and consist of a particles ranging from 3/8” to 2”.
2. Filter socks shall be 3 or 5 mil continuous, tubular, HDPE 3/8” knitted mesh netting material, filled with compost passing the above specifications for compost products.

Installation:

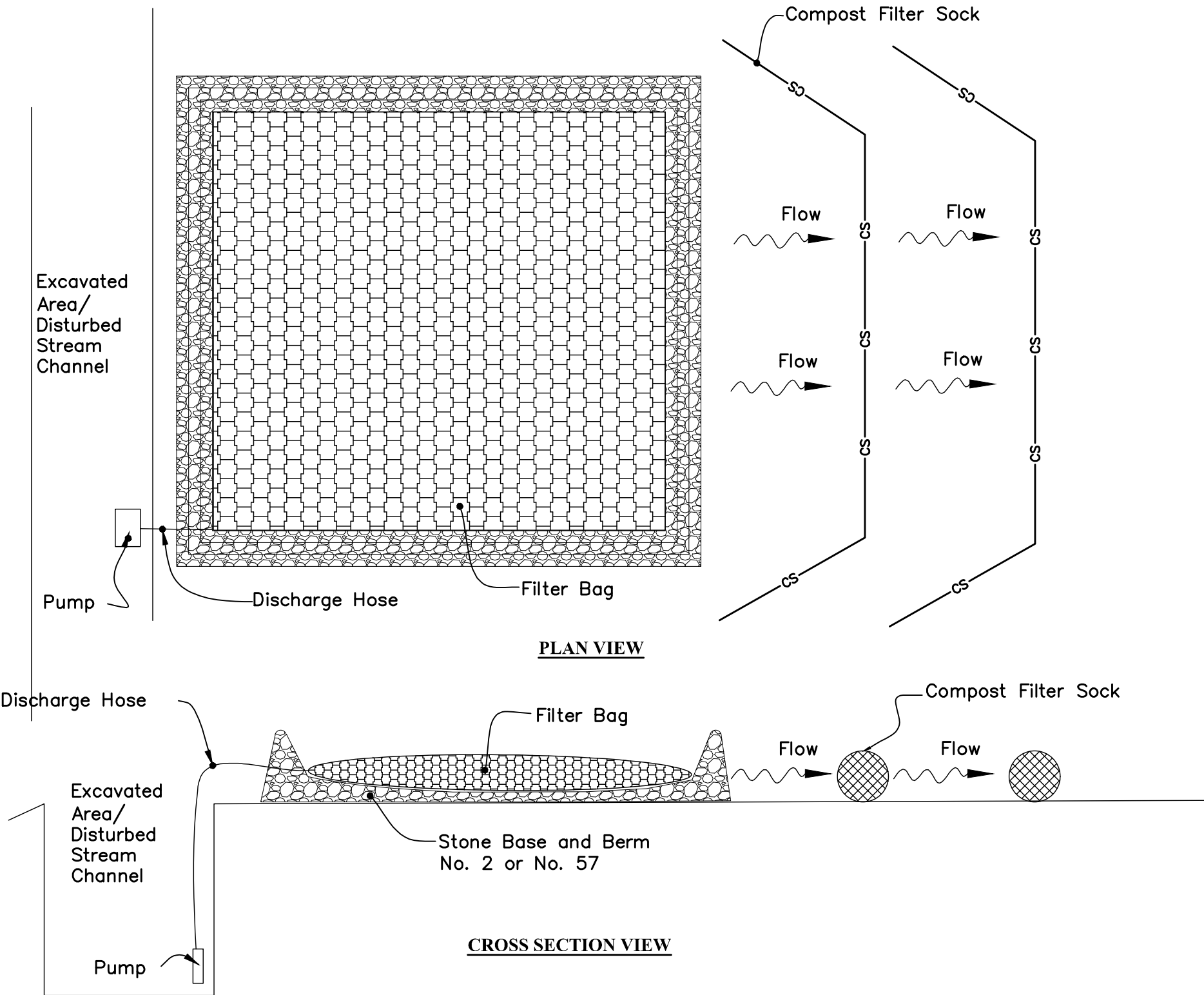
1. Filter socks will be placed on a level line across slopes, generally parallel to the base of the slope or other affected area. on slopes approaching 2:1, additional socks shall be provided at the top and as needed midslope.
2. Upon installation of the filter sock, additional filter media (matching the media inside of the sock) shall be placed on the upland side of the filter sock. filter media shall extend halfway up the sock and slope at a maximum of 45 degrees to existing ground elevation.
3. Filter socks intended to be left as a permanent filter or part of the natural landscape, shall be seeded at the time of installation for establishment of permanent vegetation.
4. Filter socks are not to be used in concentrated flow situations or in runoff channels.

Maintenance:

1. Routinely inspect filter socks after each significant rain, maintaining filter socks in a functional condition at all times.
2. Remove sediments collected at the base of the filter socks when they reach 1/3 of the exposed height of the practice.
3. Where the filter sock deteriorates or fails, it will be repaired or replaced with a more effective alternative.
4. Removal – filter socks will be dispersed on site when no longer required in such as way as to facilitate and not obstruct seedings.

DETAIL
COMPOST FILTER SOCK DETAIL

Not to Scale



Installation:

The Contractor shall pump muddy water encountered within excavated areas that are not tributary to sediment basins into a filter fabric bag. The bag shall be placed within a level undisturbed area as far away from the stormwater outfall as possible. The bag shall be placed on top of a aggregate pad. Additionally, a perimeter aggregate berm shall be constructed around the bag. Perimeter controls such as compost filter socks shall be utilized along the downstream side of the bag. The perimeter controls shall be installed to ensure that the water flowing out of the bag does not flow around the ends of the controls. Upon completion, the bag shall be removed to an area away from the stormwater outfall and opened. The accumulated sediment shall be spread out to allow to dry and stabilized with vegetation. Filter bag shall be sized based upon the pumping rate into the bag.

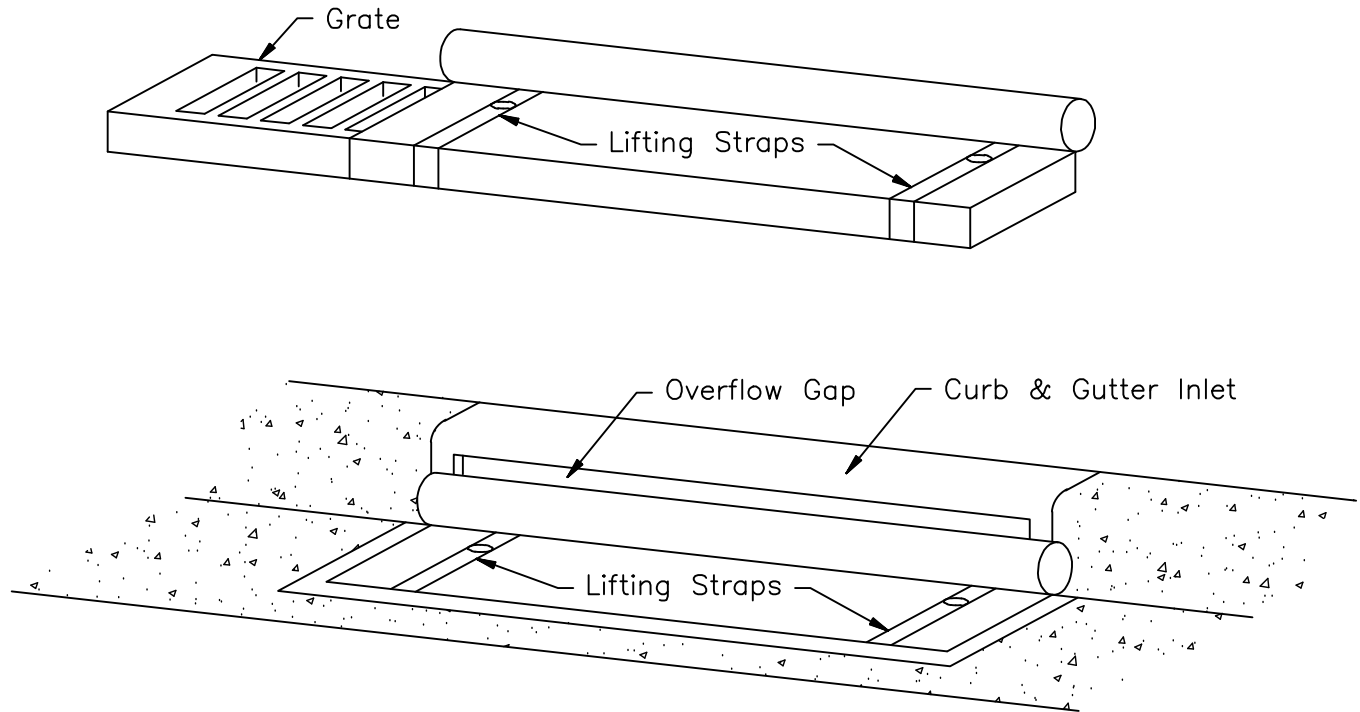
Maintenance:

The filter bag shall be replaced when the bag is half filled with sediment.

The Contractor shall contact the Owner/Engineer for consultative services if dewatering activities overwhelm the filter bag and perimeter controls.

DETAIL
DEWATERING FILTER BAG

Not to Scale



Installation:

1. Stand grate on end. Slide the Dandy Curb Bag on top of the grate. Pull all excess down. Lay unit on its side. Carefully tuck flap in. Press Velcro strips together. Install the unit making sure front edge of grate is inserted in frame first then lower back into place. Press Velcro dots together which are located under lifting straps. This insures straps remain flush with gutter.

Maintenance:

1. With a stiff bristle broom sweep silt and other debris off surface after each event.

DETAIL
CURB INLET SEDIMENT PROTECTION

Not to Scale

REVISIONS		DESCRIPTION	
MARK	DATE	DESCRIPTION	

CITY OF DUBLIN	
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CITY OF DUBLIN, FRANKLIN COUNTY, OHIO	
PLANS FOR	
DUBLIN BASIN MAINTENANCE	
PROGRAM 2026	
EROSION & SEDIMENT CONTROL DETAILS	

EMHT	
EARTH & MARINE TECHNOLOGIES, INC.	
Engineers • Surveyors • Planners • Scientists	
5800 New Albany Road, Columbus, OH 43254	
Phone: 614.775.5500 Toll Free: 888.775.3446	
emht.com	

DATE
AUGUST 2026

SCALE
AS NOTED

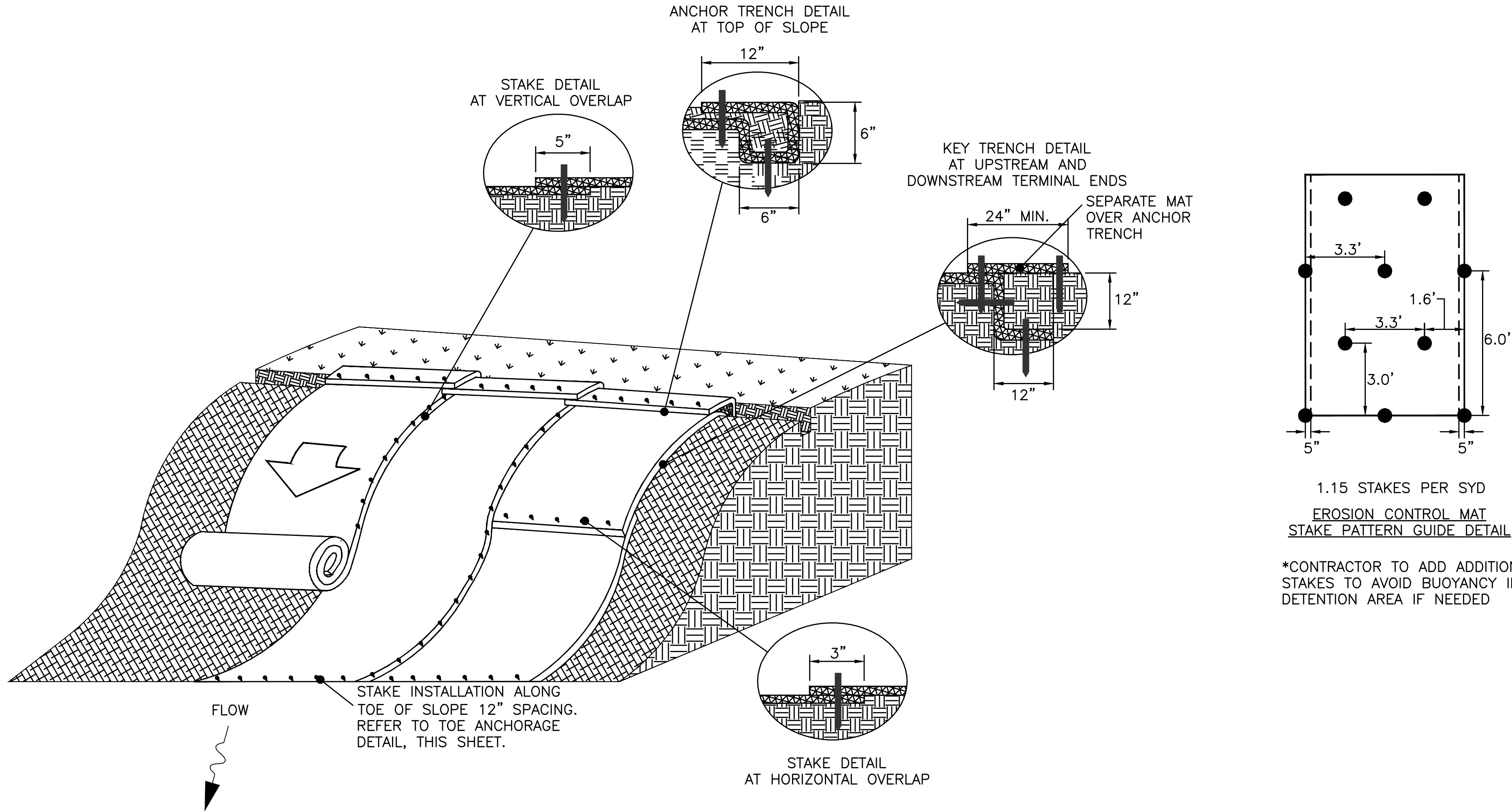
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2025-0015

SHEET
19/29

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Item 670, Slope Erosion Protection Mat, As Per Plan and Item 670, Turf Reinforcement Mat, As Per Plan Installation Notes:

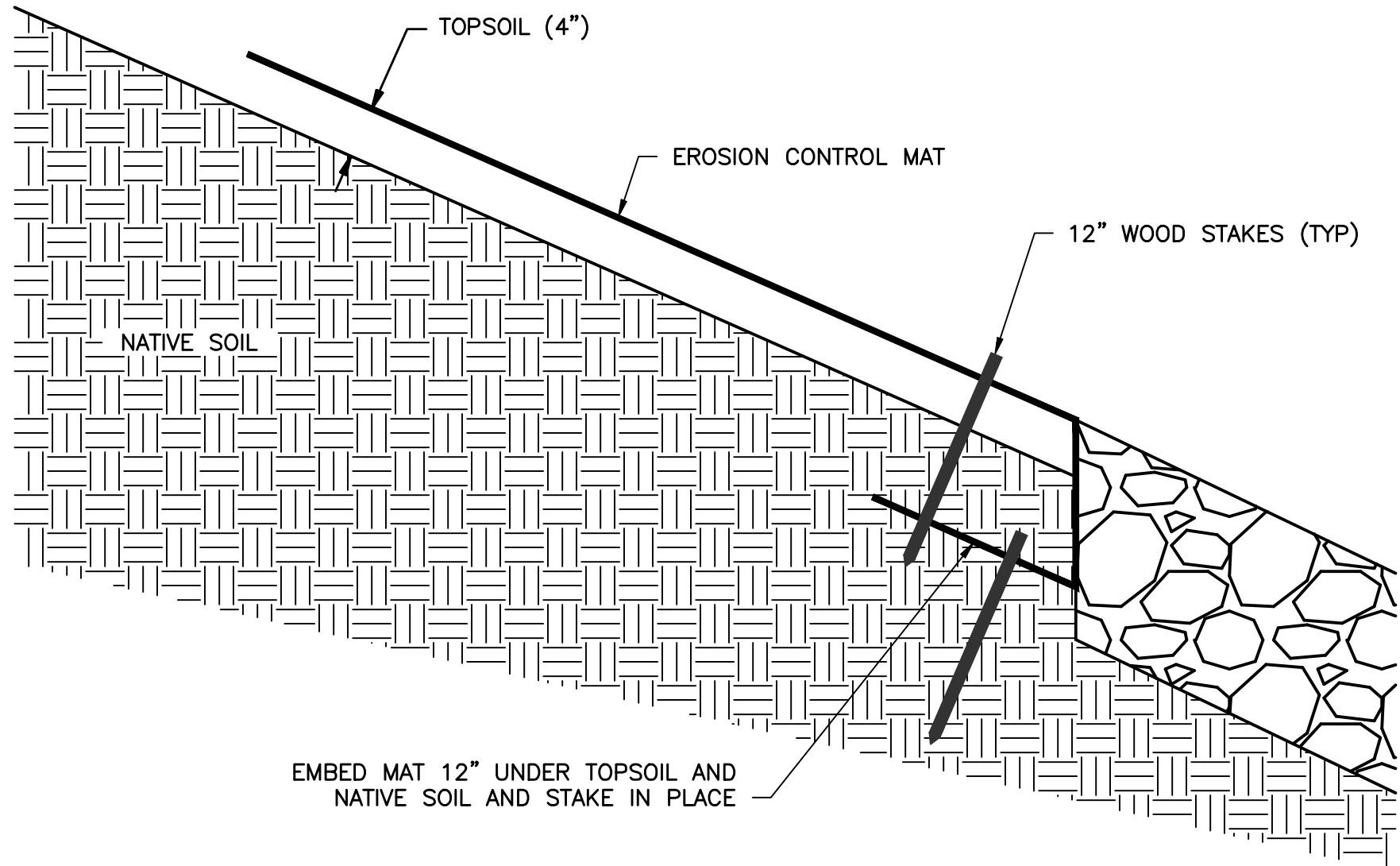
1. Install topsoil to final grade, as shown on the plans.
2. Install seed mix with fertilizer.
3. Begin at the toe of slope. Unroll mat parallel to the basin. Ensure mat is flat on the ground. Anchor matting in toe trench with 2x2x12 inch wood stakes or 2x2x12 wedges. 12 inch wire "U" staples may be substituted for wood stakes. Refer to Detail, This Sheet.
4. Unroll matting over topsoil and affix firmly to the slope with stakes placed in appropriate locations as shown in the stake pattern guide.
5. Stake through the matting at the toe of slope, approximately 12 inches apart across entire mat length.
6. Consecutive sections of matting spliced upstream to downstream must be end-over-end (shingle style) with an approximate 3 inch overlap. Stake through overlapped area, approximately 12 inches apart across entire mat width.
7. At the upstream and downstream terminal ends of the matting, provide an anchor trench to key matting into the soil. Provide a 12 inch wide x 24 inch deep trench with a row of stakes approximately 12 inches apart. Backfill and compact the trench after staking. Apply seed and fertilizer. Install separate minimum 24 inch wide mat over anchor trench, secure mat with stakes spaced 24 inches apart along both sides of the trench.
8. The edges of parallel sections of matting must be staked with an approximately 5 inch overlap. Overlap the mat section from higher on the slope over the mat positioned lower on the slope. Space stakes 12 inches apart along the mat overlap.
9. Anchor the matting along the top of slope in a 6 inch deep x 6 inch wide trench with approximately 12 inches of matting extended beyond the upslope portion of the trench. Anchor the matting with a row of stakes approximately 12 inches apart in the bottom of the trench. Backfill and compact the trench after stapling. Apply seed and fertilizer to the compacted soil and fold the remaining 12 inch portion of matting back over the seed and compacted soil. Secure matting over compacted soil with a row of stakes spaced approximately 12 inches apart across the length of the matting.
10. Product Standard: Details and Notes for temporary matting products are based on the North American Green C125BN. Substitute Biodegradable products that provide equal erosion protection will be considered as outlined in the specifications for Item 670, Slope Erosion Protection Mat, As Per Plan.



DETAIL

TEMPORARY EROSION CONTROL MAT – VERTICAL INSTALLATION DETAIL

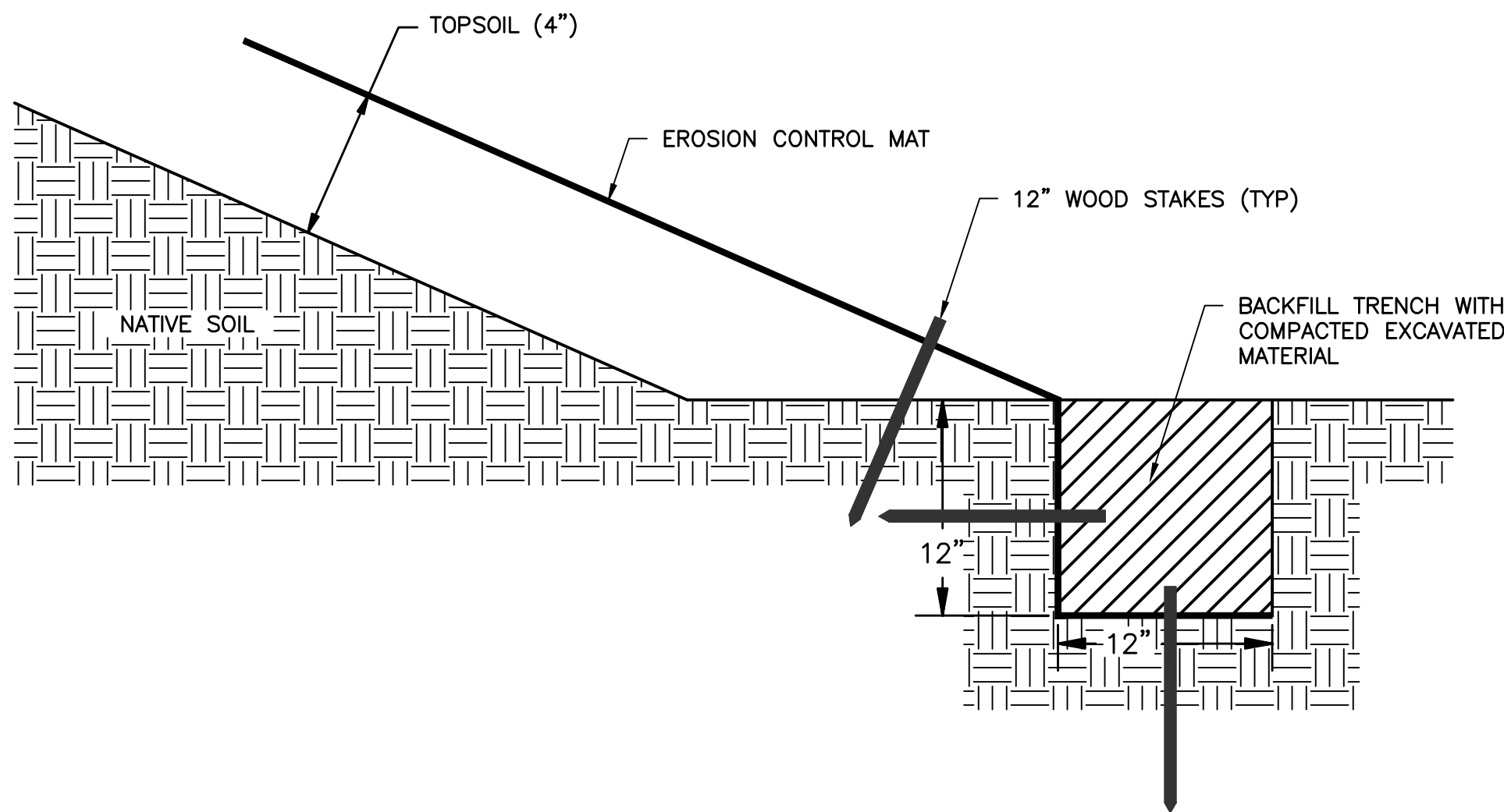
Not to Scale



DETAIL

SLOPE EROSION PROTECTION MAT TOE ANCHORAGE DETAIL AT RIPRAP

Not to Scale



DETAIL

EROSION PROTECTION MAT TOE ANCHORAGE DETAIL IN SOIL

Not to Scale

REVISIONS
MARK
DATE
DESCRIPTION

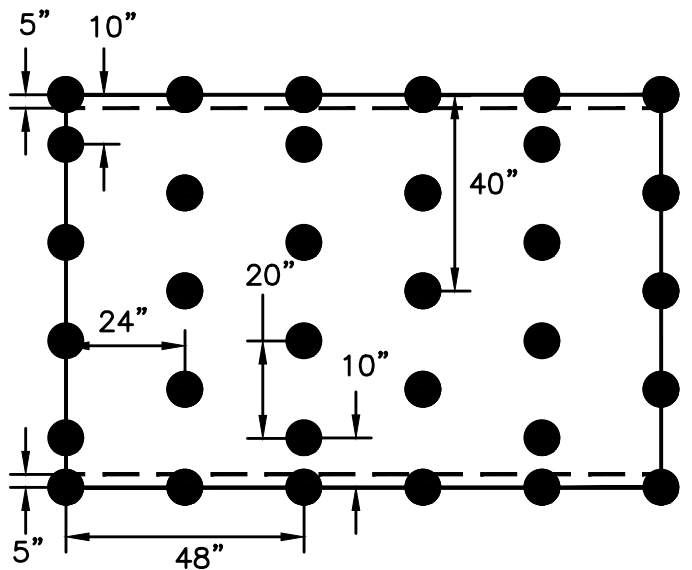
CITY OF DUBLIN

CITY OF DUBLIN, FRANKLIN COUNTY, OHIO
PLANS
FOR
DUBLIN BASIN MAINTENANCE
PROGRAM 2026
EROSION CONTROL MATTING VERTICAL DETAILS

EMHT
EARTH MANAGEMENT TECHNOLOGIES, INC.
Engineers • Surveyors • Planners • Scientists
5500 New Albany Road, Columbus, OH 43254
Phone: 614.775.5500 Toll Free: 888.775.3648
emht.com

DATE
AUGUST 2026
SCALE
NONE
JOB NO.
2025-0015
SHEET
20/29

1. Install topsoil to final grade, as shown on the plans.
2. Install seed mix with fertilizer.
3. Begin at the toe of slope. Unroll mat parallel to the basin. Ensure mat is flat on the ground. Anchor matting in toe trench with 2x2x12 inch wood stakes or 2x2x12 wedges. 12 inch wire "U" staples may be substituted for wood stakes. Refer to Detail, This Sheet.
4. Unroll matting over topsoil and affix firmly to the slope with stakes placed in appropriate locations as shown in the stake pattern guide.
5. Stake through the matting at the toe of slope, approximately 12 inches apart across entire mat length.
6. Consecutive sections of matting spliced upstream to downstream must be end-over-end (shingle style) with an approximate 3 inch overlap. Stake through overlapped area, approximately 12 inches apart across entire mat width.
7. At the upstream and downstream terminal ends of the matting, provide an anchor trench to key matting into the soil. Provide a 12 inch wide x 24 inch deep trench with a row of stakes approximately 12 inches apart. Backfill and compact the trench after staking. Apply seed and fertilizer. Install separate minimum 24 inch wide mat over anchor trench, secure mat with stakes spaced 24 inches apart along both sides of the trench.
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9. Anchor the matting along the top of slope in a 6 inch deep x 6 inch wide trench with approximately 12 inches of matting extended beyond the upslope portion of the trench. Anchor the matting with a row of stakes approximately 12 inches apart in the bottom of the trench. Backfill and compact the trench after stapling. Apply seed and fertilizer to the compacted soil and fold the remaining 12 inch portion of matting back over the seed and compacted soil. Secure matting over compacted soil with a row of stakes spaced approximately 12 inches apart across the length of the matting.
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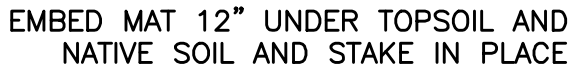


STREAMBANK STAKE PATTERN GUIDE DETAIL - IN CHANNEL

STREAMBANK STAKE PATTERN GUIDE DETAIL – IN FLOODPLAIN

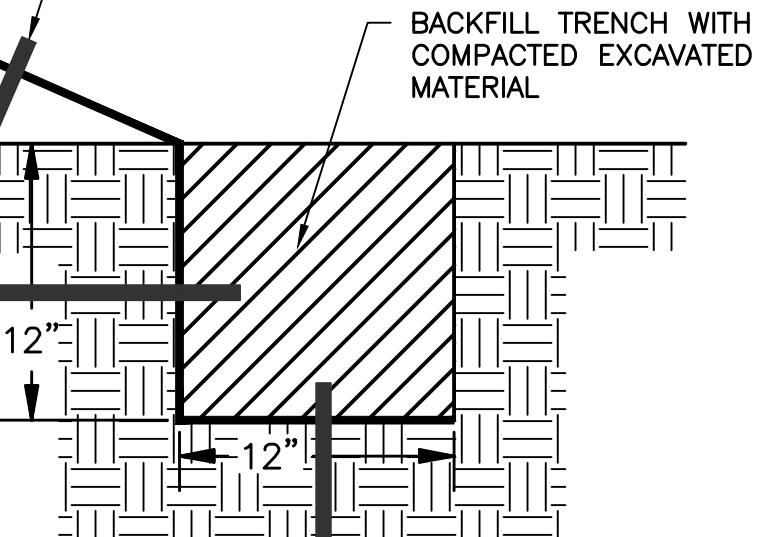
TEMPORARY EROSION CONTROL MAT – HORIZONTAL INSTALLATION DETAIL

Not to Scale



EROSION PROTECTION MAT TOE ANCHORAGE DETAIL AT RIPRAP

Not to Scale



EROSION PROTECTION MAT TOE ANCHORAGE DETAIL IN SOIL

Not to Scale

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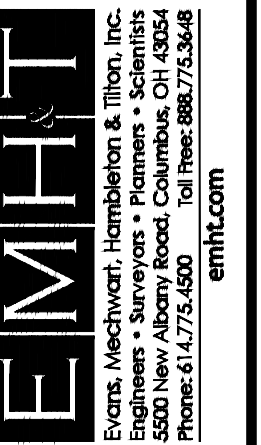
CITY OF DUBLIN

PLANS

FOR

PROGRAM 2026

EROSION CONTROL MATTING HORIZONTAL DETAILS



DATE _____

AUGUST 2026

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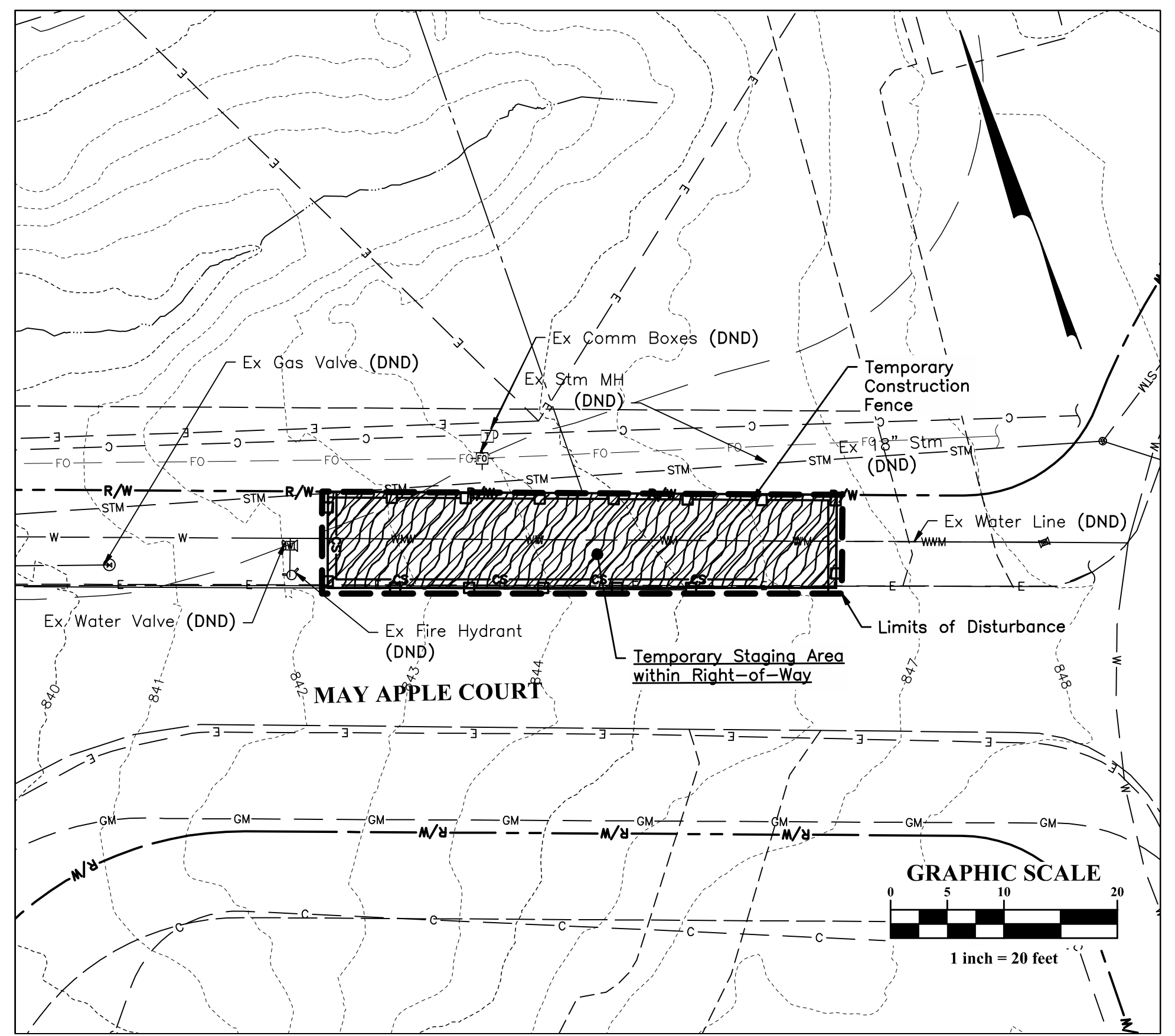
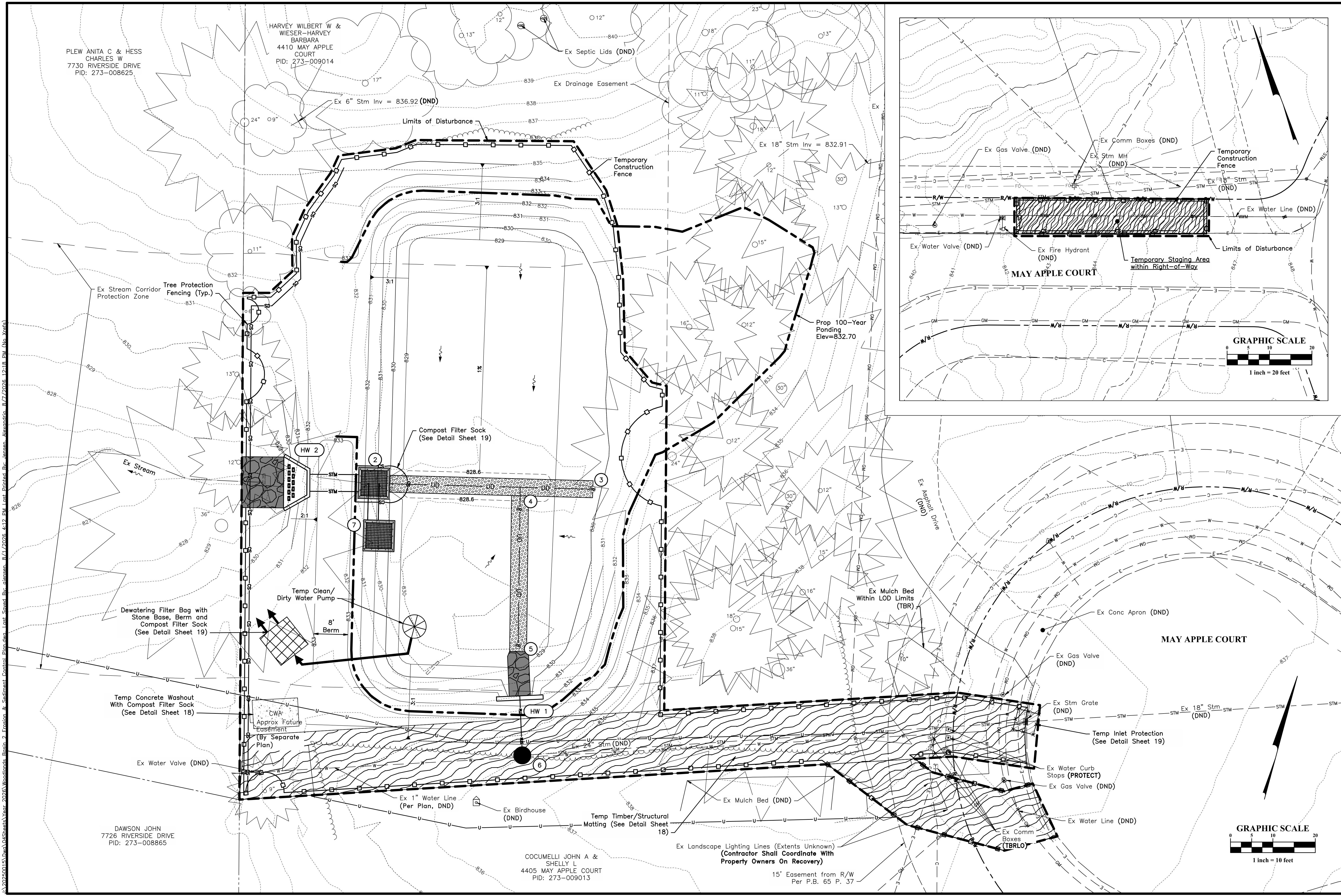
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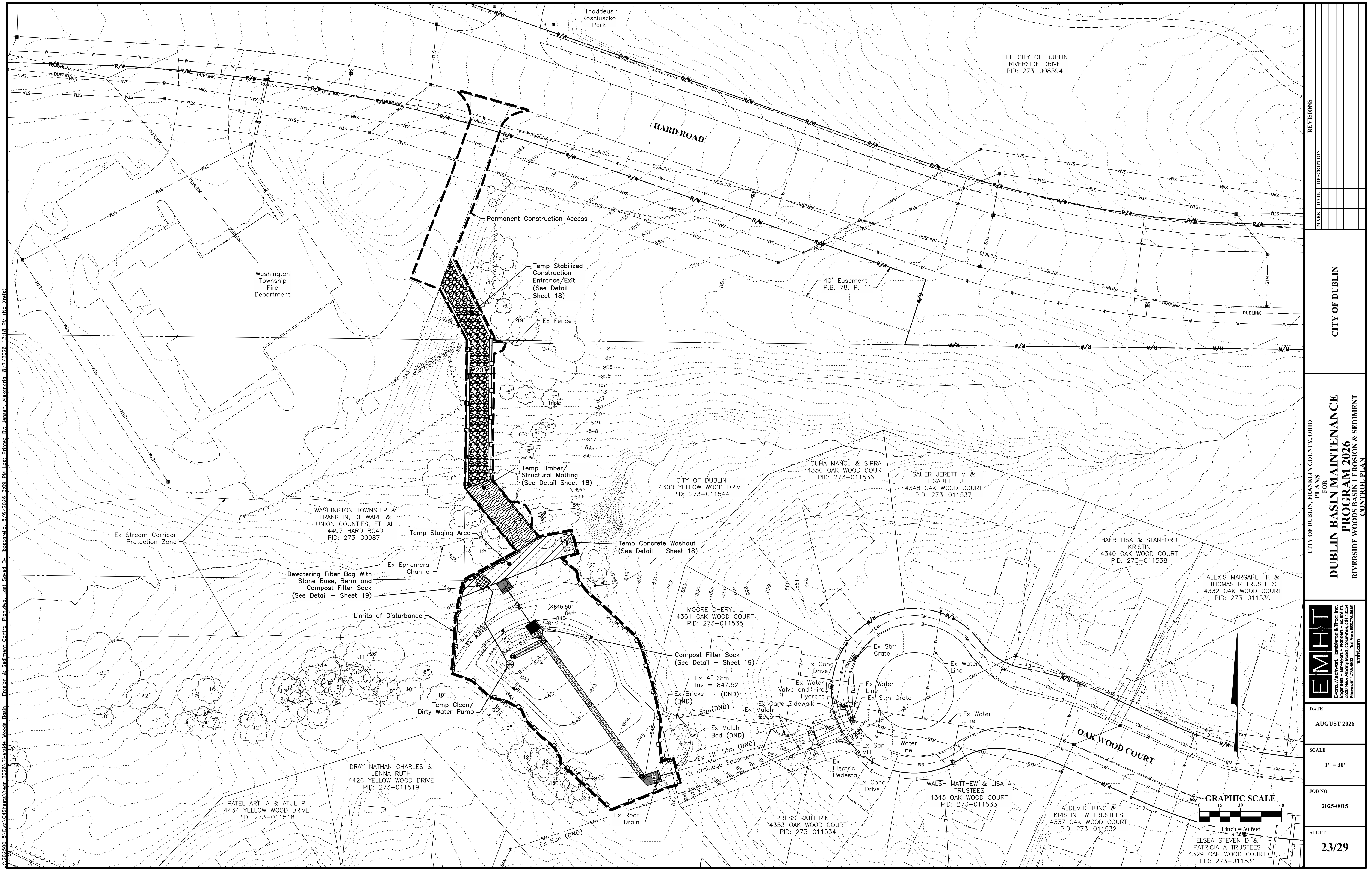
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REVISIONS	
MARK	DATE

CITY OF DUBLIN	
FOR PLANS	
DUBLIN BASIN MAINTENANCE PROGRAM 2026	
WOODLANDS BASIN 2 EROSION & SEDIMENT CONTROL PLAN	
DATE	AUGUST 2026
SCALE	AS NOTED
JOB NO.	2025-0015
SHEET	22/29

EMHT
ENGINEERING & MAINTENANCE
5500 New Albany Road, Columbus, OH 43254
Phone: 614.775.5500 Fax: 614.775.5501
emht.com



REVISIONS	
MARK	DESCRIPTION

CITY OF DUBLIN

DUBLIN BASIN MAINTENANCE
PROGRAM 2026
RIVERSIDE WOODS BASIN 1 EROSION & SEDIMENT
CONTROL PLAN

DATE
AUGUST 2026

SCALE
1" = 30'

JOB NO.
2025-0015

SHEET
23/29

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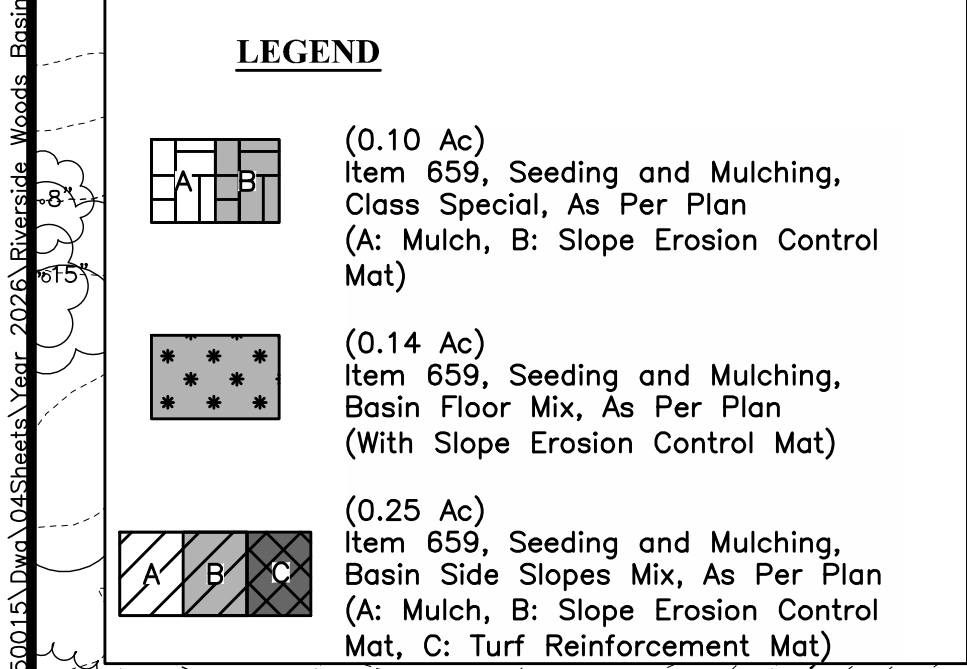


Native Grass Seeding Table Notes:

1. Overseed (cover crop) shall be included and applied with the permanent seed to quickly stabilize the site. This is required because the permanent seed takes much longer to germinate than the cover crop.
2. Contractor is expected to install the Permanent Seed prior to the installation of erosion control matting. If this seed mix is installed under matting after October 31 and before March 15, the application rate shall be 150% of normal rates listed in the table.
3. For any areas not receiving matting protection, the October 31 cutoff date for permanent seeding will remain in effect. Seeding shall not occur June 1 to September 14.
4. Lawn coverage shall be held to an 85% germination rate, without weeds, to be considered for substantial completion.
5. All disturbed areas that will be seeded, regardless of topsoil placement, shall be disced 12" prior to seeding.

Planting Table Notes:

1. Contractor shall submit a plant material list to the City reflecting availability of preferred plant species. This submission shall be approved by the City prior to ordering plant material.

CITY OF DUBLIN

CITY OF DUBLIN, FRANKLIN COUNTY, OHIO
PLANS
FOR
**DUBLIN BASIN MAINTENANCE
PROGRAM 2026**
RIVERSIDE WOODS BASIN 1 RESTORATION PLAN

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<u>SITE PREPARATION AND TOPSOIL PLACEMENT</u>		4.7.	<u>CONTAINER TREE AND SHRUB SPECIFICATIONS:</u>	10.2.	The Contractor shall mark all planting areas with stakes. The City shall approve the layout before planting begins.	10.9.2.	For trees and shrubs planted in soil areas that are not tilled or otherwise modified to a depth of at least 12–inches over a distance of more than 10 feet radius from each tree, or 5 feet radius from each shrub, the soil around the root ball shall be loosened as defined below or as indicated on the drawings.
1.	<u>SUBMITTALS:</u>	4.7.1.	Plants shall be established and well rooted in removable containers.	10.3.	Prior permission from the City is required for planting trees and shrubs if the majority of the planting area is excessively wet (areas >0.5–inch inundation) or exceedingly dry.		
1.1.	Contractor shall submit topsoil test results according to Item 653, Topsoil Furnished and Placed, As Per Plan.	4.7.2.	Container class size shall conform to ANSI Z60.1 for container plants for each size and type of plant.	10.4.	If an area is planted in a monoculture or an inappropriate mix, as solely determined by the City, at the direction of the City, the planting or a segment of the planting shall be removed and the plants discarded. The area will then be replanted as specified. No compensation for the discarded plants, the cost of the installation of the discarded plants, or the cost of the removal of the discarded plants shall be made to the Contractor.	10.9.2.1.	The area of loosening shall be a minimum of 3 times the diameter of the root ball at the surface sloping to 2 times the diameter of the root ball at the depth of the root ball.
1.2.	Prior to placing topsoil, the Contractor shall have approval of subgrade elevations according to Item Spec, Grade Checking, As Per Plan.	5.	<u>NOMENCLATURE (FOR ALL PLANTS)</u>	10.5.	The Contractor shall ensure all utilities within the planting area are located and marked prior to plant installation.	10.9.2.2.	Loosening is defined as digging into the soil and turning the soil to reduce the compaction. The soil does not have to be removed from the hole, just dug, lifted and turned. Lifting and turning may be accomplished with a tracked mini excavator, or hand shovels.
1.3.	Prior to seeding, the Contractor shall have approval of final grade elevations according to Item Spec, Grade Checking, As Per Plan.	5.1.	A Synonymized Checklist of the Vascular Flora of the United States, Canada and Greenland: Volume II; The Biota of North America (Kartesz and Kartesz, University of North Carolina Press, 1980, or later edition) shall be the authority for plant names. The Contractor shall supply certification from the suppliers that the plants supplied are the plants specified or agreed to under substitution. No compensation shall be made for materials or the cost of installation for plants species that are not specified.	10.6.	Observe each plant after delivery and prior to installation for damage of other characteristics that may cause rejection of the plant. Notify the City of any condition observed.	10.9.2.3.	If an auger is used to dig the initial planting hole, the soil around the auger hole shall be loosened as defined above for trees and shrubs planted in soil areas that are not tilled or otherwise modified.
2.	<u>CONSTRUCTION METHODS:</u>	6.	<u>INSPECTION</u>	10.7.	No more plants shall be distributed about the planting area than can be planted and watered on the same day.	10.9.3.	The measuring point for root ball depth shall be the average height of the outer edge of the root ball after any required root ball modification.
2.1.	Contractor shall prepare the site in conformance with Item 653, Topsoil Furnished and Placed, As Per Plan.	6.1.	The Contractor shall be responsible for all certificates of inspection of plant materials that may be required by federal, state, or other authorities to accompany shipments of plants.	10.8.	<u>ROOT SYSTEM</u>	10.9.4.	If motorized equipment is used to deliver plants to the planting area over exposed planting beds, or used to loosen the soil or dig the planting holes, all soil that has been driven over shall be tilled to a depth of 6–inches.
<u>PLANTING TREES AND SHRUBS</u>		7.	<u>SCHEDULE</u>	10.8.1.	The root system of each plant, regardless of root ball package type, shall be observed by the Contractor, at the time of planting to confirm that the roots meet the requirements for plant root quality. The Contractor shall undertake, at the time of planting, all modifications to the root system required by the City to meet these quality standards.	10.9.5.	For trees to be planted in prepared planting soil that is deeper than the root ball depth, compact the soil under the root ball using a mechanical tamper to assure a firm bedding for the root ball. If there is more than 12–inches of planting soil under the root ball excavate and tamp the planting soil in lifts not to exceed 12–inches.
3.	<u>SUBMITTALS</u>	7.1.	Plant deciduous, woody plants within the planting window shown on the plans whenever the temperature is between 32 degrees F and 65 degrees F and the soil is in a workable condition, unless otherwise approved in writing. Planting shall be after the permanent seed mix has been installed throughout the preservation area.	10.8.2.	Modifications, at the time of planting, to meet the specifications for the depth of the root collar and removal of stem girdling roots and circling roots may make the plant unstable or stress the plant to the point that the City may choose to reject the plant rather than permitting the modification.	10.10.	Set top outer edge of the root ball at the average elevation of the proposed finish. Set the plant plumb and upright in the center of the planting hole. The tree graft, if applicable, shall be visible above the grade. Do not place soil on top of the root ball.
3.1.	Prior to the start of work on this item, the Contractor shall submit the nursery order and bill of lading from the nursery to the City for review and approval.	7.2.	Except for container–grown material, the time limitation from digging to installing plant material shall be a maximum 21 days.	10.8.3.	Any modifications required by the City to make the root system conform to the plant quality standards, outlined in Special Planting Requirements (Sheet 27), shall not be considered as grounds to modify or void the plant warranty.	10.11.	The City may request that plant orientation be rotated when planted based on the form of the plant.
3.1.1.	Within thirty (30) days of the award of the contract, the Contractor shall submit a complete listing of the proposed planting materials to be provided under this section to the City for approval. The City will review the submitted materials. If deficient, as solely determined by the City, additional information shall be forwarded to the City. Any problems with obtaining any of the specified plant materials shall be forwarded in writing to the City. The cause of the acquisition problems shall be discussed in full and a list of vendors contacted shall be included. The Contractor shall be aware that more than one (1) vendor may be required to obtain all the necessary plant materials. Suggestions concerning appropriate substitutions may be included with this correspondence; however, only the City may approve such substitutions.	8.	<u>DELIVERY, STORAGE, AND HANDLING</u>	10.8.4.	The resulting root ball may need additional staking and water after planting. The City may reject the plant if the root modification process makes the tree unstable or if the tree is not healthy at the end of the warranty period. Such plants shall still be covered under the warranty.	10.12.	Backfill the space around the root ball with the same planting soil or existing soil that was excavated for the planting space.
4.	<u>MATERIALS</u>	8.1.	No material is to be delivered until Landscaper and City are in agreement that the particular zone is ready for planting.	10.8.5.	The Contractor remains responsible to confirm that the grower has made all required root modifications noted during any nursery observations.	10.13.	Brace root ball by tamping planting soil around the lower portion of the root ball. Place additional planting soil around base and sides of ball in six–inch (6”) lifts. Lightly tamp each lift using light foot pressure or hand tools to settle backfill, support the tree and eliminate voids. Do not over compact the backfill or use mechanical or pneumatic tamping equipment. Over compaction shall be defined as greater than 85% of maximum dry density, standard proctor or greater than 250 psi as measured by a cone penetrometer when the volumetric soil moisture is lower than field capacity.
4.1.	The project area shall be planted with the tree and shrub species in accordance with the Planting Table on Sheet 24 and 25. Final species selection shall be approved by the City in writing prior to purchasing the materials. All plants shall be healthy, vigorous, stress–free specimens free from harmful defects, decay, disfigured stems and roots, plant diseases, and insect pests.	8.2.	All plants shall be packed, transported, and handled with utmost care to ensure adequate protection against injury or damage to the root ball and desiccation. Plants must be protected from excessive vibrations. Plants shall not be thrown or bounded off a truck or loader to the ground. Plants shall not be dragged, lifted, or pulled by the trunk or braces in a manner that will damage the branches or loosen the roots in the ball.	10.8.6.	Container and boxed root ball shaving: The outer surfaces of all plants in containers and boxes, including the top, sides and bottom of the root ball shall be shaved to remove all circling, descending, and matted roots. Shaving shall be performed using saws, knives, sharp shovels or other suitable equipment that is capable of making clean cuts on the roots. Shaving shall remove a minimum of one –inch of root mat or up to 2–inches as required to remove all root segments that are not growing reasonably radial to the trunk.	10.13.1.	When the planting hole has been backfilled to three quarters of its depth, water shall be poured around the root ball and allowed to soak into the soil to settle the soil. Do not flood the planting space. If the soil is above field capacity, allow the soil to drain to below field capacity before finishing the planting. Air pockets shall be eliminated and backfill continued until the planting soil is brought to grade level.
4.2.	All plants shall come from a nursery that is located within the plant zone 6A or cooler and with a similar soil pH value to that of the City of Dublin, Ohio.	8.3.	Plant materials transported in vehicles shall be protected from wind whipping either by use of covered vehicles or secure tarps. Failure to protect plant materials during transport to the site will result in rejection of plant materials.	10.8.7.	Exposed stem tissue after modification: The required root ball modifications may result in stem tissue that has not formed trunk bark being exposed above the soil line. If such condition occurs, wrap the exposed portion of the stem in a protective wrapping with a white filter fabric. Secure the fabric with biodegradable masking tape. Do not use string, twine, green nursery ties or any other material that may girdle the trunk if not removed.	10.14.	Thoroughly water the planting soil and root ball immediately after planting.
4.3.	No material is to be delivered until Landscaper and City are in agreement that the particular zone is ready for planting.	8.4.	Plants will be delivered as close as possible to the date planting will actually begin.	10.9.	<u>EXCAVATION</u>	10.15.	Remove all nursery plant identification tags and ribbons as per City’s instructions.
4.4.	Plant quality and size: All plants shall be true to type and nomenclature and typical of their species or variety. Ensure that all plant materials conform to the current edition of the American Standard for Nursery Stock, as published by AmericanHort. They shall have a normal habit of growth with well–developed branch systems and vigorous root systems. They shall be sound, healthy, and vigorous plants, free from visible defects, disfiguration, injury, recognizable disease of any kind, insect eggs, borers, and any infestation. All plants shall be nursery grown in a suitable growth medium. It is the responsibility of the Contractor to inspect the plants before removal from the nursery where they have been grown to make sure that the plants meet these requirements.	8.5.	Upon shipment arrival, plants will be unpacked and roots will be checked to ensure they are moist. Roots will be watered if they appear dry.	10.9.1.	Excavation of the planting space: Using hand tools or tracked mini–excavator, excavate the planting hole into the planting soil to the depth of the root ball measured after any root ball modification to correct root problems, and wide enough for working room around the root ball or to the size indicated on the drawing or as noted below.	10.16.	Remove corrugated cardboard trunk protection after planting.
4.5.	All plants shall conform to all sizes and measurements detailed in these specifications and indicated on the plans. Unacceptable plants shall be culled at the nursery prior to being packed. No substitutions for any materials shall be made unless agreed to in writing by the City. With the approval of the City, plants larger in size than specified may be utilized, but such plants shall not increase the contract price. Larger plants shall not be cut back to meet size specifications. Plants shall have a form and architecture that is easily planted for the stock specified.	9.	<u>PRE–INSTALLATION INSPECTION</u>			10.17.	Follow additional requirements for the permitted root ball packages.
		9.1.	The Contractor shall meet with the City during delivery of plant materials at the project site. Each item shall be labeled with the product name (genus, species, variety, and cultivar), material size, and vendor. The Contractor shall provide the City with copies of all shipping manifests for the materials. The City shall verify the materials delivered are in a healthy and vigorous condition, and are consistent with the plan requirements in regards to quantity, species, and size.	Planting Notes continue on Sheet 27...			
4.6.	The Contractor shall install the trees and shrubs as shown on the Planting Plans on Sheets 24 and 25.	9.2.	The City shall be the sole judge of the conditions of quality and acceptability and will direct all corrections to the Contractor in writing. All rejected materials shall be immediately removed from the site and replaced with specified materials at the Contractor’s expense.				
		10.	<u>INSTALLATION GENERAL</u>				
		10.1.	The Contractor shall not proceed with installation without written direction from the City if the actual time of installation does not comply with the installation periods listed in the Planting Table.				

REVISIONS	MARK	DATE	DESCRIPTION
CITY OF DUBLIN			
CITY OF DUBLIN, FRANKLIN COUNTY, OHIO			
PLANS FOR			
DUBLIN BASIN MAINTENANCE			
PROGRAM 2026			
PLANTING NOTES			
8075 Northway Franklin, OH 43024 5800 New Albany Road, Columbus, OH 43244 Phone: 614/775-5500 Toll Free: 888/775-3646 emht.com EMH Engineers • Surveyors • Planners • Scientists			
DATE			
AUGUST 2026			
SCALE			
NONE			
JOB NO.			
2025-0015			
SHEET			
26/29			

vegetation survival in accordance with this plan. All dead material, regardless of cause, will be subject to the warranty replacement in accordance with a survivability rate of 85% for seeding and 100% for trees. All missing material, regardless of cause (including but not limited to beavers, deer, flooding), shall be considered dead. Any material that is missing 50% or more of its original living branches present during installation (stunted branches, frost damage, leaf loss, etc.) shall be considered dead and will be subject to replacement.

19.

The determination of seeded material survivability shall occur within a portion of each seeded area shown on this plan, agreed upon between the City and the Landscaper. The determination of adequate grass cover shall apply to the entire project area.

- 19.

The determination of seeded material survivability shall occur within a portion of each seeded area shown on this plan, agreed upon between the City and the Landscaper. The determination of adequate grass cover shall apply to the entire project area.

- 19.

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- 19.

The determination of seeded material survivability shall occur within a portion of each seeded area shown on this plan, agreed upon between the City and the Landscaper. The determination of adequate grass cover shall apply to the entire project area.

- 19.

CITY OF DUBLIN

EMHIT
Everts, Meschwart, Hambleton & Tilton, Inc.
Engineers • Surveyors • Planners • Scientists
5500 New Albany Road, Columbus, OH 43054
Phone: 614.775.4500 Toll Free: 888.775.3648
emhit.com

Appendix G – Land Disturbance and Stabilization Log

Description and Location of Grading Activity	Date Grading Activity Initiated	Date Grading Activity Ceased	Date When Stabilization Measures Initiated and Type		Description of Stabilization Measure
				☐ Temporary ☐ Permanent	
				☐ Temporary ☐ Permanent	
				☐ Temporary ☐ Permanent	
				☐ Temporary ☐ Permanent	
				☐ Temporary ☐ Permanent	
				☐ Temporary ☐ Permanent	
				☐ Temporary ☐ Permanent	
				☐ Temporary ☐ Permanent	

Appendix H – Inspection Reports & Corrective Action Log

Construction General Permit Site Inspection Report

Project Name: _____
NPDES ID Number: _____

Section A – General Information		
<i>(If necessary, complete additional inspection reports for each separate inspection location.)</i>		
Inspector Information		
Inspector Name:		Email:
Qualifications:		Phone Number:
Inspection Details		
Inspection Date:	Inspection Start Time:	Inspection End Time:
Location Inspected:		Current Phase of Construction:
Weather Conditions for the period since the last inspection:		
Weather Conditions During Inspection:		
Required Frequency Basis for This Inspection: ☐ after any storm event greater than one-half inch of rain per 24-hour period (by the end of the next calendar day, excluding weekends and holidays unless work is scheduled) As determined by ☐ On-site rain gauge ☐ Weather station report (Source: _____) Storm event date and start time: _____ Storm Event Duration : _____ Total Rainfall (inches): _____ Did a discharge occur? ☐ Yes ☐ No ☐ Unknown ☐ once every seven calendar days ☐ once every month for dormant sites: ☐ the entire site is temporarily stabilized) ☐ runoff is unlikely due to extended periods of snow or ice cover, or the ground is frozen		
Section B – Description of Discharges		
Discharge Location	Is a discharge occurring during the inspection?	Observations for each point of discharge ¹ :
	☐ Yes ☐ No	
	☐ Yes ☐ No	
	☐ Yes ☐ No	

1. Describe the visual quality of the discharge including color; odor; floating, settled, or suspended solids; foam; oil sheen; and other indicators of stormwater pollutants. Include signs of the above pollutant characteristics that are visible from your site and attributable to your discharge.

Construction General Permit Site Inspection Report

Project Name: _____
NPDES ID Number: _____

Section C – Overall Site Conditions		
Are all BMPs in the SWP3 are properly implemented in accordance with the proposed schedule?	☐ Yes ☐ No	Notes:
Are all BMPs installed are adequate?	☐ Yes ☐ No	Notes:
Are additional BMPs needed that do not exist at the time of the inspection?	☐ Yes ☐ No	Notes:
Is there evidence of or the potential for pollutants to discharge?	☐ Yes ☐ No	Notes:
Requires Corrective Action? ☐ Yes ☐ No	Describe Actions Needed:	

Section D – Erosion and Sediment Controls		
Construction Entrance		
Description of Conditions Observed:		
Is a construction entrance installed per plan?	☐ Yes ☐ No	Notes:
Is sediment being tracked off-site?	☐ Yes ☐ No	Notes:
Does sediment need to be removed from the surface?	☐ Yes ☐ No	Notes:
Does the runoff drain properly away from the entrance?	☐ Yes ☐ No	Notes:
Requires Routine Maintenance? ☒ Yes ☐ No	Describe Maintenance Items Needed:	
Requires Corrective Action? ☐ Yes ☐ No	Describe Actions Needed:	

Construction General Permit Site Inspection Report

Project Name: _____
NPDES ID Number: _____

Permanent Stabilization		
Description of Conditions Observed:		
Are all areas of the site at final grade permanently stabilized?	☐ Yes ☐ No	Notes:
Have proper methods for seedbed preparation, fertilizer application, and mulching utilized?	☐ Yes ☐ No	Notes:
Are critical areas (conveyance channels, outlets, steep slopes, etc.) stabilized?	☐ Yes ☐ No	Notes:
Requires Routine Maintenance? ☐ Yes ☐ No	Describe Maintenance Items Needed:	
Requires Corrective Action? ☐ Yes ☐ No	Describe Actions Needed:	

Temporary Stabilization		
Description of Conditions Observed:		
Are all disturbed areas of the site that will lie dormant for over 14 days temporarily stabilized?	☐ Yes ☐ No	Notes:
Have all stockpiles been temporarily stabilized?	☐ Yes ☐ No	Notes:
Does existing temporary stabilization provide sufficient and effective cover?	☐ Yes ☐ No	Notes:
Requires Routine Maintenance? ☐ Yes ☐ No	Describe Maintenance Items Needed:	
Requires Corrective Action? ☐ Yes ☐ No	Describe Actions Needed:	

Construction General Permit Site Inspection Report

Project Name: _____
NPDES ID Number: _____

Sediment Settling Pond		
Description of Conditions Observed:		
Is a sediment settling pond installed per plan?	☐ Yes ☐ No	Notes:
Does runoff enter the pond without causing erosion or bypassing the control?	☐ Yes ☐ No	Notes:
Are the banks stabilized?	☐ Yes ☐ No	Notes:
Is the skimmer installed and functioning properly?	☐ Yes ☐ No	Notes:
Does the Dewatering volume drain entirely through the skimmer?	☐ Yes ☐ No	Notes:
Is the outlet free of obstructions?	☐ Yes ☐ No	Notes:
Does the pond have sediment storage capacity?	☐ Yes ☐ No	Notes:
Requires Routine Maintenance? ☐ Yes ☐ No	Describe Maintenance Items Needed:	
Requires Corrective Action? ☐ Yes ☐ No	Describe Actions Needed:	

Construction General Permit Site Inspection Report

Project Name: _____
NPDES ID Number: _____

Sediment Barriers		
Description of Conditions Observed:		
Are sediment barriers installed as planned in the SWP3?	☐ Yes ☐ No	Notes:
Is the barrier sealed to the ground with ends upturned and without gaps or openings such that water ponds behind it?	☐ Yes ☐ No	Notes:
Does captured sediment need to be removed from behind the barrier?	☐ Yes ☐ No	Notes:
Requires Routine Maintenance? ☐ Yes ☐ No	Describe Maintenance Items Needed:	
Requires Corrective Action? ☐ Yes ☐ No	Describe Actions Needed:	

Storm Drain Inlet Protection		
Description of Conditions Observed:		
Is storm drain inlet protection installed as planned in the SWP3?	☐ Yes ☐ No	Notes:
Are all operational inlets receiving sediment-laden water protected?	☐ Yes ☐ No	Notes:
Does runoff bypass the device through tears, seams, gaps, or holes?	☐ Yes ☐ No	Notes:
Does captured sediment need to be removed from the device?	☐ Yes ☐ No	Notes:
Requires Routine Maintenance? ☐ Yes ☐ No	Describe Maintenance Items Needed:	
Requires Corrective Action? ☐ Yes ☐ No	Describe Actions Needed:	

Construction General Permit Site Inspection Report

Project Name: _____
NPDES ID Number: _____

OTHER CONTROL: _____	
Description of Conditions Observed:	
Requires Routine Maintenance? ☐ Yes ☐ No	Describe Maintenance Items Needed:
Requires Corrective Action? ☐ Yes ☐ No	Describe Actions Needed:

OTHER CONTROL: _____	
Description of Conditions Observed:	
Requires Routine Maintenance? ☐ Yes ☐ No	Describe Maintenance Items Needed:
Requires Corrective Action? ☐ Yes ☐ No	Describe Actions Needed:

OTHER CONTROL: _____	
Description of Conditions Observed:	
Requires Routine Maintenance? ☐ Yes ☐ No	Describe Maintenance Items Needed:
Requires Corrective Action? ☐ Yes ☐ No	Describe Actions Needed:

Construction General Permit Site Inspection Report

Project Name: _____
NPDES ID Number: _____

Section D – Pollution Controls		
Are all controls to prevent the following pollutants from entering the drainage system or discharging installed, maintained, and operating effectively?		
Dewatering	☐ Yes ☐ No ☐ N/A	Notes:
Washout of Concrete and other materials	☐ Yes ☐ No ☐ N/A	Notes:
Fuel Storage & Handling	☐ Yes ☐ No ☐ N/A	Notes:
Trash Storage & Handling	☐ Yes ☐ No ☐ N/A	Notes:
Agrichemical Storage & Handling	☐ Yes ☐ No ☐ N/A	Notes:
Petroleum Product Storage & Handling	☐ Yes ☐ No ☐ N/A	Notes:
Toxic Materials Storage & Handling	☐ Yes ☐ No ☐ N/A	Notes:
Sanitary Waste	☐ Yes ☐ No ☐ N/A	Notes:
Requires Routine Maintenance? ☐ Yes ☐ No	Describe Maintenance Items Needed:	
Requires Corrective Action? ☐ Yes ☐ No	Describe Actions Needed:	

Construction General Permit Site Inspection ReportProject Name: _____
NPDES ID Number: _____

Section E – Site Compliance Summary	
☐ I certify that on the date of this inspection, the site was found to be in compliance with the terms of the applicable Construction General Permit.	
☐ The following corrective actions are required by the established completion date ¹ .	
Corrective Action:	Complete By:
Section F – Signature and Certification	
“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information contained therein. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information contained is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”	
Signature of Inspector or “Duly Authorized Representative:”	
Signature:	Date:
Printed Name:	Affiliation:

¹ If the inspection reveals that a control practice needs repair or maintenance, it shall be repaired or maintained within 3 days of the inspection. Sediment settling ponds shall be repaired or maintained within 10 days of the inspection. If the inspection reveals that a control practice fails to perform its intended function and that another, more appropriate control practice is required, the SWP3 shall be amended, and the new control practice shall be installed within 10 days of the inspection. If the inspection reveals that a control practice has not been implemented in accordance with the schedule, the control practice shall be implemented within 10 days from the date of the inspection. If the inspection reveals that the planned control practice is not needed, the record shall contain a statement of explanation as to why the control practice is not needed.

Corrective Action Log

[illegible]

APPENDIX I – Surface Water Impact Permits

N/A – stream and wetland impact permits are not required for this project



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, HUNTINGTON DISTRICT
502 8TH STREET
HUNTINGTON, WEST VIRGINIA 25701

CELRH-RDN

27 May 2026

MEMORANDUM FOR RECORD

SUBJECT: US Army Corps of Engineers (Corps) Pre-2015 Regulatory Regime
Approved Jurisdictional Determination in Light of *Sackett v. EPA*, 143 S. Ct. 1322
(2023),¹ [LRH-2026-00445-SCR](#)²

BACKGROUND. An Approved Jurisdictional Determination (AJD) is a Corps document stating the presence or absence of waters of the United States on a parcel or a written statement and map identifying the limits of waters of the United States on a parcel. AJDs are clearly designated appealable actions and will include a basis of JD with the document.³ AJDs are case-specific and are typically made in response to a request. AJDs are valid for a period of five years unless new information warrants revision of the determination before the expiration date or a District Engineer has identified, after public notice and comment, that specific geographic areas with rapidly changing environmental conditions merit re-verification on a more frequent basis.⁴ For the purposes of this AJD, we have relied on section 10 of the Rivers and Harbors Act of 1899 (RHA),⁵ the Clean Water Act (CWA) implementing regulations published by the Department of the Army in 1986 and amended in 1993 (references 2.a. and 2.b. respectively), the 2008 *Rapanos-Carabell* guidance (reference 2.c.), and other applicable guidance, relevant case law and longstanding practice, (collectively the pre-2015 regulatory regime), and the *Sackett* decision (reference 2.d.) in evaluating jurisdiction.

This Memorandum for Record (MFR) constitutes the basis of jurisdiction for a Corps AJD as defined in 33 CFR §331.2. The features addressed in this AJD were evaluated consistent with the definition of “waters of the United States” found in the pre-2015 regulatory regime and consistent with the Supreme Court’s decision in *Sackett*. This AJD did not rely on the 2023 “Revised Definition of ‘Waters of the United States,’” as

¹ While the Supreme Court’s decision in *Sackett* had no effect on some categories of waters covered under the CWA, and no effect on any waters covered under RHA, all categories are included in this Memorandum for Record for efficiency.

² When documenting aquatic resources within the review area that are jurisdictional under the Clean Water Act (CWA), use an additional MFR and group the aquatic resources on each MFR based on the TNW, interstate water, or territorial seas that they are connected to. Be sure to provide an identifier to indicate when there are multiple MFRs associated with a single AJD request (i.e., number them 1, 2, 3, etc.).

³ 33 CFR 331.2.

⁴ Regulatory Guidance Letter 05-02.

⁵ USACE has authority under both Section 9 and Section 10 of the Rivers and Harbors Act of 1899 but for convenience, in this MFR, jurisdiction under RHA will be referred to as Section 10.

CELRH-RDE

SUBJECT: Pre-2015 Regulatory Regime Approved Jurisdictional Determination in Light of *Sackett v. EPA*, 143 S. Ct. 1322 (2023), [LRH-2026-00445-SCR](#)

amended on 8 September 2023 (Amended 2023 Rule) because, as of the date of this decision, the Amended 2023 Rule is not applicable [in this state](#) due to litigation.

1. SUMMARY OF CONCLUSIONS.

- a. Provide a list of each individual feature with the review area and the jurisdictional status of each one (as streams, rivers, wetlands, lakes, ponds, tidal waters, ditches, and the like in the entire review area and there are no areas that have previously been determined to be jurisdictional under the Rivers and Harbors Act of 1899 in the review area).

[i. Ephemeral Stream 1, non-jurisdictional](#)

2. REFERENCES.

- a. Final Rule for Regulatory Programs of the Corps of Engineers, 51 FR 41206 (November 13, 1986).
- b. Clean Water Act Regulatory Programs, 58 FR 45008 (August 25, 1993).
- c. U.S. EPA & U.S. Army Corps of Engineers, Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in *Rapanos v. United States & Carabell v. United States* (December 2, 2008)
- d. *Sackett v. EPA*, 598 U.S. ___, 143 S. Ct. 1322 (2023)

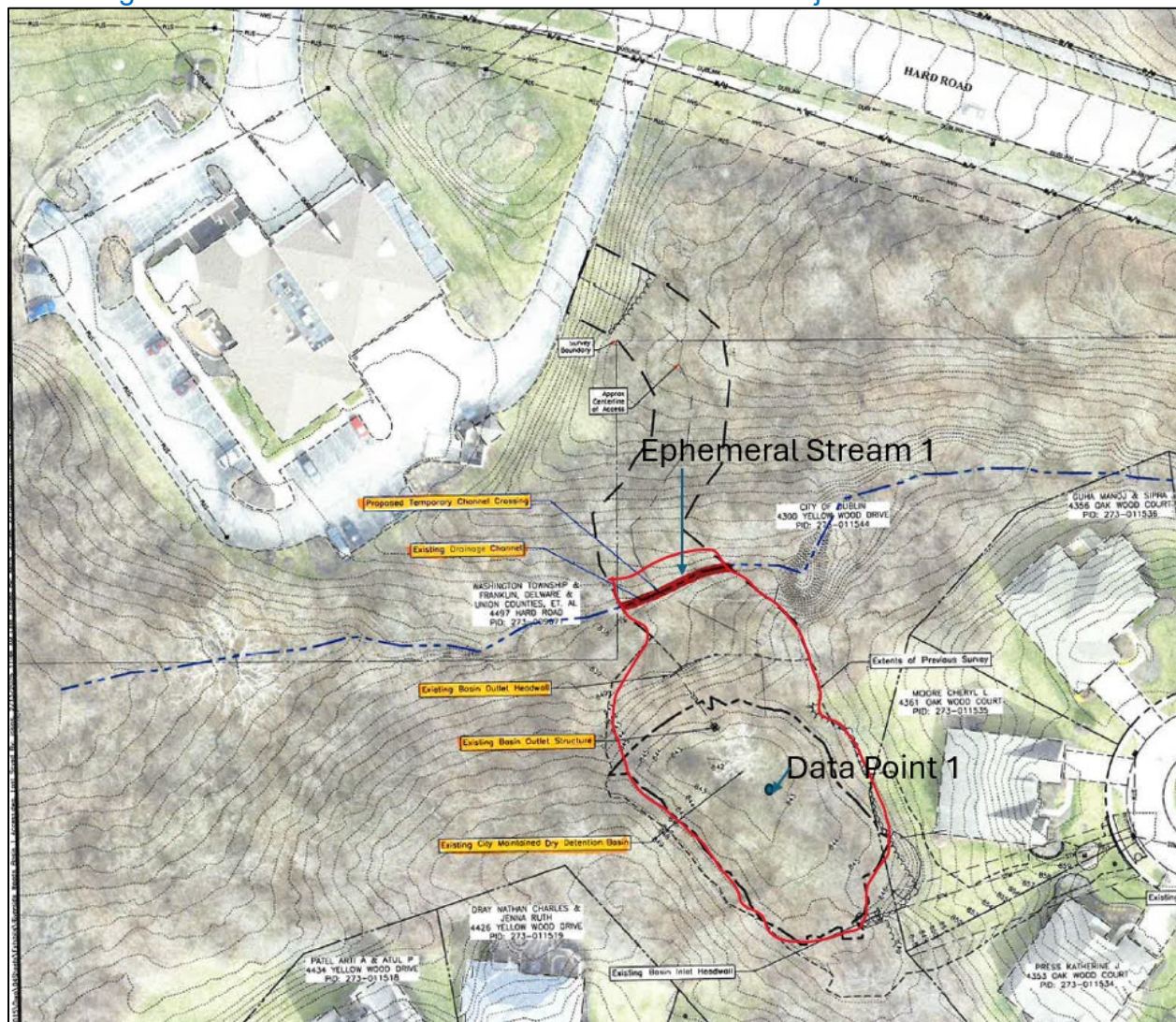
3. REVIEW AREA. [EMH&T, on behalf of the applicant, the City of Dublin, submitted a Delineation Report, Riverside Woods Basin 1, in Franklin County, Ohio and a No Permit Required Letter request, received in our office on 6 May 2026, for the proposed Riverside Woods Basin 1 Maintenance Project. The JD review area encompasses approximately 0.16-acre south of Hard Road and west of Oakwood Court in the City of Dublin, Franklin County, Ohio at approximately 40.119897 Latitude, -83.107497 Longitude. The JD review area is located within 12-digit Hydrologic Unit Code 050600011204 \(Hayden Run-Scioto River\) and can be found on the United States Geological Survey \(USGS\) Northwest Columbus, Ohio 1:24K topographic map. Waters on-site include an approximately 15 linear foot section of an ephemeral drainage feature that does not have a downstream connection the Scioto River, a traditional navigable water \(TNW\) of the United States. The JD review area is located within a wooded area west of an existing residential development and southeast of an extant commercial facility. The surrounding area is composed of State Route 257, Hard Road, residential developments, and commercial institutions.](#)

CELRH-RDE

SUBJECT: Pre-2015 Regulatory Regime Approved Jurisdictional Determination in Light of *Sackett v. EPA*, 143 S. Ct. 1322 (2023), [LRH-2026-00445-SCR](#)

The City of Dublin has requested an approved JD for 15 linear feet of one (1) ephemeral stream within the 0.16-acre JD review area as shown in Figure 1 below.

Figure 1. – Riverside Woods Basin 1 Maintenance Project JD Review Area



4. NEAREST TRADITIONAL NAVIGABLE WATER (TNW), INTERSTATE WATER, OR THE TERRITORIAL SEAS TO WHICH THE AQUATIC RESOURCE IS CONNECTED. [N/A](#)
5. FLOWPATH FROM THE SUBJECT AQUATIC RESOURCES TO A TNW, INTERSTATE WATER, OR THE TERRITORIAL SEAS [There is no flow path from](#)

[the water identified in Section 1\(a\)\(i\) located within the JD review area to the Scioto River.](#)

6. SECTION 10 JURISDICTIONAL WATERS⁶: Describe aquatic resources or other features within the review area determined to be jurisdictional in accordance with Section 10 of the Rivers and Harbors Act of 1899. Include the size of each aquatic resource or other feature within the review area and how it was determined to be jurisdictional in accordance with Section 10.⁷ [N/A](#)
7. SECTION 404 JURISDICTIONAL WATERS: Describe the aquatic resources within the review area that were found to meet the definition of waters of the United States in accordance with the pre-2015 regulatory regime and consistent with the Supreme Court's decision in *Sackett*. List each aquatic resource separately, by name, consistent with the naming convention used in section 1, above. Include a rationale for each aquatic resource, supporting that the aquatic resource meets the relevant category of "waters of the United States" in the pre-2015 regulatory regime. The rationale should also include a written description of, or reference to a map in the administrative record that shows, the lateral limits of jurisdiction for each aquatic resource, including how that limit was determined, and incorporate relevant references used. Include the size of each aquatic resource in acres or linear feet and attach and reference related figures as needed.
 - a. TNWs (a)(1): [N/A](#)
 - b. Interstate Waters (a)(2): [N/A](#)
 - c. Other Waters (a)(3): [N/A](#)
 - d. Impoundments (a)(4): [N/A](#)
 - e. Tributaries (a)(5): [N/A](#)
 - f. The territorial seas (a)(6): [N/A](#)

⁶ 33 CFR 329.9(a) A waterbody which was navigable in its natural or improved state, or which was susceptible of reasonable improvement (as discussed in § 329.8(b) of this part) retains its character as "navigable in law" even though it is not presently used for commerce, or is presently incapable of such use because of changed conditions or the presence of obstructions.

⁷ This MFR is not to be used to make a report of findings to support a determination that the water is a navigable water of the United States. The district must follow the procedures outlined in 33 CFR part 329.14 to make a determination that water is a navigable water of the United States subject to Section 10 of the RHA.

- g. Adjacent wetlands (a)(7): [N/A](#)

8. NON-JURISDICTIONAL AQUATIC RESOURCES AND FEATURES

- a. Describe aquatic resources and other features within the review area identified as “generally non-jurisdictional” in the preamble to the 1986 regulations (referred to as “preamble waters”).⁸ Include size of the aquatic resource or feature within the review area and describe how it was determined to be non-jurisdictional under the CWA as a preamble water. [N/A](#)
- b. Describe aquatic resources and features within the review area identified as “generally not jurisdictional” in the *Rapanos* guidance. Include size of the aquatic resource or feature within the review area and describe how it was determined to be non-jurisdictional under the CWA based on the criteria listed in the guidance. [N/A](#)
- c. Describe aquatic resources and features identified within the review area as waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA. Include the size of the waste treatment system within the review area and describe how it was determined to be a waste treatment system. [N/A](#)
- d. Describe aquatic resources and features within the review area determined to be prior converted cropland in accordance with the 1993 regulations (reference 2.b.). Include the size of the aquatic resource or feature within the review area and describe how it was determined to be prior converted cropland. [N/A](#)
- e. Describe aquatic resources (i.e. lakes and ponds) within the review area, which do not have a nexus to interstate or foreign commerce, and prior to the January 2001 Supreme Court decision in “*SWANCC*,” would have been jurisdictional based solely on the “Migratory Bird Rule.” Include the size of the aquatic resource or feature, and how it was determined to be an “isolated water” in accordance with *SWANCC*. [N/A](#)
- f. Describe aquatic resources and features within the review area that were determined to be non-jurisdictional because they do not meet one or more categories of waters of the United States under the pre-2015 regulatory regime consistent with the Supreme Court’s decision in *Sackett* (e.g., tributaries that are non-relatively permanent waters; non-tidal wetlands that do not have a continuous surface connection to a jurisdictional water).

⁸ 51 FR 41217, November 13, 1986.

Figure 2. Overview of Ephemeral Stream 1, View East



Based on the submitted information, the flow characteristics of Ephemeral Stream 1 appears to be consistent to farthest downstream limit of the tributary. The entire length of the Ephemeral Stream 1 is approximately 898 linear feet. The channel extends east to west and receives drainage from Hard Road to the north and the extant residential development to the south. The channel terminates east of State Route 257 with no evidence of culverting below the roadway. Utilizing the Strahler stream order method, Ephemeral Stream 1 has a stream order of one (1) and one (1) relevant reach.

Ephemeral Stream 1 is a low gradient, ephemeral drainage that has formed from overland flow and receives flow from Hard Road to the north and the adjacent residential development of the southeast. The total channel width is approximately 3.5 feet and was dry at the time of the field investigation conducted on 7 April 2026. According to the antecedent precipitation tool (APT) report for 7 April 2026, wetter than normal conditions with an antecedent precipitation condition score of 16 was observed during the WebWIMP wet season with a Palmer Drought Severity Index Value of mild drought. The 30-day rolling total for precipitation was within the rolling 30-year period. The channel was filled with leaf litter at the time of the delineation. Ephemeral Stream 1 does not carry a relatively permanent flow of water, lacks a well-

defined bed and bank and ordinary high water mark (OHWM), and does not exhibit substrate sorting. Furthermore, the ephemeral drainage does not exhibit wetland characteristics. Therefore, Ephemeral Stream 1, totaling 15 linear feet within the JD review area, is not a jurisdictional water of the United States and is not subject to CWA jurisdiction.

Figure 3. – Riverside Woods Basin 1 Maintenance Project – Ephemeral Stream 1



9. DATA SOURCES. List sources of data/information used in making determination. Include titles and dates of sources used and ensure that information referenced is available in the administrative record.
 - a. [Final office review was completed on 26 May 2026](#)
 - b. [Delineation Report, Riverside Woods Basin 1, in Franklin County, Ohio report dated 6 May 2026](#)
 - [Upland Data Points](#)
 - [Site Photographs](#)
 - [Aerial Imagery](#)
 - [United States Department of Agriculture \(USDA\) Natural Resources Conservation Service \(NRCS\) Soils Data](#)

CELRH-RDE

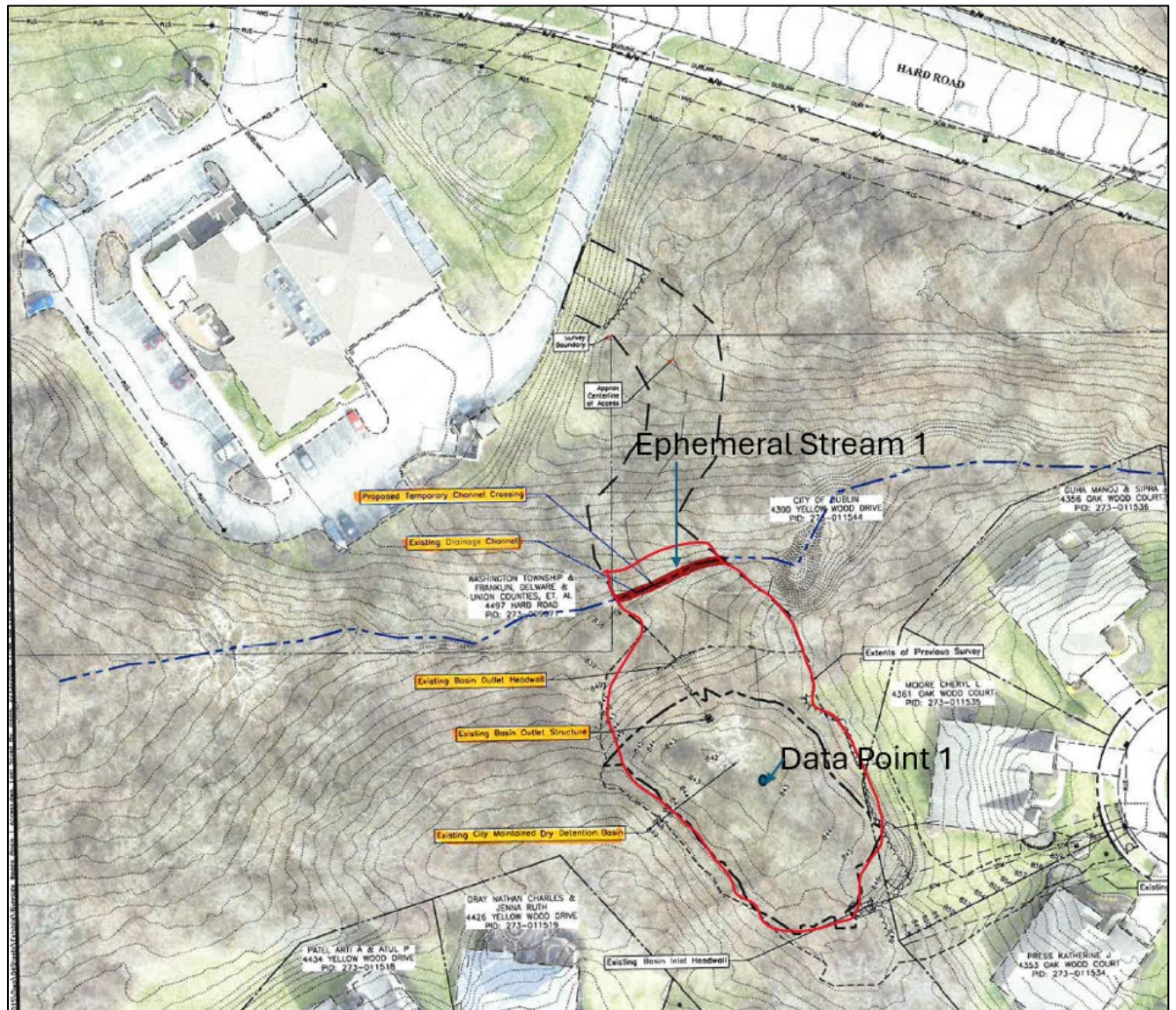
SUBJECT: Pre-2015 Regulatory Regime Approved Jurisdictional Determination in Light of *Sackett v. EPA*, 143 S. Ct. 1322 (2023), [LRH-2026-00445-SCR](#)

- c. [U.S. Geological Survey map 1:24,000 Northwest Columbus, Ohio](#)
- d. [Corps ORM Layers: USGS National Hydrography Dataset \(NHD\), U.S. Fish and Wildlife Service National Wetlands Inventory \(NWI\), USDA-NRCS Soils Data, Federal Emergency Management Agency \(FEMA\) National Flood Hazard Layer, and LiDAR Hillshade Mapping](#)
- e. [Antecedent Precipitation Tool report for 7 April 2026 generated on 27 May 2026](#)

10. OTHER SUPPORTING INFORMATION. [N/A](#)

11. NOTE: The structure and format of this MFR were developed in coordination with the EPA and Department of the Army. The MFR's structure and format may be subject to future modification or may be rescinded as needed to implement additional guidance from the agencies; however, the approved jurisdictional determination described herein is a final agency action.

Enclosure 1 – Riverside Woods Basin 1 Approved JD Review Area





REPLY TO
ATTENTION OF

**DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, HUNTINGTON DISTRICT
502 8TH STREET
HUNTINGTON, WV 25701**

May 29, 2026

Regulatory Division
North Branch
LRH-2026-00455-SCR-Unnamed Tributary (UNT) Scioto River

**APPROVED JURISDICTIONAL DETERMINATION
AND NO PERMIT REQUIRED**

Michael Hendershot
Director of Utilities and Stormwater Management
City of Dublin
Department of Engineering
6555 Shier Rings Road
Dublin, Ohio 43016

Dear Michael Hendershot:

I refer to the request for an approved jurisdictional determination (JD) and a No Permit Required Letter, submitted on your behalf by EMH&T, and received in this office on May 6, 2026, for the Woodlands Basin 2 Maintenance Project. The proposed project area is located west of the intersection of May Apple Court and Red Bay Court in the City of Dublin, Franklin County, Ohio at approximately 40.124853 Latitude, -83.109378 Longitude. The proposed project is located within 12-digit Hydrologic Unit Code 050600011204 (Hayden Run - Scioto River). We have assigned the following file number to your proposal: LRH-2026-00455-SCR-UNT Scioto River. Please reference this file number on all future correspondence related to the subject proposal.

The United States Army Corps of Engineers' (Corps) authority to regulate waters of the United States is based on the definitions and limits of jurisdiction contained in 33 CFR Part 328 and 33 CFR Part 329. Section 404 of the Clean Water Act (Section 404) requires a Department of the Army (DA) permit be obtained prior to the discharge of dredged or fill material into waters of the United States, including wetlands. Section 10 of the Rivers and Harbors Act of 1899 requires a DA permit be obtained for any work in, on, over or under navigable water.

Approved Jurisdictional Determination

The features addressed in this approved JD were evaluated consistent with the definition of "waters of the United States" found in the pre-2015 regulatory regime and consistent with the Supreme Court's decision in *Sackett v. EPA*. Additionally, to the extent applicable, our December 2, 2008 headquarters guidance entitled *Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States* was followed in the final verification of Section 404 jurisdiction.

Based on a review of the information provided and other information available to us, it has been determined that 30 linear feet of one (1) ephemeral stream (Ephemeral Stream 1) is located within the approved JD boundary. Ephemeral Stream 1 is not a relatively permanent water identified in paragraph (a)(1) through (a)(6) of the pre-2015 regulations and thus is not subject to Section 404 regulation. However, you should contact the Ohio Environmental Protection Agency, Division of Surface Water, at (614) 664-2001 to determine state permit requirements.

This jurisdictional verification is valid for a period of five (5) years from the date of this letter unless new information warrants revision of the delineation prior to the expiration date. This letter contains an approved JD for the subject site within the approved JD boundary. If you object to the approved JD, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process and Request for Appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the Great Lakes and Ohio River Division Office at the following address:

Suzanne Chubb, Regulatory Program Manager
United States Army Corps of Engineers
Great Lakes and Ohio River Division
550 Main Street, Room 10-780
Cincinnati, Ohio 45202-3222
Phone: (513) 218-1243
email: suzanne.l.chubb@usace.army.mil

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR § 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP, **July 28, 2026**. Should you decide to submit an RFA form, it must be received at the above address. **It is not necessary to submit an RFA form to the Division office if you do not object to the determination in this letter.**

This determination has been conducted to identify the limits of the Corps Section 404 jurisdiction for the particular site identified in this request. This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are United States Department of Agriculture (USDA) program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service prior to starting work.

No Permit Required

Based on review of the information provided on May 6, 2026, your proposal will involve the placement of temporary timber matting within approximately 30 linear feet of the non-jurisdictional ephemeral stream 1 to provide access to a dry retention basin at the

Woodlands Residential Subdivision as part of the City of Dublin's 2026 Stormwater Management Basin Maintenance Program. The temporary access would allow the clearing of overgrown vegetation, accumulated sediment in the existing basin, and the repair of the basin outlet structure and basin embankment to assist in basin draining and allow city staff to access and maintain the basin. Based on the Waters Delineation Report conducted on April 7, 2026, the design plans provided, and the approved JD, we have determined your proposal will neither result in the discharge of dredged and/or fill material into the waters of the United States nor involve work in, on, over, or under a navigable water of the United States. Therefore, no DA permit is required from this office for the proposed project, if it is completed as described in the information received in this office on May 6, 2026. However, if this determination changes and it becomes necessary to perform work in, adjacent to, or under navigable waters, or to discharge dredged and/or fill material into waters or navigable waters of the United States, including wetlands, authorization from the Corps would be required.

This letter does not excuse you from the obligation to obtain any other Federal, state and/or local authorization, if required. Please note, if any tree clearing is required to facilitate the proposed project, it is your responsibility to discuss applicable enforcement and permitting requirements under Section 9 (<https://www.fws.gov/laws/endangered-species-act/section-9>) and Section 10 (<https://www.fws.gov/laws/endangered-species-act/section-10>) of the Endangered Species Act of 1973, as amended, with the United States Fish and Wildlife Service Ohio Field Office (USFWS OHFO). You can reach the USFWS OHFO by phone at (614) 416-8993 or by email at Ohio@fws.gov.

A copy of this approved JD will be provided to your agent Patrick Hoyng (EMH&T) and the Ohio Environmental Protection Agency (EPA). If you have any questions regarding the information in this letter or the enclosure, please contact Lee Arco by phone at 304-765-1485 or via email at lee.j.arco@usace.army.mil.

Sincerely,



Kyle M. Moore
Regulatory Project Manager
North Branch

Enclosures
cc: (email)
Patrick Hoyng (EMH&T)
Anna Kamnyev and Rachel Secrest, (Ohio EPA)

MEMO

Date: August 6, 2026

To: Michael Hendershot, PE (The City of Dublin)

From: Alex Jensen, PE, CFM (EMH&T)

Subject: Riverside Woods Basin 1 Proposed Improvements

Copies: James Akins, CPESC, Jaclyn Boscarello, EI (EMH&T)

The City of Dublin is proposing improvements to the existing Riverside Woods Basin 1, located west of Oak Wood Court, as illustrated in Attachment 1 – “Dubscopy Map”. Riverside Woods Basin 1 is a dry detention basin originally constructed in 2006 (Record Plan No. 04-001-RES). The following existing conditions affect the basin’s hydrologic and hydraulic performance:

- Mature trees have become established throughout the basin footprint and embankment, which were intended to remain clear.

Two HydroCAD models were prepared to evaluate the basin’s per plan and as-built performance. The HydroCAD models replicated the original 2004 PondPak models by sourcing the output, subarea characteristics (area, land use, time of concentration), rainfall, and rainfall distributions from the original stormwater report.

The original PondPak output is attached to this memo as Attachment 2 – “2004 Stormwater Master Plan Performance (Report & PondPak Output)”. The HydroCAD results for these models are attached to this memo as Attachment 3 – “2004 Duplicate Model Performance HydroCAD Output” and Attachment 4 – “As-Built Performance HydroCAD Output”. Table 1 and Table 2 summarize the basin performance from the 2004 stormwater report and under both HydroCAD modeled scenarios.

Following coordination with the City regarding the City’s desired basin enhancements, the following maintenance and improvement activities that would affect the basin’s hydrologic and hydraulic performance are proposed:

- Remove all trees within the basin footprint.
- Revise the emergency overflow location.
- Revise the water quality structure.
- Install a 6-inch perforated underdrain along the basin bottom.
- Replace the outlet structure and maintain or improve existing release rates as compared to the per plan basin allowables, while ensuring the basin water surface elevation stays below the as-built basin performance.

To maintain the existing release rates (based on the per plan model), the outlet structure was modified to account for the new 6-inch perforated underdrain, which discharges directly into the structure. Water quality treatment volumes and elevations for the proposed structure were designed to meet the original stormwater

report. The HydroCAD model results for the proposed conditions model is attached to this memo as Attachment 5 – “Proposed Performance HydroCAD Output”. Table 1 summarizes the proposed basin performance, demonstrating that the total outflow matches the existing per plan condition and that the 100-year water surface elevation remains below the as-built condition.

Because the weir structure functions as the primary outlet control for the pond, modeling the window opening in HydroCAD was not necessary. However, EMH&T conducted a supplementary analysis to confirm that the opening at the face of the structure (located at the bottom of basin) was appropriately sized and would not create a significant hydraulic restriction. Application of the orifice equation determined that a minimum opening area of 6.9 square feet is required to minimize head loss between the structure face and the weir wall.

$$Q = CA\sqrt{2gH}$$
$$10.49 \text{ cfs} = 0.60 * A * \sqrt{2 * 32.2 \frac{\text{ft}}{\text{s}^2} * 0.10 \text{ ft}}$$
$$A = 6.9 \text{ ft}^2$$

Attachments:

- Attachment 1 - Dubscovey Map
- Attachment 2 - 2004 Stormwater Master Plan Performance (Report & PondPak Output)
- Attachment 3 - 2004 Duplicate Model Performance HydroCAD Output
- Attachment 4 - As-Built Performance HydroCAD Output
- Attachment 5 - Proposed Performance HydroCAD Output

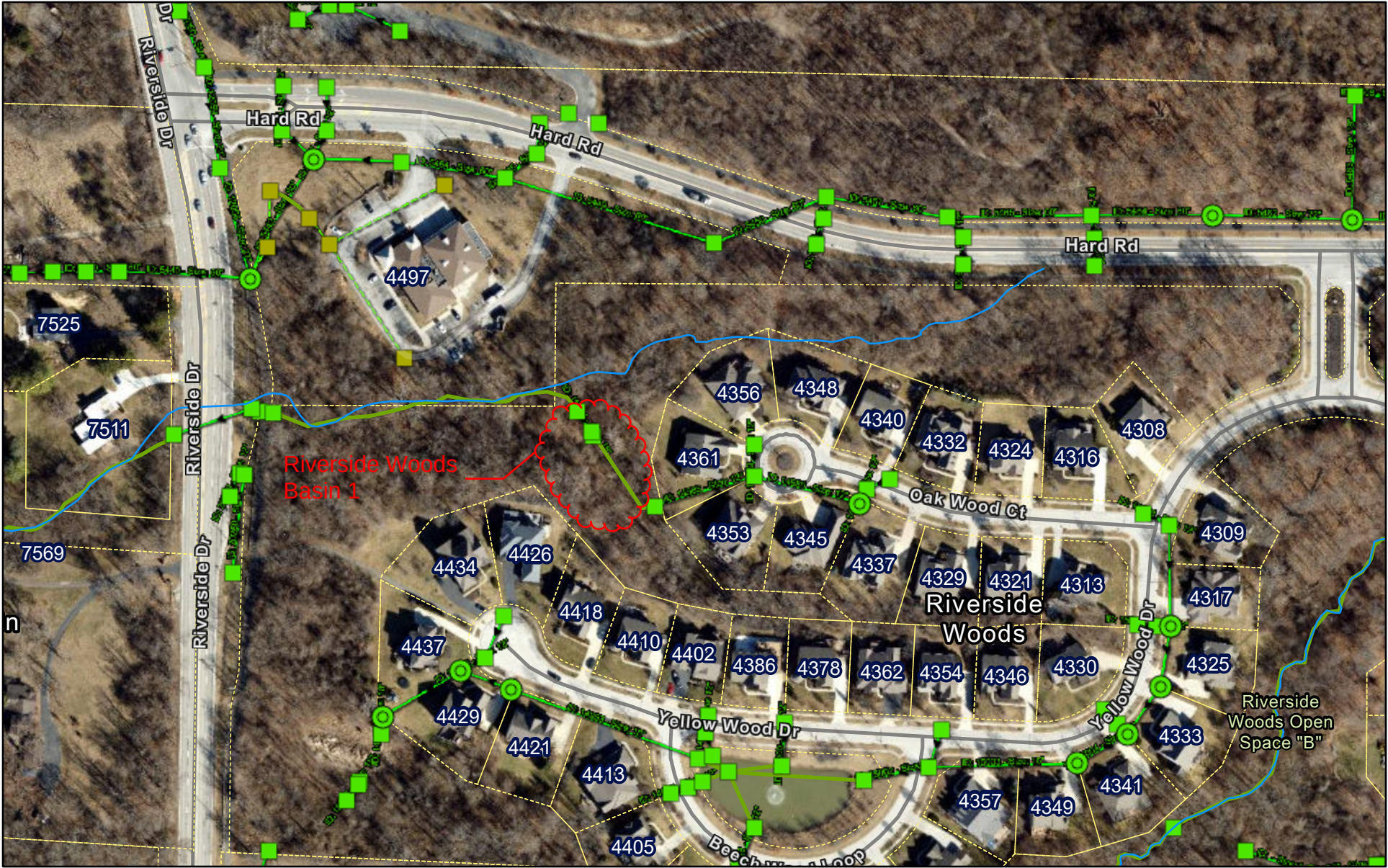
Table 1: Basin Performance Summary, Release Rates

Storm Event (yr)	Peak Inflow (cfs, from 2004 SWMP)	Allowable Release Rates (cfs, from 2004 SWMP)	Peak Outflow (cfs, from 2004 SWMP)	Peak Inflow (cfs, HydroCAD Duplicate of 2004 Model)	Peak Outflow (cfs, HydroCAD Duplicate of 2004 Model)	Peak Outflow (cfs, HydroCAD As-Built Conditions)	Peak Outflow (cfs, HydroCAD Proposed Conditions)
1	3.30	0.83	0.05	3.29	0.38	0.28	0.20
2	4.83	0.83	0.60	4.72	0.58	0.55	0.50
5	6.71	0.83	0.83	6.53	0.80	0.75	0.83
10	8.21	1.59	1.59	7.97	1.20	1.06	1.07
25	10.52	5.69	4.71	10.21	4.86	2.83	2.34
50	12.59	11.38	6.34	12.20	6.27	9.12	6.39
100	14.77	17.89	7.39	14.31	7.28	13.55	10.49

Table 2: Basin Performance Summary, Water Surface Elevation

Storm Event (yr)	Peak Basin WSEL (cfs, from 2004 SWMP)	Peak Basin WSEL (cfs, 2004 HydroCAD Duplicate)	Peak Basin WSEL (cfs, HydroCAD Existing Conditions)	Peak Basin WSEL (cfs, HydroCAD Proposed Conditions)
1	844.23	844.56	844.69	843.98
2	844.74	844.70	844.84	844.20
5	845.06	845.02	845.10	844.38
10	845.30	845.22	845.35	844.50
25	845.55	845.46	845.41	844.60
50	845.76	845.69	845.49	844.78
100	845.97	845.88	845.53	844.92

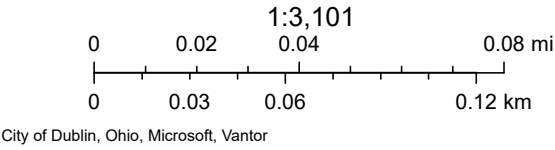
Dubscopy Map



3/16/2026, 4:02:47 PM

- Streams
- Storm Manholes
- City of Dublin
- Other Ownership
- Storm Lift Station
- Storm Nodes
- City of Dublin
- Other Ownership
- Storm Open Conduit
- Parcels (Dublin, Ohio Merged)
- Addresses
- City Facilities Main Buildings
- Schools

- Streets
- Sawmill Bright Road January 2026
- Red: Band_1
- Green: Band_2
- Blue: Band_3
- AveryRoadDetentionPond.tif
- Red: Band_1
- Green: Band_2
- Blue: Band_3
- BrandRdBrandonwayDr.tif
- Red: Band_1
- Green: Band_2
- Blue: Band_3
- CacchioliLane.tif
- Red: Band_1
- Green: Band_2
- Blue: Band_3
- MTCFeb25
- Red: mtcFeb25c1
- Green: mtcFeb25c2
- Blue: mtcFeb25c3
- FranklinStDec2023.tif
- Red: Band_1
- Green: Band_2
- Blue: Band_3





Stormwater Management Plan

Project:
**Riverside Woods
Residential Development
City of Dublin, Ohio**

August 2004
Revised September 2004

The dry basin itself labeled Basin 004 Sub in the PondPack model is being allowed to pass through at its post-developed rate using a runoff curve number of 74, an area of 0.56 acres, and a time of concentration of 15 minutes. The area of the dry basin is not being considered in the critical storm calculations because the land use is staying relatively the same. The 1st stage outlet for the basin is a series of 0.50" holes (4) at an elevation of 832.2. The 2nd stage outlet is a Neenah 3405 grate at an elevation of 836.00.

Table 7 – Post-Developed Peak Flow Rates – Unstudied Area

Storm Event (yr)	Allowable (cfs)	Peak Outflow From Basin 002 (cfs)	Peak Outflow From Basin 004 (cfs)
1	1.48	0.10	0.05
2	1.48	0.12	0.10
5	1.48	0.14	0.20
10	1.48	0.16	0.25
25	1.48	0.36	0.45
50	1.48	1.12	1.39
100	11.13	2.67	3.20

The post-developed peak flow rates to the Unstudied watershed meet the allowable release rate criteria. The proposed outfall for Basin 004 is to the southwest corner of the site and eventually to Riverside Drive.

Subarea 003

The area of Subarea 003 is 2.09 acres and is located entirely in the Hard Road South watershed. Approximately 12 lots are located in Subarea 003, corresponding to a post-developed runoff curve number of 87. The time of concentration for Subarea 003 is 10.8 minutes and was taken from the storm sewer calculations included in Appendix 2. A 'dry' detention basin just west of Subarea 003 will be used to detain the runoff to the allowable rate.

The detention basin is being constructed in a natural swale. Besides the 2.09 acres from Subarea 003, approximately 3.68 acres of offsite area is tributary to the dry detention basin. The offsite area hydrograph was modeled using a Bulletin 71 3rd Quartile, 24-hour rainfall distribution in a separate model. The hydrographs were then imported into the final PondPack model. This was done in order to match the peak flow rate to the peak flow rates listed for Dublin Subarea 1020.

The 1st stage outlet for the water quality basin is a series of (6) ¼" holes drilled into a standpipe with an invert elevation of 841.00. The 2nd stage outlet is (2) ¾" holes drilled into a standpipe with an invert elevation of 843.25. The 3rd stage outlet is a 6" diameter standpipe with a top elevation of 844.40. The standpipe is the same pipe the holes for the 1st and 2nd stage outlets are drilled into. The 4th stage outlet is a Neenah 3405 catch basin grate at an elevation of 845.25. The top of embankment is

approximately 846.00. The post-developed peak flow rates are shown on Table 8.

Table 8 – Post-Developed Peak Flow Rates – Hard Road South

Storm Event (yr)	Allowable (cfs)	Peak Outflow (cfs)
1	0.83	0.05
2	0.83	0.60
5	0.83	0.83
10	1.59	1.59
25	5.69	4.71
50	11.38	6.34
100	17.89	7.39

1.5 WATER QUALITY CALCULATIONS

The detention basins meet both the City of Dublin and the Ohio EPA criteria for water quality control. Using the Ohio EPA guidelines for water quality volume, the water quality volume for the onsite detention basin is calculated using the following formula:

$$WQ_v = CPA/12$$

A “C” value of 0.4 is used for single-family residential areas. “P” is 0.75” of rainfall and “A” is the area in acres.

The City of Dublin water quality formula produces a smaller water quality volume, which is more restrictive when sizing the outlet to drawdown a smaller volume of runoff in the same time. Therefore, the water quality elevation is determined using the Ohio EPA formula, and the outlet is sized using the City of Dublin water quality elevation.

The water quality volume calculations and drawdown graphs have been provided in Appendix 4.

1.6 RESULTS

The results of the post-development conditions hydrologic analyses are summarized in Table 3. The performance of the proposed detention facility with respect to the County’s criteria and the project’s compliance with the stormwater management criteria is demonstrated by comparing the basin peak discharge to the allowable release rate. Output from the PondPack™ model has been provided in Appendix 2.

Table 9
Stormwater Management Summary Table
Basin 001

	1-yr	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
Predeveloped Q (cfs)	-	-	-	-	-	-	-
Post Developed Q (cfs)	4.49	7.38	11.28	14.53	19.69	24.39	29.45
Allowable Release (cfs)	0.25	0.25	0.64	1.38	3.86	7.60	11.95
Actual Release (cfs)	0.03	0.04	0.31	0.86	3.00	4.87	6.28
Pond Elevation (ft)	876.19	876.73	877.02	877.06	877.23	877.46	877.75

Table 10
Stormwater Management Summary Table
Basin 002

	1-yr	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
Predeveloped Q (cfs)	-	-	-	-	-	-	-
Post Developed Q (cfs)	7.97	11.91	17.03	21.17	27.61	33.38	39.50
Allowable Release (cfs)	-	-	-	-	-	-	-
Actual Release (cfs)	0.10	0.12	0.14	0.16	0.36	1.12	2.67
Pond Elevation (ft)	858.96	859.42	859.99	860.44	861.01	861.07	861.19

Table 11
Stormwater Management Summary Table
Basin 003

	1-yr	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
Predeveloped Q (cfs)	-	-	-	-	-	-	-
Post Developed Q (cfs)	3.30	4.83	6.71	8.21	10.52	12.59	14.77
Allowable Release (cfs)	0.83	0.83	0.83	1.59	5.69	11.38	17.89
Actual Release (cfs)	0.05	0.60	0.83	1.59	4.71	6.34	7.39
Pond Elevation (ft)	844.23	844.74	845.06	845.30	845.55	845.76	845.97

Table 12
Stormwater Management Summary Table
Basin 004

	1-yr	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
Predeveloped Q (cfs)	-	-	-	-	-	-	-
Post Developed Q (cfs)	2.34	3.41	4.80	5.91	7.65	9.20	10.86
Allowable Release (cfs)	1.48	1.48	1.48	1.48	1.48	1.48	11.13
Actual Release (cfs)	0.05	0.10	0.20	0.25	0.45	1.39	3.20
Pond Elevation (ft)	835.69	836.00	836.01	836.02	836.03	836.11	836.28

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---	------

***** DESIGN STORMS SUMMARY *****

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--------------------------------------	------

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HANNA HILLS POST Tc Calcs	3.05
HANNA HILLS PRE Tc Calcs	3.07
HARD ROAD PRE... Tc Calcs	3.09
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MASTER DESIGN STORM SUMMARY

Network Storm Collection: Bul 71 - Ohio Re

Return Event	Total Depth in	Rainfall Type	RNF ID
1 yr	2.1700	Synthetic Curve	TypeII 24hr
2 yr	2.7000	Synthetic Curve	TypeII 24hr
5 yr	3.3500	Synthetic Curve	TypeII 24hr
10 yr	3.8600	Synthetic Curve	TypeII 24hr
25 yr	4.6400	Synthetic Curve	TypeII 24hr
50 yr	5.3300	Synthetic Curve	TypeII 24hr
100 yr	6.0600	Synthetic Curve	TypeII 24hr

MASTER NETWORK SUMMARY

SCS Unit Hydrograph Method

Hydrograph File Import Option Used For 1 node(s)

(*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
BASIN 002	IN	POND 1	.461		12.1500	7.97		
BASIN 002	IN	POND 2	.678		12.1500	11.91		
BASIN 002	IN	POND 5	.963		12.1500	17.03		
BASIN 002	IN	POND 10	1.197		12.1500	21.17		
BASIN 002	IN	POND 25	1.567		12.1500	27.61		
BASIN 002	IN	POND 50	1.903		12.1500	33.38		
BASIN 002	IN	POND 100	2.264		12.1500	39.50		

Name.... Watershed

File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287V2.PPW

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method
Hydrograph File Import Option Used For 1 node(s)

(*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
BASIN 002	OUT	POND 1	.441		18.1000	.10	858.96	.368
BASIN 002	OUT	POND 2	.629		19.9500	.12	859.42	.561
BASIN 002	OUT	POND 5	.838		21.7000	.14	859.99	.822
BASIN 002	OUT	POND 10	.980		22.8000	.16	860.44	1.038
BASIN 002	OUT	POND 25	1.198		20.5500	.36	861.01	1.331
BASIN 002	OUT	POND 50	1.528		14.4000	1.12	861.07	1.362
BASIN 002	OUT	POND 100	1.885		13.0500	2.67	861.19	1.426
BASIN 003	IN	POND 1	.348		12.1500	3.30		
BASIN 003	IN	POND 2	.525		12.1500	4.83		
BASIN 003	IN	POND 5	.764		12.1500	6.71		
BASIN 003	IN	POND 10	.962		12.1500	8.21		
BASIN 003	IN	POND 25	1.279		12.1500	10.52		
BASIN 003	IN	POND 50	1.570		12.1500	12.59		
BASIN 003	IN	POND 100	1.885		12.1500	14.77		
BASIN 003	OUT	POND 1	.348		15.7000	.05	844.23	.133
BASIN 003	OUT	POND 2	.525		15.8000	.60	844.74	.196
BASIN 003	OUT	POND 5	.763		15.7000	.83	845.06	.245
BASIN 003	OUT	POND 10	.961		12.5000	1.59	845.30	.285
BASIN 003	OUT	POND 25	1.278		12.3000	4.71	845.55	.333
BASIN 003	OUT	POND 50	1.568		12.3000	6.34	845.76	.377
BASIN 003	OUT	POND 100	1.883		12.3000	7.39	845.97	.424
BASIN 004	IN	POND 1	.569		12.1500	2.34		
BASIN 004	IN	POND 2	.814		12.1500	3.41		
BASIN 004	IN	POND 5	1.099		12.1500	4.80		
BASIN 004	IN	POND 10	1.303		12.1500	5.91		
BASIN 004	IN	POND 25	1.620		12.1500	7.65		
BASIN 004	IN	POND 50	2.039		12.1500	9.20		
BASIN 004	IN	POND 100	2.493		12.1500	10.86		

Type.... Design Storms
Name.... Bul 71 - Ohio Re

Page 2.01

File.... Q:\PROJECT\stormwater\stormwater\20040287\
Title... Project Date: 6/17/2004
Project Engineer: EMHT INC
Project Title: Riverside Woods
Project Comments:

DESIGN STORMS SUMMARY

Design Storm File, ID = Bul 71 - Ohio Re

Storm Tag Name = 1 yr

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 1 yr
Total Rainfall Depth= 2.1700 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = 2 yr

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 2 yr
Total Rainfall Depth= 2.7000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = 5 yr

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 5 yr
Total Rainfall Depth= 3.3500 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= 3.8600 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= 4.6400 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Type.... Design Storms
Name.... Bul 71 - Ohio Re

Page 2.02

File.... Q:\PROJECT\stormwater\stormwater\20040287\
Title... Project Date: 6/17/2004
Project Engineer: EMHT INC
Project Title: Riverside Woods
Project Comments:

DESIGN STORMS SUMMARY

Design Storm File, ID = Bul 71 - Ohio Re

Storm Tag Name = 50 yr

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 50 yr
Total Rainfall Depth= 5.3300 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= 6.0600 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287V2.PPW

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume Sum (ac-ft)
841.00	-----	.0020	.0000	.000	.000
842.00	-----	.0170	.0248	.008	.008
843.00	-----	.0470	.0923	.031	.039
844.00	-----	.0960	.2102	.070	.109
845.00	-----	.1580	.3772	.126	.235
846.00	-----	.2360	.5871	.196	.431

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

$$\text{Volume} = (1/3) * (\text{EL2}-\text{EL1}) * (\text{Areal} + \text{Area2} + \text{sq.rt.}(\text{Areal}*\text{Area2}))$$

where: EL1, EL2 = Lower and upper elevations of the increment
 Areal,Area2 = Areas computed for EL1, EL2, respectively
 Volume = Incremental volume between EL1 and EL2

File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287V2.PPW

REQUESTED POND WS ELEVATIONS:

Min. Elev.= 841.00 ft
Increment = .25 ft
Max. Elev.= 846.00 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
Inlet Box	4	--->	TW	845.250	846.000
Stand Pipe	3	--->	TW	844.400	846.000
Orifice-Circular	2	--->	TW	843.250	846.000
Orifice-Circular	1	--->	TW	841.000	846.000
TW SETUP, DS Channel					

Water Quality Calculations - Subarea 003

City of Dublin

Extended detention volume shall be sized according to the following equation

$$V_b = A * r * a * P \text{ (acre-feet)}$$

V_b = extended detention volume in acre-feet

A = drainage area tributary to detention basin, acres

r = runoff quality coefficient = $0.858i^3 - 0.78i^2 + 0.774i + 0.04$

i = impervious area ratio of tributary watershed

a = regression constant = 1.545

P = mean storm precipitation volume = 0.04

A =	2.09 Acres	3.86 Acres
i =	0.25	0.1
r =	0.198	0.110
a =	1.545	1.545
P =	0.04	0.04
V_b =	0.026 acre-feet	0.026 acre-feet

Extended Detention Volume =	0.052 ac-ft	
Storage Volume =	0.12 ac-ft	(must be equal to or greater than 0.05 ac-ft)
Req'd Sediment Storage Volume =	0.010 ac-ft	(must be equal to or greater than 20% of 0.05 ac-ft = 0.01 ac-ft)
Total Volume Required =	0.060	
Drawdown Time =	48 hrs (0.025 ac-ft in 16 hours)	
WQ Elevation =	843.38	

Ohio EPA

$$WQ_v = CPA/12$$

C = rational runoff coefficient

P = 0.75" of rain

A = area in acres

	Onsite	Offsite
C =	0.4	0.2
P =	0.75	0.75
A =	2.09	3.86

WQ_v =	0.10 ac-ft
plus 20% for sediment storage =	0.12 ac-ft
Drawdown Time =	48 hours (0.06 ac-ft in 16 hours)
WQ Elevation =	844.12

The City of Dublin water quality formula produces a smaller water quality volume, which is more restrictive when sizing the outlet to drawdown a smaller volume of runoff in the same time. Therefore, the water quality elevation is determined using the Ohio EPA formula, and the outlet is sized using the City of Dublin water quality elevation.

Attachment 2B - PondPak As Built Output

Job File: Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW
Rain Dir: Q:\PROJECT\stormwater\stormwater\20040287\

=====
JOB TITLE
=====

Project Date: 6/17/2004
Project Engineer: EMHT INC
Project Title: Riverside Woods
Project Comments:

S/N:

PondPak Ver:

Compute Time:

Date:

↑
Type.... Design Storms
Name.... Bul 71 - Ohio Re

Page 1

File.... Q:\PROJECT\stormwater\stormwater\20040287\
Title... Project Date: 6/17/2004
Project Engineer: EMHT INC
Project Title: Riverside Woods
Project Comments:

DESIGN STORMS SUMMARY

Design Storm File, ID = Bul 71 - Ohio Re

Storm Tag Name = 1 yr

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 1 yr
Total Rainfall Depth= 2.1700 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = 2 yr

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 2 yr
Total Rainfall Depth= 2.7000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = 5 yr

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 5 yr
Total Rainfall Depth= 3.3500 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= 3.8600 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= 4.6400 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Design Storms

Page 2

yyyName.... Bul 71 - Ohio Re

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\

yyyTitle... Project Date: 6/17/2004

Project Engineer: EMHT INC

Project Title: Riverside Woods

Project Comments:

DESIGN STORMS SUMMARY

Design Storm File,ID =

Bul 71 - Ohio Re

Storm Tag Name = 50 yr

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 50 yr

Total Rainfall Depth= 5.3300 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= 6.0600 in
 Duration Multiplier = 1
 Resulting Duration = 24.0000 hrs
 Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Vol: Elev-Area
 yyyName.... EAST BASIN

Page 3

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sq.(A1*A2) (acres)	Volume (ac-ft)	Volume Sum (ac-ft)
873.00	-----	.0000	.0000	.000	.000
874.00	-----	.0350	.0350	.012	.012
875.00	-----	.0940	.1864	.062	.074
876.00	-----	.2500	.4973	.166	.240
877.00	-----	.4400	1.0217	.341	.580
878.00	-----	.6000	1.5538	.518	1.098
879.00	-----	.8600	2.1783	.726	1.824
880.00	-----	1.0900	2.9182	.973	2.797

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

$$\text{Volume} = (1/3) * (\text{EL2}-\text{EL1}) * (\text{Area1} + \text{Area2} + \text{sq.rt.}(\text{Area1}*\text{Area2}))$$

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

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Vol: Elev-Area
yyyName.... BASIN 002

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yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume Sum (ac-ft)
858.00	-----	.3600	.0000	.000	.000
859.00	-----	.4100	1.1542	.385	.385
860.00	-----	.4700	1.3190	.440	.824
861.00	-----	.5300	1.4991	.500	1.324
862.00	-----	.6000	1.6939	.565	1.889

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

$$\text{Volume} = (1/3) * (\text{EL2}-\text{EL1}) * (\text{Area1} + \text{Area2} + \text{sq.rt.}(\text{Area1}*\text{Area2}))$$

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

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Vol: Elev-Area
yyyName.... BASIN 003

Page 5

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume Sum (ac-ft)
841.00	-----	.0020	.0000	.000	.000
842.00	-----	.0170	.0248	.008	.008
843.00	-----	.0470	.0923	.031	.039
844.00	-----	.0960	.2102	.070	.109
845.00	-----	.1580	.3772	.126	.235
846.00	-----	.2360	.5871	.196	.431

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

$$\text{Volume} = (1/3) * (\text{EL2}-\text{EL1}) * (\text{Area1} + \text{Area2} + \text{sq.rt.}(\text{Area1}*\text{Area2}))$$

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

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Vol: Elev-Area

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yyyName.... BASIN 004

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sq(r(A1*A2)) (acres)	Volume (ac-ft)	Volume Sum (ac-ft)
832.20	-----	.0000	.0000	.000	.000
833.00	-----	.0090	.0090	.002	.002
834.00	-----	.0750	.1100	.037	.039
835.00	-----	.1430	.3216	.107	.146
836.00	-----	.2130	.5305	.177	.323
837.00	-----	.2780	.7343	.245	.568
838.00	-----	.3550	.9471	.316	.884

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

$$\text{Volume} = (1/3) * (\text{EL2}-\text{EL1}) * (\text{Area1} + \text{Area2} + \text{sq.rt.}(\text{Area1}*\text{Area2}))$$

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

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... OutletInput Data

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yyyName.... East Basin Out

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

REQUESTED POND WS ELEVATIONS:

Min. Elev.= 873.00 ft

Increment = .25 ft

Max. Elev.= 880.00 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
InletBox	2	--->	TW	877.020	880.000
Orifice-Circular	1	--->	TW	873.020	880.000
TWSETUP, D Channel					

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... OutletInput Data

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Name.... East Basin Out

File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

OUTLET STRUCTURE INPUT DATA

Structure ID = 2
Structure Type = InletBox

of Openings = 1
Invert Elev. = 877.02 ft
Orifice Area = 1.5000 sq.ft
Orifice Coeff. = .600
Weir Length = 7.90 ft
Weir Coeff. = 3.300
K, Reverse = 1.000
Mannings n = .0000
Kev,Charged Riser = .000
Weir Submergence = No
Orifice H to crest= Yes

Structure ID = 1
Structure Type = Orifice-Circular

of Openings = 3
 Invert Elev. = 873.02 ft
 Diameter = .0420 ft
 Orifice Coeff. = .600

Structure ID = TW
 Structure Type = TWÿSETUP,ÿDS 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

S/N:
 PondPack Ver: Compute Time: Date:

↑
 ÿÿÿType.... Individual Outlet Curves
 ÿÿÿName.... East Basin Out

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = 2 (InletÿBox)

 Upstream ID = (Pond Water Surface)
 DNstream ID = TW (Pond Outfall)

WS Elev,Device Q		Tail Water		Notes
-----		-----		-----
WS Elev.	Q	TW Elev Converge		Computation Messages
ft	cfs	ft	+/-ft	

873.00	.00	Free Outfall		
		HW & TW < Inv.El.=877.020		
873.02	.00	Free Outfall		
		HW & TW < Inv.El.=877.020		
873.25	.00	Free Outfall		
		HW & TW < Inv.El.=877.020		
873.50	.00	Free Outfall		

	HW & TW < Inv.El.=877.020
873.75	.00 Free Outfall
	HW & TW < Inv.El.=877.020
874.00	.00 Free Outfall
	HW & TW < Inv.El.=877.020
874.25	.00 Free Outfall
	HW & TW < Inv.El.=877.020
874.50	.00 Free Outfall
	HW & TW < Inv.El.=877.020
874.75	.00 Free Outfall
	HW & TW < Inv.El.=877.020
875.00	.00 Free Outfall
	HW & TW < Inv.El.=877.020
875.25	.00 Free Outfall
	HW & TW < Inv.El.=877.020
875.50	.00 Free Outfall
	HW & TW < Inv.El.=877.020
875.75	.00 Free Outfall
	HW & TW < Inv.El.=877.020
876.00	.00 Free Outfall
	HW & TW < Inv.El.=877.020
876.25	.00 Free Outfall
	HW & TW < Inv.El.=877.020
876.50	.00 Free Outfall
	HW & TW < Inv.El.=877.020
876.75	.00 Free Outfall
	HW & TW < Inv.El.=877.020

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Individual Outlet Curves

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ÿÿÿName.... East Basin Out

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = 2 (InletÿBox)

Upstream ID = (Pond Water Surface)

DNstream ID = TW (Pond Outfall)

WS Elev,Device Q		Tail Water		Notes
-----		-----		-----
WS Elev.	Q	TW Elev Converge		
ft	cfs	ft	+/-ft	Computation Messages
-----		-----		-----

877.00	.00	Free Outfall	
		HW & TW < Inv.El.=877.020	
877.02	.00	Free Outfall	
		Weir: H =.00ft	
877.25	2.88	Free Outfall	
		Weir: H =.23ft	
877.50	5.00	Free Outfall	
		Orifice: H =.48; Riser orifice equation controlling.	
877.75	6.17	Free Outfall	
		Orifice: H =.73; Riser orifice equation controlling.	
878.00	7.15	Free Outfall	
		Orifice: H =.98; Riser orifice equation controlling.	
878.25	8.01	Free Outfall	
		Orifice: H =1.23; Riser orifice equation controlling.	
878.50	8.78	Free Outfall	
		Orifice: H =1.48; Riser orifice equation controlling.	
878.75	9.50	Free Outfall	
		Orifice: H =1.73; Riser orifice equation controlling.	
879.00	10.16	Free Outfall	
		Orifice: H =1.98; Riser orifice equation controlling.	
879.25	10.78	Free Outfall	
		Orifice: H =2.23; Riser orifice equation controlling.	
879.50	11.37	Free Outfall	
		Orifice: H =2.48; Riser orifice equation controlling.	
879.75	11.93	Free Outfall	
		Orifice: H =2.73; Riser orifice equation controlling.	
880.00	12.46	Free Outfall	
		Orifice: H =2.98; Riser orifice equation controlling.	

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Individual Outlet Curves

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yyyName.... East Basin Out

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = 1 (Orifice-Circular)

Upstream ID = (Pond Water Surface)

DNstream ID = TW (Pond Outfall)

NUMBER OF OPENINGS = 3

EACH FLOW = SUM OF OPENINGS x FLOW FOR ONE OPENING

WS Elev,Device Q		Tail Water		Notes
WS Elev. ft	Q cfs	TW Elev ft	Converge +/-ft	Computation Messages
873.00	.00	Free Outfall HW & TW below invert		
873.02	.00	Free Outfall Upstream HW & DNstream TW < Inv.El		
873.25	.01	Free Outfall H =.21		
873.50	.01	Free Outfall H =.46		
873.75	.02	Free Outfall H =.71		
874.00	.02	Free Outfall H =.96		
874.25	.02	Free Outfall H =1.21		
874.50	.02	Free Outfall H =1.46		
874.75	.03	Free Outfall H =1.71		
875.00	.03	Free Outfall H =1.96		
875.25	.03	Free Outfall H =2.21		
875.50	.03	Free Outfall H =2.46		
875.75	.03	Free Outfall H =2.71		
876.00	.03	Free Outfall H =2.96		
876.25	.04	Free Outfall H =3.21		
876.50	.04	Free Outfall H =3.46		

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Type.... Individual Outlet Curves

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RATING TABLE FOR ONE OUTLET TYPE

Structure ID = 1 (Orifice-Circular)

Upstream ID = (Pond Water Surface)
DNstream ID = TW (Pond Outfall)

NUMBER OF OPENINGS = 3
EACH FLOW = SUM OF OPENINGS x FLOW FOR ONE OPENING

WS Elev,Device Q		Tail Water		Notes
-----		-----		-----
WS Elev.	Q	TW Elev Converge		Computation Messages
ft	cfs	ft	+/-ft	
-----		-----		-----
876.75	.04	Free Outfall		
		H =3.71		
877.00	.04	Free Outfall		
		H =3.96		
877.02	.04	Free Outfall		
		H =3.98		
877.25	.04	Free Outfall		
		H =4.21		
877.50	.04	Free Outfall		
		H =4.46		
877.75	.04	Free Outfall		
		H =4.71		
878.00	.04	Free Outfall		
		H =4.96		
878.25	.05	Free Outfall		
		H =5.21		
878.50	.05	Free Outfall		
		H =5.46		
878.75	.05	Free Outfall		
		H =5.71		
879.00	.05	Free Outfall		
		H =5.96		
879.25	.05	Free Outfall		
		H =6.21		
879.50	.05	Free Outfall		
		H =6.46		
879.75	.05	Free Outfall		
		H =6.71		
880.00	.05	Free Outfall		
		H =6.96		

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↑
yyyType.... Composite Rating Curve
yyyName.... East Basin Out

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***** COMPOSITE OUTFLOW SUMMARY *****

WS Elev, Total Q		Converge		Notes
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
873.00	.00	Free Outfall		None contributing
873.02	.00	Free Outfall		None contributing
873.25	.01	Free Outfall	1	
873.50	.01	Free Outfall	1	
873.75	.02	Free Outfall	1	
874.00	.02	Free Outfall	1	
874.25	.02	Free Outfall	1	
874.50	.02	Free Outfall	1	
874.75	.03	Free Outfall	1	
875.00	.03	Free Outfall	1	
875.25	.03	Free Outfall	1	
875.50	.03	Free Outfall	1	
875.75	.03	Free Outfall	1	
876.00	.03	Free Outfall	1	
876.25	.04	Free Outfall	1	
876.50	.04	Free Outfall	1	
876.75	.04	Free Outfall	1	
877.00	.04	Free Outfall	1	
877.02	.04	Free Outfall	2 +1	
877.25	2.92	Free Outfall	2 +1	
877.50	5.04	Free Outfall	2 +1	
877.75	6.21	Free Outfall	2 +1	
878.00	7.19	Free Outfall	2 +1	
878.25	8.05	Free Outfall	2 +1	
878.50	8.83	Free Outfall	2 +1	
878.75	9.54	Free Outfall	2 +1	
879.00	10.21	Free Outfall	2 +1	
879.25	10.83	Free Outfall	2 +1	
879.50	11.42	Free Outfall	2 +1	
879.75	11.98	Free Outfall	2 +1	
880.00	12.52	Free Outfall	2 +1	

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Type.... Outlet
Name.... outlet 003

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REQUESTED POND WS ELEVATIONS:

Min. Elev.= 841.00 ft
Increment = .25 ft
Max. Elev.= 846.00 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
StandPipe	3	---	TW	844.530	846.000
Orifice-Circular	1	---	TW	840.980	846.000
InletBox	4	---	TW	845.180	846.000
Orifice-Circular	2	---	TW	843.260	846.000
TWSETUP, DSD Channel					

S/N:

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Date:



Type.... OutletInput Data

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Name.... outlet 003

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OUTLET STRUCTURE INPUT DATA

Structure ID = 3
Structure Type = StandPipe

of Openings = 1
Invert Elev. = 844.53 ft
Diameter = .5000 ft
Orifice Area = .1963 sq.ft
Orifice Coeff. = .600
Weir Length = 1.57 ft
Weir Coeff. = 3.300
K, Reverse = 1.000
Mannings n = .0000

Kev,Charged Riser = .000
Weir Submergence = No
Orifice H to crest= Yes

Structure ID = 1
Structure Type = Orifice-Circular

of Openings = 6
Invert Elev. = 840.98 ft
Diameter = .0208 ft
Orifice Coeff. = .660

S/N:

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ÿÿÿType.... OutletÿInput Data

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ÿÿÿName.... outlet 003

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OUTLET STRUCTURE INPUT DATA

Structure ID = 4
Structure Type = InletÿBox

of Openings = 1
Invert Elev. = 845.18 ft
Orifice Area = 1.5000 sq.ft
Orifice Coeff. = .600
Weir Length = 7.90 ft
Weir Coeff. = 3.300
K, Reverse = 1.000
Mannings n = .0000
Kev,Charged Riser = .000
Weir Submergence = No
Orifice H to crest= Yes

Structure ID = 2
Structure Type = Orifice-Circular

of Openings = 2
Invert Elev. = 843.26 ft
Diameter = .0625 ft
Orifice Coeff. = .660

Structure ID = TW
 Structure Type = TWSETUP, 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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 PondPack Ver: Compute Time: Date:

↑
 Type.... Individual Outlet Curves
 Name.... outlet 003

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RATING TABLE FOR ONE OUTLET TYPE

Structure ID = 3 (StandPipe)

 Upstream ID = (Pond Water Surface)
 DNstream ID = TW (Pond Outfall)

WS Elev, Device Q		Tail Water		Notes
-----		-----		-----
WS Elev.	Q	TW Elev	Converge	Computation Messages
ft	cfs	ft	+/-ft	

840.98	.00	Free Outfall		
		HW & TW < Inv.El.=844.530		
841.00	.00	Free Outfall		
		HW & TW < Inv.El.=844.530		
841.25	.00	Free Outfall		
		HW & TW < Inv.El.=844.530		
841.50	.00	Free Outfall		
		HW & TW < Inv.El.=844.530		
841.75	.00	Free Outfall		
		HW & TW < Inv.El.=844.530		
842.00	.00	Free Outfall		

		HW & TW < Inv.El.=844.530
842.25	.00	Free Outfall
		HW & TW < Inv.El.=844.530
842.50	.00	Free Outfall
		HW & TW < Inv.El.=844.530
842.75	.00	Free Outfall
		HW & TW < Inv.El.=844.530
843.00	.00	Free Outfall
		HW & TW < Inv.El.=844.530
843.25	.00	Free Outfall
		HW & TW < Inv.El.=844.530
843.26	.00	Free Outfall
		HW & TW < Inv.El.=844.530
843.50	.00	Free Outfall
		HW & TW < Inv.El.=844.530
843.75	.00	Free Outfall
		HW & TW < Inv.El.=844.530
844.00	.00	Free Outfall
		HW & TW < Inv.El.=844.530
844.25	.00	Free Outfall
		HW & TW < Inv.El.=844.530
844.50	.00	Free Outfall
		HW & TW < Inv.El.=844.530

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yyyType.... Individual Outlet Curves

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yyyName.... outlet 003

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RATING TABLE FOR ONE OUTLET TYPE

Structure ID = 3 (StandbyPipe)

Upstream ID = (Pond Water Surface)

DNstream ID = TW (Pond Outfall)

WS Elev,Device Q		Tail Water		Notes
WS Elev.	Q	TW Elev	Converge	
ft	cfs	ft	+/-ft	Computation Messages
844.53	.00	Free Outfall		
		Weir: H =.00ft		
844.75	.44	Free Outfall		
		Orifice: H =.22; Riser orifice equation controlling.		

845.00	.65	Free Outfall	Orifice: H =.47; Riser orifice equation controlling.
845.18	.76	Free Outfall	Orifice: H =.65; Riser orifice equation controlling.
845.25	.80	Free Outfall	Orifice: H =.72; Riser orifice equation controlling.
845.50	.93	Free Outfall	Orifice: H =.97; Riser orifice equation controlling.
845.75	1.04	Free Outfall	Orifice: H =1.22; Riser orifice equation controlling.
846.00	1.15	Free Outfall	Orifice: H =1.47; Riser orifice equation controlling.

S/N:

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yyyType.... Individual Outlet Curves

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yyyName.... outlet 003

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RATING TABLE FOR ONE OUTLET TYPE

Structure ID = 1 (Orifice-Circular)

Upstream ID = (Pond Water Surface)

DNstream ID = TW (Pond Outfall)

NUMBER OF OPENINGS = 6

EACH FLOW = SUM OF OPENINGS x FLOW FOR ONE OPENING

WS Elev,Device Q		Tail Water		Notes
WS Elev.	Q	TW Elev	Converge	
ft	cfs	ft	+/-ft	Computation Messages
840.98	.00	Free Outfall		
		Upstream HW & DNstream TW < Inv.El		
841.00	.00	Free Outfall		
		CRIT.DEPTH CONTROL Vh= .010ft Dcr= .010ft CRIT.DEPTH Hev=		
.00ft				
841.25	.01	Free Outfall		
		H =.26		
841.50	.01	Free Outfall		
		H =.51		
841.75	.01	Free Outfall		
		H =.76		

842.00	.01	Free Outfall
		H =1.01
842.25	.01	Free Outfall
		H =1.26
842.50	.01	Free Outfall
		H =1.51
842.75	.01	Free Outfall
		H =1.76
843.00	.02	Free Outfall
		H =2.01
843.25	.02	Free Outfall
		H =2.26
843.26	.02	Free Outfall
		H =2.27
843.50	.02	Free Outfall
		H =2.51
843.75	.02	Free Outfall
		H =2.76
844.00	.02	Free Outfall
		H =3.01
844.25	.02	Free Outfall
		H =3.26

S/N:

PondPack Ver:

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Date:



yyyType.... Individual Outlet Curves

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yyyName.... outlet 003

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RATING TABLE FOR ONE OUTLET TYPE

Structure ID = 1 (Orifice-Circular)

 Upstream ID = (Pond Water Surface)
 DNstream ID = TW (Pond Outfall)

NUMBER OF OPENINGS = 6

EACH FLOW = SUM OF OPENINGS x FLOW FOR ONE OPENING

WS Elev,Device Q		Tail Water		Notes
-----		-----		-----
WS Elev.	Q	TW Elev Converge		
ft	cfs	ft	+/-ft	Computation Messages
-----		-----		-----
844.50	.02	Free Outfall		
		H =3.51		

844.53	.02	Free Outfall
		H =3.54
844.75	.02	Free Outfall
		H =3.76
845.00	.02	Free Outfall
		H =4.01
845.18	.02	Free Outfall
		H =4.19
845.25	.02	Free Outfall
		H =4.26
845.50	.02	Free Outfall
		H =4.51
845.75	.02	Free Outfall
		H =4.76
846.00	.02	Free Outfall
		H =5.01

S/N:

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yyyType.... Individual Outlet Curves

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yyyName.... outlet 003

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RATING TABLE FOR ONE OUTLET TYPE

Structure ID = 4 (InletBox)

Upstream ID = (Pond Water Surface)

DNstream ID = TW (Pond Outfall)

WS Elev,Device Q		Tail Water		Notes
WS Elev.	Q	TW Elev	Converge	
ft	cfs	ft	+/-ft	Computation Messages
840.98	.00	Free Outfall		
		HW & TW < Inv.El.=845.180		
841.00	.00	Free Outfall		
		HW & TW < Inv.El.=845.180		
841.25	.00	Free Outfall		
		HW & TW < Inv.El.=845.180		
841.50	.00	Free Outfall		
		HW & TW < Inv.El.=845.180		
841.75	.00	Free Outfall		
		HW & TW < Inv.El.=845.180		

842.00	.00	Free Outfall
		HW & TW < Inv.El.=845.180
842.25	.00	Free Outfall
		HW & TW < Inv.El.=845.180
842.50	.00	Free Outfall
		HW & TW < Inv.El.=845.180
842.75	.00	Free Outfall
		HW & TW < Inv.El.=845.180
843.00	.00	Free Outfall
		HW & TW < Inv.El.=845.180
843.25	.00	Free Outfall
		HW & TW < Inv.El.=845.180
843.26	.00	Free Outfall
		HW & TW < Inv.El.=845.180
843.50	.00	Free Outfall
		HW & TW < Inv.El.=845.180
843.75	.00	Free Outfall
		HW & TW < Inv.El.=845.180
844.00	.00	Free Outfall
		HW & TW < Inv.El.=845.180
844.25	.00	Free Outfall
		HW & TW < Inv.El.=845.180
844.50	.00	Free Outfall
		HW & TW < Inv.El.=845.180

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yyyType.... Individual Outlet Curves

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yyyName.... outlet 003

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RATING TABLE FOR ONE OUTLET TYPE

Structure ID = 4 (InletBox)

Upstream ID = (Pond Water Surface)
Downstream ID = TW (Pond Outfall)

WS Elev,Device Q		Tail Water		Notes
-----		-----		-----
WS Elev.	Q	TW Elev Converge		
ft	cfs	ft	+/-ft	Computation Messages
-----		-----		-----
844.53	.00	Free Outfall		
		HW & TW < Inv.El.=845.180		
844.75	.00	Free Outfall		

		HW & TW < Inv.El.=845.180
845.00	.00	Free Outfall
		HW & TW < Inv.El.=845.180
845.18	.00	Free Outfall
		Weir: H =.00ft
845.25	.48	Free Outfall
		Weir: H =.07ft
845.50	4.08	Free Outfall
		Orifice: H =.32; Riser orifice equation controlling.
845.75	5.45	Free Outfall
		Orifice: H =.57; Riser orifice equation controlling.
846.00	6.54	Free Outfall
		Orifice: H =.82; Riser orifice equation controlling.

S/N:

PondPack Ver:

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yyyType.... Individual Outlet Curves

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yyyName.... outlet 003

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RATING TABLE FOR ONE OUTLET TYPE

Structure ID = 2 (Orifice-Circular)

Upstream ID = (Pond Water Surface)

DNstream ID = TW (Pond Outfall)

NUMBER OF OPENINGS = 2

EACH FLOW = SUM OF OPENINGS x FLOW FOR ONE OPENING

WS Elev,Device Q		Tail Water		Notes
-----		-----		-----
WS Elev.	Q	TW Elev Converge		Computation Messages
ft	cfs	ft	+/-ft	

840.98	.00	Free Outfall		
		HW & TW below invert		
841.00	.00	Free Outfall		
		HW & TW below invert		
841.25	.00	Free Outfall		
		HW & TW below invert		
841.50	.00	Free Outfall		
		HW & TW below invert		
841.75	.00	Free Outfall		
		HW & TW below invert		

842.00	.00	Free Outfall
		HW & TW below invert
842.25	.00	Free Outfall
		HW & TW below invert
842.50	.00	Free Outfall
		HW & TW below invert
842.75	.00	Free Outfall
		HW & TW below invert
843.00	.00	Free Outfall
		HW & TW below invert
843.25	.00	Free Outfall
		HW & TW below invert
843.26	.00	Free Outfall
		Upstream HW & DNstream TW < Inv.El
843.50	.01	Free Outfall
		H =.21
843.75	.02	Free Outfall
		H =.46
844.00	.03	Free Outfall
		H =.71
844.25	.03	Free Outfall
		H =.96

S/N:

PondPack Ver:

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yyyType.... Individual Outlet Curves

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yyyName.... outlet 003

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RATING TABLE FOR ONE OUTLET TYPE

Structure ID = 2 (Orifice-Circular)

Upstream ID = (Pond Water Surface)

DNstream ID = TW (Pond Outfall)

NUMBER OF OPENINGS = 2

EACH FLOW = SUM OF OPENINGS x FLOW FOR ONE OPENING

WS Elev,Device Q		Tail Water		Notes
-----		-----		-----
WS Elev.	Q	TW Elev Converge		
ft	cfs	ft	+/-ft	Computation Messages
-----		-----		-----
844.50	.04	Free Outfall		
		H =1.21		

844.53	.04	Free Outfall	H =1.24
844.75	.04	Free Outfall	H =1.46
845.00	.04	Free Outfall	H =1.71
845.18	.04	Free Outfall	H =1.89
845.25	.05	Free Outfall	H =1.96
845.50	.05	Free Outfall	H =2.21
845.75	.05	Free Outfall	H =2.46
846.00	.05	Free Outfall	H =2.71

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yyyType.... Composite Rating Curve

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yyyName.... outlet 003

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***** COMPOSITE OUTFLOW SUMMARY *****

WS Elev, Total Q		Converge		Notes
Elev.	Q	TW Elev	Error	Contributing Structures
ft	cfs	ft	+/-ft	
840.98	.00	Free Outfall		None contributing
841.00	.00	Free Outfall	1	
841.25	.01	Free Outfall	1	
841.50	.01	Free Outfall	1	
841.75	.01	Free Outfall	1	
842.00	.01	Free Outfall	1	
842.25	.01	Free Outfall	1	
842.50	.01	Free Outfall	1	
842.75	.01	Free Outfall	1	
843.00	.02	Free Outfall	1	
843.25	.02	Free Outfall	1	
843.26	.02	Free Outfall	1	
843.50	.03	Free Outfall	1 +2	
843.75	.04	Free Outfall	1 +2	
844.00	.05	Free Outfall	1 +2	
844.25	.05	Free Outfall	1 +2	

844.50	.06	Free Outfall	1 +2
844.53	.06	Free Outfall	3 +1 +2
844.75	.50	Free Outfall	3 +1 +2
845.00	.71	Free Outfall	3 +1 +2
845.18	.83	Free Outfall	3 +1 +4 +2
845.25	1.35	Free Outfall	3 +1 +4 +2
845.50	5.09	Free Outfall	3 +1 +4 +2
845.75	6.57	Free Outfall	3 +1 +4 +2
846.00	7.76	Free Outfall	3 +1 +4 +2

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↑
 Type.... OutletInput Data
 Name.... outlet 002

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REQUESTED POND WS ELEVATIONS:

Min. Elev. =	858.00 ft
Increment =	.25 ft
Max. Elev. =	862.00 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
InletBox	2	--->	TW	860.320	862.000
Orifice-Circular	1	--->	TW	858.000	862.000
TWSETUP,DS Channel					

S/N:

PondPack Ver:

Compute Time:

Date:

↑
 Type.... OutletInput Data
 Name.... outlet 002

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OUTLET STRUCTURE INPUT DATA

Structure ID = 2
Structure Type = InletBox

of Openings = 1
Invert Elev. = 860.32 ft
Orifice Area = 1.5000 sq.ft
Orifice Coeff. = .600
Weir Length = 7.90 ft
Weir Coeff. = 3.300
K, Reverse = 1.000
Mannings n = .0000
Kev,Charged Riser = .000
Weir Submergence = No
Orifice H to crest= Yes

Structure ID = 1
Structure Type = Orifice-Circular

of Openings = 1
Invert Elev. = 858.00 ft
Diameter = .3333 ft
Orifice Coeff. = .600

Structure ID = TW
Structure Type = TWSETUP, 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

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Individual Outlet Curves

Name.... outlet 002

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RATING TABLE FOR ONE OUTLET TYPE

Structure ID = 2 (InletBox)

Upstream ID = (Pond Water Surface)

DNstream ID = TW (Pond Outfall)

WS Elev,Device	Q	Tail Water	Notes
WS Elev. ft	Q cfs	TW Elev Converge ft +/-ft	Computation Messages
858.00	.00	Free Outfall	
		HW & TW < Inv.El.=860.320	
858.25	.00	Free Outfall	
		HW & TW < Inv.El.=860.320	
858.50	.00	Free Outfall	
		HW & TW < Inv.El.=860.320	
858.75	.00	Free Outfall	
		HW & TW < Inv.El.=860.320	
859.00	.00	Free Outfall	
		HW & TW < Inv.El.=860.320	
859.25	.00	Free Outfall	
		HW & TW < Inv.El.=860.320	
859.50	.00	Free Outfall	
		HW & TW < Inv.El.=860.320	
859.75	.00	Free Outfall	
		HW & TW < Inv.El.=860.320	
860.00	.00	Free Outfall	
		HW & TW < Inv.El.=860.320	
860.25	.00	Free Outfall	
		HW & TW < Inv.El.=860.320	
860.32	.00	Free Outfall	
		Weir: H =.00ft	
860.50	1.99	Free Outfall	
		Weir: H =.18ft	
860.75	4.73	Free Outfall	
		Orifice: H =.43; Riser orifice equation controlling.	
861.00	5.95	Free Outfall	
		Orifice: H =.68; Riser orifice equation controlling.	
861.25	6.96	Free Outfall	
		Orifice: H =.93; Riser orifice equation controlling.	
861.50	7.84	Free Outfall	
		Orifice: H =1.18; Riser orifice equation controlling.	
861.75	8.63	Free Outfall	
		Orifice: H =1.43; Riser orifice equation controlling.	

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Individual Outlet Curves

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yyyName.... outlet 002

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = 2 (InletBox)

Upstream ID = (Pond Water Surface)

DNstream ID = TW (Pond Outfall)

WS Elev,Device Q		Tail Water		Notes
WS Elev.	Q	TW Elev	Converge	
ft	cfs	ft	+/-ft	Computation Messages
862.00	9.36	Free Outfall		
Orifice: H =1.68; Riser orifice equation controlling.				

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Individual Outlet Curves

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yyyName.... outlet 002

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = 1 (Orifice-Circular)

Upstream ID = (Pond Water Surface)

DNstream ID = TW (Pond Outfall)

WS Elev,Device Q		Tail Water		Notes
WS Elev.	Q	TW Elev	Converge	
ft	cfs	ft	+/-ft	Computation Messages
858.00	.00	Free Outfall		

Upstream HW & DNstream TW < Inv.El

858.25	.10	Free Outfall			
CRIT.DEPTH CONTROL Vh= .083ft Dcr= .167ft CRIT.DEPTH Hev=					
.00ft					
858.50	.24	Free Outfall			
		H =.33			
858.75	.32	Free Outfall			
		H =.58			
859.00	.38	Free Outfall			
		H =.83			
859.25	.44	Free Outfall			
		H =1.08			
859.50	.48	Free Outfall			
		H =1.33			
859.75	.53	Free Outfall			
		H =1.58			
860.00	.57	Free Outfall			
		H =1.83			
860.25	.61	Free Outfall			
		H =2.08			
860.32	.62	Free Outfall			
		H =2.15			
860.50	.64	Free Outfall			
		H =2.33			
860.75	.67	Free Outfall			
		H =2.58			
861.00	.71	Free Outfall			
		H =2.83			
861.25	.74	Free Outfall			
		H =3.08			
861.50	.77	Free Outfall			
		H =3.33			
861.75	.79	Free Outfall			
		H =3.58			

S/N:

PondPack Ver:

Compute Time:

Date:

↑
 Type.... Individual Outlet Curves
 Name.... outlet 002

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File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = 1 (Orifice-Circular)

 Upstream ID = (Pond Water Surface)
 DNstream ID = TW (Pond Outfall)

WS Elev,Device Q		Tail Water		Notes

WS Elev.	Q	TW Elev	Converge	Computation Messages
ft	cfs	ft	+/-ft	

862.00	.82	Free Outfall		
		H =3.83		

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Composite Rating Curve

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yyyName.... outlet 002

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

***** COMPOSITE OUTFLOW SUMMARY *****

WS Elev, Total Q				Notes
-----		Converge		-----
Elev.	Q	TW Elev	Error	Contributing Structures
ft	cfs	ft	+/-ft	

858.00	.00	Free Outfall		None contributing
858.25	.10	Free Outfall	1	
858.50	.24	Free Outfall	1	
858.75	.32	Free Outfall	1	
859.00	.38	Free Outfall	1	
859.25	.44	Free Outfall	1	
859.50	.48	Free Outfall	1	
859.75	.53	Free Outfall	1	
860.00	.57	Free Outfall	1	
860.25	.61	Free Outfall	1	
860.32	.62	Free Outfall	2 +1	
860.50	2.63	Free Outfall	2 +1	
860.75	5.41	Free Outfall	2 +1	
861.00	6.66	Free Outfall	2 +1	
861.25	7.70	Free Outfall	2 +1	
861.50	8.61	Free Outfall	2 +1	
861.75	9.43	Free Outfall	2 +1	
862.00	10.18	Free Outfall	2 +1	

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... OutletInput Data

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yyyName.... Outlet 004

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

REQUESTED POND WS ELEVATIONS:

Min. Elev.= 832.20 ft
Increment = .25 ft
Max. Elev.= 838.00 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
Orifice-Circular	1	--->	TW	833.730	838.000
Orifice-Circular	2	--->	TW	835.330	838.000
Orifice-Circular	3	--->	TW	835.890	838.000

TWSETUP,yDS Channel

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... OutletyInput Data

yPage 35

yyyName.... Outlet 004

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

OUTLET STRUCTURE INPUT DATA

Structure ID = 1
Structure Type = Orifice-Circular

of Openings = 3
Invert Elev. = 833.73 ft
Diameter = .0625 ft
Orifice Coeff. = .600

Structure ID = 2
Structure Type = Orifice-Circular

of Openings = 3
Invert Elev. = 835.33 ft
Diameter = .2500 ft
Orifice Coeff. = .600

Structure ID = 3
Structure Type = Orifice-Circular

of Openings = 3
Invert Elev. = 835.89 ft
Diameter = .2500 ft
Orifice Coeff. = .600

Structure ID = TW
Structure Type = TWSETUP, 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

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Individual Outlet Curves

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Name.... Outlet 004

File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = 1 (Orifice-Circular)

Upstream ID = (Pond Water Surface)
DNstream ID = TW (Pond Outfall)

NUMBER OF OPENINGS = 3
EACH FLOW = SUM OF OPENINGS x FLOW FOR ONE OPENING

WS Elev,Device Q	Tail Water	Notes
WS Elev. ft	Q cfs	TW Elev Converge ft +/-ft Computation Messages
832.20	.00	Free Outfall HW & TW below invert
832.45	.00	Free Outfall HW & TW below invert
832.70	.00	Free Outfall HW & TW below invert
832.95	.00	Free Outfall HW & TW below invert
833.20	.00	Free Outfall HW & TW below invert
833.45	.00	Free Outfall HW & TW below invert
833.70	.00	Free Outfall HW & TW below invert
833.73	.00	Free Outfall Upstream HW & DNstream TW < Inv.El
833.95	.02	Free Outfall H =.19
834.20	.03	Free Outfall H =.44
834.45	.04	Free Outfall H =.69
834.70	.04	Free Outfall H =.94
834.95	.05	Free Outfall H =1.19
835.20	.05	Free Outfall H =1.44
835.33	.06	Free Outfall H =1.57
835.45	.06	Free Outfall H =1.69

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Individual Outlet Curves

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yyyName.... Outlet 004

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = 1 (Orifice-Circular)

Upstream ID = (Pond Water Surface)

DNstream ID = TW (Pond Outfall)

NUMBER OF OPENINGS = 3

EACH FLOW = SUM OF OPENINGS x FLOW FOR ONE OPENING

WS Elev,Device Q	Tail Water	Notes
WS Elev. ft	Q cfs	TW Elev Converge ft +/-ft Computation Messages
835.70	.06	Free Outfall H =1.94
835.89	.06	Free Outfall H =2.13
835.95	.07	Free Outfall H =2.19
836.20	.07	Free Outfall H =2.44
836.45	.07	Free Outfall H =2.69
836.70	.08	Free Outfall H =2.94
836.95	.08	Free Outfall H =3.19
837.20	.08	Free Outfall H =3.44
837.45	.09	Free Outfall H =3.69
837.70	.09	Free Outfall H =3.94
837.95	.09	Free Outfall H =4.19
838.00	.09	Free Outfall H =4.24

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Individual Outlet Curves

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Name.... Outlet 004

File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = 2 (Orifice-Circular)

Upstream ID = (Pond Water Surface)

DNstream ID = TW (Pond Outfall)

NUMBER OF OPENINGS = 3

EACH FLOW = SUM OF OPENINGS x FLOW FOR ONE OPENING

WS Elev,Device Q		Tail Water		Notes
WS Elev. ft	Q cfs	TW Elev ft	Converge +/-ft	Computation Messages
832.20	.00	Free Outfall HW & TW below invert		
832.45	.00	Free Outfall HW & TW below invert		
832.70	.00	Free Outfall HW & TW below invert		
832.95	.00	Free Outfall HW & TW below invert		
833.20	.00	Free Outfall HW & TW below invert		
833.45	.00	Free Outfall HW & TW below invert		
833.70	.00	Free Outfall HW & TW below invert		
833.73	.00	Free Outfall HW & TW below invert		
833.95	.00	Free Outfall HW & TW below invert		
834.20	.00	Free Outfall HW & TW below invert		
834.45	.00	Free Outfall HW & TW below invert		
834.70	.00	Free Outfall HW & TW below invert		
834.95	.00	Free Outfall HW & TW below invert		
835.20	.00	Free Outfall HW & TW below invert		
835.33	.00	Free Outfall Upstream HW & DNstream TW < Inv.El		
835.45	.00	Free Outfall CRIT.DEPTH CONTROL Vh= .000ft Dcr= .125ft CRIT.DEPTH Hev=		

.00ft

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Individual Outlet Curves

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yyyName.... Outlet 004

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = 2 (Orifice-Circular)

Upstream ID = (Pond Water Surface)

DNstream ID = TW (Pond Outfall)

NUMBER OF OPENINGS = 3

EACH FLOW = SUM OF OPENINGS x FLOW FOR ONE OPENING

WS Elev,Device Q		Tail Water		Notes
WS Elev.	Q	TW Elev	Converge	
ft	cfs	ft	+/-ft	Computation Messages
835.70	.35	Free Outfall		
		H =.24		
835.89	.47	Free Outfall		
		H =.43		
835.95	.50	Free Outfall		
		H =.49		
836.20	.61	Free Outfall		
		H =.74		
836.45	.71	Free Outfall		
		H =.99		
836.70	.79	Free Outfall		
		H =1.24		
836.95	.87	Free Outfall		
		H =1.49		
837.20	.94	Free Outfall		
		H =1.74		
837.45	1.00	Free Outfall		
		H =1.99		
837.70	1.06	Free Outfall		
		H =2.24		
837.95	1.12	Free Outfall		
		H =2.49		
838.00	1.13	Free Outfall		

H =2.54

S/N:

PondPack Ver:

Compute Time:

Date:

↑

yyyType.... Individual Outlet Curves

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yyyName.... Outlet 004

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = 3 (Orifice-Circular)

Upstream ID = (Pond Water Surface)

DNstream ID = TW (Pond Outfall)

NUMBER OF OPENINGS = 3

EACH FLOW = SUM OF OPENINGS x FLOW FOR ONE OPENING

WS Elev,Device Q		Tail Water		Notes
WS Elev.	Q	TW Elev	Converge	
ft	cfs	ft	+/-ft	Computation Messages
832.20	.00	Free Outfall		
		HW & TW below invert		
832.45	.00	Free Outfall		
		HW & TW below invert		
832.70	.00	Free Outfall		
		HW & TW below invert		
832.95	.00	Free Outfall		
		HW & TW below invert		
833.20	.00	Free Outfall		
		HW & TW below invert		
833.45	.00	Free Outfall		
		HW & TW below invert		
833.70	.00	Free Outfall		
		HW & TW below invert		
833.73	.00	Free Outfall		
		HW & TW below invert		
833.95	.00	Free Outfall		
		HW & TW below invert		
834.20	.00	Free Outfall		
		HW & TW below invert		
834.45	.00	Free Outfall		
		HW & TW below invert		

834.70 .00 Free Outfall
 HW & TW below invert
 834.95 .00 Free Outfall
 HW & TW below invert
 835.20 .00 Free Outfall
 HW & TW below invert
 835.33 .00 Free Outfall
 HW & TW below invert
 835.45 .00 Free Outfall
 HW & TW below invert

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Individual Outlet Curves

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yyyName.... Outlet 004

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = 3 (Orifice-Circular)

Upstream ID = (Pond Water Surface)

DNstream ID = TW (Pond Outfall)

NUMBER OF OPENINGS = 3

EACH FLOW = SUM OF OPENINGS x FLOW FOR ONE OPENING

WS Elev,Device Q		Tail Water		Notes
WS Elev.	Q	TW Elev	Converge	
ft	cfs	ft	+/-ft	Computation Messages
835.70	.00	Free Outfall		
		HW & TW below invert		
835.89	.00	Free Outfall		
		Upstream HW & DNstream TW < Inv.El		
835.95	.00	Free Outfall		
		CRIT.DEPTH CONTROL	Vh= .000ft Dcr= .125ft	CRIT.DEPTH Hev=
.00ft				
836.20	.30	Free Outfall		
		H =.18		
836.45	.47	Free Outfall		
		H =.43		
836.70	.59	Free Outfall		
		H =.68		
836.95	.69	Free Outfall		

		H =.93
837.20	.77	Free Outfall
		H =1.18
837.45	.85	Free Outfall
		H =1.43
837.70	.92	Free Outfall
		H =1.68
837.95	.99	Free Outfall
		H =1.93
838.00	1.00	Free Outfall
		H =1.98

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Composite Rating Curve

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yyyName.... Outlet 004

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

***** COMPOSITE OUTFLOW SUMMARY *****

WS Elev, Total Q		Converge		Notes
Elev.	Q	TW Elev	Error	
ft	cfs	ft	+/-ft	Contributing Structures
832.20	.00	Free Outfall		None contributing
832.45	.00	Free Outfall		None contributing
832.70	.00	Free Outfall		None contributing
832.95	.00	Free Outfall		None contributing
833.20	.00	Free Outfall		None contributing
833.45	.00	Free Outfall		None contributing
833.70	.00	Free Outfall		None contributing
833.73	.00	Free Outfall		None contributing
833.95	.02	Free Outfall	1	
834.20	.03	Free Outfall	1	
834.45	.04	Free Outfall	1	
834.70	.04	Free Outfall	1	
834.95	.05	Free Outfall	1	
835.20	.05	Free Outfall	1	
835.33	.06	Free Outfall	1	
835.45	.06	Free Outfall	1 +2	
835.70	.41	Free Outfall	1 +2	
835.89	.53	Free Outfall	1 +2	
835.95	.57	Free Outfall	1 +2 +3	
836.20	.99	Free Outfall	1 +2 +3	
836.45	1.25	Free Outfall	1 +2 +3	

836.70	1.45	Free Outfall	1 +2 +3
836.95	1.63	Free Outfall	1 +2 +3
837.20	1.79	Free Outfall	1 +2 +3
837.45	1.94	Free Outfall	1 +2 +3
837.70	2.07	Free Outfall	1 +2 +3
837.95	2.20	Free Outfall	1 +2 +3
838.00	2.22	Free Outfall	1 +2 +3

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... TcyCalcs

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yyyName.... SUBAREA 001

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

TIME OF CONCENTRATION CALCULATOR

Segment #1: Tc: User Defined

Segment #1 Time: .2930 hrs

Total Tc: .2930 hrs

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... TcyCalcs

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yyyName.... SUBAREA 001

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

Tc Equations used...

==== User Defined =====

Tc = Value entered by user

Where: Tc = Time of concentration

S/N:

PondPack Ver:

Compute Time:

Date:

↑

yyyType.... TcyCalcs

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yyyName.... SUBAREA 002

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

TIME OF CONCENTRATION CALCULATOR

Segment #1: Tc: User Defined

Segment #1 Time: .2170 hrs

Total Tc: .2170 hrs

S/N:

PondPack Ver:

Compute Time:

Date:

↑

yyyType.... TcyCalcs

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yyyName.... SUBAREA 002

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

Tc Equations used...

==== User Defined =====

Tc = Value entered by user

Where: Tc = Time of concentration

S/N:

PondPack Ver:

Compute Time:

Date:

↑
Type.... TcCalcs
Name.... HANNA HILLS PRE
File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

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.....
TIME OF CONCENTRATION CALCULATOR
.....

Segment #1: Tc: User Defined

Segment #1 Time: 1.0000 hrs

=====
Total Tc: 1.0000 hrs
=====

S/N:
PondPack Ver: Compute Time: Date:

↑
Type.... TcCalcs
Name.... HANNA HILLS PRE

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File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

Tc Equations used...

==== User Defined =====

Tc = Value entered by user

Where: Tc = Time of concentration

S/N:
PondPack Ver: Compute Time: Date:

↑
Type.... TcCalcs
Name.... UNSTUDIED PRE

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File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

TIME OF CONCENTRATION CALCULATOR

Segment #1: Tc: User Defined

Segment #1 Time: .3600 hrs

Total Tc: .3600 hrs

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... TcCalcs

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Name.... UNSTUDIED PRE

File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

Tc Equations used...

==== User Defined =====

Tc = Value entered by user

Where: Tc = Time of concentration

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... TcCalcs

Page 51

Name.... HANNA HILLS POST

File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

TIME OF CONCENTRATION CALCULATOR

Segment #1: Tc: User Defined

Segment #1 Time: 1.0000 hrs

=====
Total Tc: 1.0000 hrs
=====

S/N:

PondPack Ver:

Compute Time:

Date:

↑

yyyType.... TcCalcs

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yyyName.... HANNA HILLS POST

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

Tc Equations used...

==== User Defined =====

Tc = Value entered by user

Where: Tc = Time of concentration

S/N:

PondPack Ver:

Compute Time:

Date:

↑

yyyType.... TcCalcs

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yyyName.... SUBAREA 003

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

.....
TIME OF CONCENTRATION CALCULATOR
.....

Segment #1: Tc: User Defined

Segment #1 Time: .2000 hrs

=====
Total Tc: .2000 hrs
=====

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... TcCalcs

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yyyName.... SUBAREA 003

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

Tc Equations used...

==== User Defined =====

Tc = Value entered by user

Where: Tc = Time of concentration

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... TcCalcs

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yyyName.... BILLINGSLEY PRE

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: User Defined

Segment #1 Time: 1.0000 hrs

Total Tc: 1.0000 hrs
=====

S/N:
PondPack Ver: Compute Time: Date:

↑
Type.... TcCalcs Page 56
Name.... BILLINGSLEY PRE

File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

Tc Equations used...

==== User Defined =====

Tc = Value entered by user

Where: Tc = Time of concentration

S/N:
PondPack Ver: Compute Time: Date:

↑
Type.... TcCalcs Page 57
Name.... ORCHARD PRE

File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: User Defined

Segment #1 Time: 1.0000 hrs

=====
Total Tc: 1.0000 hrs
=====

S/N:
PondPack Ver: Compute Time: Date:

↑
Type.... TcCalcs
Name.... ORCHARD PRE

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File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

Tc Equations used...

==== User Defined =====

Tc = Value entered by user

Where: Tc = Time of concentration

S/N:

PondPack Ver:

Compute Time:

Date:

↑
Type.... TcCalcs
Name.... HARD ROAD PRE

Page 59

File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

.....
TIME OF CONCENTRATION CALCULATOR
.....

Segment #1: Tc: User Defined

Segment #1 Time: 1.0000 hrs

=====
Total Tc: 1.0000 hrs
=====

S/N:

PondPack Ver:

Compute Time:

Date:

↑
Type.... TcCalcs
Name.... HARD ROAD PRE

Page 60

File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

Tc Equations used...

==== User Defined =====

Tc = Value entered by user

Where: Tc = Time of concentration

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... TcCalcs

Page 61

yyyName.... UNSTUDIED POST

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

.....
TIME OF CONCENTRATION CALCULATOR
.....

Segment #1: Tc: User Defined

Segment #1 Time: 1.0000 hrs

Total Tc: 1.0000 hrs

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... TcCalcs

Page 62

yyyName.... UNSTUDIED POST

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

Tc Equations used...

==== User Defined =====

Tc = Value entered by user

Where: Tc = Time of concentration

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... TcCalcs

Page 63

yyyName.... UNSTUDIED TOTAL

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

.....
TIME OF CONCENTRATION CALCULATOR
.....

Segment #1: Tc: User Defined

Segment #1 Time: .3600 hrs

=====
Total Tc: .3600 hrs
=====

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... TcCalcs

Page 64

yyyName.... UNSTUDIED TOTAL

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

Tc Equations used...

==== User Defined =====

Tc = Value entered by user

Where: Tc = Time of concentration

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... TcyCalcs

Page 65

yyyName.... SUBAREA 004

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

.....
TIME OF CONCENTRATION CALCULATOR
.....

Segment #1: Tc: User Defined

Segment #1 Time: .1800 hrs

=====
Total Tc: .1800 hrs
=====

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... TcyCalcs

Page 66

yyyName.... SUBAREA 004

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

Tc Equations used...

==== User Defined =====

Tc = Value entered by user

Where: Tc = Time of concentration

S/N:

PondPack Ver:

Compute Time:

Date:

↑
Type.... TcCalcs
Name.... BASIN 004 SUB

Page 67

File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

.....
TIME OF CONCENTRATION CALCULATOR
.....

Segment #1: Tc: User Defined

Segment #1 Time: .2500 hrs

=====
Total Tc: .2500 hrs
=====

S/N:
PondPack Ver: Compute Time: Date:

↑
Type.... TcCalcs
Name.... BASIN 004 SUB

Page 68

File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

Tc Equations used...

==== User Defined =====

Tc = Value entered by user

Where: Tc = Time of concentration

S/N:
PondPack Ver: Compute Time: Date:

↑
Type.... RunoffCN-Area
Name.... SUBAREA 001

Page 69

File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

RUNOFF CURVE NUMBER DATA

.....

Soil/Surface Description	CN	Area acres	Impervious Adjustment		Adjusted CN
			%C	%UC	
10 lots	80	5.410			80.00
dry basin	74	.860			74.00

COMPOSITE AREA & WEIGHTED CN ---> 6.270 79.18 (79)

.....

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... RunoffCN-Area

Page 70

yyyName.... SUBAREA 002

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

RUNOFF CURVE NUMBER DATA

.....

Soil/Surface Description	CN	Area acres	Impervious Adjustment		Adjusted CN
			%C	%UC	
22.5 lots	83	5.930			83.00
water surfaces	98	.360			98.00
open space area	74	.100			74.00

COMPOSITE AREA & WEIGHTED CN ---> 6.390 83.70 (84)

.....

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... RunoffCN-Area

Page 71

yyyName.... HANNA HILLS PRE

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

RUNOFF CURVE NUMBER DATA

.....

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C %UC	Adjusted CN
HH Subarea 130	77	2.290		77.00
HH Subarea 140	77	1.310		77.00
HH Subarea 150	77	2.520		77.00

COMPOSITE AREA & WEIGHTED CN ---> 6.120 77.00 (77)

.....

S/N:

PondPack Ver:

Compute Time:

Date:

↑
ÿÿÿType.... RunoffÿCN-Area
ÿÿÿName.... UNSTUDIED PRE

ÿPage 72

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

RUNOFF CURVE NUMBER DATA

.....

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C %UC	Adjusted CN
woods or forest land, poor cover	77	2.800		77.00

COMPOSITE AREA & WEIGHTED CN ---> 2.800 77.00 (77)

.....

S/N:

PondPack Ver:

Compute Time:

Date:

↑
ÿÿÿType.... RunoffÿCN-Area
ÿÿÿName.... HANNA HILLS POST

ÿPage 73

File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

RUNOFF CURVE NUMBER DATA

.....

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C %UC	Adjusted CN
10 lots	80	5.410		80.00
subarea 001 dry basin	74	.860		74.00

COMPOSITE AREA & WEIGHTED CN ---> 6.270 79.18 (79)

.....

S/N:

PondPack Ver:

Compute Time:

Date:

Type.... RunoffCN-Area
Name.... SUBAREA 003

Page 74

File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

RUNOFF CURVE NUMBER DATA

.....

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C %UC	Adjusted CN
12 lots	87	2.090		87.00

COMPOSITE AREA & WEIGHTED CN ---> 2.090 87.00 (87)

.....

S/N:

PondPack Ver:

Compute Time:

Date:

Type.... RunoffCN-Area
Name.... BILLINGSLEY PRE

Page 75

File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

RUNOFF CURVE NUMBER DATA

.....

Soil/Surface Description	CN	Area acres	Impervious Adjustment		Adjusted CN
			%C	%UC	
-----	-----	-----	-----	-----	-----
	77	1.710			77.00

COMPOSITE AREA & WEIGHTED CN ---> 1.710 77.00 (77)

S/N:
 PondPack Ver: Compute Time: Date:

↑
 Type.... RunoffCN-Area Page 76
 Name.... ORCHARD PRE

File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

RUNOFF CURVE NUMBER DATA

.....

Soil/Surface Description	CN	Area acres	Impervious Adjustment		Adjusted CN
			%C	%UC	
-----	-----	-----	-----	-----	-----
	77	1.010			77.00

COMPOSITE AREA & WEIGHTED CN ---> 1.010 77.00 (77)

S/N:
 PondPack Ver: Compute Time: Date:

↑
 Type.... RunoffCN-Area Page 77
 Name.... HARD ROAD PRE

File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

RUNOFF CURVE NUMBER DATA

.....

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C %UC	Adjusted CN
woods or forest land poor cover	77	4.270		77.00

COMPOSITE AREA & WEIGHTED CN ---> 4.270 77.00 (77)

.....

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... RunoffCN-Area

Page 78

yyyName.... UNSTUDIED POST

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

RUNOFF CURVE NUMBER DATA

.....

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C %UC	Adjusted CN
	84	7.560		84.00

COMPOSITE AREA & WEIGHTED CN ---> 7.560 84.00 (84)

.....

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... RunoffCN-Area

Page 79

yyyName.... UNSTUDIED TOTAL

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

RUNOFF CURVE NUMBER DATA

.....

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
	77	5.520			77.00

```
COMPOSITE AREA & WEIGHTED CN --->          5.520          77.00 (77)
.....
```

S/N:
PondPack Ver: Compute Time: Date:

↑
 Type.... RunoffCN-Area
 Name.... SUBAREA 004

Page 80

```

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

```

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
7.5 lots	88	1.170			88.00

```
COMPOSITE AREA & WEIGHTED CN --->          1.170          88.00 (88)
.....
```

S/N:
PondPack Ver: Compute Time: Date:

↑
 Type.... RunoffCN-Area
 Name.... BASIN 004 SUB

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```

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

```

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C %UC	Adjusted CN
-----	74	.560		74.00

COMPOSITE AREA & WEIGHTED CN ---> .560 74.00 (74)
 ::

S/N:
 PondPack Ver: Compute Time: Date:

↑
 Type.... Synthetic Curve Page 82
 Name.... TypeII 24hr Tag: 1 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\

CUMULATIVE RAINFALL FRACTIONS					
Output Time increment = .1000 hrs					
Time hrs	Time on left represents time for first value in each row.				
-----	-----				
.0000	.000	.000	.001	.003	.004
.5000	.005	.006	.007	.008	.009
1.0000	.010	.011	.012	.014	.015
1.5000	.016	.017	.018	.019	.020
2.0000	.022	.023	.024	.025	.027
2.5000	.028	.029	.030	.032	.033
3.0000	.034	.035	.037	.038	.039
3.5000	.041	.042	.043	.045	.046
4.0000	.048	.049	.050	.052	.053
4.5000	.055	.056	.058	.059	.061
5.0000	.062	.064	.066	.067	.069
5.5000	.071	.072	.074	.076	.077
6.0000	.079	.081	.083	.084	.086
6.5000	.088	.090	.092	.094	.096
7.0000	.098	.100	.102	.104	.106
7.5000	.108	.110	.113	.115	.117
8.0000	.120	.122	.124	.127	.130
8.5000	.132	.135	.137	.140	.143
9.0000	.146	.149	.152	.155	.158
9.5000	.162	.165	.169	.172	.176
10.0000	.180	.184	.188	.193	.197
10.5000	.202	.207	.213	.218	.225
11.0000	.231	.238	.246	.254	.263
11.5000	.274	.286	.301	.320	.349
12.0000	.500	.651	.680	.699	.714
12.5000	.726	.737	.746	.754	.762
13.0000	.769	.775	.782	.787	.793
13.5000	.798	.803	.807	.812	.816

14.0000	.820	.824	.828	.831	.835
14.5000	.838	.842	.845	.848	.851
15.0000	.854	.857	.860	.863	.865
15.5000	.868	.871	.873	.876	.878
16.0000	.880	.883	.885	.887	.890
16.5000	.892	.894	.896	.898	.900
17.0000	.902	.904	.906	.908	.910
17.5000	.912	.914	.916	.917	.919
18.0000	.921	.923	.924	.926	.928
18.5000	.929	.931	.933	.934	.936
19.0000	.938	.939	.941	.942	.944
19.5000	.945	.947	.948	.950	.951
20.0000	.952	.954	.955	.957	.958
20.5000	.959	.961	.962	.963	.965
21.0000	.966	.967	.968	.970	.971
21.5000	.972	.973	.975	.976	.977

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Synthetic Curve

ÿPage 83

ÿÿÿName.... TypeII 24hr ÿTag: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\

CUMULATIVE RAINFALL FRACTIONS					
Output Time increment = .1000 hrs					
Time hrs	Time on left represents time for first value in each row.				
22.0000	.978	.980	.981	.982	.983
22.5000	.984	.985	.986	.988	.989
23.0000	.990	.991	.992	.993	.994
23.5000	.995	.996	.997	.999	1.000
24.0000	1.000				

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Synthetic Cumulative Depth

ÿPage 84

ÿÿÿName.... TypeII 24hr ÿTag: 1 yr

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

CUMULATIVE RAINFALL DEPTHS (in)					
Output Time increment = .1000 hrs					
Time hrs	Time on left represents time for first value in each row.				
.0000	.0000	.0009	.0032	.0055	.0078
.5000	.0101	.0125	.0148	.0172	.0196
1.0000	.0220	.0244	.0269	.0293	.0318
1.5000	.0343	.0368	.0397	.0419	.0445

2.0000	.0470	.0496	.0523	.0549	.0576
2.5000	.0603	.0630	.0657	.0685	.0712
3.0000	.0740	.0769	.0797	.0826	.0855
3.5000	.0884	.0913	.0943	.0973	.1003
4.0000	.1034	.1064	.1096	.1127	.1159
4.5000	.1191	.1223	.1256	.1289	.1322
5.0000	.1356	.1390	.1425	.1459	.1495
5.5000	.1530	.1566	.1603	.1640	.1677
6.0000	.1715	.1753	.1792	.1831	.1871
6.5000	.1911	.1952	.1994	.2036	.2079
7.0000	.2122	.2166	.2211	.2256	.2302
7.5000	.2349	.2396	.2445	.2494	.2544
8.0000	.2596	.2648	.2701	.2755	.2810
8.5000	.2867	.2924	.2983	.3043	.3105
9.0000	.3168	.3233	.3300	.3368	.3438
9.5000	.3511	.3585	.3662	.3742	.3824
10.0000	.3909	.3997	.4089	.4185	.4285
10.5000	.4391	.4501	.4618	.4741	.4873
11.0000	.5013	.5165	.5330	.5511	.5713
11.5000	.5942	.6208	.6530	.6947	.7568
12.0000	1.0848	1.4132	1.4753	1.5170	1.5492
12.5000	1.5758	1.5987	1.6189	1.6370	1.6535
13.0000	1.6687	1.6827	1.6959	1.7082	1.7199
13.5000	1.7309	1.7415	1.7515	1.7611	1.7703
14.0000	1.7791	1.7876	1.7958	1.8038	1.8115
14.5000	1.8189	1.8262	1.8332	1.8400	1.8467
15.0000	1.8532	1.8595	1.8657	1.8717	1.8776
15.5000	1.8833	1.8890	1.8945	1.8999	1.9052
16.0000	1.9104	1.9156	1.9206	1.9255	1.9304
16.5000	1.9351	1.9398	1.9444	1.9489	1.9534
17.0000	1.9578	1.9621	1.9664	1.9706	1.9748
17.5000	1.9789	1.9829	1.9869	1.9908	1.9947
18.0000	1.9985	2.0023	2.0060	2.0097	2.0134
18.5000	2.0170	2.0205	2.0241	2.0275	2.0310
19.0000	2.0344	2.0378	2.0411	2.0444	2.0477
19.5000	2.0509	2.0541	2.0573	2.0604	2.0636
20.0000	2.0666	2.0697	2.0727	2.0757	2.0787
20.5000	2.0816	2.0845	2.0874	2.0903	2.0931
21.0000	2.0960	2.0988	2.1015	2.1043	2.1070
21.5000	2.1097	2.1124	2.1151	2.1177	2.1204

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Synthetic Cumulative Depth

ÿPage 85

ÿÿÿName.... TypeII 24hr ÿTag: 1 yr

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

CUMULATIVE RAINFALL DEPTHS (in)

Time hrs	Output Time increment = .1000 hrs Time on left represents time for first value in each row.				
22.0000	2.1230	2.1255	2.1281	2.1307	2.1332
22.5000	2.1357	2.1382	2.1407	2.1431	2.1456
23.0000	2.1480	2.1504	2.1528	2.1552	2.1575
23.5000	2.1599	2.1622	2.1645	2.1668	2.1691
24.0000	2.1700				

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Unit Hyd. Equations

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Name....

File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

SCS UNIT HYDROGRAPH METHOD (Computational Notes)

DEFINITION OF TERMS: -----

A_t = Total area (acres): $A_t = A_i + A_p$
 A_i = Impervious area (acres)
 A_p = Pervious area (acres)
 CN_i = Runoff curve number for impervious area
 CN_p = Runoff curve number for pervious area
 f_{loss} = f loss constant infiltration (depth/time)
 gK_s = Saturated Hydraulic Conductivity (depth/time)
 M_d = Volumetric Moisture Deficit
 Ψ_i = Capillary Suction (length)
 hK = Horton Infiltration Decay Rate ($time^{-1}$)
 f_o = Initial Infiltration Rate (depth/time)
 f_c = Ultimate(capacity)Infiltration Rate (depth/time)
 I_a = Initial Abstraction (length)
 dt = Computational increment (duration of unit excess rainfall)
 Default dt is smallest value of $0.1333T_c$, r_{tm} , and t_h
 (Smallest dt is then adjusted to match up with T_p)
 $UDdt$ = User specified override computational main time increment
 (only used if $UDdt$ is $\Rightarrow 0.1333T_c$)
 $D(t)$ = Point on distribution curve (fraction of P) for time step t

 K = $2 / (1 + (T_r/T_p))$: default $K = 0.75$: (for $T_r/T_p = 1.67$)
 K_s = Hydrograph shape factor
 = Unit Conversions * K:
 = $((1hr/3600sec) * (1ft/12in) * ((5280ft)**2/sq.mi)) * K$
 Default $K_s = 645.333 * 0.75 = 484$

Lag = Lag time from center of excess runoff (dt) to Tp: $Lag = 0.6T_c$
 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 lin. runoff, for 1hr, for 1 sq.mi.
 = $(K_s * A * Q) / T_p$ (where Q = lin. 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: $S_i = (1000/CN_i) - 10$
 Sp = S for pervious area: $S_p = (1000/CN_p) - 10$
 t = Time step (row) number
 Tc = Time of concentration
 Tb = Time (hrs) of entire unit hydrograph: $T_b = T_p + T_r$
 Tp = Time (hrs) to peak of a unit hydrograph: $T_p = (dt/2) + Lag$
 Tr = Time (hrs) of receding limb of unit hydrograph: $T_r = \text{ratio of } T_p$

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Unit Hyd. Equations

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Name....

File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

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 $\leq 0.2S_p$) then use: $Rap(t) = 0.0$

If (Pa(t) is $> 0.2S_p$) then use:

$$Rap(t) = (Col.(4) - 0.2S_p) * 2 / (Col.(4) + 0.8S_p)$$

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): $R(t) = (Ap/At) \times Rip(t) + (Ai/At) \times Rii(t)$
 $R(t) = (Ap/At) \times Col.(6) + (Ai/At) \times Col.(8)$

SCS UNIT HYDROGRAPH METHOD: -----
Column (10): $Q(t)$ is computed with the SCS unit hydrograph method
using $R()$ and $Qu()$.

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. Summary ÿPage 88
ÿÿÿName.... SUBAREA 001 ÿTag: 1 yr Event: 1 yr
ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW
ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm
Duration = 24.0000 hrs Rain Depth = 2.1700 in
Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\
HYG File - ID = - SUBAREA 001 1 yr
Tc = .2930 hrs
Drainage Area = 6.270 acres Runoff CN= 79

=====
Computational Time Increment = .03907 hrs
Computed Peak Time = 12.2279 hrs
Computed Peak Flow = 4.57 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 12.2000 hrs
Peak Flow, Interpolated Output = 4.49 cfs
WARNING: The difference between calculated peak flow
and interpolated peak flow is greater than 1.50%

=====

DRAINAGE AREA

ID:SUBAREA 001

CN = 79
Area = 6.270 acres
S = 2.6582 in
0.2S = .5316 in

Cumulative Runoff

.6247 in
.326 ac-ft

HYG Volume... .326 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .29300 hrs (ID: SUBAREA 001)
Computational Incr, Tm = .03907 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 = 24.25 cfs
Unit peak time Tp = .19533 hrs
Unit receding limb, Tr = .78133 hrs
Total unit time, Tb = .97667 hrs

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output) ÿPage 89
ÿÿÿName.... SUBAREA 001 ÿTag: 1 yr Event: 1 yr
ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW
ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm
Duration = 24.0000 hrs Rain Depth = 2.1700 in
Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\
HYG File - ID = - SUBAREA 001 1 yr
Tc = .2930 hrs
Drainage Area = 6.270 acres Runoff CN= 79
Calc.Increment= .03907 hrs Out.Incr.= .0500 hrs
HYG Volume = .326 ac-ft

HYDROGRAPH ORDINATES (cfs)

Time | Output Time increment = .0500 hrs

hrs	Time on left represents time for first value in each row.				
11.3000	.00	.00	.01	.01	.02
11.5500	.03	.04	.05	.07	.09
11.8000	.12	.16	.22	.38	.80
12.0500	1.62	2.74	3.87	4.49	4.41
12.3000	3.85	3.12	2.47	1.99	1.64
12.5500	1.38	1.18	1.03	.92	.83
12.8000	.76	.70	.66	.61	.58
13.0500	.55	.53	.51	.49	.47
13.3000	.45	.44	.43	.42	.40
13.5500	.39	.38	.37	.37	.36
13.8000	.35	.34	.33	.33	.32
14.0500	.32	.31	.30	.30	.29
14.3000	.29	.28	.28	.28	.27
14.5500	.27	.26	.26	.26	.25
14.8000	.25	.25	.24	.24	.24
15.0500	.23	.23	.23	.23	.22
15.3000	.22	.22	.22	.21	.21
15.5500	.21	.21	.21	.20	.20
15.8000	.20	.20	.20	.19	.19
16.0500	.19	.19	.19	.19	.18
16.3000	.18	.18	.18	.18	.18
16.5500	.18	.17	.17	.17	.17
16.8000	.17	.17	.17	.17	.16
17.0500	.16	.16	.16	.16	.16
17.3000	.16	.16	.16	.15	.15
17.5500	.15	.15	.15	.15	.15
17.8000	.15	.15	.15	.15	.14
18.0500	.14	.14	.14	.14	.14
18.3000	.14	.14	.14	.14	.14
18.5500	.14	.14	.13	.13	.13

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Unit Hyd. (HYG output)

Page 90

yyyName.... SUBAREA 001 yTag: 1 yr

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

yyyStorm... TypeII 24hr yTag: 1 yr

HYDROGRAPH ORDINATES (cfs)					
Output Time increment = .0500 hrs					
Time hrs	Time on left represents time for first value in each row.				
18.8000	.13	.13	.13	.13	.13
19.0500	.13	.13	.13	.13	.13
19.3000	.13	.13	.12	.12	.12
19.5500	.12	.12	.12	.12	.12
19.8000	.12	.12	.12	.12	.12

20.0500	.12	.12	.12	.12	.12
20.3000	.12	.11	.11	.11	.11
20.5500	.11	.11	.11	.11	.11
20.8000	.11	.11	.11	.11	.11
21.0500	.11	.11	.11	.11	.11
21.3000	.11	.11	.11	.11	.11
21.5500	.10	.10	.10	.10	.10
21.8000	.10	.10	.10	.10	.10
22.0500	.10	.10	.10	.10	.10
22.3000	.10	.10	.10	.10	.10
22.5500	.10	.10	.10	.10	.10
22.8000	.10	.10	.10	.10	.10
23.0500	.09	.09	.09	.09	.09
23.3000	.09	.09	.09	.09	.09
23.5500	.09	.09	.09	.09	.09
23.8000	.09	.09	.09	.09	.08
24.0500	.07	.06	.05	.03	.02
24.3000	.01	.01	.01	.00	.00
24.5500	.00	.00	.00		

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. Summary

ÿPage 91

ÿÿÿName.... SUBAREA 002 ÿTag: 1 yr

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm

Duration = 24.0000 hrs Rain Depth = 2.1700 in

Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\

Rain File -ID = - TypeII 24hr

Unit Hyd Type = Default Curvilinear

HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\

HYG File - ID = - SUBAREA 002 1 yr

Tc = .2170 hrs

Drainage Area = 6.390 acres Runoff CN= 84

```
=====
Computational Time Increment = .02893 hrs
Computed Peak Time          = 12.1520 hrs
Computed Peak Flow           = 8.01 cfs
```

```
Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 12.1500 hrs
Peak Flow, Interpolated Output = 7.97 cfs
=====
```


DRAINAGE AREA

ID: SUBAREA 002

CN = 84
Area = 6.390 acres
S = 1.9048 in
0.2S = .3810 in

Cumulative Runoff

.8665 in
.461 ac-ft

HYG Volume... .461 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .21700 hrs (ID: SUBAREA 002)
Computational Incr, Tm = .02893 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 = 33.36 cfs
Unit peak time Tp = .14467 hrs
Unit receding limb, Tr = .57867 hrs
Total unit time, Tb = .72333 hrs

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output) ÿPage 92
ÿÿÿName.... SUBAREA 002 ÿTag: 1 yr Event: 1 yr
ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW
ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm
Duration = 24.0000 hrs Rain Depth = 2.1700 in
Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\
HYG File - ID = - SUBAREA 002 1 yr
Tc = .2170 hrs
Drainage Area = 6.390 acres Runoff CN= 84
Calc.Increment= .02893 hrs Out.Incr.= .0500 hrs
HYG Volume = .461 ac-ft

HYDROGRAPH ORDINATES (cfs)						
Output Time increment = .0500 hrs						
Time hrs	Time on left represents time for first value in each row.					
10.0000	.00	.00	.00	.01	.01	
10.2500	.01	.01	.02	.02	.02	
10.5000	.03	.03	.03	.04	.04	
10.7500	.05	.05	.06	.07	.07	
11.0000	.08	.09	.10	.11	.12	
11.2500	.13	.14	.15	.17	.19	
11.5000	.21	.24	.26	.30	.34	
11.7500	.39	.46	.56	.71	1.14	
12.0000	2.45	4.45	6.57	7.97	7.62	
12.2500	6.12	4.44	3.26	2.50	1.99	
12.5000	1.64	1.40	1.23	1.10	1.00	
12.7500	.92	.86	.81	.77	.73	
13.0000	.70	.67	.64	.62	.60	
13.2500	.58	.56	.54	.53	.51	
13.5000	.50	.49	.47	.46	.45	
13.7500	.44	.43	.42	.41	.41	
14.0000	.40	.39	.38	.38	.37	
14.2500	.36	.36	.35	.35	.34	
14.5000	.34	.33	.33	.32	.32	
14.7500	.31	.31	.30	.30	.30	
15.0000	.29	.29	.29	.28	.28	
15.2500	.28	.27	.27	.27	.26	
15.5000	.26	.26	.26	.25	.25	
15.7500	.25	.25	.24	.24	.24	
16.0000	.24	.24	.23	.23	.23	
16.2500	.23	.23	.22	.22	.22	
16.5000	.22	.22	.21	.21	.21	
16.7500	.21	.21	.21	.20	.20	
17.0000	.20	.20	.20	.20	.20	
17.2500	.19	.19	.19	.19	.19	

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output)

ÿPage 93

ÿÿÿName.... SUBAREA 002 ÿTag: 1 yr

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

HYDROGRAPH ORDINATES (cfs)						
Output Time increment = .0500 hrs						
Time hrs	Time on left represents time for first value in each row.					
17.5000	.19	.19	.19	.18	.18	
17.7500	.18	.18	.18	.18	.18	

18.0000	.18	.18	.17	.17	.17
18.2500	.17	.17	.17	.17	.17
18.5000	.17	.17	.17	.16	.16
18.7500	.16	.16	.16	.16	.16
19.0000	.16	.16	.16	.16	.16
19.2500	.15	.15	.15	.15	.15
19.5000	.15	.15	.15	.15	.15
19.7500	.15	.15	.15	.15	.15
20.0000	.14	.14	.14	.14	.14
20.2500	.14	.14	.14	.14	.14
20.5000	.14	.14	.14	.14	.14
20.7500	.14	.13	.13	.13	.13
21.0000	.13	.13	.13	.13	.13
21.2500	.13	.13	.13	.13	.13
21.5000	.13	.13	.13	.13	.13
21.7500	.13	.12	.12	.12	.12
22.0000	.12	.12	.12	.12	.12
22.2500	.12	.12	.12	.12	.12
22.5000	.12	.12	.12	.12	.12
22.7500	.12	.12	.12	.12	.12
23.0000	.12	.11	.11	.11	.11
23.2500	.11	.11	.11	.11	.11
23.5000	.11	.11	.11	.11	.11
23.7500	.11	.11	.11	.11	.11
24.0000	.09	.07	.05	.03	.02
24.2500	.01	.01	.00	.00	.00
24.5000	.00				

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. Summary

ÿPage 94

ÿÿÿName.... HANNA HILLS PRE ÿTag: 1 yr

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm

Duration = 24.0000 hrs Rain Depth = 2.1700 in

Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\

Rain File -ID = - TypeII 24hr

Unit Hyd Type = Default Curvilinear

HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\

HYG File - ID = - HANNA HILLS PRE 1 yr

Tc = 1.0000 hrs

Drainage Area = 6.120 acres Runoff CN= 77

=====
Computational Time Increment = .13333 hrs

Computed Peak Time = 12.6667 hrs
Computed Peak Flow = 1.54 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 12.7000 hrs
Peak Flow, Interpolated Output = 1.53 cfs
=====

DRAINAGE AREA

ID:HANNA HILLS PRE

CN = 77

Area = 6.120 acres

S = 2.9870 in

0.2S = .5974 in

Cumulative Runoff

.5424 in

.277 ac-ft

HYG Volume... .277 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = 1.00000 hrs (ID: HANNA HILLS PRE)

Computational Incr, Tm = .13333 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 = 6.93 cfs

Unit peak time Tp = .66667 hrs

Unit receding limb, Tr = 2.66667 hrs

Total unit time, Tb = 3.33333 hrs

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output)

ÿPage 95

ÿÿÿName.... HANNA HILLS PRE ÿTag: 1 yr

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm

Duration = 24.0000 hrs

Rain Depth = 2.1700 in

Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\

Rain File -ID = - TypeII 24hr
 Unit Hyd Type = Default Curvilinear
 HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\
 HYG File - ID = - HANNA HILLS PRE 1 yr
 Tc = 1.0000 hrs
 Drainage Area = 6.120 acres Runoff CN= 77
 Calc.Increment= .13333 hrs Out.Incr.= .0500 hrs
 HYG Volume = .277 ac-ft

HYDROGRAPH ORDINATES (cfs)					
Output Time increment = .0500 hrs					
Time hrs	Time on left represents time for first value in each row.				
11.6500	.00	.00	.00	.00	.01
11.9000	.02	.04	.06	.13	.20
12.1500	.29	.42	.55	.70	.87
12.4000	1.04	1.17	1.30	1.41	1.46
12.6500	1.52	1.53	1.52	1.52	1.46
12.9000	1.41	1.35	1.27	1.19	1.11
13.1500	1.04	.97	.92	.87	.82
13.4000	.78	.73	.70	.66	.63
13.6500	.60	.57	.54	.52	.50
13.9000	.48	.46	.44	.42	.41
14.1500	.40	.38	.37	.36	.35
14.4000	.34	.33	.32	.31	.31
14.6500	.30	.29	.29	.28	.27
14.9000	.27	.26	.26	.25	.25
15.1500	.24	.24	.24	.23	.23
15.4000	.22	.22	.22	.22	.21
15.6500	.21	.21	.20	.20	.20
15.9000	.20	.20	.19	.19	.19
16.1500	.19	.19	.18	.18	.18
16.4000	.18	.18	.17	.17	.17
16.6500	.17	.17	.17	.17	.16
16.9000	.16	.16	.16	.16	.16
17.1500	.16	.16	.15	.15	.15
17.4000	.15	.15	.15	.15	.15
17.6500	.15	.14	.14	.14	.14
17.9000	.14	.14	.14	.14	.14
18.1500	.14	.14	.13	.13	.13
18.4000	.13	.13	.13	.13	.13
18.6500	.13	.13	.13	.13	.13
18.9000	.12	.12	.12	.12	.12

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output)

ÿPage 96

ÿÿÿName.... HANNA HILLS PRE ÿTag: 1 yr

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

HYDROGRAPH ORDINATES (cfs)						
Output Time increment = .0500 hrs						
Time hrs	Time on left represents time for first value in each row.					
19.1500	.12	.12	.12	.12	.12	.12
19.4000	.12	.12	.12	.12	.12	.12
19.6500	.12	.12	.11	.11	.11	.11
19.9000	.11	.11	.11	.11	.11	.11
20.1500	.11	.11	.11	.11	.11	.11
20.4000	.11	.11	.11	.11	.11	.11
20.6500	.11	.11	.10	.10	.10	.10
20.9000	.10	.10	.10	.10	.10	.10
21.1500	.10	.10	.10	.10	.10	.10
21.4000	.10	.10	.10	.10	.10	.10
21.6500	.10	.10	.10	.10	.10	.10
21.9000	.10	.10	.10	.09	.09	.09
22.1500	.09	.09	.09	.09	.09	.09
22.4000	.09	.09	.09	.09	.09	.09
22.6500	.09	.09	.09	.09	.09	.09
22.9000	.09	.09	.09	.09	.09	.09
23.1500	.09	.09	.09	.09	.09	.09
23.4000	.09	.09	.09	.09	.09	.09
23.6500	.09	.09	.08	.08	.08	.08
23.9000	.08	.08	.08	.08	.08	.08
24.1500	.08	.08	.07	.07	.07	.07
24.4000	.06	.06	.05	.05	.05	.05
24.6500	.04	.04	.03	.03	.03	.03
24.9000	.02	.02	.02	.02	.02	.01
25.1500	.01	.01	.01	.01	.01	.01
25.4000	.01	.01	.01	.00	.00	.00
25.6500	.00	.00	.00	.00	.00	.00
25.9000	.00	.00	.00	.00	.00	.00
26.1500	.00					

S/N:

PondPack Ver:

Compute Time:

Date:

↑
 ÿÿÿType.... Unit Hyd. Summary ÿPage 97
 ÿÿÿName.... UNSTUDIED PRE ÿTag: 1 yr Event: 1 yr
 ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW
 ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm

Duration = 24.0000 hrs Rain Depth = 2.1700 in

Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\

Rain File -ID = - TypeII 24hr

Unit Hyd Type = Default Curvilinear
HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\
HYG File - ID = - UNSTUDIED PRE 1 yr
Tc = .3600 hrs
Drainage Area = 2.800 acres Runoff CN= 77

=====
Computational Time Increment = .04800 hrs
Computed Peak Time = 12.2880 hrs
Computed Peak Flow = 1.48 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 12.2500 hrs
Peak Flow, Interpolated Output = 1.48 cfs
=====

DRAINAGE AREA

ID:UNSTUDIED PRE

CN = 77
Area = 2.800 acres
S = 2.9870 in
0.2S = .5974 in

Cumulative Runoff

.5424 in
.127 ac-ft

HYG Volume... .126 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .36000 hrs (ID: UNSTUDIED PRE)
Computational Incr, Tm = .04800 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 = 8.81 cfs
Unit peak time Tp = .24000 hrs
Unit receding limb, Tr = .96000 hrs
Total unit time, Tb = 1.20000 hrs

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output)

ÿPage 98

ÿÿÿName.... UNSTUDIED PRE ÿTag: 1 yr

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW
 yyyStorm... TypeII 24hr yTag: 1 yr

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm

Duration = 24.0000 hrs Rain Depth = 2.1700 in
 Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\
 Rain File -ID = - TypeII 24hr
 Unit Hyd Type = Default Curvilinear
 HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\
 HYG File - ID = - UNSTUDIED PRE 1 yr
 Tc = .3600 hrs
 Drainage Area = 2.800 acres Runoff CN= 77
 Calc.Increment= .04800 hrs Out.Incr.= .0500 hrs
 HYG Volume = .126 ac-ft

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
11.6000	.00	.00	.00	.01	.01
11.8500	.02	.03	.07	.16	.36
12.1000	.67	1.03	1.33	1.48	1.45
12.3500	1.31	1.11	.92	.77	.66
12.6000	.56	.49	.43	.39	.35
12.8500	.32	.30	.27	.26	.24
13.1000	.23	.22	.21	.20	.19
13.3500	.18	.18	.17	.17	.16
13.6000	.16	.16	.15	.15	.14
13.8500	.14	.14	.14	.13	.13
14.1000	.13	.13	.12	.12	.12
14.3500	.12	.12	.11	.11	.11
14.6000	.11	.11	.11	.10	.10
14.8500	.10	.10	.10	.10	.10
15.1000	.10	.09	.09	.09	.09
15.3500	.09	.09	.09	.09	.09
15.6000	.09	.08	.08	.08	.08
15.8500	.08	.08	.08	.08	.08
16.1000	.08	.08	.08	.08	.08
16.3500	.07	.07	.07	.07	.07
16.6000	.07	.07	.07	.07	.07
16.8500	.07	.07	.07	.07	.07
17.1000	.07	.07	.07	.07	.06
17.3500	.06	.06	.06	.06	.06
17.6000	.06	.06	.06	.06	.06
17.8500	.06	.06	.06	.06	.06
18.1000	.06	.06	.06	.06	.06
18.3500	.06	.06	.06	.06	.06
18.6000	.06	.06	.06	.05	.05

18.8500 | .05 .05 .05 .05 .05

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output)

ÿPage 99

ÿÿÿName.... UNSTUDIED PRE ÿTag: 1 yr

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
19.1000	.05	.05	.05	.05	.05
19.3500	.05	.05	.05	.05	.05
19.6000	.05	.05	.05	.05	.05
19.8500	.05	.05	.05	.05	.05
20.1000	.05	.05	.05	.05	.05
20.3500	.05	.05	.05	.05	.05
20.6000	.05	.05	.05	.05	.05
20.8500	.05	.05	.05	.05	.04
21.1000	.04	.04	.04	.04	.04
21.3500	.04	.04	.04	.04	.04
21.6000	.04	.04	.04	.04	.04
21.8500	.04	.04	.04	.04	.04
22.1000	.04	.04	.04	.04	.04
22.3500	.04	.04	.04	.04	.04
22.6000	.04	.04	.04	.04	.04
22.8500	.04	.04	.04	.04	.04
23.1000	.04	.04	.04	.04	.04
23.3500	.04	.04	.04	.04	.04
23.6000	.04	.04	.04	.04	.04
23.8500	.04	.04	.04	.04	.03
24.1000	.03	.02	.02	.01	.01
24.3500	.01	.00	.00	.00	.00
24.6000	.00	.00			

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. Summary

ÿPage 100

ÿÿÿName.... HANNA HILLS POST ÿTag: 1 yr

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm

Duration = 24.0000 hrs

Rain Depth = 2.1700 in

Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\
 Rain File -ID = - TypeII 24hr
 Unit Hyd Type = Default Curvilinear
 HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\
 HYG File - ID = - HANNA HILLS POST 1 yr
 Tc = 1.0000 hrs
 Drainage Area = 6.270 acres Runoff CN= 79

```

=====
Computational Time Increment = .13333 hrs
Computed Peak Time          = 12.6667 hrs
Computed Peak Flow          = 1.90 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 12.7000 hrs
Peak Flow, Interpolated Output = 1.89 cfs
=====
  
```

DRAINAGE AREA

```

-----
ID: HANNA HILLS POST
CN = 79
Area = 6.270 acres
S = 2.6582 in
0.2S = .5316 in
  
```

Cumulative Runoff

```

-----
.6247 in
.326 ac-ft
  
```

HYG Volume... .326 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = 1.00000 hrs (ID: HANNA HILLS POST)
 Computational Incr, Tm = .13333 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 = 7.10 cfs
 Unit peak time Tp = .66667 hrs
 Unit receding limb, Tr = 2.66667 hrs
 Total unit time, Tb = 3.33333 hrs

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Unit Hyd. (HYG output) Page 101
 Name.... HANNA HILLS POST Tag: 1 yr Event: 1 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW
 Storm... TypeII 24hr Tag: 1 yr

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm
 Duration = 24.0000 hrs Rain Depth = 2.1700 in
 Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\
 Rain File -ID = - TypeII 24hr
 Unit Hyd Type = Default Curvilinear
 HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\
 HYG File - ID = - HANNA HILLS POST 1 yr
 Tc = 1.0000 hrs
 Drainage Area = 6.270 acres Runoff CN= 79
 Calc.Increment= .13333 hrs Out.Incr.= .0500 hrs
 HYG Volume = .326 ac-ft

HYDROGRAPH ORDINATES (cfs)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
11.4000	.00	.00	.00	.00	.00
11.6500	.01	.01	.01	.02	.03
11.9000	.05	.08	.11	.20	.29
12.1500	.41	.57	.74	.93	1.13
12.4000	1.34	1.49	1.64	1.77	1.82
12.6500	1.88	1.89	1.88	1.86	1.79
12.9000	1.71	1.63	1.53	1.43	1.34
13.1500	1.25	1.16	1.10	1.03	.97
13.4000	.92	.87	.82	.78	.73
13.6500	.70	.66	.63	.60	.58
13.9000	.55	.53	.51	.49	.47
14.1500	.45	.44	.43	.41	.40
14.4000	.39	.38	.37	.36	.35
14.6500	.34	.33	.32	.32	.31
14.9000	.30	.30	.29	.29	.28
15.1500	.28	.27	.27	.26	.26
15.4000	.25	.25	.25	.24	.24
15.6500	.24	.23	.23	.23	.22
15.9000	.22	.22	.22	.22	.21
16.1500	.21	.21	.21	.20	.20
16.4000	.20	.20	.20	.19	.19
16.6500	.19	.19	.19	.19	.18
16.9000	.18	.18	.18	.18	.18
17.1500	.18	.17	.17	.17	.17
17.4000	.17	.17	.17	.17	.16
17.6500	.16	.16	.16	.16	.16
17.9000	.16	.16	.16	.15	.15

18.1500		.15	.15	.15	.15	.15
18.4000		.15	.15	.15	.15	.14
18.6500		.14	.14	.14	.14	.14

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Unit Hyd. (HYG output) Page 102
 Name.... HANNA HILLS POST Tag: 1 yr Event: 1 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW
 Storm... TypeII 24hr Tag: 1 yr

HYDROGRAPH ORDINATES (cfs)						
Output Time increment = .0500 hrs						
Time	Time on left represents time for first value in each row.					
hrs						
18.9000	.14	.14	.14	.14	.14	.14
19.1500	.14	.14	.13	.13	.13	.13
19.4000	.13	.13	.13	.13	.13	.13
19.6500	.13	.13	.13	.13	.13	.13
19.9000	.13	.13	.12	.12	.12	.12
20.1500	.12	.12	.12	.12	.12	.12
20.4000	.12	.12	.12	.12	.12	.12
20.6500	.12	.12	.12	.12	.12	.12
20.9000	.12	.11	.11	.11	.11	.11
21.1500	.11	.11	.11	.11	.11	.11
21.4000	.11	.11	.11	.11	.11	.11
21.6500	.11	.11	.11	.11	.11	.11
21.9000	.11	.11	.11	.11	.11	.10
22.1500	.10	.10	.10	.10	.10	.10
22.4000	.10	.10	.10	.10	.10	.10
22.6500	.10	.10	.10	.10	.10	.10
22.9000	.10	.10	.10	.10	.10	.10
23.1500	.10	.10	.10	.10	.10	.10
23.4000	.10	.10	.10	.10	.10	.09
23.6500	.09	.09	.09	.09	.09	.09
23.9000	.09	.09	.09	.09	.09	.09
24.1500	.09	.09	.08	.08	.08	.07
24.4000	.07	.07	.06	.06	.06	.05
24.6500	.05	.04	.04	.03	.03	.03
24.9000	.03	.02	.02	.02	.02	.02
25.1500	.01	.01	.01	.01	.01	.01
25.4000	.01	.01	.01	.01	.01	.00
25.6500	.00	.00	.00	.00	.00	.00
25.9000	.00	.00	.00	.00	.00	.00
26.1500	.00	.00				

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Unit Hyd. Summary Page 103
 Name.... SUBAREA 003 Tag: 1 yr Event: 1 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW
 Storm... TypeII 24hr Tag: 1 yr

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm
 Duration = 24.0000 hrs Rain Depth = 2.1700 in
 Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\
 Rain File -ID = - TypeII 24hr
 Unit Hyd Type = Default Curvilinear
 HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\
 HYG File - ID = - SUBAREA 003 1 yr
 Tc = .2000 hrs
 Drainage Area = 2.090 acres Runoff CN= 87

=====
 Computational Time Increment = .02667 hrs
 Computed Peak Time = 12.1600 hrs
 Computed Peak Flow = 3.33 cfs

Time Increment for HYG File = .0500 hrs
 Peak Time, Interpolated Output = 12.1500 hrs
 Peak Flow, Interpolated Output = 3.30 cfs
 =====

DRAINAGE AREA

 ID: SUBAREA 003
 CN = 87
 Area = 2.090 acres
 S = 1.4943 in
 0.2S = .2989 in

Cumulative Runoff

 1.0404 in
 .181 ac-ft

HYG Volume... .181 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .20000 hrs (ID: SUBAREA 003)
 Computational Incr, Tm = .02667 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 = 11.84 cfs
Unit peak time Tp = .13333 hrs
Unit receding limb, Tr = .53333 hrs
Total unit time, Tb = .66667 hrs

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output) ÿPage 104
ÿÿÿName.... SUBAREA 003 ÿTag: 1 yr Event: 1 yr
ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW
ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm

Duration = 24.0000 hrs Rain Depth = 2.1700 in
Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\
HYG File - ID = - SUBAREA 003 1 yr
Tc = .2000 hrs
Drainage Area = 2.090 acres Runoff CN= 87
Calc.Increment= .02667 hrs Out.Incr.= .0500 hrs
HYG Volume = .181 ac-ft

HYDROGRAPH ORDINATES (cfs)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
8.9500	.00	.00	.00	.00	.00
9.2000	.00	.00	.00	.01	.01
9.4500	.01	.01	.01	.01	.01
9.7000	.01	.01	.01	.01	.01
9.9500	.02	.02	.02	.02	.02
10.2000	.02	.02	.02	.03	.03
10.4500	.03	.03	.03	.04	.04
10.7000	.04	.04	.04	.05	.05
10.9500	.05	.06	.06	.06	.07
11.2000	.07	.08	.09	.09	.10
11.4500	.11	.12	.13	.14	.16
11.7000	.18	.20	.24	.28	.35
11.9500	.57	1.18	2.08	2.90	3.30
12.2000	3.00	2.26	1.58	1.14	.87
12.4500	.69	.58	.49	.44	.39
12.7000	.36	.33	.31	.30	.28
12.9500	.27	.26	.25	.24	.23
13.2000	.22	.21	.20	.20	.19

13.4500	.19	.18	.18	.17	.17
13.7000	.17	.16	.16	.15	.15
13.9500	.15	.15	.14	.14	.14
14.2000	.13	.13	.13	.13	.13
14.4500	.12	.12	.12	.12	.12
14.7000	.12	.11	.11	.11	.11
14.9500	.11	.11	.11	.10	.10
15.2000	.10	.10	.10	.10	.10
15.4500	.10	.10	.09	.09	.09
15.7000	.09	.09	.09	.09	.09
15.9500	.09	.09	.09	.08	.08
16.2000	.08	.08	.08	.08	.08

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Unit Hyd. (HYG output) Page 105
 Name.... SUBAREA 003 Tag: 1 yr Event: 1 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW
 Storm... TypeII 24hr Tag: 1 yr

Time hrs	HYDROGRAPH ORDINATES (cfs)				
	Output Time increment = .0500 hrs				
	Time on left represents time for first value in each row.				
16.4500	.08	.08	.08	.08	.08
16.7000	.08	.08	.08	.07	.07
16.9500	.07	.07	.07	.07	.07
17.2000	.07	.07	.07	.07	.07
17.4500	.07	.07	.07	.07	.07
17.7000	.07	.07	.07	.07	.06
17.9500	.06	.06	.06	.06	.06
18.2000	.06	.06	.06	.06	.06
18.4500	.06	.06	.06	.06	.06
18.7000	.06	.06	.06	.06	.06
18.9500	.06	.06	.06	.06	.06
19.2000	.06	.06	.06	.06	.05
19.4500	.05	.05	.05	.05	.05
19.7000	.05	.05	.05	.05	.05
19.9500	.05	.05	.05	.05	.05
20.2000	.05	.05	.05	.05	.05
20.4500	.05	.05	.05	.05	.05
20.7000	.05	.05	.05	.05	.05
20.9500	.05	.05	.05	.05	.05
21.2000	.05	.05	.05	.05	.05
21.4500	.05	.05	.05	.05	.05
21.7000	.05	.04	.04	.04	.04
21.9500	.04	.04	.04	.04	.04
22.2000	.04	.04	.04	.04	.04
22.4500	.04	.04	.04	.04	.04

22.7000		.04	.04	.04	.04	.04
22.9500		.04	.04	.04	.04	.04
23.2000		.04	.04	.04	.04	.04
23.4500		.04	.04	.04	.04	.04
23.7000		.04	.04	.04	.04	.04
23.9500		.04	.03	.03	.02	.01
24.2000		.01	.00	.00	.00	

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. Summary

ÿPage 106

ÿÿÿName.... BILLINGSLEY PRE ÿTag: 1 yr

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm

Duration = 24.0000 hrs Rain Depth = 2.1700 in

Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\

Rain File -ID = - TypeII 24hr

Unit Hyd Type = Default Curvilinear

HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\

HYG File - ID = - BILLINGSLEY PRE 1 yr

Tc = 1.0000 hrs

Drainage Area = 1.710 acres Runoff CN= 77

```
=====
Computational Time Increment = .13333 hrs
Computed Peak Time           = 12.6667 hrs
Computed Peak Flow           = .43 cfs
```

```
Time Increment for HYG File   = .0500 hrs
Peak Time, Interpolated Output = 12.7000 hrs
Peak Flow, Interpolated Output = .43 cfs
=====
```

DRAINAGE AREA

ID:BILLINGSLEY PRE

CN = 77

Area = 1.710 acres

S = 2.9870 in

0.2S = .5974 in

Cumulative Runoff

.5424 in

.077 ac-ft

HYG Volume... .077 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = 1.00000 hrs (ID: BILLINGSLEY PRE)
Computational Incr, Tm = .13333 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 = 1.94 cfs
Unit peak time Tp = .66667 hrs
Unit receding limb, Tr = 2.66667 hrs
Total unit time, Tb = 3.33333 hrs

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output) ÿPage 107
ÿÿÿName.... BILLINGSLEY PRE ÿTag: 1 yr Event: 1 yr
ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW
ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm
Duration = 24.0000 hrs Rain Depth = 2.1700 in
Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\
HYG File - ID = - BILLINGSLEY PRE 1 yr
Tc = 1.0000 hrs
Drainage Area = 1.710 acres Runoff CN= 77
Calc.Increment=.13333 hrs Out.Incr.= .0500 hrs
HYG Volume = .077 ac-ft

HYDROGRAPH ORDINATES (cfs)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
11.7500	.00	.00	.00	.01	.01
12.0000	.02	.04	.06	.08	.12
12.2500	.15	.20	.24	.29	.33
12.5000	.36	.39	.41	.42	.43
12.7500	.43	.42	.41	.39	.38
13.0000	.35	.33	.31	.29	.27
13.2500	.26	.24	.23	.22	.21

13.5000	.19	.18	.17	.17	.16
13.7500	.15	.15	.14	.13	.13
14.0000	.12	.12	.11	.11	.11
14.2500	.10	.10	.10	.09	.09
14.5000	.09	.09	.09	.08	.08
14.7500	.08	.08	.08	.08	.07
15.0000	.07	.07	.07	.07	.07
15.2500	.07	.06	.06	.06	.06
15.5000	.06	.06	.06	.06	.06
15.7500	.06	.06	.06	.06	.05
16.0000	.05	.05	.05	.05	.05
16.2500	.05	.05	.05	.05	.05
16.5000	.05	.05	.05	.05	.05
16.7500	.05	.05	.05	.05	.05
17.0000	.04	.04	.04	.04	.04
17.2500	.04	.04	.04	.04	.04
17.5000	.04	.04	.04	.04	.04
17.7500	.04	.04	.04	.04	.04
18.0000	.04	.04	.04	.04	.04
18.2500	.04	.04	.04	.04	.04
18.5000	.04	.04	.04	.04	.04
18.7500	.04	.04	.04	.03	.03
19.0000	.03	.03	.03	.03	.03

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Unit Hyd. (HYG output) Page 108
 Name.... BILLINGSLEY PRE Tag: 1 yr Event: 1 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW
 Storm... TypeII 24hr Tag: 1 yr

HYDROGRAPH ORDINATES (cfs)					
Output Time increment = .0500 hrs					
Time hrs	Time on left represents time for first value in each row.				
19.2500	.03	.03	.03	.03	.03
19.5000	.03	.03	.03	.03	.03
19.7500	.03	.03	.03	.03	.03
20.0000	.03	.03	.03	.03	.03
20.2500	.03	.03	.03	.03	.03
20.5000	.03	.03	.03	.03	.03
20.7500	.03	.03	.03	.03	.03
21.0000	.03	.03	.03	.03	.03
21.2500	.03	.03	.03	.03	.03
21.5000	.03	.03	.03	.03	.03
21.7500	.03	.03	.03	.03	.03
22.0000	.03	.03	.03	.03	.03
22.2500	.03	.03	.03	.03	.03
22.5000	.03	.03	.03	.03	.03

22.7500	.03	.03	.03	.02	.02
23.0000	.02	.02	.02	.02	.02
23.2500	.02	.02	.02	.02	.02
23.5000	.02	.02	.02	.02	.02
23.7500	.02	.02	.02	.02	.02
24.0000	.02	.02	.02	.02	.02
24.2500	.02	.02	.02	.02	.02
24.5000	.02	.01	.01	.01	.01
24.7500	.01	.01	.01	.01	.01
25.0000	.01	.00	.00	.00	.00
25.2500	.00	.00	.00	.00	.00
25.5000	.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. Summary

ÿPage 109

ÿÿÿName.... ORCHARD PRE ÿTag: 1 yr

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm

Duration = 24.0000 hrs Rain Depth = 2.1700 in

Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\

Rain File -ID = - TypeII 24hr

Unit Hyd Type = Default Curvilinear

HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\

HYG File - ID = - ORCHARD PRE 1 yr

Tc = 1.0000 hrs

Drainage Area = 1.010 acres Runoff CN= 77

```
=====
Computational Time Increment = .13333 hrs
Computed Peak Time          = 12.6667 hrs
Computed Peak Flow           = .25 cfs
```

```
Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 12.7000 hrs
Peak Flow, Interpolated Output = .25 cfs
=====
```

DRAINAGE AREA

ID:ORCHARD PRE

CN = 77

Area = 1.010 acres

S = 2.9870 in

0.2S = .5974 in

Cumulative Runoff

.5424 in
.046 ac-ft

HYG Volume... .046 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = 1.00000 hrs (ID: ORCHARD PRE)
Computational Incr, Tm = .13333 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 = 1.14 cfs
Unit peak time Tp = .66667 hrs
Unit receding limb, Tr = 2.66667 hrs
Total unit time, Tb = 3.33333 hrs

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output) ÿPage 110
ÿÿÿName.... ORCHARD PRE ÿTag: 1 yr Event: 1 yr
ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW
ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm
Duration = 24.0000 hrs Rain Depth = 2.1700 in
Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\
HYG File - ID = - ORCHARD PRE 1 yr
Tc = 1.0000 hrs
Drainage Area = 1.010 acres Runoff CN= 77
Calc.Increment= .13333 hrs Out.Incr.= .0500 hrs
HYG Volume = .046 ac-ft

HYDROGRAPH ORDINATES (cfs)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
11.8000	.00	.00	.00	.01	.01
12.0500	.02	.03	.05	.07	.09

12.3000	.12	.14	.17	.19	.21
12.5500	.23	.24	.25	.25	.25
12.8000	.25	.24	.23	.22	.21
13.0500	.20	.18	.17	.16	.15
13.3000	.14	.14	.13	.12	.11
13.5500	.11	.10	.10	.09	.09
13.8000	.09	.08	.08	.08	.07
14.0500	.07	.07	.07	.06	.06
14.3000	.06	.06	.06	.05	.05
14.5500	.05	.05	.05	.05	.05
14.8000	.05	.05	.04	.04	.04
15.0500	.04	.04	.04	.04	.04
15.3000	.04	.04	.04	.04	.04
15.5500	.04	.04	.03	.03	.03
15.8000	.03	.03	.03	.03	.03
16.0500	.03	.03	.03	.03	.03
16.3000	.03	.03	.03	.03	.03
16.5500	.03	.03	.03	.03	.03
16.8000	.03	.03	.03	.03	.03
17.0500	.03	.03	.03	.03	.03
17.3000	.03	.03	.02	.02	.02
17.5500	.02	.02	.02	.02	.02
17.8000	.02	.02	.02	.02	.02
18.0500	.02	.02	.02	.02	.02
18.3000	.02	.02	.02	.02	.02
18.5500	.02	.02	.02	.02	.02
18.8000	.02	.02	.02	.02	.02
19.0500	.02	.02	.02	.02	.02

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output)

ÿPage 111

ÿÿÿName.... ORCHARD PRE ÿTag: 1 yr

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
19.3000	.02	.02	.02	.02	.02
19.5500	.02	.02	.02	.02	.02
19.8000	.02	.02	.02	.02	.02
20.0500	.02	.02	.02	.02	.02
20.3000	.02	.02	.02	.02	.02
20.5500	.02	.02	.02	.02	.02
20.8000	.02	.02	.02	.02	.02
21.0500	.02	.02	.02	.02	.02
21.3000	.02	.02	.02	.02	.02

21.5500		.02	.02	.02	.02	.02
21.8000		.02	.02	.02	.02	.02
22.0500		.02	.02	.02	.02	.02
22.3000		.02	.02	.02	.02	.02
22.5500		.02	.02	.02	.01	.01
22.8000		.01	.01	.01	.01	.01
23.0500		.01	.01	.01	.01	.01
23.3000		.01	.01	.01	.01	.01
23.5500		.01	.01	.01	.01	.01
23.8000		.01	.01	.01	.01	.01
24.0500		.01	.01	.01	.01	.01
24.3000		.01	.01	.01	.01	.01
24.5500		.01	.01	.01	.01	.01
24.8000		.00	.00	.00	.00	.00
25.0500		.00	.00	.00	.00	.00
25.3000		.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. Summary

ÿPage 112

ÿÿÿName.... HARD ROAD PRE ÿTag: 1 yr

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm

Duration = 24.0000 hrs Rain Depth = 2.1700 in

Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\

Rain File -ID = - TypeII 24hr

Unit Hyd Type = Default Curvilinear

HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\

HYG File - ID = - HARD ROAD PRE 1 yr

Tc = 1.0000 hrs

Drainage Area = 4.270 acres Runoff CN= 77

```
=====
Computational Time Increment = .13333 hrs
Computed Peak Time           = 12.6667 hrs
Computed Peak Flow            = 1.07 cfs
```

```
Time Increment for HYG File   = .0500 hrs
Peak Time, Interpolated Output = 12.7000 hrs
Peak Flow, Interpolated Output = 1.07 cfs
=====
```

DRAINAGE AREA

ID:HARD ROAD PRE

CN = 77
Area = 4.270 acres
S = 2.9870 in
0.2S = .5974 in

Cumulative Runoff

.5424 in
.193 ac-ft

HYG Volume... .193 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = 1.00000 hrs (ID: HARD ROAD PRE)
Computational Incr, Tm = .13333 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 = 4.84 cfs
Unit peak time Tp = .66667 hrs
Unit receding limb, Tr = 2.66667 hrs
Total unit time, Tb = 3.33333 hrs

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output) ÿPage 113
ÿÿÿName.... HARD ROAD PRE ÿTag: 1 yr Event: 1 yr
ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW
ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm
Duration = 24.0000 hrs Rain Depth = 2.1700 in
Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\
HYG File - ID = - HARD ROAD PRE 1 yr
Tc = 1.0000 hrs
Drainage Area = 4.270 acres Runoff CN= 77
Calc.Increment= .13333 hrs Out.Incr.= .0500 hrs
HYG Volume = .193 ac-ft

HYDROGRAPH ORDINATES (cfs)

Time |

Output Time increment = .0500 hrs

hrs	Time on left represents time for first value in each row.				
11.7000	.00	.00	.00	.00	.01
11.9500	.03	.04	.09	.14	.20
12.2000	.29	.38	.49	.61	.73
12.4500	.82	.91	.98	1.02	1.06
12.7000	1.07	1.06	1.06	1.02	.98
12.9500	.94	.88	.83	.78	.73
13.2000	.68	.64	.61	.57	.54
13.4500	.51	.49	.46	.44	.42
13.7000	.40	.38	.36	.35	.33
13.9500	.32	.31	.30	.29	.28
14.2000	.27	.26	.25	.24	.24
14.4500	.23	.22	.22	.21	.21
14.7000	.20	.20	.19	.19	.19
14.9500	.18	.18	.18	.17	.17
15.2000	.17	.16	.16	.16	.16
15.4500	.15	.15	.15	.15	.15
15.7000	.14	.14	.14	.14	.14
15.9500	.14	.13	.13	.13	.13
16.2000	.13	.13	.13	.13	.12
16.4500	.12	.12	.12	.12	.12
16.7000	.12	.12	.12	.11	.11
16.9500	.11	.11	.11	.11	.11
17.2000	.11	.11	.11	.11	.11
17.4500	.10	.10	.10	.10	.10
17.7000	.10	.10	.10	.10	.10
17.9500	.10	.10	.10	.10	.10
18.2000	.09	.09	.09	.09	.09
18.4500	.09	.09	.09	.09	.09
18.7000	.09	.09	.09	.09	.09
18.9500	.09	.09	.09	.09	.08

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Unit Hyd. (HYG output)

Page 114

yyyName.... HARD ROAD PRE yTag: 1 yr

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

yyyStorm... TypeII 24hr yTag: 1 yr

HYDROGRAPH ORDINATES (cfs)					
Output Time increment = .0500 hrs					
Time hrs	Time on left represents time for first value in each row.				
19.2000	.08	.08	.08	.08	.08
19.4500	.08	.08	.08	.08	.08
19.7000	.08	.08	.08	.08	.08
19.9500	.08	.08	.08	.08	.08
20.2000	.08	.08	.08	.08	.08

20.4500	.08	.07	.07	.07	.07
20.7000	.07	.07	.07	.07	.07
20.9500	.07	.07	.07	.07	.07
21.2000	.07	.07	.07	.07	.07
21.4500	.07	.07	.07	.07	.07
21.7000	.07	.07	.07	.07	.07
21.9500	.07	.07	.07	.07	.07
22.2000	.07	.07	.07	.06	.06
22.4500	.06	.06	.06	.06	.06
22.7000	.06	.06	.06	.06	.06
22.9500	.06	.06	.06	.06	.06
23.2000	.06	.06	.06	.06	.06
23.4500	.06	.06	.06	.06	.06
23.7000	.06	.06	.06	.06	.06
23.9500	.06	.06	.06	.06	.06
24.2000	.05	.05	.05	.05	.04
24.4500	.04	.04	.04	.03	.03
24.7000	.03	.02	.02	.02	.02
24.9500	.01	.01	.01	.01	.01
25.2000	.01	.01	.01	.01	.00
25.4500	.00	.00	.00	.00	.00
25.7000	.00	.00	.00	.00	.00
25.9500	.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. Summary

ÿPage 115

ÿÿÿName.... UNSTUDIED POST ÿTag: 1 yr

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm

Duration = 24.0000 hrs Rain Depth = 2.1700 in

Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\

Rain File -ID = - TypeII 24hr

Unit Hyd Type = Default Curvilinear

HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\

HYG File - ID = - UNSTUDIED POST 1 yr

Tc = 1.0000 hrs

Drainage Area = 7.560 acres Runoff CN= 84

```

=====
Computational Time Increment = .13333 hrs
Computed Peak Time           = 12.6667 hrs
Computed Peak Flow           = 3.44 cfs

```

Time Increment for HYG File = .0500 hrs

Peak Time, Interpolated Output = 12.6500 hrs
Peak Flow, Interpolated Output = 3.41 cfs
=====

DRAINAGE AREA

ID: UNSTUDIED POST

CN = 84
Area = 7.560 acres
S = 1.9048 in
0.2S = .3810 in

Cumulative Runoff

.8665 in
.546 ac-ft

HYG Volume... .546 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = 1.00000 hrs (ID: UNSTUDIED POST)
Computational Incr, Tm = .13333 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 = 8.57 cfs
Unit peak time Tp = .66667 hrs
Unit receding limb, Tr = 2.66667 hrs
Total unit time, Tb = 3.33333 hrs

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output) ÿPage 116
ÿÿÿName.... UNSTUDIED POST ÿTag: 1 yr Event: 1 yr
ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW
ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm

Duration = 24.0000 hrs Rain Depth = 2.1700 in
Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\
HYG File - ID = - UNSTUDIED POST 1 yr

Tc = 1.0000 hrs
 Drainage Area = 7.560 acres Runoff CN= 84
 Calc.Increment= .13333 hrs Out.Incr.= .0500 hrs
 HYG Volume = .546 ac-ft

HYDROGRAPH ORDINATES (cfs)						
Output Time increment = .0500 hrs						
Time hrs	Time on left represents time for first value in each row.					
10.2000	.00	.00	.00	.00	.00	.00
10.4500	.00	.01	.01	.01	.01	.01
10.7000	.01	.02	.02	.02	.02	.02
10.9500	.03	.03	.04	.04	.04	.05
11.2000	.05	.06	.06	.07	.07	.08
11.4500	.09	.10	.11	.12	.12	.13
11.7000	.14	.16	.18	.20	.20	.26
11.9500	.33	.39	.57	.74	.74	.96
12.2000	1.25	1.55	1.89	2.24	2.24	2.59
12.4500	2.83	3.08	3.26	3.34	3.34	3.41
12.7000	3.40	3.34	3.29	3.14	3.14	2.99
12.9500	2.82	2.63	2.44	2.27	2.27	2.11
13.2000	1.96	1.84	1.72	1.61	1.61	1.51
13.4500	1.42	1.34	1.26	1.19	1.19	1.13
13.7000	1.07	1.01	.96	.91	.91	.87
13.9500	.84	.80	.77	.74	.74	.71
14.2000	.68	.66	.64	.62	.62	.59
14.4500	.58	.56	.54	.53	.53	.52
14.7000	.50	.49	.48	.47	.47	.46
14.9500	.45	.44	.43	.42	.42	.41
15.2000	.40	.40	.39	.38	.38	.38
15.4500	.37	.37	.36	.36	.36	.35
15.7000	.35	.34	.34	.33	.33	.33
15.9500	.33	.32	.32	.32	.32	.31
16.2000	.31	.31	.30	.30	.30	.30
16.4500	.29	.29	.29	.28	.28	.28
16.7000	.28	.28	.27	.27	.27	.27
16.9500	.27	.27	.26	.26	.26	.26
17.2000	.26	.25	.25	.25	.25	.25
17.4500	.25	.24	.24	.24	.24	.24

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output)

ÿPage 117

ÿÿÿName.... UNSTUDIED POST ÿTag: 1 yr

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

Time | HYDROGRAPH ORDINATES (cfs)
 Output Time increment = .0500 hrs

hrs	Time on left represents time for first value in each row.				
17.7000	.24	.24	.23	.23	.23
17.9500	.23	.23	.23	.22	.22
18.2000	.22	.22	.22	.22	.22
18.4500	.21	.21	.21	.21	.21
18.7000	.21	.21	.21	.20	.20
18.9500	.20	.20	.20	.20	.20
19.2000	.20	.20	.19	.19	.19
19.4500	.19	.19	.19	.19	.19
19.7000	.19	.19	.18	.18	.18
19.9500	.18	.18	.18	.18	.18
20.2000	.18	.18	.18	.18	.17
20.4500	.17	.17	.17	.17	.17
20.7000	.17	.17	.17	.17	.17
20.9500	.17	.17	.16	.16	.16
21.2000	.16	.16	.16	.16	.16
21.4500	.16	.16	.16	.16	.16
21.7000	.16	.16	.15	.15	.15
21.9500	.15	.15	.15	.15	.15
22.2000	.15	.15	.15	.15	.15
22.4500	.15	.15	.15	.15	.15
22.7000	.14	.14	.14	.14	.14
22.9500	.14	.14	.14	.14	.14
23.2000	.14	.14	.14	.14	.14
23.4500	.14	.14	.14	.14	.14
23.7000	.14	.14	.13	.13	.13
23.9500	.13	.13	.13	.13	.13
24.2000	.12	.12	.11	.11	.10
24.4500	.09	.09	.08	.07	.07
24.7000	.06	.05	.05	.04	.04
24.9500	.03	.03	.03	.02	.02
25.2000	.02	.02	.01	.01	.01
25.4500	.01	.01	.01	.01	.01
25.7000	.01	.00	.00	.00	.00
25.9500	.00	.00	.00	.00	.00
26.2000	.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. Summary

ÿPage 118

ÿÿÿName.... UNSTUDIED TOTAL ÿTag: 1 yr

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm

Duration = 24.0000 hrs

Rain Depth = 2.1700 in

Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\
HYG File - ID = - UNSTUDIED TOTAL 1 yr
Tc = .3600 hrs
Drainage Area = 5.520 acres Runoff CN= 77

=====
Computational Time Increment = .04800 hrs
Computed Peak Time = 12.2880 hrs
Computed Peak Flow = 2.92 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 12.2500 hrs
Peak Flow, Interpolated Output = 2.91 cfs
=====

DRAINAGE AREA

ID:UNSTUDIED TOTAL

CN = 77
Area = 5.520 acres
S = 2.9870 in
0.2S = .5974 in

Cumulative Runoff

.5424 in
.249 ac-ft

HYG Volume... .249 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .36000 hrs (ID: UNSTUDIED TOTAL)
Computational Incr, Tm = .04800 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 = 17.37 cfs
Unit peak time Tp = .24000 hrs
Unit receding limb, Tr = .96000 hrs
Total unit time, Tb = 1.20000 hrs

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Unit Hyd. (HYG output) Page 119
 Name.... UNSTUDIED TOTAL Tag: 1 yr Event: 1 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW
 Storm... TypeII 24hr Tag: 1 yr

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm
 Duration = 24.0000 hrs Rain Depth = 2.1700 in
 Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\
 Rain File -ID = - TypeII 24hr
 Unit Hyd Type = Default Curvilinear
 HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\
 HYG File - ID = - UNSTUDIED TOTAL 1 yr
 Tc = .3600 hrs
 Drainage Area = 5.520 acres Runoff CN= 77
 Calc.Increment= .04800 hrs Out.Incr.= .0500 hrs
 HYG Volume = .249 ac-ft

HYDROGRAPH ORDINATES (cfs)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
11.6000	.00	.00	.01	.01	.02
11.8500	.04	.06	.14	.32	.71
12.1000	1.32	2.03	2.63	2.91	2.86
12.3500	2.58	2.19	1.82	1.52	1.29
12.6000	1.11	.97	.86	.76	.69
12.8500	.63	.58	.54	.51	.48
13.1000	.45	.43	.41	.39	.38
13.3500	.36	.35	.34	.33	.32
13.6000	.31	.31	.30	.29	.28
13.8500	.28	.27	.27	.26	.26
14.1000	.25	.25	.24	.24	.23
14.3500	.23	.23	.22	.22	.22
14.6000	.21	.21	.21	.21	.20
14.8500	.20	.20	.19	.19	.19
15.1000	.19	.19	.18	.18	.18
15.3500	.18	.18	.17	.17	.17
15.6000	.17	.17	.17	.16	.16
15.8500	.16	.16	.16	.16	.15
16.1000	.15	.15	.15	.15	.15
16.3500	.15	.15	.14	.14	.14
16.6000	.14	.14	.14	.14	.14
16.8500	.14	.14	.13	.13	.13
17.1000	.13	.13	.13	.13	.13
17.3500	.13	.13	.13	.12	.12
17.6000	.12	.12	.12	.12	.12
17.8500	.12	.12	.12	.12	.12
18.1000	.12	.12	.11	.11	.11

18.3500		.11	.11	.11	.11	.11
18.6000		.11	.11	.11	.11	.11
18.8500		.11	.11	.11	.11	.11

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Unit Hyd. (HYG output) Page 120
 Name.... UNSTUDIED TOTAL Tag: 1 yr Event: 1 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW
 Storm... TypeII 24hr Tag: 1 yr

HYDROGRAPH ORDINATES (cfs)

Time hrs	Output Time increment = .0500 hrs				
	Time on left represents time for first value in each row.				
19.1000	.10	.10	.10	.10	.10
19.3500	.10	.10	.10	.10	.10
19.6000	.10	.10	.10	.10	.10
19.8500	.10	.10	.10	.10	.10
20.1000	.10	.10	.09	.09	.09
20.3500	.09	.09	.09	.09	.09
20.6000	.09	.09	.09	.09	.09
20.8500	.09	.09	.09	.09	.09
21.1000	.09	.09	.09	.09	.09
21.3500	.09	.09	.09	.09	.09
21.6000	.09	.08	.08	.08	.08
21.8500	.08	.08	.08	.08	.08
22.1000	.08	.08	.08	.08	.08
22.3500	.08	.08	.08	.08	.08
22.6000	.08	.08	.08	.08	.08
22.8500	.08	.08	.08	.08	.08
23.1000	.08	.08	.08	.08	.08
23.3500	.08	.08	.08	.08	.08
23.6000	.07	.07	.07	.07	.07
23.8500	.07	.07	.07	.07	.06
24.1000	.06	.05	.04	.03	.02
24.3500	.01	.01	.01	.00	.00
24.6000	.00	.00	.00	.00	

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Unit Hyd. Summary Page 121
 Name.... SUBAREA 004 Tag: 1 yr Event: 1 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW
 Storm... TypeII 24hr Tag: 1 yr

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm
 Duration = 24.0000 hrs Rain Depth = 2.1700 in
 Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\
 Rain File -ID = - TypeII 24hr
 Unit Hyd Type = Default Curvilinear
 HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\
 HYG File - ID = - SUBAREA 004 1 yr
 Tc = .1800 hrs
 Drainage Area = 1.170 acres Runoff CN= 88

=====
 Computational Time Increment = .02400 hrs
 Computed Peak Time = 12.1440 hrs
 Computed Peak Flow = 2.07 cfs

 Time Increment for HYG File = .0500 hrs
 Peak Time, Interpolated Output = 12.1500 hrs
 Peak Flow, Interpolated Output = 2.06 cfs
 =====

DRAINAGE AREA

 ID: SUBAREA 004
 CN = 88
 Area = 1.170 acres
 S = 1.3636 in
 0.2S = .2727 in

Cumulative Runoff

 1.1039 in
 .108 ac-ft

HYG Volume... .108 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .18000 hrs (ID: SUBAREA 004)
 Computational Incr, Tm = .02400 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 = 7.36 cfs
 Unit peak time Tp = .12000 hrs
 Unit receding limb, Tr = .48000 hrs
 Total unit time, Tb = .60000 hrs

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Unit Hyd. (HYG output)

Page 122

Name.... SUBAREA 004 Tag: 1 yr

Event: 1 yr

File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

Storm... TypeII 24hr Tag: 1 yr

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm

Duration = 24.0000 hrs Rain Depth = 2.1700 in

Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\

Rain File -ID = - TypeII 24hr

Unit Hyd Type = Default Curvilinear

HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\

HYG File - ID = - SUBAREA 004 1 yr

Tc = .1800 hrs

Drainage Area = 1.170 acres Runoff CN= 88

Calc.Increment= .02400 hrs Out.Incr.= .0500 hrs

HYG Volume = .108 ac-ft

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time
hrs

Time on left represents time for first value in each row.

8.5500	.00	.00	.00	.00	.00
8.8000	.00	.00	.00	.00	.00
9.0500	.00	.00	.00	.01	.01
9.3000	.01	.01	.01	.01	.01
9.5500	.01	.01	.01	.01	.01
9.8000	.01	.01	.01	.01	.01
10.0500	.01	.02	.02	.02	.02
10.3000	.02	.02	.02	.02	.02
10.5500	.02	.03	.03	.03	.03
10.8000	.03	.03	.03	.04	.04
11.0500	.04	.04	.05	.05	.05
11.3000	.06	.06	.07	.07	.08
11.5500	.09	.09	.10	.12	.13
11.8000	.15	.18	.23	.38	.83
12.0500	1.41	1.89	2.06	1.73	1.21
12.3000	.82	.59	.45	.37	.31
12.5500	.27	.24	.22	.20	.19
12.8000	.18	.17	.16	.15	.15
13.0500	.14	.14	.13	.13	.12
13.3000	.12	.11	.11	.11	.10
13.5500	.10	.10	.10	.10	.09
13.8000	.09	.09	.09	.09	.08
14.0500	.08	.08	.08	.08	.08
14.3000	.08	.07	.07	.07	.07
14.5500	.07	.07	.07	.07	.07

14.8000		.06	.06	.06	.06	.06
15.0500		.06	.06	.06	.06	.06
15.3000		.06	.06	.06	.06	.05
15.5500		.05	.05	.05	.05	.05
15.8000		.05	.05	.05	.05	.05

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output)

ÿPage 123

ÿÿÿName.... SUBAREA 004 ÿTag: 1 yr

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
16.0500	.05	.05	.05	.05	.05
16.3000	.05	.05	.05	.05	.05
16.5500	.05	.04	.04	.04	.04
16.8000	.04	.04	.04	.04	.04
17.0500	.04	.04	.04	.04	.04
17.3000	.04	.04	.04	.04	.04
17.5500	.04	.04	.04	.04	.04
17.8000	.04	.04	.04	.04	.04
18.0500	.04	.04	.04	.04	.04
18.3000	.04	.04	.04	.03	.03
18.5500	.03	.03	.03	.03	.03
18.8000	.03	.03	.03	.03	.03
19.0500	.03	.03	.03	.03	.03
19.3000	.03	.03	.03	.03	.03
19.5500	.03	.03	.03	.03	.03
19.8000	.03	.03	.03	.03	.03
20.0500	.03	.03	.03	.03	.03
20.3000	.03	.03	.03	.03	.03
20.5500	.03	.03	.03	.03	.03
20.8000	.03	.03	.03	.03	.03
21.0500	.03	.03	.03	.03	.03
21.3000	.03	.03	.03	.03	.03
21.5500	.03	.03	.03	.03	.03
21.8000	.03	.03	.03	.03	.03
22.0500	.03	.03	.03	.02	.02
22.3000	.02	.02	.02	.02	.02
22.5500	.02	.02	.02	.02	.02
22.8000	.02	.02	.02	.02	.02
23.0500	.02	.02	.02	.02	.02
23.3000	.02	.02	.02	.02	.02
23.5500	.02	.02	.02	.02	.02
23.8000	.02	.02	.02	.02	.02

24.0500	.01	.01	.00	.00	.00
24.3000	.00				

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Unit Hyd. Summary Page 124
 Name.... BASIN 004 SUB Tag: 1 yr Event: 1 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW
 Storm... TypeII 24hr Tag: 1 yr

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm

Duration = 24.0000 hrs Rain Depth = 2.1700 in
 Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\
 Rain File -ID = - TypeII 24hr
 Unit Hyd Type = Default Curvilinear
 HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\
 HYG File - ID = - BASIN 004 SUB 1 yr
 Tc = .2500 hrs
 Drainage Area = .560 acres Runoff CN= 74

=====
 Computational Time Increment = .03333 hrs
 Computed Peak Time = 12.2000 hrs
 Computed Peak Flow = .28 cfs

Time Increment for HYG File = .0500 hrs
 Peak Time, Interpolated Output = 12.2000 hrs
 Peak Flow, Interpolated Output = .28 cfs

=====

DRAINAGE AREA

ID: BASIN 004 SUB
 CN = 74
 Area = .560 acres
 S = 3.5135 in
 0.2S = .7027 in

Cumulative Runoff

.4323 in
 .020 ac-ft

HYG Volume... .020 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .25000 hrs (ID: BASIN 004 SUB)
Computational Incr, Tm = .03333 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 = 2.54 cfs
Unit peak time Tp = .16667 hrs
Unit receding limb, Tr = .66667 hrs
Total unit time, Tb = .83333 hrs

S/N:

PondPack Ver:

Compute Time:

Date:

↑
Type.... Unit Hyd. (HYG output) Page 125
Name.... BASIN 004 SUB Tag: 1 yr Event: 1 yr
File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW
Storm... TypeII 24hr Tag: 1 yr

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm
Duration = 24.0000 hrs Rain Depth = 2.1700 in
Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\
HYG File - ID = - BASIN 004 SUB 1 yr
Tc = .2500 hrs
Drainage Area = .560 acres Runoff CN= 74
Calc.Increment= .03333 hrs Out.Incr.= .0500 hrs
HYG Volume = .020 ac-ft

HYDROGRAPH ORDINATES (cfs)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
11.9000	.00	.01	.03	.08	.16
12.1500	.24	.28	.25	.21	.16
12.4000	.13	.10	.09	.07	.07
12.6500	.06	.05	.05	.05	.04
12.9000	.04	.04	.04	.04	.03
13.1500	.03	.03	.03	.03	.03
13.4000	.03	.03	.03	.03	.03
13.6500	.03	.02	.02	.02	.02
13.9000	.02	.02	.02	.02	.02
14.1500	.02	.02	.02	.02	.02
14.4000	.02	.02	.02	.02	.02
14.6500	.02	.02	.02	.02	.02

14.9000	.02	.02	.02	.02	.02
15.1500	.02	.02	.02	.02	.02
15.4000	.02	.01	.01	.01	.01
15.6500	.01	.01	.01	.01	.01
15.9000	.01	.01	.01	.01	.01
16.1500	.01	.01	.01	.01	.01
16.4000	.01	.01	.01	.01	.01
16.6500	.01	.01	.01	.01	.01
16.9000	.01	.01	.01	.01	.01
17.1500	.01	.01	.01	.01	.01
17.4000	.01	.01	.01	.01	.01
17.6500	.01	.01	.01	.01	.01
17.9000	.01	.01	.01	.01	.01
18.1500	.01	.01	.01	.01	.01
18.4000	.01	.01	.01	.01	.01
18.6500	.01	.01	.01	.01	.01
18.9000	.01	.01	.01	.01	.01
19.1500	.01	.01	.01	.01	.01

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output)

ÿPage 126

ÿÿÿName.... BASIN 004 SUB ÿTag: 1 yr

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
19.4000	.01	.01	.01	.01	.01
19.6500	.01	.01	.01	.01	.01
19.9000	.01	.01	.01	.01	.01
20.1500	.01	.01	.01	.01	.01
20.4000	.01	.01	.01	.01	.01
20.6500	.01	.01	.01	.01	.01
20.9000	.01	.01	.01	.01	.01
21.1500	.01	.01	.01	.01	.01
21.4000	.01	.01	.01	.01	.01
21.6500	.01	.01	.01	.01	.01
21.9000	.01	.01	.01	.01	.01
22.1500	.01	.01	.01	.01	.01
22.4000	.01	.01	.01	.01	.01
22.6500	.01	.01	.01	.01	.01
22.9000	.01	.01	.01	.01	.01
23.1500	.01	.01	.01	.01	.01
23.4000	.01	.01	.01	.01	.01
23.6500	.01	.01	.01	.01	.01
23.9000	.01	.01	.01	.00	.00

24.1500 | .00 .00 .00 .00

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Node:ÿPondÿInflow Summary

ÿPage 127

ÿÿÿName.... BASIN 002 IN

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

SUMMARY FOR HYDROGRAPH ADDITION

at Node: BASIN 002 IN

HYG Directory: Q:\PROJECT\stormwater\stormwater\20040287\

```
=====
Upstream Link ID  Upstream Node ID  HYG file      HYG ID          HYG tag
-----
ADDLINK 30        SUBAREA 002                SUBAREA 002     1 yr
=====
```

INFLOWS TO: BASIN 002 IN

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	SUBAREA 002	1 yr	.461	12.1500	7.97

TOTAL FLOW INTO: BASIN 002 IN

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	BASIN 002	IN 1 yr	.461	12.1500	7.97

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Node:ÿPondÿInflow Summary

ÿPage 128

ÿÿÿName.... BASIN 002 IN

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

TOTAL NODE INFLOW...

HYG file =

HYG ID = BASIN 002 IN

HYG Tag = 1 yr

Peak Discharge = 7.97 cfs

Time to Peak = 12.1500 hrs
 HYG Volume = .461 ac-ft

HYDROGRAPH ORDINATES (cfs)						
Output Time increment = .0500 hrs						
Time hrs	Time on left represents time for first value in each row.					
10.0000	.00	.00	.00	.01	.01	
10.2500	.01	.01	.02	.02	.02	
10.5000	.03	.03	.03	.04	.04	
10.7500	.05	.05	.06	.07	.07	
11.0000	.08	.09	.10	.11	.12	
11.2500	.13	.14	.15	.17	.19	
11.5000	.21	.24	.26	.30	.34	
11.7500	.39	.46	.56	.71	1.14	
12.0000	2.45	4.45	6.57	7.97	7.62	
12.2500	6.12	4.44	3.26	2.50	1.99	
12.5000	1.64	1.40	1.23	1.10	1.00	
12.7500	.92	.86	.81	.77	.73	
13.0000	.70	.67	.64	.62	.60	
13.2500	.58	.56	.54	.53	.51	
13.5000	.50	.49	.47	.46	.45	
13.7500	.44	.43	.42	.41	.41	
14.0000	.40	.39	.38	.38	.37	
14.2500	.36	.36	.35	.35	.34	
14.5000	.34	.33	.33	.32	.32	
14.7500	.31	.31	.30	.30	.30	
15.0000	.29	.29	.29	.28	.28	
15.2500	.28	.27	.27	.27	.26	
15.5000	.26	.26	.26	.25	.25	
15.7500	.25	.25	.24	.24	.24	
16.0000	.24	.24	.23	.23	.23	
16.2500	.23	.23	.22	.22	.22	
16.5000	.22	.22	.21	.21	.21	
16.7500	.21	.21	.21	.20	.20	
17.0000	.20	.20	.20	.20	.20	
17.2500	.19	.19	.19	.19	.19	
17.5000	.19	.19	.19	.18	.18	

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Node:ÿPondÿInflow Summary

ÿPage 129

ÿÿÿName.... BASIN 002 IN

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

Time | HYDROGRAPH ORDINATES (cfs)
 Output Time increment = .0500 hrs

hrs	Time on left represents time for first value in each row.				
17.7500	.18	.18	.18	.18	.18
18.0000	.18	.18	.17	.17	.17
18.2500	.17	.17	.17	.17	.17
18.5000	.17	.17	.17	.16	.16
18.7500	.16	.16	.16	.16	.16
19.0000	.16	.16	.16	.16	.16
19.2500	.15	.15	.15	.15	.15
19.5000	.15	.15	.15	.15	.15
19.7500	.15	.15	.15	.15	.15
20.0000	.14	.14	.14	.14	.14
20.2500	.14	.14	.14	.14	.14
20.5000	.14	.14	.14	.14	.14
20.7500	.14	.13	.13	.13	.13
21.0000	.13	.13	.13	.13	.13
21.2500	.13	.13	.13	.13	.13
21.5000	.13	.13	.13	.13	.13
21.7500	.13	.12	.12	.12	.12
22.0000	.12	.12	.12	.12	.12
22.2500	.12	.12	.12	.12	.12
22.5000	.12	.12	.12	.12	.12
22.7500	.12	.12	.12	.12	.12
23.0000	.12	.11	.11	.11	.11
23.2500	.11	.11	.11	.11	.11
23.5000	.11	.11	.11	.11	.11
23.7500	.11	.11	.11	.11	.11
24.0000	.09	.07	.05	.03	.02
24.2500	.01	.01	.00	.00	.00
24.5000	.00				

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Pond E-V-Q Table

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yyyName.... BASIN 002

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

LEVEL POOL ROUTING DATA

HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\

Inflow HYG file = NONE STORED - BASIN 002 IN 1 yr

Outflow HYG file = NONE STORED - BASIN 002 OUT 1 yr

Pond Node Data = BASIN 002

Pond Volume Data = BASIN 002

Pond Outlet Data = outlet 002

No Infiltration

INITIAL CONDITIONS

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Starting WS Elev   =   858.00 ft
Starting Volume    =     .000 ac-ft
Starting Outflow   =     .00 cfs
Starting Infiltr.  =     .00 cfs
Starting Total Qout=     .00 cfs
Time Increment     =     .0500 hrs
  
```

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infiltr. cfs	Q Total cfs	2S/t + 0 cfs
858.00	.00	.000	.3600	.00	.00	.00
858.25	.10	.092	.3722	.00	.10	44.40
858.50	.24	.186	.3846	.00	.24	90.32
858.75	.32	.284	.3972	.00	.32	137.70
859.00	.38	.385	.4100	.00	.38	186.59
859.25	.44	.489	.4246	.00	.44	237.14
859.50	.48	.597	.4395	.00	.48	289.46
859.75	.53	.709	.4546	.00	.53	343.60
860.00	.57	.824	.4700	.00	.57	399.57
860.25	.61	.944	.4847	.00	.61	457.36
860.32	.62	.978	.4888	.00	.62	473.87
860.50	2.63	1.067	.4995	.00	2.63	518.93
860.75	5.41	1.194	.5147	.00	5.41	583.07
861.00	6.66	1.324	.5300	.00	6.66	647.52
861.25	7.70	1.459	.5471	.00	7.70	713.72
861.50	8.61	1.598	.5645	.00	8.61	781.88
861.75	9.43	1.741	.5821	.00	9.43	852.06
862.00	10.18	1.889	.6000	.00	10.18	924.32

S/N:

PondPack Ver:

Compute Time:

Date:

```

↑
yyyType.... Pond Routed HYG (total out)                yPage 131
yyyName.... BASIN 002   OUT   yTag: 1 yr                Event: 1 yr
yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW
yyyStorm... TypeII 24hr yTag: 1 yr
  
```

POND ROUTED TOTAL OUTFLOW HYG...

HYG file =

HYG ID = BASIN 002 OUT

HYG Tag = 1 yr

```

-----
Peak Discharge =          .31 cfs
Time to Peak   =        14.0500 hrs
HYG Volume     =          .459 ac-ft
-----
  
```

HYDROGRAPH ORDINATES (cfs)						
Output Time increment = .0500 hrs						
Time hrs	Time on left represents time for first value in each row.					
10.0000	.00	.00	.00	.00	.00	.00
10.2500	.00	.00	.00	.00	.00	.00
10.5000	.00	.00	.00	.00	.00	.00
10.7500	.00	.00	.00	.00	.00	.00
11.0000	.00	.00	.00	.00	.00	.00
11.2500	.00	.01	.01	.01	.01	.01
11.5000	.01	.01	.01	.01	.01	.01
11.7500	.01	.02	.02	.02	.02	.03
12.0000	.03	.05	.07	.11	.16	.16
12.2500	.20	.23	.25	.26	.26	.26
12.5000	.27	.27	.28	.28	.28	.28
12.7500	.28	.29	.29	.29	.29	.29
13.0000	.29	.29	.29	.30	.30	.30
13.2500	.30	.30	.30	.30	.30	.30
13.5000	.30	.30	.30	.30	.30	.30
13.7500	.30	.30	.30	.30	.30	.31
14.0000	.31	.31	.31	.31	.31	.31
14.2500	.31	.31	.31	.31	.31	.31
14.5000	.31	.31	.31	.31	.31	.31
14.7500	.31	.31	.31	.31	.31	.31
15.0000	.31	.31	.31	.31	.31	.31
15.2500	.31	.31	.31	.31	.31	.31
15.5000	.31	.31	.31	.31	.31	.31
15.7500	.31	.31	.31	.31	.31	.31
16.0000	.30	.30	.30	.30	.30	.30
16.2500	.30	.30	.30	.30	.30	.30
16.5000	.30	.30	.30	.30	.30	.30
16.7500	.30	.30	.30	.30	.30	.30
17.0000	.30	.30	.30	.30	.30	.30
17.2500	.30	.30	.30	.30	.30	.30
17.5000	.30	.30	.30	.29	.29	.29

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Pond Routed HYG (total out)

Page 132

yyyName.... BASIN 002 OUT yTag: 1 yr

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

yyyStorm... TypeII 24hr yTag: 1 yr

HYDROGRAPH ORDINATES (cfs)						
Output Time increment = .0500 hrs						
Time hrs	Time on left represents time for first value in each row.					
17.7500	.29	.29	.29	.29	.29	.29
18.0000	.29	.29	.29	.29	.29	.29

18.2500	.29	.29	.29	.29	.29
18.5000	.29	.29	.29	.29	.29
18.7500	.29	.29	.29	.29	.28
19.0000	.28	.28	.28	.28	.28
19.2500	.28	.28	.28	.28	.28
19.5000	.28	.28	.28	.28	.28
19.7500	.28	.28	.28	.28	.28
20.0000	.28	.28	.27	.27	.27
20.2500	.27	.27	.27	.27	.27
20.5000	.27	.27	.27	.27	.27
20.7500	.27	.27	.27	.27	.27
21.0000	.27	.27	.27	.27	.27
21.2500	.26	.26	.26	.26	.26
21.5000	.26	.26	.26	.26	.26
21.7500	.26	.26	.26	.26	.26
22.0000	.26	.26	.26	.26	.26
22.2500	.26	.26	.25	.25	.25
22.5000	.25	.25	.25	.25	.25
22.7500	.25	.25	.25	.25	.25
23.0000	.25	.25	.25	.25	.25
23.2500	.25	.25	.25	.25	.25
23.5000	.24	.24	.24	.24	.24
23.7500	.24	.24	.24	.24	.24
24.0000	.24	.24	.24	.24	.23
24.2500	.23	.23	.23	.23	.23
24.5000	.23	.22	.22	.22	.22
24.7500	.22	.22	.22	.21	.21
25.0000	.21	.21	.21	.21	.21
25.2500	.21	.20	.20	.20	.20
25.5000	.20	.20	.20	.20	.19
25.7500	.19	.19	.19	.19	.19
26.0000	.19	.19	.19	.18	.18
26.2500	.18	.18	.18	.18	.18
26.5000	.18	.18	.17	.17	.17
26.7500	.17	.17	.17	.17	.17
27.0000	.17	.16	.16	.16	.16
27.2500	.16	.16	.16	.16	.16
27.5000	.16	.15	.15	.15	.15
27.7500	.15	.15	.15	.15	.15
28.0000	.15	.15	.14	.14	.14
28.2500	.14	.14	.14	.14	.14
28.5000	.14	.14	.14	.14	.13
28.7500	.13	.13	.13	.13	.13

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Pond Routed HYG (total out)

ÿPage 133

ÿÿÿName.... BASIN 002 OUT ÿTag: 1 yr

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

yyyStorm... TypeII 24hr yTag: 1 yr

HYDROGRAPH ORDINATES (cfs)						
Output Time increment = .0500 hrs						
Time hrs	Time on left represents time for first value in each row.					
29.0000	.13	.13	.13	.13	.13	.13
29.2500	.13	.12	.12	.12	.12	.12
29.5000	.12	.12	.12	.12	.12	.12
29.7500	.12	.12	.12	.12	.12	.12
30.0000	.11	.11	.11	.11	.11	.11
30.2500	.11	.11	.11	.11	.11	.11
30.5000	.11	.11	.11	.11	.11	.10
30.7500	.10	.10	.10	.10	.10	.10
31.0000	.10	.10	.10	.10	.10	.10
31.2500	.10	.10	.10	.10	.10	.10
31.5000	.10	.10	.10	.10	.10	.09
31.7500	.09	.09	.09	.09	.09	.09
32.0000	.09	.09	.09	.09	.09	.09
32.2500	.09	.09	.09	.09	.09	.09
32.5000	.09	.09	.09	.09	.09	.09
32.7500	.09	.09	.09	.09	.08	.08
33.0000	.08	.08	.08	.08	.08	.08
33.2500	.08	.08	.08	.08	.08	.08
33.5000	.08	.08	.08	.08	.08	.08
33.7500	.08	.08	.08	.08	.08	.08
34.0000	.08	.08	.08	.08	.08	.08
34.2500	.08	.07	.07	.07	.07	.07
34.5000	.07	.07	.07	.07	.07	.07
34.7500	.07	.07	.07	.07	.07	.07
35.0000	.07	.07	.07	.07	.07	.07
35.2500	.07	.07	.07	.07	.07	.07
35.5000	.07	.07	.07	.07	.07	.07
35.7500	.07	.07	.06	.06	.06	.06
36.0000	.06	.06	.06	.06	.06	.06
36.2500	.06	.06	.06	.06	.06	.06
36.5000	.06	.06	.06	.06	.06	.06
36.7500	.06	.06	.06	.06	.06	.06
37.0000	.06	.06	.06	.06	.06	.06
37.2500	.06	.06	.06	.06	.06	.06
37.5000	.06	.06	.06	.06	.06	.05
37.7500	.05	.05	.05	.05	.05	.05
38.0000	.05	.05	.05	.05	.05	.05
38.2500	.05	.05	.05	.05	.05	.05
38.5000	.05	.05	.05	.05	.05	.05
38.7500	.05	.05	.05	.05	.05	.05
39.0000	.05	.05	.05	.05	.05	.05
39.2500	.05	.05	.05	.05	.05	.05
39.5000	.05	.05	.05	.05	.05	.05
39.7500	.05	.05	.05	.04	.04	.04

40.0000 | .04 .04 .04 .04 .04

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Pond Routed HYG (total out)

ÿPage 134

ÿÿÿName.... BASIN 002 OUT ÿTag: 1 yr

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
40.2500	.04	.04	.04	.04	.04
40.5000	.04	.04	.04	.04	.04
40.7500	.04	.04	.04	.04	.04
41.0000	.04	.04	.04	.04	.04
41.2500	.04	.04	.04	.04	.04
41.5000	.04	.04	.04	.04	.04
41.7500	.04	.04	.04	.04	.04
42.0000	.04	.04	.04	.04	.04
42.2500	.04	.04	.04	.04	.04
42.5000	.04	.04	.04	.03	.03
42.7500	.03	.03	.03	.03	.03
43.0000	.03	.03	.03	.03	.03
43.2500	.03	.03	.03	.03	.03
43.5000	.03	.03	.03	.03	.03
43.7500	.03	.03	.03	.03	.03
44.0000	.03	.03	.03	.03	.03
44.2500	.03	.03	.03	.03	.03
44.5000	.03	.03	.03	.03	.03
44.7500	.03	.03	.03	.03	.03
45.0000	.03	.03	.03	.03	.03
45.2500	.03	.03	.03	.03	.03
45.5000	.03	.03	.03	.03	.03
45.7500	.03	.03	.03	.03	.03
46.0000	.03	.03	.03	.03	.03
46.2500	.03	.03	.02	.02	.02
46.5000	.02	.02	.02	.02	.02
46.7500	.02	.02	.02	.02	.02
47.0000	.02	.02	.02	.02	.02
47.2500	.02	.02	.02	.02	.02
47.5000	.02	.02	.02	.02	.02
47.7500	.02	.02	.02	.02	.02
48.0000	.02	.02	.02	.02	.02
48.2500	.02	.02	.02	.02	.02
48.5000	.02	.02	.02	.02	.02
48.7500	.02	.02	.02	.02	.02
49.0000	.02	.02	.02	.02	.02

49.2500		.02	.02	.02	.02	.02
49.5000		.02	.02	.02	.02	.02
49.7500		.02	.02	.02	.02	.02
50.0000		.02	.02	.02	.02	.02
50.2500		.02	.02	.02	.02	.02
50.5000		.02	.02	.02	.02	.02
50.7500		.02	.02	.02	.02	.02
51.0000		.02	.02	.02	.02	.02
51.2500		.02	.02	.02	.02	.02

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Pond Routed HYG (total out) Page 135
 Name.... BASIN 002 OUT Tag: 1 yr Event: 1 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW
 Storm... TypeII 24hr Tag: 1 yr

HYDROGRAPH ORDINATES (cfs)						
Output Time increment = .0500 hrs						
Time	Time on left represents time for first value in each row.					
hrs						

51.5000		.02	.02	.02	.02	.02
51.7500		.02	.02	.02	.01	.01
52.0000		.01	.01	.01	.01	.01
52.2500		.01	.01	.01	.01	.01
52.5000		.01	.01	.01	.01	.01
52.7500		.01	.01	.01	.01	.01
53.0000		.01	.01	.01	.01	.01
53.2500		.01	.01	.01	.01	.01
53.5000		.01	.01	.01	.01	.01
53.7500		.01	.01	.01	.01	.01
54.0000		.01	.01	.01	.01	.01
54.2500		.01	.01	.01	.01	.01
54.5000		.01	.01	.01	.01	.01
54.7500		.01	.01	.01	.01	.01
55.0000		.01	.01	.01	.01	.01
55.2500		.01	.01	.01	.01	.01
55.5000		.01	.01	.01	.01	.01
55.7500		.01	.01	.01	.01	.01
56.0000		.01	.01	.01	.01	.01
56.2500		.01	.01	.01	.01	.01
56.5000		.01	.01	.01	.01	.01
56.7500		.01	.01	.01	.01	.01
57.0000		.01	.01	.01	.01	.01
57.2500		.01	.01	.01	.01	.01
57.5000		.01	.01	.01	.01	.01
57.7500		.01	.01	.01	.01	.01
58.0000		.01	.01	.01	.01	.01
58.2500		.01	.01	.01	.01	.01

58.5000	.01	.01	.01	.01	.01
58.7500	.01	.01	.01	.01	.01
59.0000	.01	.01	.01	.01	.01
59.2500	.01	.01	.01	.01	.01
59.5000	.01	.01	.01	.01	.01
59.7500	.01	.01	.01	.01	.01
60.0000	.01	.01	.01	.01	.01
60.2500	.01	.01	.01	.01	.01
60.5000	.01	.01	.01	.01	.01
60.7500	.01	.01	.01	.01	.01
61.0000	.01	.01	.01	.01	.01
61.2500	.01	.01	.01	.01	.01
61.5000	.01	.01	.01	.01	.01
61.7500	.01	.01	.01	.01	.01
62.0000	.01	.01	.01	.01	.01
62.2500	.01	.01	.01	.01	.01
62.5000	.01	.01	.01	.01	.01

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Pond Routed HYG (total out)

ÿPage 136

ÿÿÿName.... BASIN 002 OUT ÿTag: 1 yr

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
62.7500	.01	.01	.01	.01	.01
63.0000	.01	.01	.01	.01	.01
63.2500	.01	.01	.01	.01	.01
63.5000	.01	.01	.01	.01	.01
63.7500	.01	.01	.01	.01	.00
64.0000	.00	.00	.00	.00	.00
64.2500	.00	.00	.00	.00	.00
64.5000	.00	.00	.00	.00	.00
64.7500	.00	.00	.00	.00	.00
65.0000	.00	.00	.00	.00	.00
65.2500	.00	.00	.00	.00	.00
65.5000	.00	.00	.00	.00	.00
65.7500	.00	.00	.00	.00	.00
66.0000	.00	.00	.00	.00	.00
66.2500	.00	.00	.00	.00	.00
66.5000	.00	.00	.00	.00	.00
66.7500	.00	.00	.00	.00	.00
67.0000	.00	.00	.00	.00	.00
67.2500	.00	.00	.00	.00	.00
67.5000	.00	.00	.00	.00	.00

67.7500		.00	.00	.00	.00	.00
68.0000		.00	.00	.00	.00	.00
68.2500		.00	.00	.00	.00	.00
68.5000		.00	.00	.00	.00	.00
68.7500		.00	.00	.00	.00	.00
69.0000		.00	.00	.00	.00	.00
69.2500		.00	.00	.00	.00	.00
69.5000		.00	.00			

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Pond Routing Summary Page 137
 Name.... BASIN 002 OUT Tag: 1 yr Event: 1 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW
 Storm... TypeII 24hr Tag: 1 yr

LEVEL POOL ROUTING SUMMARY

HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\
 Inflow HYG file = NONE STORED - BASIN 002 IN 1 yr
 Outflow HYG file = NONE STORED - BASIN 002 OUT 1 yr

Pond Node Data = BASIN 002
 Pond Volume Data = BASIN 002
 Pond Outlet Data = outlet 002

No Infiltration

INITIAL CONDITIONS

 Starting WS Elev = 858.00 ft
 Starting Volume = .000 ac-ft
 Starting Outflow = .00 cfs
 Starting Infiltr. = .00 cfs
 Starting Total Qout= .00 cfs
 Time Increment = .0500 hrs

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

=====
 Peak Inflow = 7.97 cfs at 12.1500 hrs
 Peak Outflow = .31 cfs at 14.0500 hrs

 Peak Elevation = 858.71 ft
 Peak Storage = .268 ac-ft
 =====

MASS BALANCE (ac-ft)

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-----
+ Initial Vol  =      .000
+ HYG Vol IN   =      .461
- Infiltration =      .000
- HYG Vol OUT  =      .459
- Retained Vol =      .003
-----

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Unrouted Vol = -.000 ac-ft (.011% of Inflow Volume)

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Time-Elev

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yyyName.... BASIN 002 OUT yTag: 1 yr

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

yyyStorm... TypeII 24hr yTag: 1 yr

TIME vs. ELEVATION (ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
10.0000	858.00	858.00	858.00	858.00	858.00
10.2500	858.00	858.00	858.00	858.00	858.00
10.5000	858.00	858.00	858.00	858.00	858.00
10.7500	858.00	858.00	858.00	858.01	858.01
11.0000	858.01	858.01	858.01	858.01	858.01
11.2500	858.01	858.01	858.02	858.02	858.02
11.5000	858.02	858.02	858.03	858.03	858.03
11.7500	858.04	858.04	858.05	858.05	858.06
12.0000	858.08	858.12	858.18	858.26	858.35
12.2500	858.42	858.48	858.52	858.54	858.56
12.5000	858.58	858.59	858.61	858.61	858.62
12.7500	858.63	858.64	858.64	858.65	858.65
13.0000	858.66	858.66	858.66	858.67	858.67
13.2500	858.67	858.68	858.68	858.68	858.68
13.5000	858.69	858.69	858.69	858.69	858.69
13.7500	858.70	858.70	858.70	858.70	858.70
14.0000	858.70	858.70	858.70	858.70	858.71
14.2500	858.71	858.71	858.71	858.71	858.71
14.5000	858.71	858.71	858.71	858.71	858.71
14.7500	858.71	858.71	858.71	858.71	858.71
15.0000	858.71	858.71	858.71	858.71	858.71
15.2500	858.71	858.71	858.71	858.71	858.71
15.5000	858.71	858.70	858.70	858.70	858.70
15.7500	858.70	858.70	858.70	858.70	858.70
16.0000	858.70	858.70	858.70	858.70	858.70
16.2500	858.70	858.69	858.69	858.69	858.69

16.5000	858.69	858.69	858.69	858.69	858.69
16.7500	858.69	858.69	858.68	858.68	858.68
17.0000	858.68	858.68	858.68	858.68	858.68
17.2500	858.68	858.68	858.67	858.67	858.67
17.5000	858.67	858.67	858.67	858.67	858.67
17.7500	858.67	858.66	858.66	858.66	858.66
18.0000	858.66	858.66	858.66	858.66	858.65
18.2500	858.65	858.65	858.65	858.65	858.65
18.5000	858.65	858.65	858.64	858.64	858.64
18.7500	858.64	858.64	858.64	858.64	858.63
19.0000	858.63	858.63	858.63	858.63	858.63
19.2500	858.63	858.63	858.62	858.62	858.62
19.5000	858.62	858.62	858.62	858.62	858.61
19.7500	858.61	858.61	858.61	858.61	858.61
20.0000	858.61	858.60	858.60	858.60	858.60
20.2500	858.60	858.60	858.60	858.60	858.59
20.5000	858.59	858.59	858.59	858.59	858.59

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yyyType.... Time-Elev

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yyyName.... BASIN 002 OUT yTag: 1 yr

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

yyyStorm... TypeII 24hr yTag: 1 yr

TIME vs. ELEVATION (ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
20.7500	858.59	858.58	858.58	858.58	858.58
21.0000	858.58	858.58	858.58	858.57	858.57
21.2500	858.57	858.57	858.57	858.57	858.57
21.5000	858.56	858.56	858.56	858.56	858.56
21.7500	858.56	858.56	858.55	858.55	858.55
22.0000	858.55	858.55	858.55	858.55	858.54
22.2500	858.54	858.54	858.54	858.54	858.54
22.5000	858.54	858.53	858.53	858.53	858.53
22.7500	858.53	858.53	858.53	858.52	858.52
23.0000	858.52	858.52	858.52	858.52	858.52
23.2500	858.51	858.51	858.51	858.51	858.51
23.5000	858.51	858.51	858.50	858.50	858.50
23.7500	858.50	858.50	858.50	858.50	858.49
24.0000	858.49	858.49	858.49	858.49	858.48
24.2500	858.48	858.48	858.48	858.48	858.47
24.5000	858.47	858.47	858.47	858.46	858.46
24.7500	858.46	858.46	858.45	858.45	858.45
25.0000	858.45	858.44	858.44	858.44	858.44
25.2500	858.43	858.43	858.43	858.43	858.43

25.5000	858.42	858.42	858.42	858.42	858.42
25.7500	858.41	858.41	858.41	858.41	858.40
26.0000	858.40	858.40	858.40	858.40	858.39
26.2500	858.39	858.39	858.39	858.39	858.38
26.5000	858.38	858.38	858.38	858.38	858.38
26.7500	858.37	858.37	858.37	858.37	858.37
27.0000	858.36	858.36	858.36	858.36	858.36
27.2500	858.36	858.35	858.35	858.35	858.35
27.5000	858.35	858.34	858.34	858.34	858.34
27.7500	858.34	858.34	858.34	858.33	858.33
28.0000	858.33	858.33	858.33	858.33	858.32
28.2500	858.32	858.32	858.32	858.32	858.32
28.5000	858.31	858.31	858.31	858.31	858.31
28.7500	858.31	858.31	858.30	858.30	858.30
29.0000	858.30	858.30	858.30	858.30	858.29
29.2500	858.29	858.29	858.29	858.29	858.29
29.5000	858.29	858.29	858.28	858.28	858.28
29.7500	858.28	858.28	858.28	858.28	858.27
30.0000	858.27	858.27	858.27	858.27	858.27
30.2500	858.27	858.27	858.26	858.26	858.26
30.5000	858.26	858.26	858.26	858.26	858.26
30.7500	858.26	858.25	858.25	858.25	858.25
31.0000	858.25	858.25	858.25	858.25	858.25
31.2500	858.24	858.24	858.24	858.24	858.24
31.5000	858.24	858.24	858.24	858.24	858.23

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yyyName.... BASIN 002 OUT yTag: 1 yr

Event: 1 yr

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yyyStorm... TypeII 24hr yTag: 1 yr

TIME vs. ELEVATION (ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
31.7500	858.23	858.23	858.23	858.23	858.23
32.0000	858.23	858.23	858.23	858.23	858.22
32.2500	858.22	858.22	858.22	858.22	858.22
32.5000	858.22	858.22	858.22	858.22	858.21
32.7500	858.21	858.21	858.21	858.21	858.21
33.0000	858.21	858.21	858.21	858.21	858.20
33.2500	858.20	858.20	858.20	858.20	858.20
33.5000	858.20	858.20	858.20	858.20	858.20
33.7500	858.19	858.19	858.19	858.19	858.19
34.0000	858.19	858.19	858.19	858.19	858.19
34.2500	858.19	858.18	858.18	858.18	858.18

34.5000	858.18	858.18	858.18	858.18	858.18
34.7500	858.18	858.18	858.18	858.18	858.17
35.0000	858.17	858.17	858.17	858.17	858.17
35.2500	858.17	858.17	858.17	858.17	858.17
35.5000	858.17	858.17	858.16	858.16	858.16
35.7500	858.16	858.16	858.16	858.16	858.16
36.0000	858.16	858.16	858.16	858.16	858.16
36.2500	858.15	858.15	858.15	858.15	858.15
36.5000	858.15	858.15	858.15	858.15	858.15
36.7500	858.15	858.15	858.15	858.15	858.15
37.0000	858.14	858.14	858.14	858.14	858.14
37.2500	858.14	858.14	858.14	858.14	858.14
37.5000	858.14	858.14	858.14	858.14	858.14
37.7500	858.13	858.13	858.13	858.13	858.13
38.0000	858.13	858.13	858.13	858.13	858.13
38.2500	858.13	858.13	858.13	858.13	858.13
38.5000	858.13	858.13	858.12	858.12	858.12
38.7500	858.12	858.12	858.12	858.12	858.12
39.0000	858.12	858.12	858.12	858.12	858.12
39.2500	858.12	858.12	858.12	858.12	858.12
39.5000	858.12	858.11	858.11	858.11	858.11
39.7500	858.11	858.11	858.11	858.11	858.11
40.0000	858.11	858.11	858.11	858.11	858.11
40.2500	858.11	858.11	858.11	858.11	858.11
40.5000	858.11	858.10	858.10	858.10	858.10
40.7500	858.10	858.10	858.10	858.10	858.10
41.0000	858.10	858.10	858.10	858.10	858.10
41.2500	858.10	858.10	858.10	858.10	858.10
41.5000	858.10	858.10	858.10	858.09	858.09
41.7500	858.09	858.09	858.09	858.09	858.09
42.0000	858.09	858.09	858.09	858.09	858.09
42.2500	858.09	858.09	858.09	858.09	858.09
42.5000	858.09	858.09	858.09	858.09	858.09

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ÿÿÿName.... BASIN 002 OUT ÿTag: 1 yr

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

TIME vs. ELEVATION (ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
42.7500	858.09	858.09	858.08	858.08	858.08
43.0000	858.08	858.08	858.08	858.08	858.08
43.2500	858.08	858.08	858.08	858.08	858.08

43.5000	858.08	858.08	858.08	858.08	858.08
43.7500	858.08	858.08	858.08	858.08	858.08
44.0000	858.08	858.08	858.08	858.08	858.07
44.2500	858.07	858.07	858.07	858.07	858.07
44.5000	858.07	858.07	858.07	858.07	858.07
44.7500	858.07	858.07	858.07	858.07	858.07
45.0000	858.07	858.07	858.07	858.07	858.07
45.2500	858.07	858.07	858.07	858.07	858.07
45.5000	858.07	858.07	858.07	858.07	858.07
45.7500	858.07	858.06	858.06	858.06	858.06
46.0000	858.06	858.06	858.06	858.06	858.06
46.2500	858.06	858.06	858.06	858.06	858.06
46.5000	858.06	858.06	858.06	858.06	858.06
46.7500	858.06	858.06	858.06	858.06	858.06
47.0000	858.06	858.06	858.06	858.06	858.06
47.2500	858.06	858.06	858.06	858.06	858.06
47.5000	858.06	858.06	858.05	858.05	858.05
47.7500	858.05	858.05	858.05	858.05	858.05
48.0000	858.05	858.05	858.05	858.05	858.05
48.2500	858.05	858.05	858.05	858.05	858.05
48.5000	858.05	858.05	858.05	858.05	858.05
48.7500	858.05	858.05	858.05	858.05	858.05
49.0000	858.05	858.05	858.05	858.05	858.05
49.2500	858.05	858.05	858.05	858.05	858.05
49.5000	858.05	858.05	858.05	858.05	858.05
49.7500	858.05	858.04	858.04	858.04	858.04
50.0000	858.04	858.04	858.04	858.04	858.04
50.2500	858.04	858.04	858.04	858.04	858.04
50.5000	858.04	858.04	858.04	858.04	858.04
50.7500	858.04	858.04	858.04	858.04	858.04
51.0000	858.04	858.04	858.04	858.04	858.04
51.2500	858.04	858.04	858.04	858.04	858.04
51.5000	858.04	858.04	858.04	858.04	858.04
51.7500	858.04	858.04	858.04	858.04	858.04
52.0000	858.04	858.04	858.04	858.04	858.04
52.2500	858.04	858.04	858.04	858.04	858.04
52.5000	858.04	858.03	858.03	858.03	858.03
52.7500	858.03	858.03	858.03	858.03	858.03
53.0000	858.03	858.03	858.03	858.03	858.03
53.2500	858.03	858.03	858.03	858.03	858.03
53.5000	858.03	858.03	858.03	858.03	858.03

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Event: 1 yr

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yyyStorm... TypeII 24hr yTag: 1 yr

TIME vs. ELEVATION (ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
53.7500	858.03	858.03	858.03	858.03	858.03
54.0000	858.03	858.03	858.03	858.03	858.03
54.2500	858.03	858.03	858.03	858.03	858.03
54.5000	858.03	858.03	858.03	858.03	858.03
54.7500	858.03	858.03	858.03	858.03	858.03
55.0000	858.03	858.03	858.03	858.03	858.03
55.2500	858.03	858.03	858.03	858.03	858.03
55.5000	858.03	858.03	858.03	858.03	858.03
55.7500	858.03	858.03	858.03	858.03	858.03
56.0000	858.03	858.03	858.03	858.03	858.03
56.2500	858.02	858.02	858.02	858.02	858.02
56.5000	858.02	858.02	858.02	858.02	858.02
56.7500	858.02	858.02	858.02	858.02	858.02
57.0000	858.02	858.02	858.02	858.02	858.02
57.2500	858.02	858.02	858.02	858.02	858.02
57.5000	858.02	858.02	858.02	858.02	858.02
57.7500	858.02	858.02	858.02	858.02	858.02
58.0000	858.02	858.02	858.02	858.02	858.02
58.2500	858.02	858.02	858.02	858.02	858.02
58.5000	858.02	858.02	858.02	858.02	858.02
58.7500	858.02	858.02	858.02	858.02	858.02
59.0000	858.02	858.02	858.02	858.02	858.02
59.2500	858.02	858.02	858.02	858.02	858.02
59.5000	858.02	858.02	858.02	858.02	858.02
59.7500	858.02	858.02	858.02	858.02	858.02
60.0000	858.02	858.02	858.02	858.02	858.02
60.2500	858.02	858.02	858.02	858.02	858.02
60.5000	858.02	858.02	858.02	858.02	858.02
60.7500	858.02	858.02	858.02	858.02	858.02
61.0000	858.02	858.02	858.02	858.02	858.02
61.2500	858.02	858.02	858.02	858.02	858.02
61.5000	858.02	858.02	858.02	858.02	858.02
61.7500	858.02	858.02	858.02	858.01	858.01
62.0000	858.01	858.01	858.01	858.01	858.01
62.2500	858.01	858.01	858.01	858.01	858.01
62.5000	858.01	858.01	858.01	858.01	858.01
62.7500	858.01	858.01	858.01	858.01	858.01
63.0000	858.01	858.01	858.01	858.01	858.01
63.2500	858.01	858.01	858.01	858.01	858.01
63.5000	858.01	858.01	858.01	858.01	858.01
63.7500	858.01	858.01	858.01	858.01	858.01
64.0000	858.01	858.01	858.01	858.01	858.01
64.2500	858.01	858.01	858.01	858.01	858.01
64.5000	858.01	858.01	858.01	858.01	858.01

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Event: 1 yr

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yyyStorm... TypeII 24hr yTag: 1 yr

TIME vs. ELEVATION (ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
64.7500	858.01	858.01	858.01	858.01	858.01
65.0000	858.01	858.01	858.01	858.01	858.01
65.2500	858.01	858.01	858.01	858.01	858.01
65.5000	858.01	858.01	858.01	858.01	858.01
65.7500	858.01	858.01	858.01	858.01	858.01
66.0000	858.01	858.01	858.01	858.01	858.01
66.2500	858.01	858.01	858.01	858.01	858.01
66.5000	858.01	858.01	858.01	858.01	858.01
66.7500	858.01	858.01	858.01	858.01	858.01
67.0000	858.01	858.01	858.01	858.01	858.01
67.2500	858.01	858.01	858.01	858.01	858.01
67.5000	858.01	858.01	858.01	858.01	858.01
67.7500	858.01	858.01	858.01	858.01	858.01
68.0000	858.01	858.01	858.01	858.01	858.01
68.2500	858.01	858.01	858.01	858.01	858.01
68.5000	858.01	858.01	858.01	858.01	858.01
68.7500	858.01	858.01	858.01	858.01	858.01
69.0000	858.01	858.01	858.01	858.01	858.01
69.2500	858.01	858.01	858.01	858.01	858.01
69.5000	858.01	858.01			

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Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

yyyStorm... TypeII 24hr yTag: 1 yr

TIME vs. VOLUME (ac-ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
10.0000	.000	.000	.000	.000	.000
10.2500	.000	.000	.000	.000	.000
10.5000	.000	.001	.001	.001	.001

10.7500	.001	.001	.002	.002	.002
11.0000	.002	.003	.003	.004	.004
11.2500	.004	.005	.006	.006	.007
11.5000	.008	.009	.010	.011	.012
11.7500	.013	.015	.017	.019	.023
12.0000	.030	.044	.067	.097	.128
12.2500	.156	.177	.192	.203	.211
12.5000	.217	.222	.227	.230	.234
12.7500	.236	.239	.241	.243	.245
13.0000	.247	.249	.250	.251	.253
13.2500	.254	.255	.256	.257	.258
13.5000	.259	.260	.260	.261	.262
13.7500	.262	.263	.263	.264	.264
14.0000	.265	.265	.265	.266	.266
14.2500	.266	.267	.267	.267	.267
14.5000	.267	.267	.267	.267	.268
14.7500	.268	.268	.268	.268	.267
15.0000	.267	.267	.267	.267	.267
15.2500	.267	.267	.267	.267	.266
15.5000	.266	.266	.266	.266	.265
15.7500	.265	.265	.265	.264	.264
16.0000	.264	.264	.263	.263	.263
16.2500	.262	.262	.262	.261	.261
16.5000	.261	.260	.260	.260	.259
16.7500	.259	.258	.258	.258	.257
17.0000	.257	.256	.256	.256	.255
17.2500	.255	.254	.254	.253	.253
17.5000	.253	.252	.252	.251	.251
17.7500	.250	.250	.249	.249	.248
18.0000	.248	.247	.247	.246	.246
18.2500	.246	.245	.244	.244	.244
18.5000	.243	.243	.242	.242	.241
18.7500	.240	.240	.239	.239	.238
19.0000	.238	.237	.237	.236	.236
19.2500	.235	.235	.234	.234	.233
19.5000	.233	.232	.232	.231	.231
19.7500	.230	.229	.229	.228	.228
20.0000	.227	.227	.226	.226	.225
20.2500	.225	.224	.223	.223	.222
20.5000	.222	.221	.221	.220	.220

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ÿÿÿType.... Time vs. Volume

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Event: 1 yr

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ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

TIME vs. VOLUME (ac-ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
20.7500	.219	.218	.218	.217	.217
21.0000	.216	.216	.215	.215	.214
21.2500	.214	.213	.212	.212	.211
21.5000	.211	.210	.210	.209	.209
21.7500	.208	.207	.207	.206	.206
22.0000	.205	.205	.204	.204	.203
22.2500	.202	.202	.201	.201	.200
22.5000	.200	.199	.199	.198	.198
22.7500	.197	.196	.196	.195	.195
23.0000	.194	.194	.193	.193	.192
23.2500	.192	.191	.190	.190	.189
23.5000	.189	.188	.188	.187	.187
23.7500	.186	.186	.185	.184	.184
24.0000	.183	.183	.182	.181	.180
24.2500	.179	.178	.177	.177	.176
24.5000	.175	.174	.173	.172	.171
24.7500	.170	.169	.168	.167	.166
25.0000	.166	.165	.164	.163	.162
25.2500	.161	.160	.159	.159	.158
25.5000	.157	.156	.155	.154	.154
25.7500	.153	.152	.151	.150	.150
26.0000	.149	.148	.147	.147	.146
26.2500	.145	.144	.144	.143	.142
26.5000	.141	.141	.140	.139	.138
26.7500	.138	.137	.136	.136	.135
27.0000	.134	.134	.133	.132	.132
27.2500	.131	.130	.130	.129	.128
27.5000	.128	.127	.126	.126	.125
27.7500	.125	.124	.123	.123	.122
28.0000	.121	.121	.120	.120	.119
28.2500	.119	.118	.117	.117	.116
28.5000	.116	.115	.115	.114	.113
28.7500	.113	.112	.112	.111	.111
29.0000	.110	.110	.109	.109	.108
29.2500	.108	.107	.107	.106	.106
29.5000	.105	.105	.104	.104	.103
29.7500	.103	.102	.102	.101	.101
30.0000	.100	.100	.099	.099	.098
30.2500	.098	.098	.097	.097	.096
30.5000	.096	.095	.095	.094	.094
30.7500	.094	.093	.093	.092	.092
31.0000	.091	.091	.091	.090	.090
31.2500	.089	.089	.089	.088	.088
31.5000	.087	.087	.087	.086	.086

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Name.... BASIN 002 OUT Tag: 1 yr

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Storm... TypeII 24hr Tag: 1 yr

TIME vs. VOLUME (ac-ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
31.7500	.085	.085	.085	.084	.084
32.0000	.083	.083	.083	.082	.082
32.2500	.081	.081	.081	.080	.080
32.5000	.080	.079	.079	.079	.078
32.7500	.078	.077	.077	.077	.076
33.0000	.076	.076	.075	.075	.075
33.2500	.074	.074	.074	.073	.073
33.5000	.073	.072	.072	.072	.071
33.7500	.071	.071	.070	.070	.070
34.0000	.069	.069	.069	.068	.068
34.2500	.068	.067	.067	.067	.066
34.5000	.066	.066	.066	.065	.065
34.7500	.065	.064	.064	.064	.063
35.0000	.063	.063	.063	.062	.062
35.2500	.062	.061	.061	.061	.061
35.5000	.060	.060	.060	.059	.059
35.7500	.059	.059	.058	.058	.058
36.0000	.058	.057	.057	.057	.057
36.2500	.056	.056	.056	.056	.055
36.5000	.055	.055	.055	.054	.054
36.7500	.054	.054	.053	.053	.053
37.0000	.053	.052	.052	.052	.052
37.2500	.051	.051	.051	.051	.050
37.5000	.050	.050	.050	.049	.049
37.7500	.049	.049	.049	.048	.048
38.0000	.048	.048	.047	.047	.047
38.2500	.047	.047	.046	.046	.046
38.5000	.046	.046	.045	.045	.045
38.7500	.045	.045	.044	.044	.044
39.0000	.044	.043	.043	.043	.043
39.2500	.043	.042	.042	.042	.042
39.5000	.042	.042	.041	.041	.041
39.7500	.041	.041	.040	.040	.040
40.0000	.040	.040	.039	.039	.039
40.2500	.039	.039	.039	.038	.038
40.5000	.038	.038	.038	.038	.037
40.7500	.037	.037	.037	.037	.037
41.0000	.036	.036	.036	.036	.036

41.2500	.036	.035	.035	.035	.035
41.5000	.035	.035	.034	.034	.034
41.7500	.034	.034	.034	.033	.033
42.0000	.033	.033	.033	.033	.033
42.2500	.032	.032	.032	.032	.032
42.5000	.032	.032	.031	.031	.031

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Time vs. Volume

yPage 147

yyyName.... BASIN 002 OUT yTag: 1 yr

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

yyyStorm... TypeII 24hr yTag: 1 yr

TIME vs. VOLUME (ac-ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
42.7500	.031	.031	.031	.031	.030
43.0000	.030	.030	.030	.030	.030
43.2500	.030	.029	.029	.029	.029
43.5000	.029	.029	.029	.028	.028
43.7500	.028	.028	.028	.028	.028
44.0000	.028	.027	.027	.027	.027
44.2500	.027	.027	.027	.027	.026
44.5000	.026	.026	.026	.026	.026
44.7500	.026	.026	.026	.025	.025
45.0000	.025	.025	.025	.025	.025
45.2500	.025	.025	.024	.024	.024
45.5000	.024	.024	.024	.024	.024
45.7500	.024	.023	.023	.023	.023
46.0000	.023	.023	.023	.023	.023
46.2500	.022	.022	.022	.022	.022
46.5000	.022	.022	.022	.022	.022
46.7500	.021	.021	.021	.021	.021
47.0000	.021	.021	.021	.021	.021
47.2500	.020	.020	.020	.020	.020
47.5000	.020	.020	.020	.020	.020
47.7500	.020	.019	.019	.019	.019
48.0000	.019	.019	.019	.019	.019
48.2500	.019	.019	.019	.018	.018
48.5000	.018	.018	.018	.018	.018
48.7500	.018	.018	.018	.018	.018
49.0000	.017	.017	.017	.017	.017
49.2500	.017	.017	.017	.017	.017
49.5000	.017	.017	.017	.016	.016
49.7500	.016	.016	.016	.016	.016
50.0000	.016	.016	.016	.016	.016

50.2500	.016	.015	.015	.015	.015
50.5000	.015	.015	.015	.015	.015
50.7500	.015	.015	.015	.015	.015
51.0000	.015	.014	.014	.014	.014
51.2500	.014	.014	.014	.014	.014
51.5000	.014	.014	.014	.014	.014
51.7500	.014	.014	.013	.013	.013
52.0000	.013	.013	.013	.013	.013
52.2500	.013	.013	.013	.013	.013
52.5000	.013	.013	.013	.012	.012
52.7500	.012	.012	.012	.012	.012
53.0000	.012	.012	.012	.012	.012
53.2500	.012	.012	.012	.012	.012
53.5000	.012	.011	.011	.011	.011

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Time vs. Volume

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yyyName.... BASIN 002 OUT yTag: 1 yr

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

yyyStorm... TypeII 24hr yTag: 1 yr

TIME vs. VOLUME (ac-ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
53.7500	.011	.011	.011	.011	.011
54.0000	.011	.011	.011	.011	.011
54.2500	.011	.011	.011	.011	.011
54.5000	.011	.011	.010	.010	.010
54.7500	.010	.010	.010	.010	.010
55.0000	.010	.010	.010	.010	.010
55.2500	.010	.010	.010	.010	.010
55.5000	.010	.010	.010	.009	.009
55.7500	.009	.009	.009	.009	.009
56.0000	.009	.009	.009	.009	.009
56.2500	.009	.009	.009	.009	.009
56.5000	.009	.009	.009	.009	.009
56.7500	.009	.009	.008	.008	.008
57.0000	.008	.008	.008	.008	.008
57.2500	.008	.008	.008	.008	.008
57.5000	.008	.008	.008	.008	.008
57.7500	.008	.008	.008	.008	.008
58.0000	.008	.008	.008	.008	.008
58.2500	.007	.007	.007	.007	.007
58.5000	.007	.007	.007	.007	.007
58.7500	.007	.007	.007	.007	.007
59.0000	.007	.007	.007	.007	.007

59.2500	.007	.007	.007	.007	.007
59.5000	.007	.007	.007	.007	.007
59.7500	.007	.006	.006	.006	.006
60.0000	.006	.006	.006	.006	.006
60.2500	.006	.006	.006	.006	.006
60.5000	.006	.006	.006	.006	.006
60.7500	.006	.006	.006	.006	.006
61.0000	.006	.006	.006	.006	.006
61.2500	.006	.006	.006	.006	.006
61.5000	.006	.006	.005	.005	.005
61.7500	.005	.005	.005	.005	.005
62.0000	.005	.005	.005	.005	.005
62.2500	.005	.005	.005	.005	.005
62.5000	.005	.005	.005	.005	.005
62.7500	.005	.005	.005	.005	.005
63.0000	.005	.005	.005	.005	.005
63.2500	.005	.005	.005	.005	.005
63.5000	.005	.005	.005	.005	.005
63.7500	.005	.005	.004	.004	.004
64.0000	.004	.004	.004	.004	.004
64.2500	.004	.004	.004	.004	.004
64.5000	.004	.004	.004	.004	.004

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Time vs. Volume

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Name.... BASIN 002 OUT Tag: 1 yr

Event: 1 yr

File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

Storm... TypeII 24hr Tag: 1 yr

TIME vs. VOLUME (ac-ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
64.7500	.004	.004	.004	.004	.004
65.0000	.004	.004	.004	.004	.004
65.2500	.004	.004	.004	.004	.004
65.5000	.004	.004	.004	.004	.004
65.7500	.004	.004	.004	.004	.004
66.0000	.004	.004	.004	.004	.004
66.2500	.004	.004	.004	.004	.004
66.5000	.004	.003	.003	.003	.003
66.7500	.003	.003	.003	.003	.003
67.0000	.003	.003	.003	.003	.003
67.2500	.003	.003	.003	.003	.003
67.5000	.003	.003	.003	.003	.003
67.7500	.003	.003	.003	.003	.003
68.0000	.003	.003	.003	.003	.003

68.2500		.003	.003	.003	.003	.003
68.5000		.003	.003	.003	.003	.003
68.7500		.003	.003	.003	.003	.003
69.0000		.003	.003	.003	.003	.003
69.2500		.003	.003	.003	.003	.003
69.5000		.003	.003			

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Diverted Hydrograph

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yyyName.... ROUTE 40

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\

yyyStorm... TypeII 24hr yTag: 1 yr

DIVERTED HYDROGRAPH...

HYG file =

HYG ID = ROUTE 40

HYG Tag = 1 yr

Peak Discharge = .31 cfs

Time to Peak = 14.0500 hrs

HYG Volume = .459 ac-ft

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs	-----				
10.6500	.00	.00	.00	.00	.00
10.9000	.00	.00	.00	.00	.00
11.1500	.00	.00	.00	.01	.01
11.4000	.01	.01	.01	.01	.01
11.6500	.01	.01	.01	.02	.02
11.9000	.02	.03	.03	.05	.07
12.1500	.11	.16	.20	.23	.25
12.4000	.26	.26	.27	.27	.28
12.6500	.28	.28	.28	.29	.29
12.9000	.29	.29	.29	.29	.29
13.1500	.30	.30	.30	.30	.30
13.4000	.30	.30	.30	.30	.30
13.6500	.30	.30	.30	.30	.30
13.9000	.30	.31	.31	.31	.31
14.1500	.31	.31	.31	.31	.31
14.4000	.31	.31	.31	.31	.31
14.6500	.31	.31	.31	.31	.31
14.9000	.31	.31	.31	.31	.31
15.1500	.31	.31	.31	.31	.31
15.4000	.31	.31	.31	.31	.31

15.6500	.31	.31	.31	.31	.31
15.9000	.31	.31	.30	.30	.30
16.1500	.30	.30	.30	.30	.30
16.4000	.30	.30	.30	.30	.30
16.6500	.30	.30	.30	.30	.30
16.9000	.30	.30	.30	.30	.30
17.1500	.30	.30	.30	.30	.30
17.4000	.30	.30	.30	.30	.30
17.6500	.29	.29	.29	.29	.29
17.9000	.29	.29	.29	.29	.29
18.1500	.29	.29	.29	.29	.29

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Diverted Hydrograph

ÿPage 151

ÿÿÿName.... ROUTE 40

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

Time hrs	HYDROGRAPH ORDINATES (cfs)				
	Output Time increment = .0500 hrs				
	Time on left represents time for first value in each row.				
18.4000	.29	.29	.29	.29	.29
18.6500	.29	.29	.29	.29	.29
18.9000	.29	.28	.28	.28	.28
19.1500	.28	.28	.28	.28	.28
19.4000	.28	.28	.28	.28	.28
19.6500	.28	.28	.28	.28	.28
19.9000	.28	.28	.28	.28	.27
20.1500	.27	.27	.27	.27	.27
20.4000	.27	.27	.27	.27	.27
20.6500	.27	.27	.27	.27	.27
20.9000	.27	.27	.27	.27	.27
21.1500	.27	.27	.26	.26	.26
21.4000	.26	.26	.26	.26	.26
21.6500	.26	.26	.26	.26	.26
21.9000	.26	.26	.26	.26	.26
22.1500	.26	.26	.26	.26	.25
22.4000	.25	.25	.25	.25	.25
22.6500	.25	.25	.25	.25	.25
22.9000	.25	.25	.25	.25	.25
23.1500	.25	.25	.25	.25	.25
23.4000	.25	.25	.24	.24	.24
23.6500	.24	.24	.24	.24	.24
23.9000	.24	.24	.24	.24	.24
24.1500	.24	.23	.23	.23	.23
24.4000	.23	.23	.23	.22	.22
24.6500	.22	.22	.22	.22	.22

24.9000	.21	.21	.21	.21	.21
25.1500	.21	.21	.21	.20	.20
25.4000	.20	.20	.20	.20	.20
25.6500	.20	.19	.19	.19	.19
25.9000	.19	.19	.19	.19	.19
26.1500	.18	.18	.18	.18	.18
26.4000	.18	.18	.18	.18	.17
26.6500	.17	.17	.17	.17	.17
26.9000	.17	.17	.17	.16	.16
27.1500	.16	.16	.16	.16	.16
27.4000	.16	.16	.16	.15	.15
27.6500	.15	.15	.15	.15	.15
27.9000	.15	.15	.15	.15	.14
28.1500	.14	.14	.14	.14	.14
28.4000	.14	.14	.14	.14	.14
28.6500	.14	.13	.13	.13	.13
28.9000	.13	.13	.13	.13	.13
29.1500	.13	.13	.13	.12	.12
29.4000	.12	.12	.12	.12	.12

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Diverted Hydrograph

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yyyName.... ROUTE 40

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\

yyyStorm... TypeII 24hr yTag: 1 yr

Time hrs	HYDROGRAPH ORDINATES (cfs)				
	Output Time increment = .0500 hrs				
	Time on left represents time for first value in each row.				
29.6500	.12	.12	.12	.12	.12
29.9000	.12	.12	.11	.11	.11
30.1500	.11	.11	.11	.11	.11
30.4000	.11	.11	.11	.11	.11
30.6500	.11	.10	.10	.10	.10
30.9000	.10	.10	.10	.10	.10
31.1500	.10	.10	.10	.10	.10
31.4000	.10	.10	.10	.10	.10
31.6500	.10	.09	.09	.09	.09
31.9000	.09	.09	.09	.09	.09
32.1500	.09	.09	.09	.09	.09
32.4000	.09	.09	.09	.09	.09
32.6500	.09	.09	.09	.09	.09
32.9000	.08	.08	.08	.08	.08
33.1500	.08	.08	.08	.08	.08
33.4000	.08	.08	.08	.08	.08
33.6500	.08	.08	.08	.08	.08
33.9000	.08	.08	.08	.08	.08

34.1500	.08	.08	.08	.07	.07
34.4000	.07	.07	.07	.07	.07
34.6500	.07	.07	.07	.07	.07
34.9000	.07	.07	.07	.07	.07
35.1500	.07	.07	.07	.07	.07
35.4000	.07	.07	.07	.07	.07
35.6500	.07	.07	.07	.07	.06
35.9000	.06	.06	.06	.06	.06
36.1500	.06	.06	.06	.06	.06
36.4000	.06	.06	.06	.06	.06
36.6500	.06	.06	.06	.06	.06
36.9000	.06	.06	.06	.06	.06
37.1500	.06	.06	.06	.06	.06
37.4000	.06	.06	.06	.06	.06
37.6500	.06	.05	.05	.05	.05
37.9000	.05	.05	.05	.05	.05
38.1500	.05	.05	.05	.05	.05
38.4000	.05	.05	.05	.05	.05
38.6500	.05	.05	.05	.05	.05
38.9000	.05	.05	.05	.05	.05
39.1500	.05	.05	.05	.05	.05
39.4000	.05	.05	.05	.05	.05
39.6500	.05	.05	.05	.05	.05
39.9000	.04	.04	.04	.04	.04
40.1500	.04	.04	.04	.04	.04
40.4000	.04	.04	.04	.04	.04
40.6500	.04	.04	.04	.04	.04

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Diverted Hydrograph

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ÿÿÿName.... ROUTE 40

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

Time hrs	HYDROGRAPH ORDINATES (cfs)				
	Output Time increment = .0500 hrs				
	Time on left represents time for first value in each row.				
40.9000	.04	.04	.04	.04	.04
41.1500	.04	.04	.04	.04	.04
41.4000	.04	.04	.04	.04	.04
41.6500	.04	.04	.04	.04	.04
41.9000	.04	.04	.04	.04	.04
42.1500	.04	.04	.04	.04	.04
42.4000	.04	.04	.04	.04	.04
42.6500	.03	.03	.03	.03	.03
42.9000	.03	.03	.03	.03	.03
43.1500	.03	.03	.03	.03	.03

43.4000	.03	.03	.03	.03	.03
43.6500	.03	.03	.03	.03	.03
43.9000	.03	.03	.03	.03	.03
44.1500	.03	.03	.03	.03	.03
44.4000	.03	.03	.03	.03	.03
44.6500	.03	.03	.03	.03	.03
44.9000	.03	.03	.03	.03	.03
45.1500	.03	.03	.03	.03	.03
45.4000	.03	.03	.03	.03	.03
45.6500	.03	.03	.03	.03	.03
45.9000	.03	.03	.03	.03	.03
46.1500	.03	.03	.03	.03	.02
46.4000	.02	.02	.02	.02	.02
46.6500	.02	.02	.02	.02	.02
46.9000	.02	.02	.02	.02	.02
47.1500	.02	.02	.02	.02	.02
47.4000	.02	.02	.02	.02	.02
47.6500	.02	.02	.02	.02	.02
47.9000	.02	.02	.02	.02	.02
48.1500	.02	.02	.02	.02	.02
48.4000	.02	.02	.02	.02	.02
48.6500	.02	.02	.02	.02	.02
48.9000	.02	.02	.02	.02	.02
49.1500	.02	.02	.02	.02	.02
49.4000	.02	.02	.02	.02	.02
49.6500	.02	.02	.02	.02	.02
49.9000	.02	.02	.02	.02	.02
50.1500	.02	.02	.02	.02	.02
50.4000	.02	.02	.02	.02	.02
50.6500	.02	.02	.02	.02	.02
50.9000	.02	.02	.02	.02	.02
51.1500	.02	.02	.02	.02	.02
51.4000	.02	.02	.02	.02	.02
51.6500	.02	.02	.02	.02	.02
51.9000	.01	.01	.01	.01	.01

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Diverted Hydrograph

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yyyName.... ROUTE 40

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\

yyyStorm... TypeII 24hr yTag: 1 yr

HYDROGRAPH ORDINATES (cfs)

Time hrs	Output Time increment = .0500 hrs				
	Time on left represents time for first value in each row.				
52.1500	.01	.01	.01	.01	.01
52.4000	.01	.01	.01	.01	.01

52.6500		.01	.01	.01	.01	.01
52.9000		.01	.01	.01	.01	.01
53.1500		.01	.01	.01	.01	.01
53.4000		.01	.01	.01	.01	.01
53.6500		.01	.01	.01	.01	.01
53.9000		.01	.01	.01	.01	.01
54.1500		.01	.01	.01	.01	.01
54.4000		.01	.01	.01	.01	.01
54.6500		.01	.01	.01	.01	.01
54.9000		.01	.01	.01	.01	.01
55.1500		.01	.01	.01	.01	.01
55.4000		.01	.01	.01	.01	.01
55.6500		.01	.01	.01	.01	.01
55.9000		.01	.01	.01	.01	.01
56.1500		.01	.01	.01	.01	.01
56.4000		.01	.01	.01	.01	.01
56.6500		.01	.01	.01	.01	.01
56.9000		.01	.01	.01	.01	.01
57.1500		.01	.01	.01	.01	.01
57.4000		.01	.01	.01	.01	.01
57.6500		.01	.01	.01	.01	.01
57.9000		.01	.01	.01	.01	.01
58.1500		.01	.01	.01	.01	.01
58.4000		.01	.01	.01	.01	.01
58.6500		.01	.01	.01	.01	.01
58.9000		.01	.01	.01	.01	.01
59.1500		.01	.01	.01	.01	.01
59.4000		.01	.01	.01	.01	.01
59.6500		.01	.01	.01	.01	.01
59.9000		.01	.01	.01	.01	.01
60.1500		.01	.01	.01	.01	.01
60.4000		.01	.01	.01	.01	.01
60.6500		.01	.01	.01	.01	.01
60.9000		.01	.01	.01	.01	.01
61.1500		.01	.01	.01	.01	.01
61.4000		.01	.01	.01	.01	.01
61.6500		.01	.01	.01	.01	.01
61.9000		.01	.01	.01	.01	.01
62.1500		.01	.01	.01	.01	.01
62.4000		.01	.01	.01	.01	.01
62.6500		.01	.01	.01	.01	.01
62.9000		.01	.01	.01	.01	.01
63.1500		.01	.01	.01	.01	.01

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Diverted Hydrograph

ÿÿÿName.... ROUTE 40

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\

ÿPage 155

Event: 1 yr

yyyStorm... TypeII 24hr yTag: 1 yr

HYDROGRAPH ORDINATES (cfs)					
Output Time increment = .0500 hrs					
Time hrs	Time on left represents time for first value in each row.				
63.4000	.01	.01	.01	.01	.01
63.6500	.01	.01	.01	.01	.01
63.9000	.01	.00	.00	.00	.00
64.1500	.00	.00	.00	.00	.00
64.4000	.00	.00	.00	.00	.00
64.6500	.00	.00	.00	.00	.00
64.9000	.00	.00	.00	.00	.00
65.1500	.00	.00	.00	.00	.00
65.4000	.00	.00	.00	.00	.00
65.6500	.00	.00	.00	.00	.00
65.9000	.00	.00	.00	.00	.00
66.1500	.00	.00	.00	.00	.00
66.4000	.00	.00	.00	.00	.00
66.6500	.00	.00	.00	.00	.00
66.9000	.00	.00	.00	.00	.00
67.1500	.00	.00	.00	.00	.00
67.4000	.00	.00	.00	.00	.00
67.6500	.00	.00	.00	.00	.00
67.9000	.00	.00	.00	.00	.00
68.1500	.00	.00	.00	.00	.00
68.4000	.00	.00	.00	.00	.00
68.6500	.00	.00	.00	.00	.00
68.9000	.00	.00	.00	.00	.00
69.1500	.00	.00	.00	.00	.00
69.4000	.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:

↑
 yyyType.... Node:yPondyInflow Summary yPage 156
 yyyName.... BASIN 004 IN Event: 1 yr
 yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW
 yyyStorm... TypeII 24hr yTag: 1 yr

SUMMARY FOR HYDROGRAPH ADDITION
at Node: BASIN 004 IN

HYG Directory: Q:\PROJECT\stormwater\stormwater\20040287\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ROUTE 40	BASIN 002 IN		ROUTE 40	1 yr
ADDLINK 70	SUBAREA 004		SUBAREA 004	1 yr

ADDLINK 120

BASIN 004 SUB

BASIN 004 SUB 1 yr

INFLOWS TO: BASIN 004 IN

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	ROUTE 40	1 yr	.459	14.0500	.31
	SUBAREA 004	1 yr	.108	12.1500	2.06
	BASIN 004 SUB	1 yr	.020	12.2000	.28

TOTAL FLOW INTO: BASIN 004 IN

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	BASIN 004	IN 1 yr	.586	12.1500	2.40

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Node: Pond Inflow Summary

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Name.... BASIN 004 IN

Event: 1 yr

File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

Storm... TypeII 24hr Tag: 1 yr

TOTAL NODE INFLOW...

HYG file =

HYG ID = BASIN 004 IN

HYG Tag = 1 yr

Peak Discharge = 2.40 cfs

Time to Peak = 12.1500 hrs

HYG Volume = .586 ac-ft

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
8.5500	.00	.00	.00	.00	.00
8.8000	.00	.00	.00	.00	.00
9.0500	.00	.00	.00	.01	.01
9.3000	.01	.01	.01	.01	.01
9.5500	.01	.01	.01	.01	.01
9.8000	.01	.01	.01	.01	.01
10.0500	.01	.02	.02	.02	.02
10.3000	.02	.02	.02	.02	.02

10.5500	.02	.03	.03	.03	.03
10.8000	.03	.03	.04	.04	.04
11.0500	.04	.05	.05	.05	.06
11.3000	.06	.07	.07	.08	.09
11.5500	.09	.10	.12	.13	.15
11.8000	.17	.20	.25	.41	.89
12.0500	1.54	2.12	2.40	2.16	1.66
12.3000	1.26	1.00	.84	.73	.66
12.5500	.62	.58	.56	.54	.52
12.8000	.51	.50	.49	.48	.48
13.0500	.47	.46	.46	.45	.45
13.3000	.45	.44	.44	.44	.43
13.5500	.43	.43	.43	.42	.42
13.8000	.42	.42	.41	.41	.41
14.0500	.41	.41	.41	.40	.40
14.3000	.40	.40	.40	.40	.40
14.5500	.40	.39	.39	.39	.39
14.8000	.39	.39	.39	.39	.39
15.0500	.38	.38	.38	.38	.38
15.3000	.38	.38	.38	.38	.38
15.5500	.38	.37	.37	.37	.37
15.8000	.37	.37	.37	.37	.37
16.0500	.37	.37	.37	.36	.36

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Node:ÿPondÿInflow Summary

ÿPage 158

ÿÿÿName.... BASIN 004 IN

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

HYDROGRAPH ORDINATES (cfs)					
Output Time increment = .0500 hrs					
Time hrs	Time on left represents time for first value in each row.				
16.3000	.36	.36	.36	.36	.36
16.5500	.36	.36	.36	.36	.36
16.8000	.36	.36	.35	.35	.35
17.0500	.35	.35	.35	.35	.35
17.3000	.35	.35	.35	.35	.35
17.5500	.35	.34	.34	.34	.34
17.8000	.34	.34	.34	.34	.34
18.0500	.34	.34	.34	.34	.34
18.3000	.34	.33	.33	.33	.33
18.5500	.33	.33	.33	.33	.33
18.8000	.33	.33	.33	.33	.33
19.0500	.33	.33	.32	.32	.32
19.3000	.32	.32	.32	.32	.32
19.5500	.32	.32	.32	.32	.32

19.8000	.32	.32	.32	.31	.31
20.0500	.31	.31	.31	.31	.31
20.3000	.31	.31	.31	.31	.31
20.5500	.31	.31	.31	.31	.31
20.8000	.30	.30	.30	.30	.30
21.0500	.30	.30	.30	.30	.30
21.3000	.30	.30	.30	.30	.30
21.5500	.30	.30	.29	.29	.29
21.8000	.29	.29	.29	.29	.29
22.0500	.29	.29	.29	.29	.29
22.3000	.29	.29	.29	.29	.29
22.5500	.28	.28	.28	.28	.28
22.8000	.28	.28	.28	.28	.28
23.0500	.28	.28	.28	.28	.28
23.3000	.28	.28	.28	.27	.27
23.5500	.27	.27	.27	.27	.27
23.8000	.27	.27	.27	.27	.26
24.0500	.26	.25	.24	.24	.23
24.3000	.23	.23	.23	.23	.23
24.5500	.22	.22	.22	.22	.22
24.8000	.22	.22	.21	.21	.21
25.0500	.21	.21	.21	.21	.21
25.3000	.20	.20	.20	.20	.20
25.5500	.20	.20	.20	.19	.19
25.8000	.19	.19	.19	.19	.19
26.0500	.19	.19	.18	.18	.18
26.3000	.18	.18	.18	.18	.18
26.5500	.18	.17	.17	.17	.17
26.8000	.17	.17	.17	.17	.17
27.0500	.16	.16	.16	.16	.16
27.3000	.16	.16	.16	.16	.16

S/N:

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Compute Time:

Date:



yyyType.... Node: Pond Inflow Summary

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yyyName.... BASIN 004 IN

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

yyyStorm... TypeII 24hr yTag: 1 yr

HYDROGRAPH ORDINATES (cfs)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
27.5500	.15	.15	.15	.15	.15
27.8000	.15	.15	.15	.15	.15
28.0500	.15	.14	.14	.14	.14
28.3000	.14	.14	.14	.14	.14
28.5500	.14	.14	.14	.13	.13
28.8000	.13	.13	.13	.13	.13

29.0500	.13	.13	.13	.13	.13
29.3000	.12	.12	.12	.12	.12
29.5500	.12	.12	.12	.12	.12
29.8000	.12	.12	.12	.12	.11
30.0500	.11	.11	.11	.11	.11
30.3000	.11	.11	.11	.11	.11
30.5500	.11	.11	.11	.10	.10
30.8000	.10	.10	.10	.10	.10
31.0500	.10	.10	.10	.10	.10
31.3000	.10	.10	.10	.10	.10
31.5500	.10	.10	.10	.09	.09
31.8000	.09	.09	.09	.09	.09
32.0500	.09	.09	.09	.09	.09
32.3000	.09	.09	.09	.09	.09
32.5500	.09	.09	.09	.09	.09
32.8000	.09	.09	.08	.08	.08
33.0500	.08	.08	.08	.08	.08
33.3000	.08	.08	.08	.08	.08
33.5500	.08	.08	.08	.08	.08
33.8000	.08	.08	.08	.08	.08
34.0500	.08	.08	.08	.08	.08
34.3000	.07	.07	.07	.07	.07
34.5500	.07	.07	.07	.07	.07
34.8000	.07	.07	.07	.07	.07
35.0500	.07	.07	.07	.07	.07
35.3000	.07	.07	.07	.07	.07
35.5500	.07	.07	.07	.07	.07
35.8000	.07	.06	.06	.06	.06
36.0500	.06	.06	.06	.06	.06
36.3000	.06	.06	.06	.06	.06
36.5500	.06	.06	.06	.06	.06
36.8000	.06	.06	.06	.06	.06
37.0500	.06	.06	.06	.06	.06
37.3000	.06	.06	.06	.06	.06
37.5500	.06	.06	.06	.05	.05
37.8000	.05	.05	.05	.05	.05
38.0500	.05	.05	.05	.05	.05
38.3000	.05	.05	.05	.05	.05
38.5500	.05	.05	.05	.05	.05

S/N:

PondPack Ver:

Compute Time:

Date:

↑
 Type.... Node:PondInflow Summary Page 160
 Name.... BASIN 004 IN Event: 1 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW
 Storm... TypeII 24hr Tag: 1 yr

Time | HYDROGRAPH ORDINATES (cfs)
 | Output Time increment = .0500 hrs

hrs	Time on left represents time for first value in each row.				
38.8000	.05	.05	.05	.05	.05
39.0500	.05	.05	.05	.05	.05
39.3000	.05	.05	.05	.05	.05
39.5500	.05	.05	.05	.05	.05
39.8000	.05	.05	.04	.04	.04
40.0500	.04	.04	.04	.04	.04
40.3000	.04	.04	.04	.04	.04
40.5500	.04	.04	.04	.04	.04
40.8000	.04	.04	.04	.04	.04
41.0500	.04	.04	.04	.04	.04
41.3000	.04	.04	.04	.04	.04
41.5500	.04	.04	.04	.04	.04
41.8000	.04	.04	.04	.04	.04
42.0500	.04	.04	.04	.04	.04
42.3000	.04	.04	.04	.04	.04
42.5500	.04	.04	.03	.03	.03
42.8000	.03	.03	.03	.03	.03
43.0500	.03	.03	.03	.03	.03
43.3000	.03	.03	.03	.03	.03
43.5500	.03	.03	.03	.03	.03
43.8000	.03	.03	.03	.03	.03
44.0500	.03	.03	.03	.03	.03
44.3000	.03	.03	.03	.03	.03
44.5500	.03	.03	.03	.03	.03
44.8000	.03	.03	.03	.03	.03
45.0500	.03	.03	.03	.03	.03
45.3000	.03	.03	.03	.03	.03
45.5500	.03	.03	.03	.03	.03
45.8000	.03	.03	.03	.03	.03
46.0500	.03	.03	.03	.03	.03
46.3000	.03	.02	.02	.02	.02
46.5500	.02	.02	.02	.02	.02
46.8000	.02	.02	.02	.02	.02
47.0500	.02	.02	.02	.02	.02
47.3000	.02	.02	.02	.02	.02
47.5500	.02	.02	.02	.02	.02
47.8000	.02	.02	.02	.02	.02
48.0500	.02	.02	.02	.02	.02
48.3000	.02	.02	.02	.02	.02
48.5500	.02	.02	.02	.02	.02
48.8000	.02	.02	.02	.02	.02
49.0500	.02	.02	.02	.02	.02
49.3000	.02	.02	.02	.02	.02
49.5500	.02	.02	.02	.02	.02
49.8000	.02	.02	.02	.02	.02

S/N:

PondPack Ver:

Compute Time:

Date:

↑
 Type.... Node:PondInflow Summary Page 161
 Name.... BASIN 004 IN Event: 1 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW
 Storm... TypeII 24hr Tag: 1 yr

HYDROGRAPH ORDINATES (cfs)						
Output Time increment = .0500 hrs						
Time hrs	Time on left represents time for first value in each row.					
50.0500	.02	.02	.02	.02	.02	.02
50.3000	.02	.02	.02	.02	.02	.02
50.5500	.02	.02	.02	.02	.02	.02
50.8000	.02	.02	.02	.02	.02	.02
51.0500	.02	.02	.02	.02	.02	.02
51.3000	.02	.02	.02	.02	.02	.02
51.5500	.02	.02	.02	.02	.02	.02
51.8000	.02	.02	.01	.01	.01	.01
52.0500	.01	.01	.01	.01	.01	.01
52.3000	.01	.01	.01	.01	.01	.01
52.5500	.01	.01	.01	.01	.01	.01
52.8000	.01	.01	.01	.01	.01	.01
53.0500	.01	.01	.01	.01	.01	.01
53.3000	.01	.01	.01	.01	.01	.01
53.5500	.01	.01	.01	.01	.01	.01
53.8000	.01	.01	.01	.01	.01	.01
54.0500	.01	.01	.01	.01	.01	.01
54.3000	.01	.01	.01	.01	.01	.01
54.5500	.01	.01	.01	.01	.01	.01
54.8000	.01	.01	.01	.01	.01	.01
55.0500	.01	.01	.01	.01	.01	.01
55.3000	.01	.01	.01	.01	.01	.01
55.5500	.01	.01	.01	.01	.01	.01
55.8000	.01	.01	.01	.01	.01	.01
56.0500	.01	.01	.01	.01	.01	.01
56.3000	.01	.01	.01	.01	.01	.01
56.5500	.01	.01	.01	.01	.01	.01
56.8000	.01	.01	.01	.01	.01	.01
57.0500	.01	.01	.01	.01	.01	.01
57.3000	.01	.01	.01	.01	.01	.01
57.5500	.01	.01	.01	.01	.01	.01
57.8000	.01	.01	.01	.01	.01	.01
58.0500	.01	.01	.01	.01	.01	.01
58.3000	.01	.01	.01	.01	.01	.01
58.5500	.01	.01	.01	.01	.01	.01
58.8000	.01	.01	.01	.01	.01	.01
59.0500	.01	.01	.01	.01	.01	.01
59.3000	.01	.01	.01	.01	.01	.01
59.5500	.01	.01	.01	.01	.01	.01
59.8000	.01	.01	.01	.01	.01	.01

60.0500		.01	.01	.01	.01	.01
60.3000		.01	.01	.01	.01	.01
60.5500		.01	.01	.01	.01	.01
60.8000		.01	.01	.01	.01	.01
61.0500		.01	.01	.01	.01	.01

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Node:ÿPondÿInflow Summary

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ÿÿÿName.... BASIN 004 IN

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
61.3000	.01	.01	.01	.01	.01
61.5500	.01	.01	.01	.01	.01
61.8000	.01	.01	.01	.01	.01
62.0500	.01	.01	.01	.01	.01
62.3000	.01	.01	.01	.01	.01
62.5500	.01	.01	.01	.01	.01
62.8000	.01	.01	.01	.01	.01
63.0500	.01	.01	.01	.01	.01
63.3000	.01	.01	.01	.01	.01
63.5500	.01	.01	.01	.01	.01
63.8000	.01	.01	.01	.00	.00
64.0500	.00	.00	.00	.00	.00
64.3000	.00	.00	.00	.00	.00
64.5500	.00	.00	.00	.00	.00
64.8000	.00	.00	.00	.00	.00
65.0500	.00	.00	.00	.00	.00
65.3000	.00	.00	.00	.00	.00
65.5500	.00	.00	.00	.00	.00
65.8000	.00	.00	.00	.00	.00
66.0500	.00	.00	.00	.00	.00
66.3000	.00	.00	.00	.00	.00
66.5500	.00	.00	.00	.00	.00
66.8000	.00	.00	.00	.00	.00
67.0500	.00	.00	.00	.00	.00
67.3000	.00	.00	.00	.00	.00
67.5500	.00	.00	.00	.00	.00
67.8000	.00	.00	.00	.00	.00
68.0500	.00	.00	.00	.00	.00
68.3000	.00	.00	.00	.00	.00
68.5500	.00	.00	.00	.00	.00
68.8000	.00	.00	.00	.00	.00
69.0500	.00	.00	.00	.00	.00

69.3000		.00	.00	.00	.00	.00
69.5500		.00				

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Pond E-V-Q Table

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yyyName.... BASIN 004

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

LEVEL POOL ROUTING DATA

HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\

Inflow HYG file = NONE STORED - BASIN 004 IN 1 yr

Outflow HYG file = NONE STORED - BASIN 004 OUT 1 yr

Pond Node Data = BASIN 004

Pond Volume Data = BASIN 004

Pond Outlet Data = Outlet 004

No Infiltration

INITIAL CONDITIONS

 Starting WS Elev = 832.20 ft
 Starting Volume = .000 ac-ft
 Starting Outflow = .00 cfs
 Starting Infiltr. = .00 cfs
 Starting Total Qout= .00 cfs
 Time Increment = .0500 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infiltr. cfs	Q Total cfs	2S/t + 0 cfs
832.20	.00	.000	.0000	.00	.00	.00
832.45	.00	.000	.0009	.00	.00	.04
832.70	.00	.001	.0035	.00	.00	.28
832.95	.00	.002	.0079	.00	.00	.96
833.20	.00	.005	.0171	.00	.00	2.40
833.45	.00	.011	.0308	.00	.00	5.26
833.70	.00	.021	.0485	.00	.00	10.01
833.73	.00	.022	.0509	.00	.00	10.73
833.95	.02	.035	.0702	.00	.02	17.17
834.20	.03	.055	.0869	.00	.03	26.76
834.45	.04	.079	.1029	.00	.04	38.24
834.70	.04	.107	.1203	.00	.04	51.73
834.95	.05	.139	.1391	.00	.05	67.42
835.20	.05	.176	.1559	.00	.05	85.30
835.33	.06	.197	.1646	.00	.06	95.38
835.45	.06	.217	.1728	.00	.06	105.18

835.70	.41	.263	.1905	.00	.41	127.51
835.89	.53	.300	.2046	.00	.53	145.79
835.95	.57	.313	.2092	.00	.57	151.83
836.20	.99	.367	.2253	.00	.99	178.57

S/N:

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Compute Time:

Date:



ÿÿÿType.... Pond E-V-Q Table

ÿPage 164

ÿÿÿName.... BASIN 004

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

LEVEL POOL ROUTING DATA

HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\

Inflow HYG file = NONE STORED - BASIN 004 IN 1 yr

Outflow HYG file = NONE STORED - BASIN 004 OUT 1 yr

Pond Node Data = BASIN 004

Pond Volume Data = BASIN 004

Pond Outlet Data = Outlet 004

No Infiltration

INITIAL CONDITIONS

 Starting WS Elev = 832.20 ft
 Starting Volume = .000 ac-ft
 Starting Outflow = .00 cfs
 Starting Infiltr. = .00 cfs
 Starting Total Qout= .00 cfs
 Time Increment = .0500 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infiltr. cfs	Q Total cfs	2S/t + 0 cfs
836.45	1.25	.425	.2412	.00	1.25	207.05
836.70	1.45	.488	.2576	.00	1.45	237.43
836.95	1.63	.554	.2745	.00	1.63	269.80
837.20	1.79	.625	.2926	.00	1.79	304.26
837.45	1.94	.700	.3115	.00	1.94	340.95
837.70	2.07	.781	.3309	.00	2.07	379.94
837.95	2.20	.866	.3509	.00	2.20	421.31
838.00	2.22	.884	.3550	.00	2.22	429.88

S/N:

PondPack Ver:

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Date:



ÿÿÿType.... Pond Routed HYG (total out)

ÿPage 165

ÿÿÿName.... BASIN 004 OUT ÿTag: 1 yr

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW
 yyyStorm... TypeII 24hr yTag: 1 yr

POND ROUTED TOTAL OUTFLOW HYG...

HYG file =

HYG ID = BASIN 004 OUT

HYG Tag = 1 yr

 Peak Discharge = .29 cfs

Time to Peak = 21.0500 hrs

HYG Volume = .559 ac-ft

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
8.5500	.00	.00	.00	.00	.00
8.8000	.00	.00	.00	.00	.00
9.0500	.00	.00	.00	.00	.00
9.3000	.00	.00	.00	.00	.00
9.5500	.00	.00	.00	.00	.00
9.8000	.00	.00	.00	.00	.00
10.0500	.00	.00	.00	.00	.00
10.3000	.00	.00	.00	.00	.00
10.5500	.00	.00	.00	.00	.00
10.8000	.00	.00	.00	.00	.00
11.0500	.00	.00	.00	.00	.00
11.3000	.00	.00	.00	.00	.00
11.5500	.00	.00	.00	.00	.00
11.8000	.00	.00	.00	.00	.00
12.0500	.00	.01	.02	.02	.03
12.3000	.03	.03	.03	.03	.03
12.5500	.04	.04	.04	.04	.04
12.8000	.04	.04	.04	.04	.04
13.0500	.04	.04	.04	.04	.04
13.3000	.04	.04	.04	.04	.04
13.5500	.04	.04	.04	.04	.04
13.8000	.05	.05	.05	.05	.05
14.0500	.05	.05	.05	.05	.05
14.3000	.05	.05	.05	.05	.05
14.5500	.05	.05	.05	.05	.05
14.8000	.05	.05	.05	.05	.05
15.0500	.05	.05	.05	.05	.05
15.3000	.05	.05	.05	.05	.05
15.5500	.05	.05	.05	.05	.05
15.8000	.05	.05	.05	.05	.05
16.0500	.05	.05	.05	.05	.05

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Pond Routed HYG (total out)

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Name.... BASIN 004 OUT Tag: 1 yr

Event: 1 yr

File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

Storm... TypeII 24hr Tag: 1 yr

HYDROGRAPH ORDINATES (cfs)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
16.3000	.05	.05	.05	.06	.06
16.5500	.06	.06	.06	.06	.06
16.8000	.06	.06	.06	.06	.06
17.0500	.06	.06	.06	.06	.06
17.3000	.06	.06	.06	.06	.07
17.5500	.08	.09	.10	.10	.11
17.8000	.12	.13	.13	.14	.15
18.0500	.15	.16	.16	.17	.17
18.3000	.18	.18	.19	.19	.20
18.5500	.20	.21	.21	.21	.22
18.8000	.22	.23	.23	.23	.23
19.0500	.24	.24	.24	.25	.25
19.3000	.25	.25	.25	.26	.26
19.5500	.26	.26	.26	.27	.27
19.8000	.27	.27	.27	.27	.27
20.0500	.28	.28	.28	.28	.28
20.3000	.28	.28	.28	.28	.28
20.5500	.29	.29	.29	.29	.29
20.8000	.29	.29	.29	.29	.29
21.0500	.29	.29	.29	.29	.29
21.3000	.29	.29	.29	.29	.29
21.5500	.29	.29	.29	.29	.29
21.8000	.29	.29	.29	.29	.29
22.0500	.29	.29	.29	.29	.29
22.3000	.29	.29	.29	.29	.29
22.5500	.29	.29	.29	.29	.29
22.8000	.29	.29	.29	.29	.29
23.0500	.29	.29	.29	.29	.29
23.3000	.29	.29	.29	.29	.29
23.5500	.29	.28	.28	.28	.28
23.8000	.28	.28	.28	.28	.28
24.0500	.28	.28	.28	.28	.28
24.3000	.27	.27	.27	.27	.27
24.5500	.27	.27	.27	.26	.26
24.8000	.26	.26	.26	.26	.26
25.0500	.25	.25	.25	.25	.25
25.3000	.25	.25	.24	.24	.24
25.5500	.24	.24	.24	.24	.23

25.8000	.23	.23	.23	.23	.23
26.0500	.23	.23	.22	.22	.22
26.3000	.22	.22	.22	.22	.22
26.5500	.21	.21	.21	.21	.21
26.8000	.21	.21	.21	.20	.20
27.0500	.20	.20	.20	.20	.20
27.3000	.20	.19	.19	.19	.19

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Date:



Type.... Pond Routed HYG (total out) Page 167
 Name.... BASIN 004 OUT Tag: 1 yr Event: 1 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW
 Storm... TypeII 24hr Tag: 1 yr

HYDROGRAPH ORDINATES (cfs)						
Output Time increment = .0500 hrs						
Time hrs	Time on left represents time for first value in each row.					
27.5500	.19	.19	.19	.19	.19	.19
27.8000	.18	.18	.18	.18	.18	.18
28.0500	.18	.18	.18	.18	.18	.17
28.3000	.17	.17	.17	.17	.17	.17
28.5500	.17	.17	.17	.17	.17	.16
28.8000	.16	.16	.16	.16	.16	.16
29.0500	.16	.16	.16	.16	.16	.15
29.3000	.15	.15	.15	.15	.15	.15
29.5500	.15	.15	.15	.15	.15	.15
29.8000	.14	.14	.14	.14	.14	.14
30.0500	.14	.14	.14	.14	.14	.14
30.3000	.14	.14	.13	.13	.13	.13
30.5500	.13	.13	.13	.13	.13	.13
30.8000	.13	.13	.13	.13	.13	.12
31.0500	.12	.12	.12	.12	.12	.12
31.3000	.12	.12	.12	.12	.12	.12
31.5500	.12	.12	.12	.12	.12	.11
31.8000	.11	.11	.11	.11	.11	.11
32.0500	.11	.11	.11	.11	.11	.11
32.3000	.11	.11	.11	.11	.11	.11
32.5500	.10	.10	.10	.10	.10	.10
32.8000	.10	.10	.10	.10	.10	.10
33.0500	.10	.10	.10	.10	.10	.10
33.3000	.10	.10	.10	.10	.10	.10
33.5500	.09	.09	.09	.09	.09	.09
33.8000	.09	.09	.09	.09	.09	.09
34.0500	.09	.09	.09	.09	.09	.09
34.3000	.09	.09	.09	.09	.09	.09
34.5500	.09	.09	.09	.08	.08	.08
34.8000	.08	.08	.08	.08	.08	.08

35.0500	.08	.08	.08	.08	.08
35.3000	.08	.08	.08	.08	.08
35.5500	.08	.08	.08	.08	.08
35.8000	.08	.08	.08	.08	.07
36.0500	.07	.07	.07	.07	.07
36.3000	.07	.07	.07	.07	.07
36.5500	.07	.07	.07	.07	.07
36.8000	.07	.07	.07	.07	.07
37.0500	.07	.07	.07	.07	.07
37.3000	.07	.07	.07	.07	.07
37.5500	.06	.06	.06	.06	.06
37.8000	.06	.06	.06	.06	.06
38.0500	.06	.06	.06	.06	.06
38.3000	.06	.06	.06	.06	.06
38.5500	.06	.06	.06	.06	.06

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Pond Routed HYG (total out)

ÿPage 168

ÿÿÿName.... BASIN 004 OUT ÿTag: 1 yr

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
38.8000	.06	.06	.06	.06	.06
39.0500	.06	.06	.06	.06	.06
39.3000	.06	.06	.06	.06	.06
39.5500	.06	.06	.06	.06	.06
39.8000	.06	.06	.06	.06	.06
40.0500	.06	.06	.06	.06	.06
40.3000	.06	.06	.06	.06	.06
40.5500	.06	.06	.06	.06	.06
40.8000	.06	.06	.06	.06	.06
41.0500	.06	.06	.06	.06	.06
41.3000	.06	.06	.06	.06	.06
41.5500	.06	.06	.06	.06	.06
41.8000	.06	.06	.06	.06	.06
42.0500	.06	.06	.06	.06	.06
42.3000	.06	.06	.06	.06	.06
42.5500	.06	.06	.06	.06	.06
42.8000	.06	.06	.06	.06	.06
43.0500	.06	.06	.06	.06	.06
43.3000	.06	.06	.06	.06	.06
43.5500	.06	.06	.06	.06	.06
43.8000	.06	.06	.06	.06	.06
44.0500	.06	.06	.06	.06	.06

44.3000	.06	.06	.06	.06	.06
44.5500	.06	.06	.06	.06	.06
44.8000	.06	.06	.06	.06	.06
45.0500	.06	.06	.06	.06	.06
45.3000	.06	.06	.06	.06	.06
45.5500	.06	.06	.06	.06	.06
45.8000	.06	.06	.06	.06	.06
46.0500	.06	.06	.06	.06	.06
46.3000	.06	.06	.06	.06	.06
46.5500	.06	.06	.06	.06	.06
46.8000	.06	.06	.06	.06	.06
47.0500	.06	.06	.06	.06	.06
47.3000	.06	.06	.06	.06	.06
47.5500	.06	.06	.06	.06	.06
47.8000	.06	.06	.06	.06	.06
48.0500	.06	.06	.06	.06	.06
48.3000	.06	.06	.06	.06	.06
48.5500	.06	.06	.06	.06	.06
48.8000	.06	.06	.06	.06	.06
49.0500	.06	.06	.06	.06	.06
49.3000	.06	.06	.06	.06	.06
49.5500	.06	.06	.06	.06	.06
49.8000	.06	.06	.06	.06	.06

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Pond Routed HYG (total out) Page 169
 Name.... BASIN 004 OUT Tag: 1 yr Event: 1 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW
 Storm... TypeII 24hr Tag: 1 yr

HYDROGRAPH ORDINATES (cfs)					
Time	Output Time increment = .0500 hrs				
hrs	Time on left represents time for first value in each row.				

50.0500	.06	.06	.05	.05	.05
50.3000	.05	.05	.05	.05	.05
50.5500	.05	.05	.05	.05	.05
50.8000	.05	.05	.05	.05	.05
51.0500	.05	.05	.05	.05	.05
51.3000	.05	.05	.05	.05	.05
51.5500	.05	.05	.05	.05	.05
51.8000	.05	.05	.05	.05	.05
52.0500	.05	.05	.05	.05	.05
52.3000	.05	.05	.05	.05	.05
52.5500	.05	.05	.05	.05	.05
52.8000	.05	.05	.05	.05	.05
53.0500	.05	.05	.05	.05	.05
53.3000	.05	.05	.05	.05	.05

53.5500	.05	.05	.05	.05	.05
53.8000	.05	.05	.05	.05	.05
54.0500	.05	.05	.05	.05	.05
54.3000	.05	.05	.05	.05	.05
54.5500	.05	.05	.05	.05	.05
54.8000	.05	.05	.05	.05	.05
55.0500	.05	.05	.05	.05	.05
55.3000	.05	.05	.05	.05	.05
55.5500	.05	.05	.05	.05	.05
55.8000	.05	.05	.05	.05	.05
56.0500	.05	.05	.05	.05	.05
56.3000	.05	.05	.05	.05	.05
56.5500	.05	.05	.05	.05	.05
56.8000	.05	.05	.05	.05	.05
57.0500	.05	.05	.05	.05	.05
57.3000	.05	.05	.05	.05	.05
57.5500	.05	.05	.05	.05	.05
57.8000	.05	.05	.05	.05	.05
58.0500	.05	.05	.05	.05	.05
58.3000	.05	.05	.05	.05	.05
58.5500	.05	.05	.05	.05	.05
58.8000	.05	.05	.05	.05	.05
59.0500	.05	.05	.05	.05	.05
59.3000	.05	.05	.05	.05	.05
59.5500	.05	.05	.05	.05	.05
59.8000	.05	.05	.05	.05	.05
60.0500	.05	.05	.05	.05	.05
60.3000	.05	.05	.05	.05	.05
60.5500	.05	.05	.05	.05	.05
60.8000	.05	.05	.05	.05	.05
61.0500	.05	.05	.05	.05	.05

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Pond Routed HYG (total out)

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yyyName.... BASIN 004 OUT yTag: 1 yr

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

yyyStorm... TypeII 24hr yTag: 1 yr

HYDROGRAPH ORDINATES (cfs)

Time hrs	Output Time increment = .0500 hrs				
	Time on left represents time for first value in each row.				
61.3000	.05	.05	.05	.05	.05
61.5500	.05	.05	.05	.05	.05
61.8000	.05	.05	.05	.05	.05
62.0500	.05	.05	.05	.05	.05
62.3000	.05	.05	.05	.05	.05
62.5500	.05	.05	.05	.05	.05

62.8000	.05	.05	.05	.05	.05
63.0500	.05	.05	.05	.05	.05
63.3000	.05	.05	.05	.05	.05
63.5500	.05	.05	.05	.05	.05
63.8000	.05	.05	.05	.05	.05
64.0500	.05	.05	.05	.05	.05
64.3000	.05	.05	.05	.05	.05
64.5500	.05	.05	.05	.05	.05
64.8000	.05	.05	.05	.05	.05
65.0500	.05	.05	.05	.05	.05
65.3000	.05	.05	.05	.05	.05
65.5500	.05	.05	.05	.05	.05
65.8000	.05	.05	.05	.05	.05
66.0500	.05	.05	.05	.05	.05
66.3000	.05	.05	.05	.05	.05
66.5500	.05	.05	.05	.05	.05
66.8000	.05	.05	.05	.05	.05
67.0500	.05	.05	.05	.05	.05
67.3000	.05	.05	.05	.05	.05
67.5500	.05	.05	.05	.05	.05
67.8000	.05	.05	.05	.05	.05
68.0500	.05	.05	.05	.05	.05
68.3000	.05	.05	.05	.05	.05
68.5500	.05	.05	.05	.05	.05
68.8000	.05	.05	.05	.05	.05
69.0500	.05	.05	.05	.05	.05
69.3000	.05	.05	.05	.05	.05
69.5500	.05	.05	.05	.05	.05
69.8000	.05	.05	.05	.05	.05
70.0500	.05	.05	.05	.05	.05
70.3000	.05	.05	.05	.05	.05
70.5500	.05	.05	.05	.05	.05
70.8000	.05	.05	.04	.04	.04
71.0500	.04	.04	.04	.04	.04
71.3000	.04	.04	.04	.04	.04
71.5500	.04	.04	.04	.04	.04
71.8000	.04	.04	.04	.04	.04
72.0500	.04	.04	.04	.04	.04
72.3000	.04	.04	.04	.04	.04

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Pond Routed HYG (total out)

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ÿÿÿName.... BASIN 004 OUT ÿTag: 1 yr

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

HYDROGRAPH ORDINATES (cfs)

Time |

Output Time increment = .0500 hrs

hrs	Time on left represents time for first value in each row.				
72.5500	.04	.04	.04	.04	.04
72.8000	.04	.04	.04	.04	.04
73.0500	.04	.04	.04	.04	.04
73.3000	.04	.04	.04	.04	.04
73.5500	.04	.04	.04	.04	.04
73.8000	.04	.04	.04	.04	.04
74.0500	.04	.04	.04	.04	.04
74.3000	.04	.04	.04	.04	.04
74.5500	.04	.04	.04	.04	.04
74.8000	.04	.04	.04	.04	.04
75.0500	.04	.04	.04	.04	.04
75.3000	.04	.04	.04	.04	.04
75.5500	.04	.04	.04	.04	.04
75.8000	.04	.04	.04	.04	.04
76.0500	.04	.04	.04	.04	.04
76.3000	.04	.04	.04	.04	.04
76.5500	.04	.04	.04	.04	.04
76.8000	.04	.04	.04	.04	.04
77.0500	.04	.04	.04	.04	.04
77.3000	.04	.04	.04	.04	.04
77.5500	.04	.04	.04	.04	.04
77.8000	.04	.04	.04	.04	.04
78.0500	.04	.04	.04	.04	.04
78.3000	.04	.04	.04	.04	.04
78.5500	.04	.04	.04	.04	.04
78.8000	.04	.04	.04	.04	.04
79.0500	.04	.04	.04	.04	.04
79.3000	.04	.04	.04	.04	.04
79.5500	.04	.04	.04	.04	.04
79.8000	.04	.04	.04	.04	.04
80.0500	.04	.04	.04	.04	.04
80.3000	.04	.04	.04	.04	.04
80.5500	.04	.04	.04	.04	.04
80.8000	.04	.04	.04	.04	.04
81.0500	.04	.04	.04	.04	.04
81.3000	.04	.04	.04	.04	.04
81.5500	.04	.04	.04	.04	.04
81.8000	.04	.04	.04	.04	.04
82.0500	.04	.04	.04	.04	.04
82.3000	.04	.04	.04	.04	.04
82.5500	.04	.04	.04	.04	.04
82.8000	.04	.04	.04	.04	.04
83.0500	.04	.04	.04	.04	.04
83.3000	.04	.04	.04	.04	.04
83.5500	.04	.04	.04	.04	.04

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↑
 Type.... Pond Routed HYG (total out) Page 172
 Name.... BASIN 004 OUT Tag: 1 yr Event: 1 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW
 Storm... TypeII 24hr Tag: 1 yr

HYDROGRAPH ORDINATES (cfs)					
Output Time increment = .0500 hrs					
Time hrs	Time on left represents time for first value in each row.				
83.8000	.04	.04	.04	.04	.04
84.0500	.04	.04	.04	.04	.04
84.3000	.04	.04	.04	.04	.04
84.5500	.04	.04	.04	.04	.03
84.8000	.03	.03	.03	.03	.03
85.0500	.03	.03	.03	.03	.03
85.3000	.03	.03	.03	.03	.03
85.5500	.03	.03	.03	.03	.03
85.8000	.03	.03	.03	.03	.03
86.0500	.03	.03	.03	.03	.03
86.3000	.03	.03	.03	.03	.03
86.5500	.03	.03	.03	.03	.03
86.8000	.03	.03	.03	.03	.03
87.0500	.03	.03	.03	.03	.03
87.3000	.03	.03	.03	.03	.03
87.5500	.03	.03	.03	.03	.03
87.8000	.03	.03	.03	.03	.03
88.0500	.03	.03	.03	.03	.03
88.3000	.03	.03	.03	.03	.03
88.5500	.03	.03	.03	.03	.03
88.8000	.03	.03	.03	.03	.03
89.0500	.03	.03	.03	.03	.03
89.3000	.03	.03	.03	.03	.03
89.5500	.03	.03	.03	.03	.03
89.8000	.03	.03	.03	.03	.03
90.0500	.03	.03	.03	.03	.03
90.3000	.03	.03	.03	.03	.03
90.5500	.03	.03	.03	.03	.03
90.8000	.03	.03	.03	.03	.03
91.0500	.03	.03	.03	.03	.03
91.3000	.03	.03	.03	.03	.03
91.5500	.03	.03	.03	.03	.03
91.8000	.03	.03	.03	.03	.03
92.0500	.03	.03	.03	.03	.03
92.3000	.03	.03	.03	.03	.03
92.5500	.03	.03	.03	.03	.03
92.8000	.03	.03	.03	.03	.03
93.0500	.03	.03	.03	.03	.03
93.3000	.03	.03	.03	.03	.03
93.5500	.03	.03	.03	.03	.03

93.8000		.03	.03	.03	.03	.03
94.0500		.03	.03	.03	.03	.03
94.3000		.03	.03	.03	.03	.03
94.5500		.03	.03	.03	.03	.03
94.8000		.03	.03	.03	.03	.03

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ÿÿÿType.... Pond Routed HYG (total out)

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ÿÿÿName.... BASIN 004 OUT ÿTag: 1 yr

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
95.0500	.03	.03	.03	.03	.03
95.3000	.03	.02	.02	.02	.02
95.5500	.02	.02	.02	.02	.02
95.8000	.02	.02	.02	.02	.02
96.0500	.02	.02	.02	.02	.02
96.3000	.02	.02	.02	.02	.02
96.5500	.02	.02	.02	.02	.02
96.8000	.02	.02	.02	.02	.02
97.0500	.02	.02	.02	.02	.02
97.3000	.02	.02	.02	.02	.02
97.5500	.02	.02	.02	.02	.02
97.8000	.02	.02	.02	.02	.02
98.0500	.02	.02	.02	.02	.02
98.3000	.02	.02	.02	.02	.02
98.5500	.02	.02	.02	.02	.02
98.8000	.02	.02	.02	.02	.02
99.0500	.02	.02	.02	.02	.02
99.3000	.02	.02	.02	.02	.02
99.5500	.02	.02	.02	.02	.02
99.8000	.02	.02	.02	.02	.02
100.0500	.02	.02	.02	.02	.02
100.3000	.02	.02	.02	.02	.02
100.5500	.02	.02	.02	.02	.02
100.8000	.02	.02	.02	.02	.02
101.0500	.02	.02	.02	.02	.02
101.3000	.02	.02	.02	.02	.02
101.5500	.02	.02	.02	.02	.02
101.8000	.02	.02	.02	.02	.02
102.0500	.02	.02	.02	.02	.02
102.3000	.02	.02	.02	.02	.02
102.5500	.02	.02	.02	.02	.02
102.8000	.02	.02	.02	.02	.02

Pond Node Data = BASIN 004
Pond Volume Data = BASIN 004
Pond Outlet Data = Outlet 004

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 832.20 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0500 hrs

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

=====
Peak Inflow = 2.40 cfs at 12.1500 hrs
Peak Outflow = .29 cfs at 21.0500 hrs

Peak Elevation = 835.62 ft
Peak Storage = .247 ac-ft
=====

MASS BALANCE (ac-ft)

+ Initial Vol = .000
+ HYG Vol IN = .586
- Infiltration = .000
- HYG Vol OUT = .559
- Retained Vol = .027

Unrouted Vol = -.001 ac-ft (.088% of Inflow Volume)

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ÿÿÿType.... Time-Elev ÿPage 176
ÿÿÿName.... BASIN 004 OUT ÿTag: 1 yr Event: 1 yr
ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW
ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

TIME vs. ELEVATION (ft)

Time |

Output Time increment = .0500 hrs

hrs	Time on left represents time for first value in each row.				
8.5500	832.20	832.21	832.23	832.25	832.28
8.8000	832.31	832.35	832.38	832.43	832.45
9.0500	832.46	832.47	832.48	832.49	832.50
9.3000	832.51	832.52	832.54	832.55	832.57
9.5500	832.58	832.60	832.62	832.64	832.66
9.8000	832.68	832.70	832.71	832.72	832.73
10.0500	832.74	832.75	832.76	832.77	832.79
10.3000	832.80	832.81	832.83	832.84	832.86
10.5500	832.88	832.90	832.91	832.94	832.95
10.8000	832.96	832.98	832.99	833.00	833.02
11.0500	833.03	833.05	833.06	833.08	833.10
11.3000	833.12	833.14	833.17	833.20	833.21
11.5500	833.23	833.25	833.26	833.29	833.31
11.8000	833.34	833.37	833.41	833.46	833.53
12.0500	833.66	833.80	833.96	834.07	834.17
12.3000	834.24	834.29	834.33	834.36	834.39
12.5500	834.41	834.44	834.46	834.48	834.50
12.8000	834.51	834.53	834.55	834.57	834.58
13.0500	834.60	834.61	834.63	834.64	834.66
13.3000	834.67	834.69	834.70	834.72	834.73
13.5500	834.74	834.75	834.77	834.78	834.79
13.8000	834.80	834.81	834.83	834.84	834.85
14.0500	834.86	834.87	834.88	834.89	834.91
14.3000	834.92	834.93	834.94	834.95	834.96
14.5500	834.97	834.98	834.99	835.00	835.01
14.8000	835.02	835.03	835.04	835.05	835.06
15.0500	835.07	835.07	835.08	835.09	835.10
15.3000	835.11	835.12	835.13	835.14	835.15
15.5500	835.16	835.17	835.18	835.18	835.19
15.8000	835.20	835.21	835.22	835.23	835.23
16.0500	835.24	835.25	835.26	835.27	835.27
16.3000	835.28	835.29	835.30	835.31	835.31
16.5500	835.32	835.33	835.34	835.34	835.35
16.8000	835.36	835.37	835.37	835.38	835.39
17.0500	835.40	835.40	835.41	835.42	835.42
17.3000	835.43	835.44	835.45	835.45	835.46
17.5500	835.47	835.47	835.48	835.48	835.49
17.8000	835.49	835.50	835.50	835.51	835.51
18.0500	835.52	835.52	835.52	835.53	835.53
18.3000	835.54	835.54	835.54	835.55	835.55
18.5500	835.55	835.55	835.56	835.56	835.56
18.8000	835.57	835.57	835.57	835.57	835.57
19.0500	835.58	835.58	835.58	835.58	835.58

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yyyType.... Time-Elev

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Name.... BASIN 004 OUT Tag: 1 yr Event: 1 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW
 Storm... TypeII 24hr Tag: 1 yr

TIME vs. ELEVATION (ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
19.3000	835.59	835.59	835.59	835.59	835.59
19.5500	835.59	835.59	835.60	835.60	835.60
19.8000	835.60	835.60	835.60	835.60	835.60
20.0500	835.60	835.60	835.61	835.61	835.61
20.3000	835.61	835.61	835.61	835.61	835.61
20.5500	835.61	835.61	835.61	835.61	835.61
20.8000	835.61	835.61	835.61	835.61	835.61
21.0500	835.61	835.61	835.61	835.61	835.61
21.3000	835.62	835.62	835.62	835.62	835.62
21.5500	835.62	835.62	835.62	835.62	835.62
21.8000	835.62	835.62	835.62	835.62	835.62
22.0500	835.62	835.62	835.62	835.62	835.62
22.3000	835.62	835.61	835.61	835.61	835.61
22.5500	835.61	835.61	835.61	835.61	835.61
22.8000	835.61	835.61	835.61	835.61	835.61
23.0500	835.61	835.61	835.61	835.61	835.61
23.3000	835.61	835.61	835.61	835.61	835.61
23.5500	835.61	835.61	835.61	835.61	835.61
23.8000	835.61	835.61	835.61	835.61	835.61
24.0500	835.61	835.61	835.61	835.60	835.60
24.3000	835.60	835.60	835.60	835.60	835.60
24.5500	835.60	835.60	835.60	835.59	835.59
24.8000	835.59	835.59	835.59	835.59	835.59
25.0500	835.59	835.59	835.59	835.59	835.58
25.3000	835.58	835.58	835.58	835.58	835.58
25.5500	835.58	835.58	835.58	835.58	835.57
25.8000	835.57	835.57	835.57	835.57	835.57
26.0500	835.57	835.57	835.57	835.57	835.57
26.3000	835.56	835.56	835.56	835.56	835.56
26.5500	835.56	835.56	835.56	835.56	835.56
26.8000	835.56	835.55	835.55	835.55	835.55
27.0500	835.55	835.55	835.55	835.55	835.55
27.3000	835.55	835.55	835.55	835.54	835.54
27.5500	835.54	835.54	835.54	835.54	835.54
27.8000	835.54	835.54	835.54	835.54	835.54
28.0500	835.54	835.53	835.53	835.53	835.53
28.3000	835.53	835.53	835.53	835.53	835.53
28.5500	835.53	835.53	835.53	835.53	835.52
28.8000	835.52	835.52	835.52	835.52	835.52
29.0500	835.52	835.52	835.52	835.52	835.52
29.3000	835.52	835.52	835.52	835.52	835.51

29.5500		835.51	835.51	835.51	835.51	835.51
29.8000		835.51	835.51	835.51	835.51	835.51
30.0500		835.51	835.51	835.51	835.51	835.51

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yyyName.... BASIN 004 OUT yTag: 1 yr

Event: 1 yr

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yyyStorm... TypeII 24hr yTag: 1 yr

TIME vs. ELEVATION (ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
30.3000	835.50	835.50	835.50	835.50	835.50
30.5500	835.50	835.50	835.50	835.50	835.50
30.8000	835.50	835.50	835.50	835.50	835.50
31.0500	835.50	835.50	835.50	835.49	835.49
31.3000	835.49	835.49	835.49	835.49	835.49
31.5500	835.49	835.49	835.49	835.49	835.49
31.8000	835.49	835.49	835.49	835.49	835.49
32.0500	835.49	835.49	835.49	835.49	835.49
32.3000	835.48	835.48	835.48	835.48	835.48
32.5500	835.48	835.48	835.48	835.48	835.48
32.8000	835.48	835.48	835.48	835.48	835.48
33.0500	835.48	835.48	835.48	835.48	835.48
33.3000	835.48	835.48	835.48	835.48	835.48
33.5500	835.48	835.48	835.47	835.47	835.47
33.8000	835.47	835.47	835.47	835.47	835.47
34.0500	835.47	835.47	835.47	835.47	835.47
34.3000	835.47	835.47	835.47	835.47	835.47
34.5500	835.47	835.47	835.47	835.47	835.47
34.8000	835.47	835.47	835.47	835.47	835.47
35.0500	835.47	835.47	835.47	835.47	835.47
35.3000	835.47	835.46	835.46	835.46	835.46
35.5500	835.46	835.46	835.46	835.46	835.46
35.8000	835.46	835.46	835.46	835.46	835.46
36.0500	835.46	835.46	835.46	835.46	835.46
36.3000	835.46	835.46	835.46	835.46	835.46
36.5500	835.46	835.46	835.46	835.46	835.46
36.8000	835.46	835.46	835.46	835.46	835.46
37.0500	835.46	835.46	835.46	835.46	835.46
37.3000	835.46	835.46	835.46	835.45	835.45
37.5500	835.45	835.45	835.45	835.45	835.45
37.8000	835.45	835.45	835.45	835.45	835.45
38.0500	835.45	835.45	835.45	835.45	835.45
38.3000	835.45	835.45	835.45	835.45	835.45

38.5500	835.45	835.45	835.45	835.45	835.45
38.8000	835.45	835.45	835.45	835.45	835.45
39.0500	835.45	835.45	835.45	835.45	835.45
39.3000	835.45	835.45	835.45	835.45	835.45
39.5500	835.45	835.45	835.44	835.44	835.44
39.8000	835.44	835.44	835.44	835.44	835.44
40.0500	835.44	835.44	835.44	835.44	835.44
40.3000	835.44	835.44	835.44	835.44	835.44
40.5500	835.44	835.44	835.44	835.44	835.44
40.8000	835.44	835.44	835.44	835.44	835.43
41.0500	835.43	835.43	835.43	835.43	835.43

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yyyType.... Time-Elev

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Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

yyyStorm... TypeII 24hr yTag: 1 yr

TIME vs. ELEVATION (ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
41.3000	835.43	835.43	835.43	835.43	835.43
41.5500	835.43	835.43	835.43	835.43	835.43
41.8000	835.43	835.43	835.43	835.43	835.43
42.0500	835.43	835.42	835.42	835.42	835.42
42.3000	835.42	835.42	835.42	835.42	835.42
42.5500	835.42	835.42	835.42	835.42	835.42
42.8000	835.42	835.42	835.42	835.42	835.41
43.0500	835.41	835.41	835.41	835.41	835.41
43.3000	835.41	835.41	835.41	835.41	835.41
43.5500	835.41	835.41	835.41	835.41	835.41
43.8000	835.40	835.40	835.40	835.40	835.40
44.0500	835.40	835.40	835.40	835.40	835.40
44.3000	835.40	835.40	835.40	835.40	835.40
44.5500	835.39	835.39	835.39	835.39	835.39
44.8000	835.39	835.39	835.39	835.39	835.39
45.0500	835.39	835.39	835.39	835.39	835.39
45.3000	835.38	835.38	835.38	835.38	835.38
45.5500	835.38	835.38	835.38	835.38	835.38
45.8000	835.38	835.38	835.38	835.37	835.37
46.0500	835.37	835.37	835.37	835.37	835.37
46.3000	835.37	835.37	835.37	835.37	835.37
46.5500	835.37	835.36	835.36	835.36	835.36
46.8000	835.36	835.36	835.36	835.36	835.36
47.0500	835.36	835.36	835.36	835.36	835.35
47.3000	835.35	835.35	835.35	835.35	835.35

47.5500	835.35	835.35	835.35	835.35	835.35
47.8000	835.35	835.34	835.34	835.34	835.34
48.0500	835.34	835.34	835.34	835.34	835.34
48.3000	835.34	835.34	835.34	835.33	835.33
48.5500	835.33	835.33	835.33	835.33	835.33
48.8000	835.33	835.33	835.33	835.33	835.32
49.0500	835.32	835.32	835.32	835.32	835.32
49.3000	835.32	835.32	835.32	835.32	835.32
49.5500	835.31	835.31	835.31	835.31	835.31
49.8000	835.31	835.31	835.31	835.31	835.31
50.0500	835.30	835.30	835.30	835.30	835.30
50.3000	835.30	835.30	835.30	835.30	835.30
50.5500	835.29	835.29	835.29	835.29	835.29
50.8000	835.29	835.29	835.29	835.29	835.29
51.0500	835.29	835.28	835.28	835.28	835.28
51.3000	835.28	835.28	835.28	835.28	835.28
51.5500	835.28	835.27	835.27	835.27	835.27
51.8000	835.27	835.27	835.27	835.27	835.27
52.0500	835.27	835.26	835.26	835.26	835.26

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yyyType.... Time-Elev

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yyyName.... BASIN 004 OUT yTag: 1 yr

Event: 1 yr

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yyyStorm... TypeII 24hr yTag: 1 yr

TIME vs. ELEVATION (ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
52.3000	835.26	835.26	835.26	835.26	835.26
52.5500	835.25	835.25	835.25	835.25	835.25
52.8000	835.25	835.25	835.25	835.25	835.25
53.0500	835.24	835.24	835.24	835.24	835.24
53.3000	835.24	835.24	835.24	835.24	835.23
53.5500	835.23	835.23	835.23	835.23	835.23
53.8000	835.23	835.23	835.23	835.23	835.22
54.0500	835.22	835.22	835.22	835.22	835.22
54.3000	835.22	835.22	835.22	835.21	835.21
54.5500	835.21	835.21	835.21	835.21	835.21
54.8000	835.21	835.21	835.21	835.20	835.20
55.0500	835.20	835.20	835.20	835.20	835.20
55.3000	835.20	835.19	835.19	835.19	835.19
55.5500	835.19	835.19	835.19	835.19	835.19
55.8000	835.18	835.18	835.18	835.18	835.18
56.0500	835.18	835.18	835.18	835.17	835.17
56.3000	835.17	835.17	835.17	835.17	835.17

56.5500	835.17	835.17	835.16	835.16	835.16
56.8000	835.16	835.16	835.16	835.16	835.16
57.0500	835.15	835.15	835.15	835.15	835.15
57.3000	835.15	835.15	835.15	835.14	835.14
57.5500	835.14	835.14	835.14	835.14	835.14
57.8000	835.14	835.14	835.13	835.13	835.13
58.0500	835.13	835.13	835.13	835.13	835.13
58.3000	835.12	835.12	835.12	835.12	835.12
58.5500	835.12	835.12	835.12	835.11	835.11
58.8000	835.11	835.11	835.11	835.11	835.11
59.0500	835.11	835.10	835.10	835.10	835.10
59.3000	835.10	835.10	835.10	835.10	835.10
59.5500	835.09	835.09	835.09	835.09	835.09
59.8000	835.09	835.09	835.09	835.08	835.08
60.0500	835.08	835.08	835.08	835.08	835.08
60.3000	835.08	835.07	835.07	835.07	835.07
60.5500	835.07	835.07	835.07	835.07	835.06
60.8000	835.06	835.06	835.06	835.06	835.06
61.0500	835.06	835.06	835.05	835.05	835.05
61.3000	835.05	835.05	835.05	835.05	835.05
61.5500	835.04	835.04	835.04	835.04	835.04
61.8000	835.04	835.04	835.04	835.04	835.03
62.0500	835.03	835.03	835.03	835.03	835.03
62.3000	835.03	835.03	835.02	835.02	835.02
62.5500	835.02	835.02	835.02	835.02	835.02
62.8000	835.01	835.01	835.01	835.01	835.01
63.0500	835.01	835.01	835.01	835.00	835.00

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ÿÿÿType.... Time-Elev

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ÿÿÿName.... BASIN 004 OUT ÿTag: 1 yr

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ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

TIME vs. ELEVATION (ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
63.3000	835.00	835.00	835.00	835.00	835.00
63.5500	835.00	834.99	834.99	834.99	834.99
63.8000	834.99	834.99	834.99	834.99	834.98
64.0500	834.98	834.98	834.98	834.98	834.98
64.3000	834.98	834.98	834.97	834.97	834.97
64.5500	834.97	834.97	834.97	834.97	834.97
64.8000	834.96	834.96	834.96	834.96	834.96
65.0500	834.96	834.96	834.96	834.96	834.95
65.3000	834.95	834.95	834.95	834.95	834.95

65.5500	834.95	834.94	834.94	834.94	834.94
65.8000	834.94	834.94	834.94	834.93	834.93
66.0500	834.93	834.93	834.93	834.93	834.93
66.3000	834.93	834.92	834.92	834.92	834.92
66.5500	834.92	834.92	834.92	834.91	834.91
66.8000	834.91	834.91	834.91	834.91	834.91
67.0500	834.90	834.90	834.90	834.90	834.90
67.3000	834.90	834.90	834.89	834.89	834.89
67.5500	834.89	834.89	834.89	834.89	834.88
67.8000	834.88	834.88	834.88	834.88	834.88
68.0500	834.88	834.88	834.87	834.87	834.87
68.3000	834.87	834.87	834.87	834.87	834.86
68.5500	834.86	834.86	834.86	834.86	834.86
68.8000	834.86	834.85	834.85	834.85	834.85
69.0500	834.85	834.85	834.85	834.84	834.84
69.3000	834.84	834.84	834.84	834.84	834.84
69.5500	834.84	834.83	834.83	834.83	834.83
69.8000	834.83	834.83	834.83	834.82	834.82
70.0500	834.82	834.82	834.82	834.82	834.81
70.3000	834.81	834.81	834.81	834.81	834.81
70.5500	834.81	834.80	834.80	834.80	834.80
70.8000	834.80	834.80	834.80	834.79	834.79
71.0500	834.79	834.79	834.79	834.79	834.79
71.3000	834.78	834.78	834.78	834.78	834.78
71.5500	834.78	834.78	834.77	834.77	834.77
71.8000	834.77	834.77	834.77	834.77	834.76
72.0500	834.76	834.76	834.76	834.76	834.76
72.3000	834.76	834.76	834.75	834.75	834.75
72.5500	834.75	834.75	834.75	834.75	834.74
72.8000	834.74	834.74	834.74	834.74	834.74
73.0500	834.74	834.73	834.73	834.73	834.73
73.3000	834.73	834.73	834.73	834.72	834.72
73.5500	834.72	834.72	834.72	834.72	834.72
73.8000	834.71	834.71	834.71	834.71	834.71
74.0500	834.71	834.71	834.71	834.70	834.70

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yyyType.... Time-Elev

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yyyName.... BASIN 004 OUT yTag: 1 yr

Event: 1 yr

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yyyStorm... TypeII 24hr yTag: 1 yr

TIME vs. ELEVATION (ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
74.3000	834.70	834.70	834.70	834.70	834.69

74.5500	834.69	834.69	834.69	834.69	834.69
74.8000	834.69	834.68	834.68	834.68	834.68
75.0500	834.68	834.68	834.67	834.67	834.67
75.3000	834.67	834.67	834.67	834.66	834.66
75.5500	834.66	834.66	834.66	834.66	834.66
75.8000	834.65	834.65	834.65	834.65	834.65
76.0500	834.65	834.64	834.64	834.64	834.64
76.3000	834.64	834.64	834.64	834.63	834.63
76.5500	834.63	834.63	834.63	834.63	834.62
76.8000	834.62	834.62	834.62	834.62	834.62
77.0500	834.62	834.61	834.61	834.61	834.61
77.3000	834.61	834.61	834.61	834.60	834.60
77.5500	834.60	834.60	834.60	834.60	834.59
77.8000	834.59	834.59	834.59	834.59	834.59
78.0500	834.59	834.58	834.58	834.58	834.58
78.3000	834.58	834.58	834.58	834.57	834.57
78.5500	834.57	834.57	834.57	834.57	834.56
78.8000	834.56	834.56	834.56	834.56	834.56
79.0500	834.56	834.55	834.55	834.55	834.55
79.3000	834.55	834.55	834.55	834.54	834.54
79.5500	834.54	834.54	834.54	834.54	834.54
79.8000	834.53	834.53	834.53	834.53	834.53
80.0500	834.53	834.53	834.52	834.52	834.52
80.3000	834.52	834.52	834.52	834.52	834.51
80.5500	834.51	834.51	834.51	834.51	834.51
80.8000	834.51	834.50	834.50	834.50	834.50
81.0500	834.50	834.50	834.50	834.49	834.49
81.3000	834.49	834.49	834.49	834.49	834.49
81.5500	834.48	834.48	834.48	834.48	834.48
81.8000	834.48	834.48	834.48	834.47	834.47
82.0500	834.47	834.47	834.47	834.47	834.47
82.3000	834.46	834.46	834.46	834.46	834.46
82.5500	834.46	834.46	834.45	834.45	834.45
82.8000	834.45	834.45	834.45	834.45	834.44
83.0500	834.44	834.44	834.44	834.44	834.44
83.3000	834.43	834.43	834.43	834.43	834.43
83.5500	834.43	834.43	834.42	834.42	834.42
83.8000	834.42	834.42	834.42	834.41	834.41
84.0500	834.41	834.41	834.41	834.41	834.40
84.3000	834.40	834.40	834.40	834.40	834.40
84.5500	834.40	834.39	834.39	834.39	834.39
84.8000	834.39	834.39	834.38	834.38	834.38
85.0500	834.38	834.38	834.38	834.38	834.37

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yyyName.... BASIN 004 OUT yTag: 1 yr

Event: 1 yr

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yyyStorm... TypeII 24hr yTag: 1 yr

TIME vs. ELEVATION (ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
85.3000	834.37	834.37	834.37	834.37	834.37
85.5500	834.37	834.36	834.36	834.36	834.36
85.8000	834.36	834.36	834.35	834.35	834.35
86.0500	834.35	834.35	834.35	834.35	834.34
86.3000	834.34	834.34	834.34	834.34	834.34
86.5500	834.34	834.33	834.33	834.33	834.33
86.8000	834.33	834.33	834.33	834.32	834.32
87.0500	834.32	834.32	834.32	834.32	834.32
87.3000	834.31	834.31	834.31	834.31	834.31
87.5500	834.31	834.31	834.30	834.30	834.30
87.8000	834.30	834.30	834.30	834.30	834.29
88.0500	834.29	834.29	834.29	834.29	834.29
88.3000	834.29	834.28	834.28	834.28	834.28
88.5500	834.28	834.28	834.28	834.28	834.27
88.8000	834.27	834.27	834.27	834.27	834.27
89.0500	834.27	834.26	834.26	834.26	834.26
89.3000	834.26	834.26	834.26	834.25	834.25
89.5500	834.25	834.25	834.25	834.25	834.25
89.8000	834.25	834.24	834.24	834.24	834.24
90.0500	834.24	834.24	834.24	834.23	834.23
90.3000	834.23	834.23	834.23	834.23	834.23
90.5500	834.23	834.22	834.22	834.22	834.22
90.8000	834.22	834.22	834.22	834.21	834.21
91.0500	834.21	834.21	834.21	834.21	834.21
91.3000	834.21	834.20	834.20	834.20	834.20
91.5500	834.20	834.20	834.20	834.19	834.19
91.8000	834.19	834.19	834.19	834.19	834.19
92.0500	834.18	834.18	834.18	834.18	834.18
92.3000	834.18	834.18	834.17	834.17	834.17
92.5500	834.17	834.17	834.17	834.16	834.16
92.8000	834.16	834.16	834.16	834.16	834.16
93.0500	834.15	834.15	834.15	834.15	834.15
93.3000	834.15	834.15	834.14	834.14	834.14
93.5500	834.14	834.14	834.14	834.14	834.13
93.8000	834.13	834.13	834.13	834.13	834.13
94.0500	834.13	834.13	834.12	834.12	834.12
94.3000	834.12	834.12	834.12	834.12	834.11
94.5500	834.11	834.11	834.11	834.11	834.11
94.8000	834.11	834.11	834.10	834.10	834.10
95.0500	834.10	834.10	834.10	834.10	834.09
95.3000	834.09	834.09	834.09	834.09	834.09
95.5500	834.09	834.09	834.08	834.08	834.08
95.8000	834.08	834.08	834.08	834.08	834.08

96.0500 | 834.07 834.07 834.07 834.07 834.07

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yyyStorm... TypeII 24hr yTag: 1 yr

TIME vs. ELEVATION (ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
96.3000	834.07	834.07	834.07	834.06	834.06
96.5500	834.06	834.06	834.06	834.06	834.06
96.8000	834.06	834.05	834.05	834.05	834.05
97.0500	834.05	834.05	834.05	834.05	834.04
97.3000	834.04	834.04	834.04	834.04	834.04
97.5500	834.04	834.04	834.03	834.03	834.03
97.8000	834.03	834.03	834.03	834.03	834.03
98.0500	834.03	834.02	834.02	834.02	834.02
98.3000	834.02	834.02	834.02	834.02	834.01
98.5500	834.01	834.01	834.01	834.01	834.01
98.8000	834.01	834.01	834.01	834.00	834.00
99.0500	834.00	834.00	834.00	834.00	834.00
99.3000	834.00	834.00	833.99	833.99	833.99
99.5500	833.99	833.99	833.99	833.99	833.99
99.8000	833.99	833.99	833.98	833.98	833.98
100.0500	833.98	833.98	833.98	833.98	833.98
100.3000	833.98	833.97	833.97	833.97	833.97
100.5500	833.97	833.97	833.97	833.97	833.97
100.8000	833.96	833.96	833.96	833.96	833.96
101.0500	833.96	833.96	833.96	833.96	833.96
101.3000	833.95	833.95	833.95	833.95	833.95
101.5500	833.95	833.95	833.95	833.95	833.94
101.8000	833.94	833.94	833.94	833.94	833.94
102.0500	833.94	833.94	833.93	833.93	833.93
102.3000	833.93	833.93	833.93	833.93	833.93
102.5500	833.92	833.92	833.92	833.92	833.92
102.8000	833.92	833.92	833.92	833.92	833.91
103.0500	833.91	833.91	833.91	833.91	833.91
103.3000	833.91	833.91	833.91	833.90	833.90
103.5500	833.90	833.90	833.90	833.90	833.90
103.8000	833.90	833.90	833.90	833.89	833.89
104.0500	833.89	833.89	833.89	833.89	833.89
104.3000	833.89	833.89	833.89	833.89	833.88
104.5500	833.88	833.88	833.88	833.88	833.88
104.8000	833.88	833.88	833.88	833.88	833.88

105.0500	833.87	833.87	833.87	833.87	833.87
105.3000	833.87	833.87	833.87	833.87	833.87
105.5500	833.87	833.87	833.86	833.86	833.86
105.8000	833.86	833.86	833.86	833.86	833.86
106.0500	833.86	833.86	833.86	833.86	833.85
106.3000	833.85	833.85	833.85	833.85	833.85
106.5500	833.85	833.85	833.85	833.85	833.85
106.8000	833.85	833.85	833.85	833.84	833.84
107.0500	833.84	833.84	833.84	833.84	833.84

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 Name.... BASIN 004 OUT Tag: 1 yr Event: 1 yr
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 Storm... TypeII 24hr Tag: 1 yr

TIME vs. ELEVATION (ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
107.3000	833.84	833.84	833.84	833.84	833.84
107.5500	833.84	833.84	833.84	833.84	833.83
107.8000	833.83	833.83	833.83	833.83	833.83
108.0500	833.83	833.83	833.83	833.83	833.83
108.3000	833.83	833.83	833.83	833.83	833.83
108.5500	833.82				

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Type.... Time vs. Volume Page 186
 Name.... BASIN 004 OUT Tag: 1 yr Event: 1 yr
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 Storm... TypeII 24hr Tag: 1 yr

TIME vs. VOLUME (ac-ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
8.5500	.000	.000	.000	.000	.000
8.8000	.000	.000	.000	.000	.000
9.0500	.000	.000	.000	.000	.000
9.3000	.000	.000	.000	.000	.000
9.5500	.000	.000	.000	.000	.000
9.8000	.001	.001	.001	.001	.001
10.0500	.001	.001	.001	.001	.001

10.3000	.001	.001	.001	.001	.001
10.5500	.001	.002	.002	.002	.002
10.8000	.002	.002	.002	.002	.003
11.0500	.003	.003	.003	.003	.003
11.3000	.004	.004	.004	.005	.005
11.5500	.005	.006	.006	.007	.007
11.8000	.008	.009	.010	.011	.014
12.0500	.019	.026	.036	.045	.053
12.3000	.059	.063	.067	.070	.073
12.5500	.075	.078	.080	.082	.084
12.8000	.086	.088	.089	.091	.093
13.0500	.095	.097	.098	.100	.102
13.3000	.104	.106	.107	.109	.110
13.5500	.112	.113	.115	.116	.118
13.8000	.119	.121	.122	.124	.125
14.0500	.127	.129	.130	.132	.133
14.3000	.135	.136	.138	.139	.141
14.5500	.142	.143	.145	.146	.147
14.8000	.149	.150	.152	.153	.154
15.0500	.156	.157	.158	.160	.161
15.3000	.163	.164	.165	.167	.168
15.5500	.170	.171	.172	.174	.175
15.8000	.176	.178	.179	.180	.182
16.0500	.183	.184	.185	.187	.188
16.3000	.189	.191	.192	.193	.194
16.5500	.196	.197	.198	.199	.201
16.8000	.202	.203	.204	.206	.207
17.0500	.208	.209	.210	.212	.213
17.3000	.214	.215	.217	.218	.219
17.5500	.220	.221	.222	.223	.224
17.8000	.225	.226	.226	.227	.228
18.0500	.229	.230	.230	.231	.232
18.3000	.232	.233	.233	.234	.235
18.5500	.235	.236	.236	.237	.237
18.8000	.238	.238	.238	.239	.239
19.0500	.240	.240	.240	.241	.241

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yyyType.... Time vs. Volume

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yyyName.... BASIN 004 OUT yTag: 1 yr

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

yyyStorm... TypeII 24hr yTag: 1 yr

TIME vs. VOLUME (ac-ft)

Time	
hrs	Output Time increment = .0500 hrs
	Time on left represents time for first value in each row.
-----	-----

19.3000	.241	.242	.242	.242	.242
19.5500	.243	.243	.243	.243	.244
19.8000	.244	.244	.244	.244	.244
20.0500	.245	.245	.245	.245	.245
20.3000	.245	.245	.245	.246	.246
20.5500	.246	.246	.246	.246	.246
20.8000	.246	.246	.246	.246	.246
21.0500	.246	.247	.247	.247	.247
21.3000	.247	.247	.247	.247	.247
21.5500	.247	.247	.247	.247	.247
21.8000	.247	.247	.247	.247	.247
22.0500	.247	.247	.247	.247	.247
22.3000	.247	.247	.247	.247	.247
22.5500	.247	.247	.246	.246	.246
22.8000	.246	.246	.246	.246	.246
23.0500	.246	.246	.246	.246	.246
23.3000	.246	.246	.246	.246	.246
23.5500	.246	.246	.246	.246	.246
23.8000	.246	.245	.245	.245	.245
24.0500	.245	.245	.245	.245	.245
24.3000	.244	.244	.244	.244	.244
24.5500	.244	.243	.243	.243	.243
24.8000	.243	.242	.242	.242	.242
25.0500	.242	.242	.241	.241	.241
25.3000	.241	.241	.240	.240	.240
25.5500	.240	.240	.240	.239	.239
25.8000	.239	.239	.239	.239	.238
26.0500	.238	.238	.238	.238	.238
26.3000	.237	.237	.237	.237	.237
26.5500	.237	.236	.236	.236	.236
26.8000	.236	.236	.235	.235	.235
27.0500	.235	.235	.235	.235	.234
27.3000	.234	.234	.234	.234	.234
27.5500	.234	.233	.233	.233	.233
27.8000	.233	.233	.233	.232	.232
28.0500	.232	.232	.232	.232	.232
28.3000	.231	.231	.231	.231	.231
28.5500	.231	.231	.231	.230	.230
28.8000	.230	.230	.230	.230	.230
29.0500	.230	.229	.229	.229	.229
29.3000	.229	.229	.229	.229	.229
29.5500	.228	.228	.228	.228	.228
29.8000	.228	.228	.228	.228	.227
30.0500	.227	.227	.227	.227	.227

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ÿÿÿType.... Time vs. Volume

ÿÿÿName.... BASIN 004 OUT ÿTag: 1 yr

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yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW
 yyyStorm... TypeII 24hr yTag: 1 yr

TIME vs. VOLUME (ac-ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
30.3000	.227	.227	.227	.226	.226
30.5500	.226	.226	.226	.226	.226
30.8000	.226	.226	.226	.225	.225
31.0500	.225	.225	.225	.225	.225
31.3000	.225	.225	.225	.225	.224
31.5500	.224	.224	.224	.224	.224
31.8000	.224	.224	.224	.224	.224
32.0500	.224	.224	.223	.223	.223
32.3000	.223	.223	.223	.223	.223
32.5500	.223	.223	.223	.223	.223
32.8000	.223	.222	.222	.222	.222
33.0500	.222	.222	.222	.222	.222
33.3000	.222	.222	.222	.222	.222
33.5500	.222	.222	.222	.221	.221
33.8000	.221	.221	.221	.221	.221
34.0500	.221	.221	.221	.221	.221
34.3000	.221	.221	.221	.221	.221
34.5500	.221	.220	.220	.220	.220
34.8000	.220	.220	.220	.220	.220
35.0500	.220	.220	.220	.220	.220
35.3000	.220	.220	.220	.220	.220
35.5500	.220	.220	.219	.219	.219
35.8000	.219	.219	.219	.219	.219
36.0500	.219	.219	.219	.219	.219
36.3000	.219	.219	.219	.219	.219
36.5500	.219	.219	.219	.219	.219
36.8000	.219	.218	.218	.218	.218
37.0500	.218	.218	.218	.218	.218
37.3000	.218	.218	.218	.218	.218
37.5500	.218	.218	.218	.218	.218
37.8000	.218	.218	.218	.218	.218
38.0500	.218	.218	.218	.218	.217
38.3000	.217	.217	.217	.217	.217
38.5500	.217	.217	.217	.217	.217
38.8000	.217	.217	.217	.217	.217
39.0500	.217	.217	.217	.217	.217
39.3000	.217	.217	.217	.217	.216
39.5500	.216	.216	.216	.216	.216
39.8000	.216	.216	.216	.216	.216
40.0500	.216	.216	.216	.216	.216
40.3000	.216	.215	.215	.215	.215
40.5500	.215	.215	.215	.215	.215

40.8000		.215	.215	.215	.215	.215
41.0500		.215	.214	.214	.214	.214

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yyyType.... Time vs. Volume

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yyyName.... BASIN 004 OUT yTag: 1 yr

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

yyyStorm... TypeII 24hr yTag: 1 yr

TIME vs. VOLUME (ac-ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
41.3000	.214	.214	.214	.214	.214
41.5500	.214	.214	.214	.213	.213
41.8000	.213	.213	.213	.213	.213
42.0500	.213	.213	.213	.213	.213
42.3000	.212	.212	.212	.212	.212
42.5500	.212	.212	.212	.212	.212
42.8000	.211	.211	.211	.211	.211
43.0500	.211	.211	.211	.211	.211
43.3000	.210	.210	.210	.210	.210
43.5500	.210	.210	.210	.210	.210
43.8000	.209	.209	.209	.209	.209
44.0500	.209	.209	.209	.209	.208
44.3000	.208	.208	.208	.208	.208
44.5500	.208	.208	.208	.207	.207
44.8000	.207	.207	.207	.207	.207
45.0500	.207	.206	.206	.206	.206
45.3000	.206	.206	.206	.206	.206
45.5500	.205	.205	.205	.205	.205
45.8000	.205	.205	.205	.204	.204
46.0500	.204	.204	.204	.204	.204
46.3000	.203	.203	.203	.203	.203
46.5500	.203	.203	.203	.202	.202
46.8000	.202	.202	.202	.202	.202
47.0500	.202	.201	.201	.201	.201
47.3000	.201	.201	.201	.200	.200
47.5500	.200	.200	.200	.200	.200
47.8000	.199	.199	.199	.199	.199
48.0500	.199	.199	.198	.198	.198
48.3000	.198	.198	.198	.198	.198
48.5500	.197	.197	.197	.197	.197
48.8000	.197	.196	.196	.196	.196
49.0500	.196	.196	.196	.195	.195
49.3000	.195	.195	.195	.195	.195
49.5500	.194	.194	.194	.194	.194

49.8000	.194	.193	.193	.193	.193
50.0500	.193	.193	.192	.192	.192
50.3000	.192	.192	.192	.192	.191
50.5500	.191	.191	.191	.191	.191
50.8000	.190	.190	.190	.190	.190
51.0500	.190	.189	.189	.189	.189
51.3000	.189	.189	.188	.188	.188
51.5500	.188	.188	.188	.188	.187
51.8000	.187	.187	.187	.187	.187
52.0500	.186	.186	.186	.186	.186

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ÿÿÿType.... Time vs. Volume

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ÿÿÿName.... BASIN 004 OUT ÿTag: 1 yr

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

TIME vs. VOLUME (ac-ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
52.3000	.186	.185	.185	.185	.185
52.5500	.185	.185	.184	.184	.184
52.8000	.184	.184	.184	.183	.183
53.0500	.183	.183	.183	.183	.182
53.3000	.182	.182	.182	.182	.182
53.5500	.181	.181	.181	.181	.181
53.8000	.181	.180	.180	.180	.180
54.0500	.180	.180	.179	.179	.179
54.3000	.179	.179	.179	.178	.178
54.5500	.178	.178	.178	.178	.177
54.8000	.177	.177	.177	.177	.177
55.0500	.176	.176	.176	.176	.176
55.3000	.176	.175	.175	.175	.175
55.5500	.175	.174	.174	.174	.174
55.8000	.174	.174	.173	.173	.173
56.0500	.173	.173	.172	.172	.172
56.3000	.172	.172	.171	.171	.171
56.5500	.171	.171	.171	.170	.170
56.8000	.170	.170	.170	.169	.169
57.0500	.169	.169	.169	.169	.168
57.3000	.168	.168	.168	.168	.167
57.5500	.167	.167	.167	.167	.167
57.8000	.166	.166	.166	.166	.166
58.0500	.165	.165	.165	.165	.165
58.3000	.165	.164	.164	.164	.164
58.5500	.164	.163	.163	.163	.163

58.8000	.163	.163	.162	.162	.162
59.0500	.162	.162	.161	.161	.161
59.3000	.161	.161	.160	.160	.160
59.5500	.160	.160	.160	.159	.159
59.8000	.159	.159	.159	.158	.158
60.0500	.158	.158	.158	.158	.157
60.3000	.157	.157	.157	.157	.157
60.5500	.156	.156	.156	.156	.156
60.8000	.155	.155	.155	.155	.155
61.0500	.155	.154	.154	.154	.154
61.3000	.154	.153	.153	.153	.153
61.5500	.153	.153	.152	.152	.152
61.8000	.152	.152	.151	.151	.151
62.0500	.151	.151	.151	.150	.150
62.3000	.150	.150	.150	.150	.149
62.5500	.149	.149	.149	.149	.148
62.8000	.148	.148	.148	.148	.148
63.0500	.147	.147	.147	.147	.147

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yyyType.... Time vs. Volume

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yyyName.... BASIN 004 OUT yTag: 1 yr

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

yyyStorm... TypeII 24hr yTag: 1 yr

TIME vs. VOLUME (ac-ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
63.3000	.147	.146	.146	.146	.146
63.5500	.146	.145	.145	.145	.145
63.8000	.145	.145	.144	.144	.144
64.0500	.144	.144	.144	.143	.143
64.3000	.143	.143	.143	.142	.142
64.5500	.142	.142	.142	.142	.141
64.8000	.141	.141	.141	.141	.141
65.0500	.140	.140	.140	.140	.140
65.3000	.140	.139	.139	.139	.139
65.5500	.139	.138	.138	.138	.138
65.8000	.138	.137	.137	.137	.137
66.0500	.137	.137	.136	.136	.136
66.3000	.136	.136	.135	.135	.135
66.5500	.135	.135	.134	.134	.134
66.8000	.134	.134	.133	.133	.133
67.0500	.133	.133	.133	.132	.132
67.3000	.132	.132	.132	.131	.131
67.5500	.131	.131	.131	.130	.130

67.8000	.130	.130	.130	.130	.129
68.0500	.129	.129	.129	.129	.128
68.3000	.128	.128	.128	.128	.128
68.5500	.127	.127	.127	.127	.127
68.8000	.126	.126	.126	.126	.126
69.0500	.126	.125	.125	.125	.125
69.3000	.125	.124	.124	.124	.124
69.5500	.124	.124	.123	.123	.123
69.8000	.123	.123	.122	.122	.122
70.0500	.122	.122	.121	.121	.121
70.3000	.121	.121	.121	.120	.120
70.5500	.120	.120	.120	.119	.119
70.8000	.119	.119	.119	.119	.118
71.0500	.118	.118	.118	.118	.117
71.3000	.117	.117	.117	.117	.117
71.5500	.116	.116	.116	.116	.116
71.8000	.115	.115	.115	.115	.115
72.0500	.115	.114	.114	.114	.114
72.3000	.114	.114	.113	.113	.113
72.5500	.113	.113	.112	.112	.112
72.8000	.112	.112	.112	.111	.111
73.0500	.111	.111	.111	.111	.110
73.3000	.110	.110	.110	.110	.110
73.5500	.109	.109	.109	.109	.109
73.8000	.109	.108	.108	.108	.108
74.0500	.108	.108	.107	.107	.107

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yyyType.... Time vs. Volume

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yyyName.... BASIN 004 OUT yTag: 1 yr

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

yyyStorm... TypeII 24hr yTag: 1 yr

TIME vs. VOLUME (ac-ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
74.3000	.107	.107	.107	.106	.106
74.5500	.106	.106	.106	.105	.105
74.8000	.105	.105	.105	.104	.104
75.0500	.104	.104	.104	.104	.103
75.3000	.103	.103	.103	.103	.102
75.5500	.102	.102	.102	.102	.102
75.8000	.101	.101	.101	.101	.101
76.0500	.100	.100	.100	.100	.100
76.3000	.100	.099	.099	.099	.099
76.5500	.099	.098	.098	.098	.098

76.8000	.098	.098	.097	.097	.097
77.0500	.097	.097	.097	.096	.096
77.3000	.096	.096	.096	.096	.095
77.5500	.095	.095	.095	.095	.095
77.8000	.094	.094	.094	.094	.094
78.0500	.094	.093	.093	.093	.093
78.3000	.093	.093	.092	.092	.092
78.5500	.092	.092	.092	.091	.091
78.8000	.091	.091	.091	.091	.090
79.0500	.090	.090	.090	.090	.090
79.3000	.089	.089	.089	.089	.089
79.5500	.089	.088	.088	.088	.088
79.8000	.088	.088	.088	.087	.087
80.0500	.087	.087	.087	.087	.086
80.3000	.086	.086	.086	.086	.086
80.5500	.086	.085	.085	.085	.085
80.8000	.085	.085	.084	.084	.084
81.0500	.084	.084	.084	.084	.083
81.3000	.083	.083	.083	.083	.083
81.5500	.083	.082	.082	.082	.082
81.8000	.082	.082	.082	.081	.081
82.0500	.081	.081	.081	.081	.081
82.3000	.080	.080	.080	.080	.080
82.5500	.080	.080	.079	.079	.079
82.8000	.079	.079	.079	.078	.078
83.0500	.078	.078	.078	.078	.077
83.3000	.077	.077	.077	.077	.077
83.5500	.077	.076	.076	.076	.076
83.8000	.076	.076	.075	.075	.075
84.0500	.075	.075	.075	.074	.074
84.3000	.074	.074	.074	.074	.074
84.5500	.073	.073	.073	.073	.073
84.8000	.073	.073	.072	.072	.072
85.0500	.072	.072	.072	.071	.071

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yyyType.... Time vs. Volume

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yyyName.... BASIN 004 OUT yTag: 1 yr

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

yyyStorm... TypeII 24hr yTag: 1 yr

TIME vs. VOLUME (ac-ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
85.3000	.071	.071	.071	.071	.071
85.5500	.070	.070	.070	.070	.070

85.8000	.070	.070	.069	.069	.069
86.0500	.069	.069	.069	.069	.068
86.3000	.068	.068	.068	.068	.068
86.5500	.068	.067	.067	.067	.067
86.8000	.067	.067	.067	.067	.066
87.0500	.066	.066	.066	.066	.066
87.3000	.066	.065	.065	.065	.065
87.5500	.065	.065	.065	.064	.064
87.8000	.064	.064	.064	.064	.064
88.0500	.064	.063	.063	.063	.063
88.3000	.063	.063	.063	.063	.062
88.5500	.062	.062	.062	.062	.062
88.8000	.062	.062	.061	.061	.061
89.0500	.061	.061	.061	.061	.061
89.3000	.060	.060	.060	.060	.060
89.5500	.060	.060	.060	.059	.059
89.8000	.059	.059	.059	.059	.059
90.0500	.059	.058	.058	.058	.058
90.3000	.058	.058	.058	.058	.058
90.5500	.057	.057	.057	.057	.057
90.8000	.057	.057	.057	.057	.056
91.0500	.056	.056	.056	.056	.056
91.3000	.056	.056	.056	.055	.055
91.5500	.055	.055	.055	.055	.055
91.8000	.055	.054	.054	.054	.054
92.0500	.054	.054	.054	.053	.053
92.3000	.053	.053	.053	.053	.053
92.5500	.053	.052	.052	.052	.052
92.8000	.052	.052	.052	.052	.051
93.0500	.051	.051	.051	.051	.051
93.3000	.051	.051	.051	.050	.050
93.5500	.050	.050	.050	.050	.050
93.8000	.050	.049	.049	.049	.049
94.0500	.049	.049	.049	.049	.049
94.3000	.048	.048	.048	.048	.048
94.5500	.048	.048	.048	.048	.047
94.8000	.047	.047	.047	.047	.047
95.0500	.047	.047	.047	.047	.046
95.3000	.046	.046	.046	.046	.046
95.5500	.046	.046	.046	.045	.045
95.8000	.045	.045	.045	.045	.045
96.0500	.045	.045	.045	.044	.044

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ÿÿÿType.... Time vs. Volume

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ÿÿÿName.... BASIN 004 OUT ÿTag: 1 yr

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

TIME vs. VOLUME (ac-ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
96.3000	.044	.044	.044	.044	.044
96.5500	.044	.044	.044	.043	.043
96.8000	.043	.043	.043	.043	.043
97.0500	.043	.043	.043	.043	.042
97.3000	.042	.042	.042	.042	.042
97.5500	.042	.042	.042	.042	.042
97.8000	.041	.041	.041	.041	.041
98.0500	.041	.041	.041	.041	.041
98.3000	.041	.040	.040	.040	.040
98.5500	.040	.040	.040	.040	.040
98.8000	.040	.040	.040	.039	.039
99.0500	.039	.039	.039	.039	.039
99.3000	.039	.039	.039	.039	.039
99.5500	.038	.038	.038	.038	.038
99.8000	.038	.038	.038	.038	.038
100.0500	.038	.038	.037	.037	.037
100.3000	.037	.037	.037	.037	.037
100.5500	.037	.037	.037	.037	.037
100.8000	.036	.036	.036	.036	.036
101.0500	.036	.036	.036	.036	.036
101.3000	.036	.036	.036	.036	.035
101.5500	.035	.035	.035	.035	.035
101.8000	.035	.035	.035	.035	.035
102.0500	.035	.034	.034	.034	.034
102.3000	.034	.034	.034	.034	.034
102.5500	.034	.034	.034	.033	.033
102.8000	.033	.033	.033	.033	.033
103.0500	.033	.033	.033	.033	.033
103.3000	.033	.032	.032	.032	.032
103.5500	.032	.032	.032	.032	.032
103.8000	.032	.032	.032	.032	.032
104.0500	.032	.031	.031	.031	.031
104.3000	.031	.031	.031	.031	.031
104.5500	.031	.031	.031	.031	.031
104.8000	.031	.031	.031	.030	.030
105.0500	.030	.030	.030	.030	.030
105.3000	.030	.030	.030	.030	.030
105.5500	.030	.030	.030	.030	.030
105.8000	.030	.030	.030	.029	.029
106.0500	.029	.029	.029	.029	.029
106.3000	.029	.029	.029	.029	.029
106.5500	.029	.029	.029	.029	.029
106.8000	.029	.029	.029	.029	.029
107.0500	.028	.028	.028	.028	.028

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Time vs. Volume

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yyyName.... BASIN 004 OUT yTag: 1 yr

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

yyyStorm... TypeII 24hr yTag: 1 yr

TIME vs. VOLUME (ac-ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
107.3000	.028	.028	.028	.028	.028
107.5500	.028	.028	.028	.028	.028
107.8000	.028	.028	.028	.028	.028
108.0500	.028	.028	.028	.028	.028
108.3000	.028	.028	.027	.027	.027
108.5500	.027				

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Diverted Hydrograph

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yyyName.... ROUTE 30

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\

yyyStorm... TypeII 24hr yTag: 1 yr

DIVERTED HYDROGRAPH...

HYG file =

HYG ID = ROUTE 30

HYG Tag = 1 yr

Peak Discharge = .29 cfs

Time to Peak = 21.0500 hrs

HYG Volume = .559 ac-ft

HYDROGRAPH ORDINATES (cfs)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
12.0500	.00	.01	.02	.02	.03
12.3000	.03	.03	.03	.03	.03
12.5500	.04	.04	.04	.04	.04
12.8000	.04	.04	.04	.04	.04
13.0500	.04	.04	.04	.04	.04
13.3000	.04	.04	.04	.04	.04

13.5500	.04	.04	.04	.04	.04
13.8000	.05	.05	.05	.05	.05
14.0500	.05	.05	.05	.05	.05
14.3000	.05	.05	.05	.05	.05
14.5500	.05	.05	.05	.05	.05
14.8000	.05	.05	.05	.05	.05
15.0500	.05	.05	.05	.05	.05
15.3000	.05	.05	.05	.05	.05
15.5500	.05	.05	.05	.05	.05
15.8000	.05	.05	.05	.05	.05
16.0500	.05	.05	.05	.05	.05
16.3000	.05	.05	.05	.06	.06
16.5500	.06	.06	.06	.06	.06
16.8000	.06	.06	.06	.06	.06
17.0500	.06	.06	.06	.06	.06
17.3000	.06	.06	.06	.06	.07
17.5500	.08	.09	.10	.10	.11
17.8000	.12	.13	.13	.14	.15
18.0500	.15	.16	.16	.17	.17
18.3000	.18	.18	.19	.19	.20
18.5500	.20	.21	.21	.21	.22
18.8000	.22	.23	.23	.23	.23
19.0500	.24	.24	.24	.25	.25
19.3000	.25	.25	.25	.26	.26
19.5500	.26	.26	.26	.27	.27

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Diverted Hydrograph

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ÿÿÿName.... ROUTE 30

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

Time hrs	HYDROGRAPH ORDINATES (cfs)				
	Output Time increment = .0500 hrs				
	Time on left represents time for first value in each row.				
19.8000	.27	.27	.27	.27	.27
20.0500	.28	.28	.28	.28	.28
20.3000	.28	.28	.28	.28	.28
20.5500	.29	.29	.29	.29	.29
20.8000	.29	.29	.29	.29	.29
21.0500	.29	.29	.29	.29	.29
21.3000	.29	.29	.29	.29	.29
21.5500	.29	.29	.29	.29	.29
21.8000	.29	.29	.29	.29	.29
22.0500	.29	.29	.29	.29	.29
22.3000	.29	.29	.29	.29	.29
22.5500	.29	.29	.29	.29	.29

22.8000	.29	.29	.29	.29	.29
23.0500	.29	.29	.29	.29	.29
23.3000	.29	.29	.29	.29	.29
23.5500	.29	.28	.28	.28	.28
23.8000	.28	.28	.28	.28	.28
24.0500	.28	.28	.28	.28	.28
24.3000	.27	.27	.27	.27	.27
24.5500	.27	.27	.27	.26	.26
24.8000	.26	.26	.26	.26	.26
25.0500	.25	.25	.25	.25	.25
25.3000	.25	.25	.24	.24	.24
25.5500	.24	.24	.24	.24	.23
25.8000	.23	.23	.23	.23	.23
26.0500	.23	.23	.22	.22	.22
26.3000	.22	.22	.22	.22	.22
26.5500	.21	.21	.21	.21	.21
26.8000	.21	.21	.21	.20	.20
27.0500	.20	.20	.20	.20	.20
27.3000	.20	.19	.19	.19	.19
27.5500	.19	.19	.19	.19	.19
27.8000	.18	.18	.18	.18	.18
28.0500	.18	.18	.18	.18	.17
28.3000	.17	.17	.17	.17	.17
28.5500	.17	.17	.17	.17	.16
28.8000	.16	.16	.16	.16	.16
29.0500	.16	.16	.16	.16	.15
29.3000	.15	.15	.15	.15	.15
29.5500	.15	.15	.15	.15	.15
29.8000	.14	.14	.14	.14	.14
30.0500	.14	.14	.14	.14	.14
30.3000	.14	.14	.13	.13	.13
30.5500	.13	.13	.13	.13	.13
30.8000	.13	.13	.13	.13	.12

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Diverted Hydrograph

yyyName.... ROUTE 30

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\

yyyStorm... TypeII 24hr yTag: 1 yr

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Event: 1 yr

HYDROGRAPH ORDINATES (cfs)					
Output Time increment = .0500 hrs					
Time hrs	Time on left represents time for first value in each row.				
31.0500	.12	.12	.12	.12	.12
31.3000	.12	.12	.12	.12	.12
31.5500	.12	.12	.12	.12	.11
31.8000	.11	.11	.11	.11	.11

32.0500	.11	.11	.11	.11	.11
32.3000	.11	.11	.11	.11	.11
32.5500	.10	.10	.10	.10	.10
32.8000	.10	.10	.10	.10	.10
33.0500	.10	.10	.10	.10	.10
33.3000	.10	.10	.10	.10	.10
33.5500	.09	.09	.09	.09	.09
33.8000	.09	.09	.09	.09	.09
34.0500	.09	.09	.09	.09	.09
34.3000	.09	.09	.09	.09	.09
34.5500	.09	.09	.09	.08	.08
34.8000	.08	.08	.08	.08	.08
35.0500	.08	.08	.08	.08	.08
35.3000	.08	.08	.08	.08	.08
35.5500	.08	.08	.08	.08	.08
35.8000	.08	.08	.08	.08	.07
36.0500	.07	.07	.07	.07	.07
36.3000	.07	.07	.07	.07	.07
36.5500	.07	.07	.07	.07	.07
36.8000	.07	.07	.07	.07	.07
37.0500	.07	.07	.07	.07	.07
37.3000	.07	.07	.07	.07	.07
37.5500	.06	.06	.06	.06	.06
37.8000	.06	.06	.06	.06	.06
38.0500	.06	.06	.06	.06	.06
38.3000	.06	.06	.06	.06	.06
38.5500	.06	.06	.06	.06	.06
38.8000	.06	.06	.06	.06	.06
39.0500	.06	.06	.06	.06	.06
39.3000	.06	.06	.06	.06	.06
39.5500	.06	.06	.06	.06	.06
39.8000	.06	.06	.06	.06	.06
40.0500	.06	.06	.06	.06	.06
40.3000	.06	.06	.06	.06	.06
40.5500	.06	.06	.06	.06	.06
40.8000	.06	.06	.06	.06	.06
41.0500	.06	.06	.06	.06	.06
41.3000	.06	.06	.06	.06	.06
41.5500	.06	.06	.06	.06	.06
41.8000	.06	.06	.06	.06	.06
42.0500	.06	.06	.06	.06	.06

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Diverted Hydrograph

ÿÿÿName.... ROUTE 30

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

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Event: 1 yr

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
42.3000	.06	.06	.06	.06	.06
42.5500	.06	.06	.06	.06	.06
42.8000	.06	.06	.06	.06	.06
43.0500	.06	.06	.06	.06	.06
43.3000	.06	.06	.06	.06	.06
43.5500	.06	.06	.06	.06	.06
43.8000	.06	.06	.06	.06	.06
44.0500	.06	.06	.06	.06	.06
44.3000	.06	.06	.06	.06	.06
44.5500	.06	.06	.06	.06	.06
44.8000	.06	.06	.06	.06	.06
45.0500	.06	.06	.06	.06	.06
45.3000	.06	.06	.06	.06	.06
45.5500	.06	.06	.06	.06	.06
45.8000	.06	.06	.06	.06	.06
46.0500	.06	.06	.06	.06	.06
46.3000	.06	.06	.06	.06	.06
46.5500	.06	.06	.06	.06	.06
46.8000	.06	.06	.06	.06	.06
47.0500	.06	.06	.06	.06	.06
47.3000	.06	.06	.06	.06	.06
47.5500	.06	.06	.06	.06	.06
47.8000	.06	.06	.06	.06	.06
48.0500	.06	.06	.06	.06	.06
48.3000	.06	.06	.06	.06	.06
48.5500	.06	.06	.06	.06	.06
48.8000	.06	.06	.06	.06	.06
49.0500	.06	.06	.06	.06	.06
49.3000	.06	.06	.06	.06	.06
49.5500	.06	.06	.06	.06	.06
49.8000	.06	.06	.06	.06	.06
50.0500	.06	.06	.05	.05	.05
50.3000	.05	.05	.05	.05	.05
50.5500	.05	.05	.05	.05	.05
50.8000	.05	.05	.05	.05	.05
51.0500	.05	.05	.05	.05	.05
51.3000	.05	.05	.05	.05	.05
51.5500	.05	.05	.05	.05	.05
51.8000	.05	.05	.05	.05	.05
52.0500	.05	.05	.05	.05	.05
52.3000	.05	.05	.05	.05	.05
52.5500	.05	.05	.05	.05	.05
52.8000	.05	.05	.05	.05	.05
53.0500	.05	.05	.05	.05	.05
53.3000	.05	.05	.05	.05	.05

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Diverted Hydrograph

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ÿÿÿName.... ROUTE 30

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

Time hrs	HYDROGRAPH ORDINATES (cfs)				
	Output Time increment = .0500 hrs				
	Time on left represents time for first value in each row.				
53.5500	.05	.05	.05	.05	.05
53.8000	.05	.05	.05	.05	.05
54.0500	.05	.05	.05	.05	.05
54.3000	.05	.05	.05	.05	.05
54.5500	.05	.05	.05	.05	.05
54.8000	.05	.05	.05	.05	.05
55.0500	.05	.05	.05	.05	.05
55.3000	.05	.05	.05	.05	.05
55.5500	.05	.05	.05	.05	.05
55.8000	.05	.05	.05	.05	.05
56.0500	.05	.05	.05	.05	.05
56.3000	.05	.05	.05	.05	.05
56.5500	.05	.05	.05	.05	.05
56.8000	.05	.05	.05	.05	.05
57.0500	.05	.05	.05	.05	.05
57.3000	.05	.05	.05	.05	.05
57.5500	.05	.05	.05	.05	.05
57.8000	.05	.05	.05	.05	.05
58.0500	.05	.05	.05	.05	.05
58.3000	.05	.05	.05	.05	.05
58.5500	.05	.05	.05	.05	.05
58.8000	.05	.05	.05	.05	.05
59.0500	.05	.05	.05	.05	.05
59.3000	.05	.05	.05	.05	.05
59.5500	.05	.05	.05	.05	.05
59.8000	.05	.05	.05	.05	.05
60.0500	.05	.05	.05	.05	.05
60.3000	.05	.05	.05	.05	.05
60.5500	.05	.05	.05	.05	.05
60.8000	.05	.05	.05	.05	.05
61.0500	.05	.05	.05	.05	.05
61.3000	.05	.05	.05	.05	.05
61.5500	.05	.05	.05	.05	.05
61.8000	.05	.05	.05	.05	.05
62.0500	.05	.05	.05	.05	.05
62.3000	.05	.05	.05	.05	.05
62.5500	.05	.05	.05	.05	.05
62.8000	.05	.05	.05	.05	.05

63.0500		.05	.05	.05	.05	.05
63.3000		.05	.05	.05	.05	.05
63.5500		.05	.05	.05	.05	.05
63.8000		.05	.05	.05	.05	.05
64.0500		.05	.05	.05	.05	.05
64.3000		.05	.05	.05	.05	.05
64.5500		.05	.05	.05	.05	.05

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PondPack Ver:

Compute Time:

Date:



yyyType.... Diverted Hydrograph

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yyyName.... ROUTE 30

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\

yyyStorm... TypeII 24hr yTag: 1 yr

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
64.8000		.05	.05	.05	.05
65.0500		.05	.05	.05	.05
65.3000		.05	.05	.05	.05
65.5500		.05	.05	.05	.05
65.8000		.05	.05	.05	.05
66.0500		.05	.05	.05	.05
66.3000		.05	.05	.05	.05
66.5500		.05	.05	.05	.05
66.8000		.05	.05	.05	.05
67.0500		.05	.05	.05	.05
67.3000		.05	.05	.05	.05
67.5500		.05	.05	.05	.05
67.8000		.05	.05	.05	.05
68.0500		.05	.05	.05	.05
68.3000		.05	.05	.05	.05
68.5500		.05	.05	.05	.05
68.8000		.05	.05	.05	.05
69.0500		.05	.05	.05	.05
69.3000		.05	.05	.05	.05
69.5500		.05	.05	.05	.05
69.8000		.05	.05	.05	.05
70.0500		.05	.05	.05	.05
70.3000		.05	.05	.05	.05
70.5500		.05	.05	.05	.05
70.8000		.05	.05	.04	.04
71.0500		.04	.04	.04	.04
71.3000		.04	.04	.04	.04
71.5500		.04	.04	.04	.04
71.8000		.04	.04	.04	.04
72.0500		.04	.04	.04	.04

72.3000	.04	.04	.04	.04	.04
72.5500	.04	.04	.04	.04	.04
72.8000	.04	.04	.04	.04	.04
73.0500	.04	.04	.04	.04	.04
73.3000	.04	.04	.04	.04	.04
73.5500	.04	.04	.04	.04	.04
73.8000	.04	.04	.04	.04	.04
74.0500	.04	.04	.04	.04	.04
74.3000	.04	.04	.04	.04	.04
74.5500	.04	.04	.04	.04	.04
74.8000	.04	.04	.04	.04	.04
75.0500	.04	.04	.04	.04	.04
75.3000	.04	.04	.04	.04	.04
75.5500	.04	.04	.04	.04	.04
75.8000	.04	.04	.04	.04	.04

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Diverted Hydrograph

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ÿÿÿName.... ROUTE 30

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
76.0500	.04	.04	.04	.04	.04
76.3000	.04	.04	.04	.04	.04
76.5500	.04	.04	.04	.04	.04
76.8000	.04	.04	.04	.04	.04
77.0500	.04	.04	.04	.04	.04
77.3000	.04	.04	.04	.04	.04
77.5500	.04	.04	.04	.04	.04
77.8000	.04	.04	.04	.04	.04
78.0500	.04	.04	.04	.04	.04
78.3000	.04	.04	.04	.04	.04
78.5500	.04	.04	.04	.04	.04
78.8000	.04	.04	.04	.04	.04
79.0500	.04	.04	.04	.04	.04
79.3000	.04	.04	.04	.04	.04
79.5500	.04	.04	.04	.04	.04
79.8000	.04	.04	.04	.04	.04
80.0500	.04	.04	.04	.04	.04
80.3000	.04	.04	.04	.04	.04
80.5500	.04	.04	.04	.04	.04
80.8000	.04	.04	.04	.04	.04
81.0500	.04	.04	.04	.04	.04
81.3000	.04	.04	.04	.04	.04

81.5500	.04	.04	.04	.04	.04
81.8000	.04	.04	.04	.04	.04
82.0500	.04	.04	.04	.04	.04
82.3000	.04	.04	.04	.04	.04
82.5500	.04	.04	.04	.04	.04
82.8000	.04	.04	.04	.04	.04
83.0500	.04	.04	.04	.04	.04
83.3000	.04	.04	.04	.04	.04
83.5500	.04	.04	.04	.04	.04
83.8000	.04	.04	.04	.04	.04
84.0500	.04	.04	.04	.04	.04
84.3000	.04	.04	.04	.04	.04
84.5500	.04	.04	.04	.04	.03
84.8000	.03	.03	.03	.03	.03
85.0500	.03	.03	.03	.03	.03
85.3000	.03	.03	.03	.03	.03
85.5500	.03	.03	.03	.03	.03
85.8000	.03	.03	.03	.03	.03
86.0500	.03	.03	.03	.03	.03
86.3000	.03	.03	.03	.03	.03
86.5500	.03	.03	.03	.03	.03
86.8000	.03	.03	.03	.03	.03
87.0500	.03	.03	.03	.03	.03

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Diverted Hydrograph

ÿPage 203

ÿÿÿName.... ROUTE 30

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

HYDROGRAPH ORDINATES (cfs)					
Output Time increment = .0500 hrs					
Time hrs	Time on left represents time for first value in each row.				
87.3000	.03	.03	.03	.03	.03
87.5500	.03	.03	.03	.03	.03
87.8000	.03	.03	.03	.03	.03
88.0500	.03	.03	.03	.03	.03
88.3000	.03	.03	.03	.03	.03
88.5500	.03	.03	.03	.03	.03
88.8000	.03	.03	.03	.03	.03
89.0500	.03	.03	.03	.03	.03
89.3000	.03	.03	.03	.03	.03
89.5500	.03	.03	.03	.03	.03
89.8000	.03	.03	.03	.03	.03
90.0500	.03	.03	.03	.03	.03
90.3000	.03	.03	.03	.03	.03
90.5500	.03	.03	.03	.03	.03

90.8000	.03	.03	.03	.03	.03
91.0500	.03	.03	.03	.03	.03
91.3000	.03	.03	.03	.03	.03
91.5500	.03	.03	.03	.03	.03
91.8000	.03	.03	.03	.03	.03
92.0500	.03	.03	.03	.03	.03
92.3000	.03	.03	.03	.03	.03
92.5500	.03	.03	.03	.03	.03
92.8000	.03	.03	.03	.03	.03
93.0500	.03	.03	.03	.03	.03
93.3000	.03	.03	.03	.03	.03
93.5500	.03	.03	.03	.03	.03
93.8000	.03	.03	.03	.03	.03
94.0500	.03	.03	.03	.03	.03
94.3000	.03	.03	.03	.03	.03
94.5500	.03	.03	.03	.03	.03
94.8000	.03	.03	.03	.03	.03
95.0500	.03	.03	.03	.03	.03
95.3000	.03	.02	.02	.02	.02
95.5500	.02	.02	.02	.02	.02
95.8000	.02	.02	.02	.02	.02
96.0500	.02	.02	.02	.02	.02
96.3000	.02	.02	.02	.02	.02
96.5500	.02	.02	.02	.02	.02
96.8000	.02	.02	.02	.02	.02
97.0500	.02	.02	.02	.02	.02
97.3000	.02	.02	.02	.02	.02
97.5500	.02	.02	.02	.02	.02
97.8000	.02	.02	.02	.02	.02
98.0500	.02	.02	.02	.02	.02
98.3000	.02	.02	.02	.02	.02

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Diverted Hydrograph

Page 204

yyyName.... ROUTE 30

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\

yyyStorm... TypeII 24hr yTag: 1 yr

HYDROGRAPH ORDINATES (cfs)

Time hrs	Output Time increment = .0500 hrs				
	Time on left represents time for first value in each row.				
98.5500	.02	.02	.02	.02	.02
98.8000	.02	.02	.02	.02	.02
99.0500	.02	.02	.02	.02	.02
99.3000	.02	.02	.02	.02	.02
99.5500	.02	.02	.02	.02	.02
99.8000	.02	.02	.02	.02	.02

100.0500	.02	.02	.02	.02	.02
100.3000	.02	.02	.02	.02	.02
100.5500	.02	.02	.02	.02	.02
100.8000	.02	.02	.02	.02	.02
101.0500	.02	.02	.02	.02	.02
101.3000	.02	.02	.02	.02	.02
101.5500	.02	.02	.02	.02	.02
101.8000	.02	.02	.02	.02	.02
102.0500	.02	.02	.02	.02	.02
102.3000	.02	.02	.02	.02	.02
102.5500	.02	.02	.02	.02	.02
102.8000	.02	.02	.02	.02	.02
103.0500	.02	.02	.02	.02	.02
103.3000	.02	.02	.02	.02	.02
103.5500	.02	.02	.01	.01	.01
103.8000	.01	.01	.01	.01	.01
104.0500	.01	.01	.01	.01	.01
104.3000	.01	.01	.01	.01	.01
104.5500	.01	.01	.01	.01	.01
104.8000	.01	.01	.01	.01	.01
105.0500	.01	.01	.01	.01	.01
105.3000	.01	.01	.01	.01	.01
105.5500	.01	.01	.01	.01	.01
105.8000	.01	.01	.01	.01	.01
106.0500	.01	.01	.01	.01	.01
106.3000	.01	.01	.01	.01	.01
106.5500	.01	.01	.01	.01	.01
106.8000	.01	.01	.01	.01	.01
107.0500	.01	.01	.01	.01	.01
107.3000	.01	.01	.01	.01	.01
107.5500	.01	.01	.01	.01	.01
107.8000	.01	.01	.01	.01	.01
108.0500	.01	.01	.01	.01	.01
108.3000	.01	.01	.01	.01	.01
108.5500	.01				

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Node:ÿPondÿInflow Summary

ÿPage 205

yyyName.... BASIN 003 IN

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

yyyStorm... TypeII 24hr ÿTag: 1 yr

SUMMARY FOR HYDROGRAPH ADDITION

at Node: BASIN 003 IN

HYG Directory: Q:\PROJECT\stormwater\stormwater\20040287\

=====

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ADDLINK 40	SUBAREA 003		SUBAREA 003	1 yr

INFLOWS TO: BASIN 003 IN					
HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	SUBAREA 003	1 yr	.181	12.1500	3.30

TOTAL FLOW INTO: BASIN 003 IN					
HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	BASIN 003	IN 1 yr	.181	12.1500	3.30

S/N:

PondPack Ver:

Compute Time:

Date:

Type.... Node: Pond Inflow Summary
 Name.... BASIN 003 IN
 File.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW
 Storm... TypeII 24hr Tag: 1 yr

TOTAL NODE INFLOW...

HYG file =

HYG ID = BASIN 003 IN

HYG Tag = 1 yr

Peak Discharge = 3.30 cfs

Time to Peak = 12.1500 hrs

HYG Volume = .181 ac-ft

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
8.9500	.00	.00	.00	.00	.00
9.2000	.00	.00	.00	.01	.01
9.4500	.01	.01	.01	.01	.01
9.7000	.01	.01	.01	.01	.01
9.9500	.02	.02	.02	.02	.02
10.2000	.02	.02	.02	.03	.03
10.4500	.03	.03	.03	.04	.04
10.7000	.04	.04	.04	.05	.05

10.9500	.05	.06	.06	.06	.07
11.2000	.07	.08	.09	.09	.10
11.4500	.11	.12	.13	.14	.16
11.7000	.18	.20	.24	.28	.35
11.9500	.57	1.18	2.08	2.90	3.30
12.2000	3.00	2.26	1.58	1.14	.87
12.4500	.69	.58	.49	.44	.39
12.7000	.36	.33	.31	.30	.28
12.9500	.27	.26	.25	.24	.23
13.2000	.22	.21	.20	.20	.19
13.4500	.19	.18	.18	.17	.17
13.7000	.17	.16	.16	.15	.15
13.9500	.15	.15	.14	.14	.14
14.2000	.13	.13	.13	.13	.13
14.4500	.12	.12	.12	.12	.12
14.7000	.12	.11	.11	.11	.11
14.9500	.11	.11	.11	.10	.10
15.2000	.10	.10	.10	.10	.10
15.4500	.10	.10	.09	.09	.09
15.7000	.09	.09	.09	.09	.09
15.9500	.09	.09	.09	.08	.08
16.2000	.08	.08	.08	.08	.08
16.4500	.08	.08	.08	.08	.08

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Node:ÿPondÿInflow Summary

ÿPage 207

ÿÿÿName.... BASIN 003 IN

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1 yr

HYDROGRAPH ORDINATES (cfs)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
16.7000	.08	.08	.08	.07	.07
16.9500	.07	.07	.07	.07	.07
17.2000	.07	.07	.07	.07	.07
17.4500	.07	.07	.07	.07	.07
17.7000	.07	.07	.07	.07	.06
17.9500	.06	.06	.06	.06	.06
18.2000	.06	.06	.06	.06	.06
18.4500	.06	.06	.06	.06	.06
18.7000	.06	.06	.06	.06	.06
18.9500	.06	.06	.06	.06	.06
19.2000	.06	.06	.06	.06	.05
19.4500	.05	.05	.05	.05	.05
19.7000	.05	.05	.05	.05	.05
19.9500	.05	.05	.05	.05	.05

20.2000		.05	.05	.05	.05	.05
20.4500		.05	.05	.05	.05	.05
20.7000		.05	.05	.05	.05	.05
20.9500		.05	.05	.05	.05	.05
21.2000		.05	.05	.05	.05	.05
21.4500		.05	.05	.05	.05	.05
21.7000		.05	.04	.04	.04	.04
21.9500		.04	.04	.04	.04	.04
22.2000		.04	.04	.04	.04	.04
22.4500		.04	.04	.04	.04	.04
22.7000		.04	.04	.04	.04	.04
22.9500		.04	.04	.04	.04	.04
23.2000		.04	.04	.04	.04	.04
23.4500		.04	.04	.04	.04	.04
23.7000		.04	.04	.04	.04	.04
23.9500		.04	.03	.03	.02	.01
24.2000		.01	.00	.00	.00	

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Node: PondVol/Infilt

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yyyName.... BASIN 003

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

yyyStorm... TypeII 24hr yTag: 1 yr

FATAL ERROR: INVERT ELEVATION ON VOLUME CURVE

IS GREATER THAN LOWEST OUTLET HW ELEV.

VOLUME NOT FOUND AT ELEV: 840.98 ft

Please check following elements:

Volume Data = BASIN 003

Pond Outlet Data = outlet 003

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Pond E-V-Q Table

Page 209

yyyName.... BASIN 003

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

LEVEL POOL ROUTING DATA

HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\

Inflow HYG file = NONE STORED - BASIN 003 IN 1 yr

Outflow HYG file = NONE STORED - BASIN 003 OUT 1 yr

Pond Node Data = BASIN 003

Pond Volume Data = BASIN 003

Pond Outlet Data = outlet 003

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = .00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0500 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Infiltr. cfs	Q Total cfs	2S/t + 0 cfs
840.98	.00	.000	.00	.00	.00
841.00	.00	.000	.00	.00	.00
841.25	.01	.000	.00	.01	.01
841.50	.01	.000	.00	.01	.01
841.75	.01	.000	.00	.01	.01
842.00	.01	.000	.00	.01	.01
842.25	.01	.000	.00	.01	.01
842.50	.01	.000	.00	.01	.01
842.75	.01	.000	.00	.01	.01
843.00	.02	.000	.00	.02	.02
843.25	.02	.000	.00	.02	.02
843.26	.02	.000	.00	.02	.02
843.50	.03	.000	.00	.03	.03
843.75	.04	.000	.00	.04	.04
844.00	.05	.000	.00	.05	.05
844.25	.05	.000	.00	.05	.05
844.50	.06	.000	.00	.06	.06
844.53	.06	.000	.00	.06	.06
844.75	.50	.000	.00	.50	.50
845.00	.71	.000	.00	.71	.71

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Pond E-V-Q Table

Page 210

yyyName.... BASIN 003

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

LEVEL POOL ROUTING DATA

HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\
Inflow HYG file = NONE STORED - BASIN 003 IN 1 yr
Outflow HYG file = NONE STORED - BASIN 003 OUT 1 yr

Pond Node Data = BASIN 003

Pond Volume Data = BASIN 003

Pond Outlet Data = outlet 003

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = .00 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0500 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Infiltr. cfs	Q Total cfs	2S/t + 0 cfs
845.18	.83	.000	.00	.83	.83
845.25	1.35	.000	.00	1.35	1.35
845.50	5.09	.000	.00	5.09	5.09
845.75	6.57	.000	.00	6.57	6.57
846.00	7.76	.000	.00	7.76	7.76

S/N:

PondPack Ver:

Compute Time:

Date:

↑
Type.... Diverted Hydrograph
Name.... ROUTE 20
File.... Q:\PROJECT\stormwater\stormwater\20040287\
Storm... TypeII 24hr Tag: 1 yr

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Event: 1 yr

DIVERTED HYDROGRAPH...

HYG file =
HYG ID = ROUTE 20
HYG Tag = 1 yr

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0500 hrs
Time on left represents time for first value in each row.

Time hrs			
8.9500	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:

↑
Type.... WARNING MESSAGES
Name.... WARNING

Page 7

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\20040287 AS-BUILT.PPW

WARNING: Riser orifice equation controls at one or more HW elevations
for outlet structure:East Basin Out

WARNING: Riser orifice equation controls at one or more HW elevations
for outlet structure:outlet 003

WARNING: Riser orifice equation controls at one or more HW elevations
for outlet structure:outlet 002

WARNING: The difference between calculated peak flow
and interpolated peak flow is greater than 1.50%
Computed peak flow = 4.57 cfs
Interp. peak flow = 4.49 cfs (1.81% difference)

Check SCS UH data for: Unit Hyd. SUBAREA 001
Output increment for this subarea may be too large.
Use Tools --> Options --> Project Options to change increment for entire project,
or if you are running a watershed network analysis,
use the GO button to change output increment.

S/N:

PondPack Ver:

Compute Time:

Date:



000a~.L«Pg788,,± PondPack Results ¢
x
šŽİY`ÚAĖÂë4ŠX: ¢
9Q:\PROJECT\stormwater\stormwater\20040287\offsite 003.ppw ¢ ¢
FRMCOMPUTE ¢FRMCOMPUTE_24.rptâv ¢ ¢2+àõ°NG`On« ¢
9Q:\PROJECT\stormwater\stormwater\20040287\offsite 003.ppw ¢
È Nv
šŽİY`ÚAĖÂë4ŠX: ¢ WorkingFileStorageElementBase
jS ¢ ¢ÿÿÿJob File:ÿQ:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
Rain Dir: Q:\PROJECT\stormwater\stormwater\20040287\

=====
JOB TITLE
=====

Project Date: 8/18/2004
Project Engineer: EMHT INC
Project Title: Riverside Woods - Offsite 003
Project Comments:

S/N:
PondPack Ver: Compute Time: Date:

↑
ÿÿÿType.... Design Storms ¢Page 4275
ÿÿÿName.... Bul 71 - 3rd Q(5)

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\
ÿÿÿTitle... Project Date: 8/18/2004
Project Engineer: EMHT INC
Project Title: Riverside Woods - Offsite 003
Project Comments:

DESIGN STORMS SUMMARY

Design Storm File,ID = Bul 71 - 3rd Q(5)

Storm Tag Name = 1

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 1 yr
Total Rainfall Depth= 2.1700 in
Duration Multiplier = 24
Resulting Duration = 576.0000 hrs
Resulting Start Time= .0000 hrs Step= 2.4000 hrs End= 576.0000 hrs

Storm Tag Name = 2

Data Type, File, ID = Synthetic Storm 0-10 3rdQ 50%
Storm Frequency = 2 yr
Total Rainfall Depth= 2.7000 in
Duration Multiplier = 24
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= 1.2000 hrs End= 24.0000 hrs

Storm Tag Name = 5

Data Type, File, ID = Synthetic Storm 0-10 3rdQ 50%
Storm Frequency = 5 yr
Total Rainfall Depth= 3.3500 in
Duration Multiplier = 24
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= 1.2000 hrs End= 24.0000 hrs

Storm Tag Name = 10

Data Type, File, ID = Synthetic Storm 0-10 3rdQ 50%
Storm Frequency = 10 yr
Total Rainfall Depth= 3.8600 in
Duration Multiplier = 24
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= 1.2000 hrs End= 24.0000 hrs

Storm Tag Name = 25

Data Type, File, ID = Synthetic Storm 0-10 3rdQ 50%
Storm Frequency = 25 yr
Total Rainfall Depth= 4.6400 in
Duration Multiplier = 24
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= 1.2000 hrs End= 24.0000 hrs

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Design Storms

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yyyName.... Bul 71 - 3rd Q(5

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\

yyyTitle... Project Date: 8/18/2004

Project Engineer: EMHT INC

Project Title: Riverside Woods - Offsite 003

Project Comments:

DESIGN STORMS SUMMARY

Design Storm File, ID = Bul 71 - 3rd Q(5

Storm Tag Name = 50

Data Type, File, ID = Synthetic Storm 0-10 3rdQ 50%
Storm Frequency = 50 yr
Total Rainfall Depth= 5.3300 in
Duration Multiplier = 24
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= 1.2000 hrs End= 24.0000 hrs

Storm Tag Name = 100

Data Type, File, ID = Synthetic Storm 0-10 3rdQ 50%
Storm Frequency = 100 yr
Total Rainfall Depth= 6.0600 in
Duration Multiplier = 24
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= 1.2000 hrs End= 24.0000 hrs

S/N:

PondPack Ver:

Compute Time:

Date:

↑

yyyType.... TcCalcs

Page 4277

yyyName.... OFF 003

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: User Defined

Segment #1 Time: .3500 hrs

=====
Total Tc: .3500 hrs
=====

S/N:

PondPack Ver:

Compute Time:

Date:

↑
Type.... TcCalcs
Name.... OFF 003

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File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

Tc Equations used...

==== User Defined =====

Tc = Value entered by user

Where: Tc = Time of concentration

S/N:
PondPack Ver: Compute Time: Date:

↑
Type.... RunoffCN-Area
Name.... OFF 003

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File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

RUNOFF CURVE NUMBER DATA

.....

Soil/Surface Description CN Area Impervious Adjusted
 acres Adjustment CN
 %C %UC CN

woods, poor cover 77 3.860 77.00

COMPOSITE AREA & WEIGHTED CN ---> 3.860 77.00 (77)

.....

S/N:
PondPack Ver: Compute Time: Date:

↑
Type.... Synthetic Curve
Name.... TypeII 24hr Tag: 1
File.... Q:\PROJECT\stormwater\stormwater\20040287\

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CUMULATIVE RAINFALL FRACTIONS

(Duration was multiplied by: 24)

Output Time increment = 2.4000 hrs

Time on left represents time for first value in each row.

Time hrs					
.0000	.000	.000	.001	.003	.004
12.0000	.005	.006	.007	.008	.009
24.0000	.010	.011	.012	.014	.015
36.0000	.016	.017	.018	.019	.020
48.0000	.022	.023	.024	.025	.027
60.0000	.028	.029	.030	.032	.033
72.0000	.034	.035	.037	.038	.039
84.0000	.041	.042	.043	.045	.046
96.0000	.048	.049	.050	.052	.053
108.0000	.055	.056	.058	.059	.061
120.0000	.062	.064	.066	.067	.069
132.0000	.071	.072	.074	.076	.077
144.0000	.079	.081	.083	.084	.086
156.0000	.088	.090	.092	.094	.096
168.0000	.098	.100	.102	.104	.106
180.0000	.108	.110	.113	.115	.117
192.0000	.120	.122	.124	.127	.130
204.0000	.132	.135	.137	.140	.143
216.0000	.146	.149	.152	.155	.158
228.0000	.162	.165	.169	.172	.176
240.0000	.180	.184	.188	.193	.197
252.0000	.202	.207	.213	.218	.225
264.0000	.231	.238	.246	.254	.263
276.0000	.274	.286	.301	.320	.349
288.0000	.500	.651	.680	.699	.714
300.0000	.726	.737	.746	.754	.762
312.0000	.769	.775	.782	.787	.793
324.0000	.798	.803	.807	.812	.816
336.0000	.820	.824	.828	.831	.835
348.0000	.838	.842	.845	.848	.851
360.0000	.854	.857	.860	.863	.865
372.0000	.868	.871	.873	.876	.878
384.0000	.880	.883	.885	.887	.890
396.0000	.892	.894	.896	.898	.900
408.0000	.902	.904	.906	.908	.910
420.0000	.912	.914	.916	.917	.919
432.0000	.921	.923	.924	.926	.928
444.0000	.929	.931	.933	.934	.936
456.0000	.938	.939	.941	.942	.944
468.0000	.945	.947	.948	.950	.951
480.0000	.952	.954	.955	.957	.958
492.0000	.959	.961	.962	.963	.965
504.0000	.966	.967	.968	.970	.971

S/N:

PondPack Ver:

Compute Time:

Date:

↑

yyyType.... Synthetic Curve

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yyyName.... TypeII 24hr yTag: 1

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\

CUMULATIVE RAINFALL FRACTIONS
(Duration was multiplied by: 24)

Time hrs	Output Time increment = 2.4000 hrs Time on left represents time for first value in each row.				
516.0000	.972	.973	.975	.976	.977
528.0000	.978	.980	.981	.982	.983
540.0000	.984	.985	.986	.988	.989
552.0000	.990	.991	.992	.993	.994
564.0000	.995	.996	.997	.999	1.000
576.0000	1.000				

S/N:

PondPack Ver:

Compute Time:

Date:

↑

yyyType.... Synthetic Cumulative Depth

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yyyName.... TypeII 24hr yTag: 1

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\

yyyStorm... TypeII 24hr yTag: 1

CUMULATIVE RAINFALL DEPTHS (in)
(Duration was multiplied by: 24)

Time hrs	Output Time increment = 2.4000 hrs Time on left represents time for first value in each row.				
.0000	.0000	.0009	.0032	.0055	.0078
12.0000	.0101	.0125	.0148	.0172	.0196
24.0000	.0220	.0244	.0269	.0293	.0318
36.0000	.0343	.0368	.0397	.0419	.0445
48.0000	.0470	.0496	.0523	.0549	.0576
60.0000	.0603	.0630	.0657	.0685	.0712
72.0000	.0740	.0769	.0797	.0826	.0855
84.0000	.0884	.0913	.0943	.0973	.1003
96.0000	.1034	.1064	.1096	.1127	.1159
108.0000	.1191	.1223	.1256	.1289	.1322
120.0000	.1356	.1390	.1425	.1459	.1495
132.0000	.1530	.1566	.1603	.1640	.1677
144.0000	.1715	.1753	.1792	.1831	.1871
156.0000	.1911	.1952	.1994	.2036	.2079
168.0000	.2122	.2166	.2211	.2256	.2302
180.0000	.2349	.2396	.2445	.2494	.2544
192.0000	.2596	.2648	.2701	.2755	.2810
204.0000	.2867	.2924	.2983	.3043	.3105
216.0000	.3168	.3233	.3300	.3368	.3438
228.0000	.3511	.3585	.3662	.3742	.3824

240.0000	.3909	.3997	.4089	.4185	.4285
252.0000	.4391	.4501	.4618	.4741	.4873
264.0000	.5013	.5165	.5330	.5511	.5713
276.0000	.5942	.6208	.6530	.6947	.7568
288.0000	1.0848	1.4132	1.4753	1.5170	1.5492
300.0000	1.5758	1.5987	1.6189	1.6370	1.6535
312.0000	1.6687	1.6827	1.6959	1.7082	1.7199
324.0000	1.7309	1.7415	1.7515	1.7611	1.7703
336.0000	1.7791	1.7876	1.7958	1.8038	1.8115
348.0000	1.8189	1.8262	1.8332	1.8400	1.8467
360.0000	1.8532	1.8595	1.8657	1.8717	1.8776
372.0000	1.8833	1.8890	1.8945	1.8999	1.9052
384.0000	1.9104	1.9156	1.9206	1.9255	1.9304
396.0000	1.9351	1.9398	1.9444	1.9489	1.9534
408.0000	1.9578	1.9621	1.9664	1.9706	1.9748
420.0000	1.9789	1.9829	1.9869	1.9908	1.9947
432.0000	1.9985	2.0023	2.0060	2.0097	2.0134
444.0000	2.0170	2.0205	2.0241	2.0275	2.0310
456.0000	2.0344	2.0378	2.0411	2.0444	2.0477
468.0000	2.0509	2.0541	2.0573	2.0604	2.0636
480.0000	2.0666	2.0697	2.0727	2.0757	2.0787
492.0000	2.0816	2.0845	2.0874	2.0903	2.0931
504.0000	2.0960	2.0988	2.1015	2.1043	2.1070

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Synthetic Cumulative Depth

ÿPage 4283

ÿÿÿName.... TypeII 24hr ÿTag: 1

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\

ÿÿÿStorm... TypeII 24hr ÿTag: 1

CUMULATIVE RAINFALL DEPTHS (in)

(Duration was multiplied by: 24)

Output Time increment = 2.4000 hrs

Time hrs	Time on left represents time for first value in each row.				
516.0000	2.1097	2.1124	2.1151	2.1177	2.1204
528.0000	2.1230	2.1255	2.1281	2.1307	2.1332
540.0000	2.1357	2.1382	2.1407	2.1431	2.1456
552.0000	2.1480	2.1504	2.1528	2.1552	2.1575
564.0000	2.1599	2.1622	2.1645	2.1668	2.1691
576.0000	2.1700				

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. Equations

ÿPage 4284

ÿÿÿName....

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

SCS UNIT HYDROGRAPH METHOD
(Computational Notes)

DEFINITION OF TERMS: -----

At = Total area (acres): $A_t = A_i + A_p$
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 $0.1333T_c$, r_{tm} , and t_h
(Smallest dt is then adjusted to match up with T_p)
UDdt = User specified override computational main time increment
(only used if UDdt is $\Rightarrow 0.1333T_c$)
D(t) = Point on distribution curve (fraction of P) for time step t

K = $2 / (1 + (T_r/T_p))$: default K = 0.75: (for $T_r/T_p = 1.67$)
Ks = Hydrograph shape factor
= Unit Conversions * K:
= $((1\text{hr}/3600\text{sec}) * (1\text{ft}/12\text{in}) * ((5280\text{ft})^2/\text{sq.mi})) * K$
Default Ks = $645.333 * 0.75 = 484$

Lag = Lag time from center of excess runoff (dt) to T_p : $\text{Lag} = 0.6T_c$
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.
= $(K_s * A * Q) / T_p$ (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

S_i = S for impervious area: $S_i = (1000/CN_i) - 10$
 S_p = S for pervious area: $S_p = (1000/CN_p) - 10$
 t = Time step (row) number
 T_c = Time of concentration
 T_b = Time (hrs) of entire unit hydrograph: $T_b = T_p + T_r$
 T_p = Time (hrs) to peak of a unit hydrograph: $T_p = (dt/2) + Lag$
 T_r = Time (hrs) of receding limb of unit hydrograph: $T_r = \text{ratio of } T_p$

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Unit Hyd. Equations

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Name....

File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

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): $P_i(t) = P_a(t) - P_a(t-1)$: Col.(4) - Preceding Col.(4)
 Column (4): $P_a(t) = D(t) \times P$: Col.(2) $\times$ P

PERVIOUS AREA RUNOFF (using SCS Runoff CN Method) -----

Column (5): $Rap(t)$ = Accumulated pervious runoff for time step t
 If $(P_a(t) \text{ is } \leq 0.2S_p)$ then use: $Rap(t) = 0.0$
 If $(P_a(t) \text{ is } > 0.2S_p)$ then use:

$$Rap(t) = (Col.(4) - 0.2S_p) \times 2 / (Col.(4) + 0.8S_p)$$

 Column (6): $Rip(t)$ = Incremental pervious runoff for time step t
 $Rip(t) = Rap(t) - Rap(t-1)$
 $Rip(t) = Col.(5) \text{ for current row} - Col.(5) \text{ for preceding row.}$

IMPERVIOUS AREA RUNOFF -----

Column (7 & 8)... Did not specify to use impervious areas.

INCREMENTAL WEIGHTED RUNOFF: -----

Column (9): $R(t) = (A_p/A_t) \times Rip(t) + (A_i/A_t) \times Rii(t)$
 $R(t) = (A_p/A_t) \times Col.(6) + (A_i/A_t) \times Col.(8)$

SCS UNIT HYDROGRAPH METHOD: -----

Column (10): $Q(t)$ is computed with the SCS unit hydrograph method
 using $R()$ and $Qu()$.

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. Summary

ÿPage 4286

ÿÿÿName.... OFF 003

ÿTag: 1

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm

Duration = 576.0000 hrs Rain Depth = 2.1700 in

Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\

Rain File -ID = - TypeII 24hr

Unit Hyd Type = Default Curvilinear

HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\

HYG File - ID = work_pad.hyg - OFF 003 1

Tc = .3500 hrs

Drainage Area = 3.860 acres Runoff CN= 77

=====
Computational Time Increment = .04667 hrs
Computed Peak Time = 290.4067 hrs
Computed Peak Flow = .20 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 290.4026 hrs
Peak Flow, Interpolated Output = .20 cfs
=====

DRAINAGE AREA

ID:OFF 003

CN = 77

Area = 3.860 acres

S = 2.9870 in

0.2S = .5974 in

Cumulative Runoff

.5424 in

.174 ac-ft

HYG Volume... .174 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .35000 hrs (ID: OFF 003)

Computational Incr, Tm = .04667 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 = 12.50 cfs
 Unit peak time Tp = .23333 hrs
 Unit receding limb, Tr = .93333 hrs
 Total unit time, Tb = 1.16667 hrs

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PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output) ÿPage 4287
 ÿÿÿName.... OFF 003 ÿTag: 1 Event: 1 yr
 ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
 ÿÿÿStorm... TypeII 24hr ÿTag: 1

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm
 Duration = 576.0000 hrs Rain Depth = 2.1700 in
 Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\
 Rain File -ID = - TypeII 24hr
 Unit Hyd Type = Default Curvilinear
 HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\
 HYG File - ID = work_pad.hyg - OFF 003 1
 Tc = .3500 hrs
 Drainage Area = 3.860 acres Runoff CN= 77
 Calc.Increment= .04667 hrs Out.Incr.= .0500 hrs
 HYG Volume = .174 ac-ft

HYDROGRAPH ORDINATES (cfs)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
279.0500	.00	.00	.00	.00	.00
279.3000	.00	.00	.00	.00	.00
279.5500	.00	.00	.00	.00	.00
279.8000	.00	.00	.00	.00	.00
280.0500	.00	.00	.00	.00	.00
280.3000	.00	.00	.00	.00	.00
280.5500	.00	.00	.00	.00	.00
280.8000	.00	.00	.00	.00	.00
281.0500	.00	.00	.00	.00	.00
281.3000	.00	.00	.00	.00	.00
281.5500	.00	.00	.00	.00	.00
281.8000	.00	.00	.00	.00	.00
282.0500	.00	.00	.00	.00	.00
282.3000	.00	.00	.00	.00	.00
282.5500	.00	.00	.00	.00	.00

282.8000	.00	.00	.00	.00	.00
283.0500	.00	.00	.00	.00	.00
283.3000	.00	.00	.00	.01	.01
283.5500	.01	.01	.01	.01	.01
283.8000	.01	.01	.01	.01	.01
284.0500	.01	.01	.01	.01	.01
284.3000	.01	.01	.01	.01	.01
284.5500	.01	.01	.01	.01	.01
284.8000	.01	.01	.01	.01	.01
285.0500	.01	.01	.01	.01	.01
285.3000	.01	.01	.01	.01	.01
285.5500	.01	.01	.01	.01	.02
285.8000	.03	.03	.04	.05	.05
286.0500	.06	.06	.06	.06	.07
286.3000	.07	.07	.07	.08	.08

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ÿÿÿType.... Unit Hyd. (HYG output)

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ÿÿÿName.... OFF 003

ÿTag: 1

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
286.5500	.08	.08	.08	.09	.09
286.8000	.09	.09	.09	.09	.10
287.0500	.10	.10	.10	.10	.10
287.3000	.11	.11	.11	.11	.11
287.5500	.12	.12	.12	.12	.12
287.8000	.12	.13	.13	.13	.13
288.0500	.13	.13	.13	.14	.14
288.3000	.14	.14	.14	.14	.15
288.5500	.15	.15	.15	.15	.15
288.8000	.15	.16	.16	.16	.16
289.0500	.16	.16	.16	.17	.17
289.3000	.17	.17	.17	.17	.17
289.5500	.18	.18	.18	.18	.18
289.8000	.18	.18	.18	.19	.19
290.0500	.19	.19	.19	.19	.19
290.3000	.19	.20	.20	.20	.19
290.5500	.17	.14	.12	.10	.08
290.8000	.07	.06	.05	.05	.05
291.0500	.04	.04	.04	.04	.04
291.3000	.04	.04	.04	.04	.04
291.5500	.04	.04	.04	.04	.04
291.8000	.04	.04	.04	.04	.04

292.0500	.04	.04	.04	.04	.04
292.3000	.04	.04	.04	.04	.04
292.5500	.04	.04	.04	.04	.04
292.8000	.04	.04	.04	.04	.04
293.0500	.03	.03	.03	.03	.03
293.3000	.03	.03	.03	.03	.03
293.5500	.03	.03	.03	.03	.03
293.8000	.03	.03	.03	.03	.03
294.0500	.03	.03	.03	.03	.03
294.3000	.03	.03	.03	.03	.03
294.5500	.03	.03	.03	.03	.03
294.8000	.03	.03	.03	.03	.03
295.0500	.03	.03	.03	.03	.03
295.3000	.03	.03	.03	.02	.02
295.5500	.02	.02	.02	.02	.02
295.8000	.02	.02	.02	.02	.02
296.0500	.02	.02	.02	.02	.02
296.3000	.02	.02	.02	.02	.02
296.5500	.02	.02	.02	.02	.02
296.8000	.02	.02	.02	.02	.02
297.0500	.02	.02	.02	.02	.02
297.3000	.02	.02	.02	.02	.02
297.5500	.02	.02	.02	.02	.02

S/N:

PondPack Ver:

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Date:



Type.... Unit Hyd. (HYG output) Page 4289
 Name.... OFF 003 Tag: 1 Event: 1 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
 Storm... TypeII 24hr Tag: 1

HYDROGRAPH ORDINATES (cfs)					
Output Time increment = .0500 hrs					
Time hrs	Time on left represents time for first value in each row.				
297.8000	.02	.02	.02	.02	.02
298.0500	.02	.02	.02	.02	.02
298.3000	.02	.02	.02	.02	.02
298.5500	.02	.02	.02	.02	.02
298.8000	.02	.02	.02	.02	.02
299.0500	.02	.02	.02	.02	.02
299.3000	.02	.02	.02	.02	.02
299.5500	.02	.02	.02	.02	.02
299.8000	.02	.02	.02	.02	.02
300.0500	.02	.02	.02	.02	.02
300.3000	.02	.02	.02	.02	.02
300.5500	.02	.02	.02	.02	.02
300.8000	.02	.02	.02	.02	.02
301.0500	.02	.02	.02	.02	.02

301.3000	.02	.02	.02	.02	.02
301.5500	.02	.02	.02	.02	.02
301.8000	.02	.02	.02	.02	.02
302.0500	.02	.02	.02	.02	.02
302.3000	.02	.02	.02	.02	.02
302.5500	.02	.02	.02	.02	.01
302.8000	.01	.01	.01	.01	.01
303.0500	.01	.01	.01	.01	.01
303.3000	.01	.01	.01	.01	.01
303.5500	.01	.01	.01	.01	.01
303.8000	.01	.01	.01	.01	.01
304.0500	.01	.01	.01	.01	.01
304.3000	.01	.01	.01	.01	.01
304.5500	.01	.01	.01	.01	.01
304.8000	.01	.01	.01	.01	.01
305.0500	.01	.01	.01	.01	.01
305.3000	.01	.01	.01	.01	.01
305.5500	.01	.01	.01	.01	.01
305.8000	.01	.01	.01	.01	.01
306.0500	.01	.01	.01	.01	.01
306.3000	.01	.01	.01	.01	.01
306.5500	.01	.01	.01	.01	.01
306.8000	.01	.01	.01	.01	.01
307.0500	.01	.01	.01	.01	.01
307.3000	.01	.01	.01	.01	.01
307.5500	.01	.01	.01	.01	.01
307.8000	.01	.01	.01	.01	.01
308.0500	.01	.01	.01	.01	.01
308.3000	.01	.01	.01	.01	.01
308.5500	.01	.01	.01	.01	.01
308.8000	.01	.01	.01	.01	.01

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Unit Hyd. (HYG output) Page 4290
 Name.... OFF 003 Tag: 1 Event: 1 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
 Storm... TypeII 24hr Tag: 1

HYDROGRAPH ORDINATES (cfs)

Time hrs	Output Time increment = .0500 hrs				
	Time on left represents time for first value in each row.				
309.0500	.01	.01	.01	.01	.01
309.3000	.01	.01	.01	.01	.01
309.5500	.01	.01	.01	.01	.01
309.8000	.01	.01	.01	.01	.01
310.0500	.01	.01	.01	.01	.01
310.3000	.01	.01	.01	.01	.01

310.5500		.01	.01	.01	.01	.01
310.8000		.01	.01	.01	.01	.01
311.0500		.01	.01	.01	.01	.01
311.3000		.01	.01	.01	.01	.01
311.5500		.01	.01	.01	.01	.01
311.8000		.01	.01	.01	.01	.01
312.0500		.01	.01	.01	.01	.01
312.3000		.01	.01	.01	.01	.01
312.5500		.01	.01	.01	.01	.01
312.8000		.01	.01	.01	.01	.01
313.0500		.01	.01	.01	.01	.01
313.3000		.01	.01	.01	.01	.01
313.5500		.01	.01	.01	.01	.01
313.8000		.01	.01	.01	.01	.01
314.0500		.01	.01	.01	.01	.01
314.3000		.01	.01	.01	.01	.01
314.5500		.01	.01	.01	.01	.01
314.8000		.01	.01	.01	.01	.01
315.0500		.01	.01	.01	.01	.01
315.3000		.01	.01	.01	.01	.01
315.5500		.01	.01	.01	.01	.01
315.8000		.01	.01	.01	.01	.01
316.0500		.01	.01	.01	.01	.01
316.3000		.01	.01	.01	.01	.01
316.5500		.01	.01	.01	.01	.01
316.8000		.01	.01	.01	.01	.01
317.0500		.01	.01	.01	.01	.01
317.3000		.01	.01	.01	.01	.01
317.5500		.01	.01	.01	.01	.01
317.8000		.01	.01	.01	.01	.01
318.0500		.01	.01	.01	.01	.01
318.3000		.01	.01	.01	.01	.01
318.5500		.01	.01	.01	.01	.01
318.8000		.01	.01	.01	.01	.01
319.0500		.01	.01	.01	.01	.01
319.3000		.01	.01	.01	.01	.01
319.5500		.01	.01	.01	.01	.01
319.8000		.01	.01	.01	.01	.01
320.0500		.01	.01	.01	.01	.01

S/N:

PondPack Ver:

Compute Time:

Date:

↑
 Type.... Unit Hyd. (HYG output) Page 4291
 Name.... OFF 003 Tag: 1 Event: 1 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
 Storm... TypeII 24hr Tag: 1

HYDROGRAPH ORDINATES (cfs)

Time | Output Time increment = .0500 hrs

hrs	Time on left represents time for first value in each row.				
320.3000	.01	.01	.01	.01	.01
320.5500	.01	.01	.01	.01	.01
320.8000	.01	.01	.01	.01	.01
321.0500	.01	.01	.01	.01	.01
321.3000	.01	.01	.01	.01	.01
321.5500	.01	.01	.01	.01	.01
321.8000	.01	.01	.01	.01	.01
322.0500	.01	.01	.01	.01	.01
322.3000	.01	.01	.01	.01	.01
322.5500	.01	.01	.01	.01	.01
322.8000	.01	.01	.01	.01	.01
323.0500	.01	.01	.01	.01	.01
323.3000	.01	.01	.01	.01	.01
323.5500	.01	.01	.01	.01	.01
323.8000	.01	.01	.01	.01	.01
324.0500	.01	.01	.01	.01	.01
324.3000	.01	.01	.01	.01	.01
324.5500	.01	.01	.01	.01	.01
324.8000	.01	.01	.01	.01	.01
325.0500	.01	.01	.01	.01	.01
325.3000	.01	.01	.01	.01	.01
325.5500	.01	.01	.01	.01	.01
325.8000	.01	.01	.01	.01	.01
326.0500	.01	.01	.01	.01	.01
326.3000	.01	.01	.01	.01	.01
326.5500	.01	.01	.01	.01	.01
326.8000	.01	.01	.01	.01	.01
327.0500	.01	.01	.01	.01	.01
327.3000	.01	.01	.01	.01	.01
327.5500	.01	.01	.01	.01	.01
327.8000	.01	.01	.01	.01	.01
328.0500	.01	.01	.01	.01	.01
328.3000	.01	.01	.01	.01	.01
328.5500	.01	.01	.01	.01	.01
328.8000	.01	.01	.01	.01	.01
329.0500	.01	.01	.01	.01	.01
329.3000	.01	.01	.01	.01	.01
329.5500	.01	.01	.01	.01	.01
329.8000	.01	.01	.01	.01	.01
330.0500	.01	.01	.01	.01	.01
330.3000	.01	.01	.01	.01	.01
330.5500	.01	.01	.01	.01	.01
330.8000	.01	.01	.01	.01	.01
331.0500	.01	.01	.01	.01	.01
331.3000	.01	.01	.01	.01	.01

S/N:

PondPack Ver:

Compute Time:

Date:

↑
 Type.... Unit Hyd. (HYG output) Page 4292
 Name.... OFF 003 Tag: 1 Event: 1 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
 Storm... TypeII 24hr Tag: 1

HYDROGRAPH ORDINATES (cfs)					
Output Time increment = .0500 hrs					
Time hrs	Time on left represents time for first value in each row.				
331.5500	.01	.01	.01	.01	.01
331.8000	.01	.01	.01	.01	.01
332.0500	.01	.01	.01	.01	.01
332.3000	.01	.01	.01	.01	.01
332.5500	.01	.01	.01	.01	.01
332.8000	.01	.01	.01	.01	.01
333.0500	.01	.01	.01	.01	.01
333.3000	.01	.01	.01	.01	.01
333.5500	.01	.01	.01	.01	.01
333.8000	.01	.01	.01	.01	.01
334.0500	.01	.01	.01	.01	.01
334.3000	.01	.01	.01	.01	.01
334.5500	.01	.01	.01	.01	.01
334.8000	.01	.01	.01	.01	.01
335.0500	.01	.01	.01	.01	.01
335.3000	.01	.01	.01	.01	.01
335.5500	.01	.01	.01	.01	.01
335.8000	.01	.01	.01	.01	.01
336.0500	.01	.01	.01	.01	.01
336.3000	.01	.01	.01	.01	.01
336.5500	.01	.01	.01	.01	.01
336.8000	.01	.01	.01	.01	.01
337.0500	.01	.01	.01	.01	.01
337.3000	.01	.01	.01	.01	.01
337.5500	.01	.01	.01	.01	.01
337.8000	.01	.01	.01	.01	.01
338.0500	.01	.01	.01	.01	.01
338.3000	.01	.01	.01	.01	.01
338.5500	.01	.01	.01	.01	.01
338.8000	.01	.01	.01	.01	.01
339.0500	.01	.01	.01	.01	.01
339.3000	.01	.01	.01	.01	.01
339.5500	.01	.01	.01	.01	.01
339.8000	.01	.01	.01	.01	.01
340.0500	.01	.01	.01	.01	.01
340.3000	.01	.01	.01	.01	.01
340.5500	.01	.01	.01	.01	.01
340.8000	.01	.01	.01	.01	.01
341.0500	.01	.01	.01	.01	.01
341.3000	.01	.01	.01	.01	.01

341.5500		.01	.01	.01	.01	.01
341.8000		.01	.01	.01	.01	.01
342.0500		.01	.01	.01	.01	.01
342.3000		.01	.01	.01	.01	.01
342.5500		.01	.01	.01	.01	.01

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output)

ÿPage 4293

ÿÿÿName.... OFF 003

ÿTag: 1

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1

HYDROGRAPH ORDINATES (cfs)

Time
hrs

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

342.8000		.01	.01	.01	.01	.01
343.0500		.01	.01	.01	.01	.01
343.3000		.01	.01	.01	.01	.01
343.5500		.01	.01	.01	.01	.01
343.8000		.01	.01	.01	.01	.01
344.0500		.01	.01	.01	.01	.01
344.3000		.01	.01	.01	.01	.01
344.5500		.01	.01	.01	.01	.01
344.8000		.01	.01	.01	.01	.01
345.0500		.01	.01	.01	.01	.01
345.3000		.01	.01	.01	.01	.01
345.5500		.01	.01	.01	.01	.01
345.8000		.01	.01	.01	.01	.01
346.0500		.01	.01	.01	.01	.01
346.3000		.01	.01	.01	.01	.01
346.5500		.01	.01	.01	.01	.01
346.8000		.01	.01	.01	.01	.01
347.0500		.01	.01	.01	.01	.01
347.3000		.01	.01	.01	.01	.01
347.5500		.01	.01	.01	.01	.01
347.8000		.01	.01	.01	.01	.01
348.0500		.01	.01	.01	.01	.01
348.3000		.01	.01	.01	.01	.01
348.5500		.01	.01	.01	.01	.01
348.8000		.01	.01	.01	.01	.01
349.0500		.01	.01	.01	.01	.01
349.3000		.01	.01	.01	.01	.01
349.5500		.01	.01	.01	.01	.01
349.8000		.01	.01	.01	.01	.01
350.0500		.01	.01	.01	.01	.01
350.3000		.01	.01	.01	.01	.01
350.5500		.01	.01	.01	.01	.01

350.8000	.01	.01	.01	.01	.01
351.0500	.01	.01	.01	.01	.01
351.3000	.01	.01	.01	.01	.01
351.5500	.01	.01	.01	.01	.01
351.8000	.01	.01	.01	.01	.01
352.0500	.01	.01	.01	.01	.01
352.3000	.01	.01	.01	.01	.01
352.5500	.01	.01	.01	.01	.01
352.8000	.01	.01	.01	.01	.01
353.0500	.01	.01	.01	.01	.01
353.3000	.01	.01	.01	.01	.01
353.5500	.01	.01	.01	.01	.01
353.8000	.01	.01	.01	.01	.01

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output)

ÿPage 4294

ÿÿÿName.... OFF 003

ÿTag: 1

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time
hrs
Time on left represents time for first value in each row.

354.0500	.01	.01	.01	.01	.01
354.3000	.01	.01	.01	.01	.01
354.5500	.01	.01	.01	.01	.01
354.8000	.01	.01	.01	.01	.01
355.0500	.01	.01	.01	.01	.01
355.3000	.01	.01	.01	.01	.01
355.5500	.01	.01	.01	.01	.01
355.8000	.01	.01	.01	.01	.01
356.0500	.01	.01	.01	.01	.01
356.3000	.01	.01	.01	.01	.01
356.5500	.01	.01	.01	.01	.01
356.8000	.01	.01	.01	.01	.01
357.0500	.01	.01	.01	.01	.01
357.3000	.01	.01	.01	.01	.01
357.5500	.01	.01	.01	.01	.01
357.8000	.01	.01	.01	.01	.01
358.0500	.01	.01	.01	.01	.01
358.3000	.01	.01	.01	.01	.01
358.5500	.01	.01	.01	.01	.01
358.8000	.01	.01	.01	.01	.01
359.0500	.01	.01	.01	.01	.01
359.3000	.01	.01	.01	.01	.01
359.5500	.01	.01	.01	.01	.01
359.8000	.01	.01	.01	.01	.01

360.0500	.01	.01	.01	.01	.01
360.3000	.01	.01	.01	.01	.01
360.5500	.01	.01	.01	.01	.01
360.8000	.01	.01	.01	.01	.01
361.0500	.01	.01	.01	.01	.01
361.3000	.01	.01	.01	.01	.01
361.5500	.01	.01	.01	.01	.01
361.8000	.01	.01	.01	.01	.01
362.0500	.01	.01	.01	.01	.01
362.3000	.01	.01	.01	.01	.01
362.5500	.01	.01	.01	.01	.01
362.8000	.01	.01	.01	.01	.01
363.0500	.01	.01	.01	.01	.01
363.3000	.01	.01	.01	.01	.01
363.5500	.01	.01	.01	.01	.01
363.8000	.01	.01	.01	.01	.01
364.0500	.01	.01	.01	.01	.01
364.3000	.01	.01	.01	.01	.01
364.5500	.01	.01	.01	.01	.01
364.8000	.01	.01	.01	.01	.01
365.0500	.01	.01	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output)

ÿPage 4295

ÿÿÿName.... OFF 003

ÿTag: 1

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1

HYDROGRAPH ORDINATES (cfs)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
365.3000	.00	.00	.00	.00	.00
365.5500	.00	.00	.00	.00	.00
365.8000	.00	.00	.00	.00	.00
366.0500	.00	.00	.00	.00	.00
366.3000	.00	.00	.00	.00	.00
366.5500	.00	.00	.00	.00	.00
366.8000	.00	.00	.00	.00	.00
367.0500	.00	.00	.00	.00	.00
367.3000	.00	.00	.00	.00	.00
367.5500	.00	.00	.00	.00	.00
367.8000	.00	.00	.00	.00	.00
368.0500	.00	.00	.00	.00	.00
368.3000	.00	.00	.00	.00	.00
368.5500	.00	.00	.00	.00	.00
368.8000	.00	.00	.00	.00	.00
369.0500	.00	.00	.00	.00	.00

369.3000	.00	.00	.00	.00	.00
369.5500	.00	.00	.00	.00	.00
369.8000	.00	.00	.00	.00	.00
370.0500	.00	.00	.00	.00	.00
370.3000	.00	.00	.00	.00	.00
370.5500	.00	.00	.00	.00	.00
370.8000	.00	.00	.00	.00	.00
371.0500	.00	.00	.00	.00	.00
371.3000	.00	.00	.00	.00	.00
371.5500	.00	.00	.00	.00	.00
371.8000	.00	.00	.00	.00	.00
372.0500	.00	.00	.00	.00	.00
372.3000	.00	.00	.00	.00	.00
372.5500	.00	.00	.00	.00	.00
372.8000	.00	.00	.00	.00	.00
373.0500	.00	.00	.00	.00	.00
373.3000	.00	.00	.00	.00	.00
373.5500	.00	.00	.00	.00	.00
373.8000	.00	.00	.00	.00	.00
374.0500	.00	.00	.00	.00	.00
374.3000	.00	.00	.00	.00	.00
374.5500	.00	.00	.00	.00	.00
374.8000	.00	.00	.00	.00	.00
375.0500	.00	.00	.00	.00	.00
375.3000	.00	.00	.00	.00	.00
375.5500	.00	.00	.00	.00	.00
375.8000	.00	.00	.00	.00	.00
376.0500	.00	.00	.00	.00	.00
376.3000	.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output)

ÿPage 4296

ÿÿÿName.... OFF 003

ÿTag: 1

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
376.5500	.00	.00	.00	.00	.00
376.8000	.00	.00	.00	.00	.00
377.0500	.00	.00	.00	.00	.00
377.3000	.00	.00	.00	.00	.00
377.5500	.00	.00	.00	.00	.00
377.8000	.00	.00	.00	.00	.00
378.0500	.00	.00	.00	.00	.00
378.3000	.00	.00	.00	.00	.00

378.5500	.00	.00	.00	.00	.00
378.8000	.00	.00	.00	.00	.00
379.0500	.00	.00	.00	.00	.00
379.3000	.00	.00	.00	.00	.00
379.5500	.00	.00	.00	.00	.00
379.8000	.00	.00	.00	.00	.00
380.0500	.00	.00	.00	.00	.00
380.3000	.00	.00	.00	.00	.00
380.5500	.00	.00	.00	.00	.00
380.8000	.00	.00	.00	.00	.00
381.0500	.00	.00	.00	.00	.00
381.3000	.00	.00	.00	.00	.00
381.5500	.00	.00	.00	.00	.00
381.8000	.00	.00	.00	.00	.00
382.0500	.00	.00	.00	.00	.00
382.3000	.00	.00	.00	.00	.00
382.5500	.00	.00	.00	.00	.00
382.8000	.00	.00	.00	.00	.00
383.0500	.00	.00	.00	.00	.00
383.3000	.00	.00	.00	.00	.00
383.5500	.00	.00	.00	.00	.00
383.8000	.00	.00	.00	.00	.00
384.0500	.00	.00	.00	.00	.00
384.3000	.00	.00	.00	.00	.00
384.5500	.00	.00	.00	.00	.00
384.8000	.00	.00	.00	.00	.00
385.0500	.00	.00	.00	.00	.00
385.3000	.00	.00	.00	.00	.00
385.5500	.00	.00	.00	.00	.00
385.8000	.00	.00	.00	.00	.00
386.0500	.00	.00	.00	.00	.00
386.3000	.00	.00	.00	.00	.00
386.5500	.00	.00	.00	.00	.00
386.8000	.00	.00	.00	.00	.00
387.0500	.00	.00	.00	.00	.00
387.3000	.00	.00	.00	.00	.00
387.5500	.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Unit Hyd. (HYG output) Page 4297
 Name.... OFF 003 Tag: 1 Event: 1 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
 Storm... TypeII 24hr Tag: 1

HYDROGRAPH ORDINATES (cfs)

Time	Output Time increment = .0500 hrs
hrs	Time on left represents time for first value in each row.

387.8000	.00	.00	.00	.00	.00
388.0500	.00	.00	.00	.00	.00
388.3000	.00	.00	.00	.00	.00
388.5500	.00	.00	.00	.00	.00
388.8000	.00	.00	.00	.00	.00
389.0500	.00	.00	.00	.00	.00
389.3000	.00	.00	.00	.00	.00
389.5500	.00	.00	.00	.00	.00
389.8000	.00	.00	.00	.00	.00
390.0500	.00	.00	.00	.00	.00
390.3000	.00	.00	.00	.00	.00
390.5500	.00	.00	.00	.00	.00
390.8000	.00	.00	.00	.00	.00
391.0500	.00	.00	.00	.00	.00
391.3000	.00	.00	.00	.00	.00
391.5500	.00	.00	.00	.00	.00
391.8000	.00	.00	.00	.00	.00
392.0500	.00	.00	.00	.00	.00
392.3000	.00	.00	.00	.00	.00
392.5500	.00	.00	.00	.00	.00
392.8000	.00	.00	.00	.00	.00
393.0500	.00	.00	.00	.00	.00
393.3000	.00	.00	.00	.00	.00
393.5500	.00	.00	.00	.00	.00
393.8000	.00	.00	.00	.00	.00
394.0500	.00	.00	.00	.00	.00
394.3000	.00	.00	.00	.00	.00
394.5500	.00	.00	.00	.00	.00
394.8000	.00	.00	.00	.00	.00
395.0500	.00	.00	.00	.00	.00
395.3000	.00	.00	.00	.00	.00
395.5500	.00	.00	.00	.00	.00
395.8000	.00	.00	.00	.00	.00
396.0500	.00	.00	.00	.00	.00
396.3000	.00	.00	.00	.00	.00
396.5500	.00	.00	.00	.00	.00
396.8000	.00	.00	.00	.00	.00
397.0500	.00	.00	.00	.00	.00
397.3000	.00	.00	.00	.00	.00
397.5500	.00	.00	.00	.00	.00
397.8000	.00	.00	.00	.00	.00
398.0500	.00	.00	.00	.00	.00
398.3000	.00	.00	.00	.00	.00
398.5500	.00	.00	.00	.00	.00
398.8000	.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:

↑
Type.... Unit Hyd. (HYG output)

Page 4298

Name.... OFF 003 Tag: 1 Event: 1 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
 Storm... TypeII 24hr Tag: 1

HYDROGRAPH ORDINATES (cfs)						
Output Time increment = .0500 hrs						
Time hrs	Time on left represents time for first value in each row.					
399.0500	.00	.00	.00	.00	.00	.00
399.3000	.00	.00	.00	.00	.00	.00
399.5500	.00	.00	.00	.00	.00	.00
399.8000	.00	.00	.00	.00	.00	.00
400.0500	.00	.00	.00	.00	.00	.00
400.3000	.00	.00	.00	.00	.00	.00
400.5500	.00	.00	.00	.00	.00	.00
400.8000	.00	.00	.00	.00	.00	.00
401.0500	.00	.00	.00	.00	.00	.00
401.3000	.00	.00	.00	.00	.00	.00
401.5500	.00	.00	.00	.00	.00	.00
401.8000	.00	.00	.00	.00	.00	.00
402.0500	.00	.00	.00	.00	.00	.00
402.3000	.00	.00	.00	.00	.00	.00
402.5500	.00	.00	.00	.00	.00	.00
402.8000	.00	.00	.00	.00	.00	.00
403.0500	.00	.00	.00	.00	.00	.00
403.3000	.00	.00	.00	.00	.00	.00
403.5500	.00	.00	.00	.00	.00	.00
403.8000	.00	.00	.00	.00	.00	.00
404.0500	.00	.00	.00	.00	.00	.00
404.3000	.00	.00	.00	.00	.00	.00
404.5500	.00	.00	.00	.00	.00	.00
404.8000	.00	.00	.00	.00	.00	.00
405.0500	.00	.00	.00	.00	.00	.00
405.3000	.00	.00	.00	.00	.00	.00
405.5500	.00	.00	.00	.00	.00	.00
405.8000	.00	.00	.00	.00	.00	.00
406.0500	.00	.00	.00	.00	.00	.00
406.3000	.00	.00	.00	.00	.00	.00
406.5500	.00	.00	.00	.00	.00	.00
406.8000	.00	.00	.00	.00	.00	.00
407.0500	.00	.00	.00	.00	.00	.00
407.3000	.00	.00	.00	.00	.00	.00
407.5500	.00	.00	.00	.00	.00	.00
407.8000	.00	.00	.00	.00	.00	.00
408.0500	.00	.00	.00	.00	.00	.00
408.3000	.00	.00	.00	.00	.00	.00
408.5500	.00	.00	.00	.00	.00	.00
408.8000	.00	.00	.00	.00	.00	.00
409.0500	.00	.00	.00	.00	.00	.00
409.3000	.00	.00	.00	.00	.00	.00

409.5500		.00	.00	.00	.00	.00
409.8000		.00	.00	.00	.00	.00
410.0500		.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Unit Hyd. (HYG output) Page 4299
 Name.... OFF 003 Tag: 1 Event: 1 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
 Storm... TypeII 24hr Tag: 1

HYDROGRAPH ORDINATES (cfs)

Time
 hrs

 Output Time increment = .0500 hrs
 Time on left represents time for first value in each row.

410.3000		.00	.00	.00	.00	.00
410.5500		.00	.00	.00	.00	.00
410.8000		.00	.00	.00	.00	.00
411.0500		.00	.00	.00	.00	.00
411.3000		.00	.00	.00	.00	.00
411.5500		.00	.00	.00	.00	.00
411.8000		.00	.00	.00	.00	.00
412.0500		.00	.00	.00	.00	.00
412.3000		.00	.00	.00	.00	.00
412.5500		.00	.00	.00	.00	.00
412.8000		.00	.00	.00	.00	.00
413.0500		.00	.00	.00	.00	.00
413.3000		.00	.00	.00	.00	.00
413.5500		.00	.00	.00	.00	.00
413.8000		.00	.00	.00	.00	.00
414.0500		.00	.00	.00	.00	.00
414.3000		.00	.00	.00	.00	.00
414.5500		.00	.00	.00	.00	.00
414.8000		.00	.00	.00	.00	.00
415.0500		.00	.00	.00	.00	.00
415.3000		.00	.00	.00	.00	.00
415.5500		.00	.00	.00	.00	.00
415.8000		.00	.00	.00	.00	.00
416.0500		.00	.00	.00	.00	.00
416.3000		.00	.00	.00	.00	.00
416.5500		.00	.00	.00	.00	.00
416.8000		.00	.00	.00	.00	.00
417.0500		.00	.00	.00	.00	.00
417.3000		.00	.00	.00	.00	.00
417.5500		.00	.00	.00	.00	.00
417.8000		.00	.00	.00	.00	.00
418.0500		.00	.00	.00	.00	.00
418.3000		.00	.00	.00	.00	.00
418.5500		.00	.00	.00	.00	.00

418.8000		.00	.00	.00	.00	.00
419.0500		.00	.00	.00	.00	.00
419.3000		.00	.00	.00	.00	.00
419.5500		.00	.00	.00	.00	.00
419.8000		.00	.00	.00	.00	.00
420.0500		.00	.00	.00	.00	.00
420.3000		.00	.00	.00	.00	.00
420.5500		.00	.00	.00	.00	.00
420.8000		.00	.00	.00	.00	.00
421.0500		.00	.00	.00	.00	.00
421.3000		.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output) ÿPage 4300

ÿÿÿName.... OFF 003 ÿTag: 1 Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
421.5500		.00	.00	.00	.00
421.8000		.00	.00	.00	.00
422.0500		.00	.00	.00	.00
422.3000		.00	.00	.00	.00
422.5500		.00	.00	.00	.00
422.8000		.00	.00	.00	.00
423.0500		.00	.00	.00	.00
423.3000		.00	.00	.00	.00
423.5500		.00	.00	.00	.00
423.8000		.00	.00	.00	.00
424.0500		.00	.00	.00	.00
424.3000		.00	.00	.00	.00
424.5500		.00	.00	.00	.00
424.8000		.00	.00	.00	.00
425.0500		.00	.00	.00	.00
425.3000		.00	.00	.00	.00
425.5500		.00	.00	.00	.00
425.8000		.00	.00	.00	.00
426.0500		.00	.00	.00	.00
426.3000		.00	.00	.00	.00
426.5500		.00	.00	.00	.00
426.8000		.00	.00	.00	.00
427.0500		.00	.00	.00	.00
427.3000		.00	.00	.00	.00
427.5500		.00	.00	.00	.00
427.8000		.00	.00	.00	.00

428.0500	.00	.00	.00	.00	.00
428.3000	.00	.00	.00	.00	.00
428.5500	.00	.00	.00	.00	.00
428.8000	.00	.00	.00	.00	.00
429.0500	.00	.00	.00	.00	.00
429.3000	.00	.00	.00	.00	.00
429.5500	.00	.00	.00	.00	.00
429.8000	.00	.00	.00	.00	.00
430.0500	.00	.00	.00	.00	.00
430.3000	.00	.00	.00	.00	.00
430.5500	.00	.00	.00	.00	.00
430.8000	.00	.00	.00	.00	.00
431.0500	.00	.00	.00	.00	.00
431.3000	.00	.00	.00	.00	.00
431.5500	.00	.00	.00	.00	.00
431.8000	.00	.00	.00	.00	.00
432.0500	.00	.00	.00	.00	.00
432.3000	.00	.00	.00	.00	.00
432.5500	.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output)

ÿPage 4301

ÿÿÿName.... OFF 003

ÿTag: 1

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
432.8000	.00	.00	.00	.00	.00
433.0500	.00	.00	.00	.00	.00
433.3000	.00	.00	.00	.00	.00
433.5500	.00	.00	.00	.00	.00
433.8000	.00	.00	.00	.00	.00
434.0500	.00	.00	.00	.00	.00
434.3000	.00	.00	.00	.00	.00
434.5500	.00	.00	.00	.00	.00
434.8000	.00	.00	.00	.00	.00
435.0500	.00	.00	.00	.00	.00
435.3000	.00	.00	.00	.00	.00
435.5500	.00	.00	.00	.00	.00
435.8000	.00	.00	.00	.00	.00
436.0500	.00	.00	.00	.00	.00
436.3000	.00	.00	.00	.00	.00
436.5500	.00	.00	.00	.00	.00
436.8000	.00	.00	.00	.00	.00
437.0500	.00	.00	.00	.00	.00

437.3000	.00	.00	.00	.00	.00
437.5500	.00	.00	.00	.00	.00
437.8000	.00	.00	.00	.00	.00
438.0500	.00	.00	.00	.00	.00
438.3000	.00	.00	.00	.00	.00
438.5500	.00	.00	.00	.00	.00
438.8000	.00	.00	.00	.00	.00
439.0500	.00	.00	.00	.00	.00
439.3000	.00	.00	.00	.00	.00
439.5500	.00	.00	.00	.00	.00
439.8000	.00	.00	.00	.00	.00
440.0500	.00	.00	.00	.00	.00
440.3000	.00	.00	.00	.00	.00
440.5500	.00	.00	.00	.00	.00
440.8000	.00	.00	.00	.00	.00
441.0500	.00	.00	.00	.00	.00
441.3000	.00	.00	.00	.00	.00
441.5500	.00	.00	.00	.00	.00
441.8000	.00	.00	.00	.00	.00
442.0500	.00	.00	.00	.00	.00
442.3000	.00	.00	.00	.00	.00
442.5500	.00	.00	.00	.00	.00
442.8000	.00	.00	.00	.00	.00
443.0500	.00	.00	.00	.00	.00
443.3000	.00	.00	.00	.00	.00
443.5500	.00	.00	.00	.00	.00
443.8000	.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output)

ÿPage 4302

ÿÿÿName.... OFF 003

ÿTag: 1

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time
hrs
Time on left represents time for first value in each row.

444.0500	.00	.00	.00	.00	.00
444.3000	.00	.00	.00	.00	.00
444.5500	.00	.00	.00	.00	.00
444.8000	.00	.00	.00	.00	.00
445.0500	.00	.00	.00	.00	.00
445.3000	.00	.00	.00	.00	.00
445.5500	.00	.00	.00	.00	.00
445.8000	.00	.00	.00	.00	.00
446.0500	.00	.00	.00	.00	.00
446.3000	.00	.00	.00	.00	.00

446.5500	.00	.00	.00	.00	.00
446.8000	.00	.00	.00	.00	.00
447.0500	.00	.00	.00	.00	.00
447.3000	.00	.00	.00	.00	.00
447.5500	.00	.00	.00	.00	.00
447.8000	.00	.00	.00	.00	.00
448.0500	.00	.00	.00	.00	.00
448.3000	.00	.00	.00	.00	.00
448.5500	.00	.00	.00	.00	.00
448.8000	.00	.00	.00	.00	.00
449.0500	.00	.00	.00	.00	.00
449.3000	.00	.00	.00	.00	.00
449.5500	.00	.00	.00	.00	.00
449.8000	.00	.00	.00	.00	.00
450.0500	.00	.00	.00	.00	.00
450.3000	.00	.00	.00	.00	.00
450.5500	.00	.00	.00	.00	.00
450.8000	.00	.00	.00	.00	.00
451.0500	.00	.00	.00	.00	.00
451.3000	.00	.00	.00	.00	.00
451.5500	.00	.00	.00	.00	.00
451.8000	.00	.00	.00	.00	.00
452.0500	.00	.00	.00	.00	.00
452.3000	.00	.00	.00	.00	.00
452.5500	.00	.00	.00	.00	.00
452.8000	.00	.00	.00	.00	.00
453.0500	.00	.00	.00	.00	.00
453.3000	.00	.00	.00	.00	.00
453.5500	.00	.00	.00	.00	.00
453.8000	.00	.00	.00	.00	.00
454.0500	.00	.00	.00	.00	.00
454.3000	.00	.00	.00	.00	.00
454.5500	.00	.00	.00	.00	.00
454.8000	.00	.00	.00	.00	.00
455.0500	.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output)

ÿPage 4303

ÿÿÿName.... OFF 003

ÿTag: 1

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1

HYDROGRAPH ORDINATES (cfs)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
455.3000	.00	.00	.00	.00	.00
455.5500	.00	.00	.00	.00	.00

455.8000	.00	.00	.00	.00	.00
456.0500	.00	.00	.00	.00	.00
456.3000	.00	.00	.00	.00	.00
456.5500	.00	.00	.00	.00	.00
456.8000	.00	.00	.00	.00	.00
457.0500	.00	.00	.00	.00	.00
457.3000	.00	.00	.00	.00	.00
457.5500	.00	.00	.00	.00	.00
457.8000	.00	.00	.00	.00	.00
458.0500	.00	.00	.00	.00	.00
458.3000	.00	.00	.00	.00	.00
458.5500	.00	.00	.00	.00	.00
458.8000	.00	.00	.00	.00	.00
459.0500	.00	.00	.00	.00	.00
459.3000	.00	.00	.00	.00	.00
459.5500	.00	.00	.00	.00	.00
459.8000	.00	.00	.00	.00	.00
460.0500	.00	.00	.00	.00	.00
460.3000	.00	.00	.00	.00	.00
460.5500	.00	.00	.00	.00	.00
460.8000	.00	.00	.00	.00	.00
461.0500	.00	.00	.00	.00	.00
461.3000	.00	.00	.00	.00	.00
461.5500	.00	.00	.00	.00	.00
461.8000	.00	.00	.00	.00	.00
462.0500	.00	.00	.00	.00	.00
462.3000	.00	.00	.00	.00	.00
462.5500	.00	.00	.00	.00	.00
462.8000	.00	.00	.00	.00	.00
463.0500	.00	.00	.00	.00	.00
463.3000	.00	.00	.00	.00	.00
463.5500	.00	.00	.00	.00	.00
463.8000	.00	.00	.00	.00	.00
464.0500	.00	.00	.00	.00	.00
464.3000	.00	.00	.00	.00	.00
464.5500	.00	.00	.00	.00	.00
464.8000	.00	.00	.00	.00	.00
465.0500	.00	.00	.00	.00	.00
465.3000	.00	.00	.00	.00	.00
465.5500	.00	.00	.00	.00	.00
465.8000	.00	.00	.00	.00	.00
466.0500	.00	.00	.00	.00	.00
466.3000	.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output)

ÿPage 4304

ÿÿÿName.... OFF 003 ÿTag: 1

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... TypeII 24hr yTag: 1

Time hrs	HYDROGRAPH ORDINATES (cfs)				
	Output Time increment = .0500 hrs				
	Time on left represents time for first value in each row.				
466.5500	.00	.00	.00	.00	.00
466.8000	.00	.00	.00	.00	.00
467.0500	.00	.00	.00	.00	.00
467.3000	.00	.00	.00	.00	.00
467.5500	.00	.00	.00	.00	.00
467.8000	.00	.00	.00	.00	.00
468.0500	.00	.00	.00	.00	.00
468.3000	.00	.00	.00	.00	.00
468.5500	.00	.00	.00	.00	.00
468.8000	.00	.00	.00	.00	.00
469.0500	.00	.00	.00	.00	.00
469.3000	.00	.00	.00	.00	.00
469.5500	.00	.00	.00	.00	.00
469.8000	.00	.00	.00	.00	.00
470.0500	.00	.00	.00	.00	.00
470.3000	.00	.00	.00	.00	.00
470.5500	.00	.00	.00	.00	.00
470.8000	.00	.00	.00	.00	.00
471.0500	.00	.00	.00	.00	.00
471.3000	.00	.00	.00	.00	.00
471.5500	.00	.00	.00	.00	.00
471.8000	.00	.00	.00	.00	.00
472.0500	.00	.00	.00	.00	.00
472.3000	.00	.00	.00	.00	.00
472.5500	.00	.00	.00	.00	.00
472.8000	.00	.00	.00	.00	.00
473.0500	.00	.00	.00	.00	.00
473.3000	.00	.00	.00	.00	.00
473.5500	.00	.00	.00	.00	.00
473.8000	.00	.00	.00	.00	.00
474.0500	.00	.00	.00	.00	.00
474.3000	.00	.00	.00	.00	.00
474.5500	.00	.00	.00	.00	.00
474.8000	.00	.00	.00	.00	.00
475.0500	.00	.00	.00	.00	.00
475.3000	.00	.00	.00	.00	.00
475.5500	.00	.00	.00	.00	.00
475.8000	.00	.00	.00	.00	.00
476.0500	.00	.00	.00	.00	.00
476.3000	.00	.00	.00	.00	.00
476.5500	.00	.00	.00	.00	.00
476.8000	.00	.00	.00	.00	.00
477.0500	.00	.00	.00	.00	.00
477.3000	.00	.00	.00	.00	.00

477.5500 | .00 .00 .00 .00 .00

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output)

ÿPage 4305

ÿÿÿName.... OFF 003

ÿTag: 1

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
477.8000	.00	.00	.00	.00	.00
478.0500	.00	.00	.00	.00	.00
478.3000	.00	.00	.00	.00	.00
478.5500	.00	.00	.00	.00	.00
478.8000	.00	.00	.00	.00	.00
479.0500	.00	.00	.00	.00	.00
479.3000	.00	.00	.00	.00	.00
479.5500	.00	.00	.00	.00	.00
479.8000	.00	.00	.00	.00	.00
480.0500	.00	.00	.00	.00	.00
480.3000	.00	.00	.00	.00	.00
480.5500	.00	.00	.00	.00	.00
480.8000	.00	.00	.00	.00	.00
481.0500	.00	.00	.00	.00	.00
481.3000	.00	.00	.00	.00	.00
481.5500	.00	.00	.00	.00	.00
481.8000	.00	.00	.00	.00	.00
482.0500	.00	.00	.00	.00	.00
482.3000	.00	.00	.00	.00	.00
482.5500	.00	.00	.00	.00	.00
482.8000	.00	.00	.00	.00	.00
483.0500	.00	.00	.00	.00	.00
483.3000	.00	.00	.00	.00	.00
483.5500	.00	.00	.00	.00	.00
483.8000	.00	.00	.00	.00	.00
484.0500	.00	.00	.00	.00	.00
484.3000	.00	.00	.00	.00	.00
484.5500	.00	.00	.00	.00	.00
484.8000	.00	.00	.00	.00	.00
485.0500	.00	.00	.00	.00	.00
485.3000	.00	.00	.00	.00	.00
485.5500	.00	.00	.00	.00	.00
485.8000	.00	.00	.00	.00	.00
486.0500	.00	.00	.00	.00	.00
486.3000	.00	.00	.00	.00	.00
486.5500	.00	.00	.00	.00	.00

486.8000		.00	.00	.00	.00	.00
487.0500		.00	.00	.00	.00	.00
487.3000		.00	.00	.00	.00	.00
487.5500		.00	.00	.00	.00	.00
487.8000		.00	.00	.00	.00	.00
488.0500		.00	.00	.00	.00	.00
488.3000		.00	.00	.00	.00	.00
488.5500		.00	.00	.00	.00	.00
488.8000		.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Unit Hyd. (HYG output) Page 4306
 Name.... OFF 003 Tag: 1 Event: 1 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
 Storm... TypeII 24hr Tag: 1

HYDROGRAPH ORDINATES (cfs)						
Output Time increment = .0500 hrs						
Time	Time on left represents time for first value in each row.					
hrs						
489.0500		.00	.00	.00	.00	.00
489.3000		.00	.00	.00	.00	.00
489.5500		.00	.00	.00	.00	.00
489.8000		.00	.00	.00	.00	.00
490.0500		.00	.00	.00	.00	.00
490.3000		.00	.00	.00	.00	.00
490.5500		.00	.00	.00	.00	.00
490.8000		.00	.00	.00	.00	.00
491.0500		.00	.00	.00	.00	.00
491.3000		.00	.00	.00	.00	.00
491.5500		.00	.00	.00	.00	.00
491.8000		.00	.00	.00	.00	.00
492.0500		.00	.00	.00	.00	.00
492.3000		.00	.00	.00	.00	.00
492.5500		.00	.00	.00	.00	.00
492.8000		.00	.00	.00	.00	.00
493.0500		.00	.00	.00	.00	.00
493.3000		.00	.00	.00	.00	.00
493.5500		.00	.00	.00	.00	.00
493.8000		.00	.00	.00	.00	.00
494.0500		.00	.00	.00	.00	.00
494.3000		.00	.00	.00	.00	.00
494.5500		.00	.00	.00	.00	.00
494.8000		.00	.00	.00	.00	.00
495.0500		.00	.00	.00	.00	.00
495.3000		.00	.00	.00	.00	.00
495.5500		.00	.00	.00	.00	.00
495.8000		.00	.00	.00	.00	.00

496.0500	.00	.00	.00	.00	.00
496.3000	.00	.00	.00	.00	.00
496.5500	.00	.00	.00	.00	.00
496.8000	.00	.00	.00	.00	.00
497.0500	.00	.00	.00	.00	.00
497.3000	.00	.00	.00	.00	.00
497.5500	.00	.00	.00	.00	.00
497.8000	.00	.00	.00	.00	.00
498.0500	.00	.00	.00	.00	.00
498.3000	.00	.00	.00	.00	.00
498.5500	.00	.00	.00	.00	.00
498.8000	.00	.00	.00	.00	.00
499.0500	.00	.00	.00	.00	.00
499.3000	.00	.00	.00	.00	.00
499.5500	.00	.00	.00	.00	.00
499.8000	.00	.00	.00	.00	.00
500.0500	.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Unit Hyd. (HYG output) Page 4307
 Name.... OFF 003 Tag: 1 Event: 1 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
 Storm... TypeII 24hr Tag: 1

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
500.3000	.00	.00	.00	.00	.00
500.5500	.00	.00	.00	.00	.00
500.8000	.00	.00	.00	.00	.00
501.0500	.00	.00	.00	.00	.00
501.3000	.00	.00	.00	.00	.00
501.5500	.00	.00	.00	.00	.00
501.8000	.00	.00	.00	.00	.00
502.0500	.00	.00	.00	.00	.00
502.3000	.00	.00	.00	.00	.00
502.5500	.00	.00	.00	.00	.00
502.8000	.00	.00	.00	.00	.00
503.0500	.00	.00	.00	.00	.00
503.3000	.00	.00	.00	.00	.00
503.5500	.00	.00	.00	.00	.00
503.8000	.00	.00	.00	.00	.00
504.0500	.00	.00	.00	.00	.00
504.3000	.00	.00	.00	.00	.00
504.5500	.00	.00	.00	.00	.00
504.8000	.00	.00	.00	.00	.00
505.0500	.00	.00	.00	.00	.00

505.3000	.00	.00	.00	.00	.00
505.5500	.00	.00	.00	.00	.00
505.8000	.00	.00	.00	.00	.00
506.0500	.00	.00	.00	.00	.00
506.3000	.00	.00	.00	.00	.00
506.5500	.00	.00	.00	.00	.00
506.8000	.00	.00	.00	.00	.00
507.0500	.00	.00	.00	.00	.00
507.3000	.00	.00	.00	.00	.00
507.5500	.00	.00	.00	.00	.00
507.8000	.00	.00	.00	.00	.00
508.0500	.00	.00	.00	.00	.00
508.3000	.00	.00	.00	.00	.00
508.5500	.00	.00	.00	.00	.00
508.8000	.00	.00	.00	.00	.00
509.0500	.00	.00	.00	.00	.00
509.3000	.00	.00	.00	.00	.00
509.5500	.00	.00	.00	.00	.00
509.8000	.00	.00	.00	.00	.00
510.0500	.00	.00	.00	.00	.00
510.3000	.00	.00	.00	.00	.00
510.5500	.00	.00	.00	.00	.00
510.8000	.00	.00	.00	.00	.00
511.0500	.00	.00	.00	.00	.00
511.3000	.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output)

ÿPage 4308

ÿÿÿName.... OFF 003

ÿTag: 1

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
511.5500	.00	.00	.00	.00	.00
511.8000	.00	.00	.00	.00	.00
512.0500	.00	.00	.00	.00	.00
512.3000	.00	.00	.00	.00	.00
512.5500	.00	.00	.00	.00	.00
512.8000	.00	.00	.00	.00	.00
513.0500	.00	.00	.00	.00	.00
513.3000	.00	.00	.00	.00	.00
513.5500	.00	.00	.00	.00	.00
513.8000	.00	.00	.00	.00	.00
514.0500	.00	.00	.00	.00	.00
514.3000	.00	.00	.00	.00	.00

514.5500	.00	.00	.00	.00	.00
514.8000	.00	.00	.00	.00	.00
515.0500	.00	.00	.00	.00	.00
515.3000	.00	.00	.00	.00	.00
515.5500	.00	.00	.00	.00	.00
515.8000	.00	.00	.00	.00	.00
516.0500	.00	.00	.00	.00	.00
516.3000	.00	.00	.00	.00	.00
516.5500	.00	.00	.00	.00	.00
516.8000	.00	.00	.00	.00	.00
517.0500	.00	.00	.00	.00	.00
517.3000	.00	.00	.00	.00	.00
517.5500	.00	.00	.00	.00	.00
517.8000	.00	.00	.00	.00	.00
518.0500	.00	.00	.00	.00	.00
518.3000	.00	.00	.00	.00	.00
518.5500	.00	.00	.00	.00	.00
518.8000	.00	.00	.00	.00	.00
519.0500	.00	.00	.00	.00	.00
519.3000	.00	.00	.00	.00	.00
519.5500	.00	.00	.00	.00	.00
519.8000	.00	.00	.00	.00	.00
520.0500	.00	.00	.00	.00	.00
520.3000	.00	.00	.00	.00	.00
520.5500	.00	.00	.00	.00	.00
520.8000	.00	.00	.00	.00	.00
521.0500	.00	.00	.00	.00	.00
521.3000	.00	.00	.00	.00	.00
521.5500	.00	.00	.00	.00	.00
521.8000	.00	.00	.00	.00	.00
522.0500	.00	.00	.00	.00	.00
522.3000	.00	.00	.00	.00	.00
522.5500	.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output)

ÿPage 4309

ÿÿÿName.... OFF 003

ÿTag: 1

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1

HYDROGRAPH ORDINATES (cfs)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
522.8000	.00	.00	.00	.00	.00
523.0500	.00	.00	.00	.00	.00
523.3000	.00	.00	.00	.00	.00
523.5500	.00	.00	.00	.00	.00

523.8000	.00	.00	.00	.00	.00
524.0500	.00	.00	.00	.00	.00
524.3000	.00	.00	.00	.00	.00
524.5500	.00	.00	.00	.00	.00
524.8000	.00	.00	.00	.00	.00
525.0500	.00	.00	.00	.00	.00
525.3000	.00	.00	.00	.00	.00
525.5500	.00	.00	.00	.00	.00
525.8000	.00	.00	.00	.00	.00
526.0500	.00	.00	.00	.00	.00
526.3000	.00	.00	.00	.00	.00
526.5500	.00	.00	.00	.00	.00
526.8000	.00	.00	.00	.00	.00
527.0500	.00	.00	.00	.00	.00
527.3000	.00	.00	.00	.00	.00
527.5500	.00	.00	.00	.00	.00
527.8000	.00	.00	.00	.00	.00
528.0500	.00	.00	.00	.00	.00
528.3000	.00	.00	.00	.00	.00
528.5500	.00	.00	.00	.00	.00
528.8000	.00	.00	.00	.00	.00
529.0500	.00	.00	.00	.00	.00
529.3000	.00	.00	.00	.00	.00
529.5500	.00	.00	.00	.00	.00
529.8000	.00	.00	.00	.00	.00
530.0500	.00	.00	.00	.00	.00
530.3000	.00	.00	.00	.00	.00
530.5500	.00	.00	.00	.00	.00
530.8000	.00	.00	.00	.00	.00
531.0500	.00	.00	.00	.00	.00
531.3000	.00	.00	.00	.00	.00
531.5500	.00	.00	.00	.00	.00
531.8000	.00	.00	.00	.00	.00
532.0500	.00	.00	.00	.00	.00
532.3000	.00	.00	.00	.00	.00
532.5500	.00	.00	.00	.00	.00
532.8000	.00	.00	.00	.00	.00
533.0500	.00	.00	.00	.00	.00
533.3000	.00	.00	.00	.00	.00
533.5500	.00	.00	.00	.00	.00
533.8000	.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output)

ÿPage 4310

ÿÿÿName.... OFF 003 ÿTag: 1

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
534.0500	.00	.00	.00	.00	.00
534.3000	.00	.00	.00	.00	.00
534.5500	.00	.00	.00	.00	.00
534.8000	.00	.00	.00	.00	.00
535.0500	.00	.00	.00	.00	.00
535.3000	.00	.00	.00	.00	.00
535.5500	.00	.00	.00	.00	.00
535.8000	.00	.00	.00	.00	.00
536.0500	.00	.00	.00	.00	.00
536.3000	.00	.00	.00	.00	.00
536.5500	.00	.00	.00	.00	.00
536.8000	.00	.00	.00	.00	.00
537.0500	.00	.00	.00	.00	.00
537.3000	.00	.00	.00	.00	.00
537.5500	.00	.00	.00	.00	.00
537.8000	.00	.00	.00	.00	.00
538.0500	.00	.00	.00	.00	.00
538.3000	.00	.00	.00	.00	.00
538.5500	.00	.00	.00	.00	.00
538.8000	.00	.00	.00	.00	.00
539.0500	.00	.00	.00	.00	.00
539.3000	.00	.00	.00	.00	.00
539.5500	.00	.00	.00	.00	.00
539.8000	.00	.00	.00	.00	.00
540.0500	.00	.00	.00	.00	.00
540.3000	.00	.00	.00	.00	.00
540.5500	.00	.00	.00	.00	.00
540.8000	.00	.00	.00	.00	.00
541.0500	.00	.00	.00	.00	.00
541.3000	.00	.00	.00	.00	.00
541.5500	.00	.00	.00	.00	.00
541.8000	.00	.00	.00	.00	.00
542.0500	.00	.00	.00	.00	.00
542.3000	.00	.00	.00	.00	.00
542.5500	.00	.00	.00	.00	.00
542.8000	.00	.00	.00	.00	.00
543.0500	.00	.00	.00	.00	.00
543.3000	.00	.00	.00	.00	.00
543.5500	.00	.00	.00	.00	.00
543.8000	.00	.00	.00	.00	.00
544.0500	.00	.00	.00	.00	.00
544.3000	.00	.00	.00	.00	.00
544.5500	.00	.00	.00	.00	.00
544.8000	.00	.00	.00	.00	.00
545.0500	.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output)

ÿPage 4311

ÿÿÿName.... OFF 003

ÿTag: 1

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
545.3000	.00	.00	.00	.00	.00
545.5500	.00	.00	.00	.00	.00
545.8000	.00	.00	.00	.00	.00
546.0500	.00	.00	.00	.00	.00
546.3000	.00	.00	.00	.00	.00
546.5500	.00	.00	.00	.00	.00
546.8000	.00	.00	.00	.00	.00
547.0500	.00	.00	.00	.00	.00
547.3000	.00	.00	.00	.00	.00
547.5500	.00	.00	.00	.00	.00
547.8000	.00	.00	.00	.00	.00
548.0500	.00	.00	.00	.00	.00
548.3000	.00	.00	.00	.00	.00
548.5500	.00	.00	.00	.00	.00
548.8000	.00	.00	.00	.00	.00
549.0500	.00	.00	.00	.00	.00
549.3000	.00	.00	.00	.00	.00
549.5500	.00	.00	.00	.00	.00
549.8000	.00	.00	.00	.00	.00
550.0500	.00	.00	.00	.00	.00
550.3000	.00	.00	.00	.00	.00
550.5500	.00	.00	.00	.00	.00
550.8000	.00	.00	.00	.00	.00
551.0500	.00	.00	.00	.00	.00
551.3000	.00	.00	.00	.00	.00
551.5500	.00	.00	.00	.00	.00
551.8000	.00	.00	.00	.00	.00
552.0500	.00	.00	.00	.00	.00
552.3000	.00	.00	.00	.00	.00
552.5500	.00	.00	.00	.00	.00
552.8000	.00	.00	.00	.00	.00
553.0500	.00	.00	.00	.00	.00
553.3000	.00	.00	.00	.00	.00
553.5500	.00	.00	.00	.00	.00
553.8000	.00	.00	.00	.00	.00
554.0500	.00	.00	.00	.00	.00
554.3000	.00	.00	.00	.00	.00
554.5500	.00	.00	.00	.00	.00

554.8000		.00	.00	.00	.00	.00
555.0500		.00	.00	.00	.00	.00
555.3000		.00	.00	.00	.00	.00
555.5500		.00	.00	.00	.00	.00
555.8000		.00	.00	.00	.00	.00
556.0500		.00	.00	.00	.00	.00
556.3000		.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Unit Hyd. (HYG output) Page 4312
 Name.... OFF 003 Tag: 1 Event: 1 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
 Storm... TypeII 24hr Tag: 1

HYDROGRAPH ORDINATES (cfs)						
Output Time increment = .0500 hrs						
Time	Time on left represents time for first value in each row.					
hrs						

556.5500		.00	.00	.00	.00	.00
556.8000		.00	.00	.00	.00	.00
557.0500		.00	.00	.00	.00	.00
557.3000		.00	.00	.00	.00	.00
557.5500		.00	.00	.00	.00	.00
557.8000		.00	.00	.00	.00	.00
558.0500		.00	.00	.00	.00	.00
558.3000		.00	.00	.00	.00	.00
558.5500		.00	.00	.00	.00	.00
558.8000		.00	.00	.00	.00	.00
559.0500		.00	.00	.00	.00	.00
559.3000		.00	.00	.00	.00	.00
559.5500		.00	.00	.00	.00	.00
559.8000		.00	.00	.00	.00	.00
560.0500		.00	.00	.00	.00	.00
560.3000		.00	.00	.00	.00	.00
560.5500		.00	.00	.00	.00	.00
560.8000		.00	.00	.00	.00	.00
561.0500		.00	.00	.00	.00	.00
561.3000		.00	.00	.00	.00	.00
561.5500		.00	.00	.00	.00	.00
561.8000		.00	.00	.00	.00	.00
562.0500		.00	.00	.00	.00	.00
562.3000		.00	.00	.00	.00	.00
562.5500		.00	.00	.00	.00	.00
562.8000		.00	.00	.00	.00	.00
563.0500		.00	.00	.00	.00	.00
563.3000		.00	.00	.00	.00	.00
563.5500		.00	.00	.00	.00	.00
563.8000		.00	.00	.00	.00	.00

564.0500	.00	.00	.00	.00	.00
564.3000	.00	.00	.00	.00	.00
564.5500	.00	.00	.00	.00	.00
564.8000	.00	.00	.00	.00	.00
565.0500	.00	.00	.00	.00	.00
565.3000	.00	.00	.00	.00	.00
565.5500	.00	.00	.00	.00	.00
565.8000	.00	.00	.00	.00	.00
566.0500	.00	.00	.00	.00	.00
566.3000	.00	.00	.00	.00	.00
566.5500	.00	.00	.00	.00	.00
566.8000	.00	.00	.00	.00	.00
567.0500	.00	.00	.00	.00	.00
567.3000	.00	.00	.00	.00	.00
567.5500	.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output)

ÿPage 4313

ÿÿÿName.... OFF 003

ÿTag: 1

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
567.8000	.00	.00	.00	.00	.00
568.0500	.00	.00	.00	.00	.00
568.3000	.00	.00	.00	.00	.00
568.5500	.00	.00	.00	.00	.00
568.8000	.00	.00	.00	.00	.00
569.0500	.00	.00	.00	.00	.00
569.3000	.00	.00	.00	.00	.00
569.5500	.00	.00	.00	.00	.00
569.8000	.00	.00	.00	.00	.00
570.0500	.00	.00	.00	.00	.00
570.3000	.00	.00	.00	.00	.00
570.5500	.00	.00	.00	.00	.00
570.8000	.00	.00	.00	.00	.00
571.0500	.00	.00	.00	.00	.00
571.3000	.00	.00	.00	.00	.00
571.5500	.00	.00	.00	.00	.00
571.8000	.00	.00	.00	.00	.00
572.0500	.00	.00	.00	.00	.00
572.3000	.00	.00	.00	.00	.00
572.5500	.00	.00	.00	.00	.00
572.8000	.00	.00	.00	.00	.00
573.0500	.00	.00	.00	.00	.00

573.3000		.00	.00	.00	.00	.00
573.5500		.00	.00	.00	.00	.00
573.8000		.00	.00	.00	.00	.00
574.0500		.00	.00	.00		

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Node: Addition Summary Page 4314
 Name.... OUT 10 Event: 1 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
 Storm... TypeII 24hr Tag: 1

SUMMARY FOR HYDROGRAPH ADDITION
at Node: OUT 10

HYG Directory: Q:\PROJECT\stormwater\stormwater\20040287\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ADDLINK 10	OFF 003	work_pad.hyg	OFF 003	1

INFLOWS TO: OUT 10

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	OFF 003	1	.174	290.4000	.20

TOTAL FLOW INTO: OUT 10

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	OUT 10	1	.174	290.4000	.20

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Node: Addition Summary Page 4315
 Name.... OUT 10 Event: 1 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
 Storm... TypeII 24hr Tag: 1

TOTAL NODE INFLOW...

HYG file = Q:\PROJECT\stormwater\stormwater\20040287\work_pad.hyg
 HYG ID = OUT 10

HYG Tag = 1

Peak Discharge = .20 cfs
Time to Peak = 290.4000 hrs
HYG Volume = .174 ac-ft

Time hrs	HYDROGRAPH ORDINATES (cfs)				
	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
279.0500	.00	.00	.00	.00	.00
279.3000	.00	.00	.00	.00	.00
279.5500	.00	.00	.00	.00	.00
279.8000	.00	.00	.00	.00	.00
280.0500	.00	.00	.00	.00	.00
280.3000	.00	.00	.00	.00	.00
280.5500	.00	.00	.00	.00	.00
280.8000	.00	.00	.00	.00	.00
281.0500	.00	.00	.00	.00	.00
281.3000	.00	.00	.00	.00	.00
281.5500	.00	.00	.00	.00	.00
281.8000	.00	.00	.00	.00	.00
282.0500	.00	.00	.00	.00	.00
282.3000	.00	.00	.00	.00	.00
282.5500	.00	.00	.00	.00	.00
282.8000	.00	.00	.00	.00	.00
283.0500	.00	.00	.00	.00	.00
283.3000	.00	.00	.00	.01	.01
283.5500	.01	.01	.01	.01	.01
283.8000	.01	.01	.01	.01	.01
284.0500	.01	.01	.01	.01	.01
284.3000	.01	.01	.01	.01	.01
284.5500	.01	.01	.01	.01	.01
284.8000	.01	.01	.01	.01	.01
285.0500	.01	.01	.01	.01	.01
285.3000	.01	.01	.01	.01	.01
285.5500	.01	.01	.01	.01	.02
285.8000	.03	.03	.04	.05	.05
286.0500	.06	.06	.06	.06	.07
286.3000	.07	.07	.07	.08	.08
286.5500	.08	.08	.08	.09	.09

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Node:ÿAddition Summary

ÿPage 4316

ÿÿÿName.... OUT 10

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
286.8000	.09	.09	.09	.09	.10
287.0500	.10	.10	.10	.10	.10
287.3000	.11	.11	.11	.11	.11
287.5500	.12	.12	.12	.12	.12
287.8000	.12	.13	.13	.13	.13
288.0500	.13	.13	.13	.14	.14
288.3000	.14	.14	.14	.14	.15
288.5500	.15	.15	.15	.15	.15
288.8000	.15	.16	.16	.16	.16
289.0500	.16	.16	.16	.17	.17
289.3000	.17	.17	.17	.17	.17
289.5500	.18	.18	.18	.18	.18
289.8000	.18	.18	.18	.19	.19
290.0500	.19	.19	.19	.19	.19
290.3000	.19	.20	.20	.20	.19
290.5500	.17	.14	.12	.10	.08
290.8000	.07	.06	.05	.05	.05
291.0500	.04	.04	.04	.04	.04
291.3000	.04	.04	.04	.04	.04
291.5500	.04	.04	.04	.04	.04
291.8000	.04	.04	.04	.04	.04
292.0500	.04	.04	.04	.04	.04
292.3000	.04	.04	.04	.04	.04
292.5500	.04	.04	.04	.04	.04
292.8000	.04	.04	.04	.04	.04
293.0500	.03	.03	.03	.03	.03
293.3000	.03	.03	.03	.03	.03
293.5500	.03	.03	.03	.03	.03
293.8000	.03	.03	.03	.03	.03
294.0500	.03	.03	.03	.03	.03
294.3000	.03	.03	.03	.03	.03
294.5500	.03	.03	.03	.03	.03
294.8000	.03	.03	.03	.03	.03
295.0500	.03	.03	.03	.03	.03
295.3000	.03	.03	.03	.02	.02
295.5500	.02	.02	.02	.02	.02
295.8000	.02	.02	.02	.02	.02
296.0500	.02	.02	.02	.02	.02
296.3000	.02	.02	.02	.02	.02
296.5500	.02	.02	.02	.02	.02
296.8000	.02	.02	.02	.02	.02
297.0500	.02	.02	.02	.02	.02
297.3000	.02	.02	.02	.02	.02
297.5500	.02	.02	.02	.02	.02
297.8000	.02	.02	.02	.02	.02

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Node: Addition Summary

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Name.... OUT 10

Event: 1 yr

File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

Storm... TypeII 24hr Tag: 1

HYDROGRAPH ORDINATES (cfs)

Time
hrs

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

298.0500	.02	.02	.02	.02	.02
298.3000	.02	.02	.02	.02	.02
298.5500	.02	.02	.02	.02	.02
298.8000	.02	.02	.02	.02	.02
299.0500	.02	.02	.02	.02	.02
299.3000	.02	.02	.02	.02	.02
299.5500	.02	.02	.02	.02	.02
299.8000	.02	.02	.02	.02	.02
300.0500	.02	.02	.02	.02	.02
300.3000	.02	.02	.02	.02	.02
300.5500	.02	.02	.02	.02	.02
300.8000	.02	.02	.02	.02	.02
301.0500	.02	.02	.02	.02	.02
301.3000	.02	.02	.02	.02	.02
301.5500	.02	.02	.02	.02	.02
301.8000	.02	.02	.02	.02	.02
302.0500	.02	.02	.02	.02	.02
302.3000	.02	.02	.02	.02	.02
302.5500	.02	.02	.02	.02	.01
302.8000	.01	.01	.01	.01	.01
303.0500	.01	.01	.01	.01	.01
303.3000	.01	.01	.01	.01	.01
303.5500	.01	.01	.01	.01	.01
303.8000	.01	.01	.01	.01	.01
304.0500	.01	.01	.01	.01	.01
304.3000	.01	.01	.01	.01	.01
304.5500	.01	.01	.01	.01	.01
304.8000	.01	.01	.01	.01	.01
305.0500	.01	.01	.01	.01	.01
305.3000	.01	.01	.01	.01	.01
305.5500	.01	.01	.01	.01	.01
305.8000	.01	.01	.01	.01	.01
306.0500	.01	.01	.01	.01	.01
306.3000	.01	.01	.01	.01	.01
306.5500	.01	.01	.01	.01	.01
306.8000	.01	.01	.01	.01	.01
307.0500	.01	.01	.01	.01	.01

307.3000		.01	.01	.01	.01	.01
307.5500		.01	.01	.01	.01	.01
307.8000		.01	.01	.01	.01	.01
308.0500		.01	.01	.01	.01	.01
308.3000		.01	.01	.01	.01	.01
308.5500		.01	.01	.01	.01	.01
308.8000		.01	.01	.01	.01	.01
309.0500		.01	.01	.01	.01	.01

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Node: Addition Summary

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yyyName.... OUT 10

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... TypeII 24hr yTag: 1

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time
hrs

Time on left represents time for first value in each row.

309.3000		.01	.01	.01	.01	.01
309.5500		.01	.01	.01	.01	.01
309.8000		.01	.01	.01	.01	.01
310.0500		.01	.01	.01	.01	.01
310.3000		.01	.01	.01	.01	.01
310.5500		.01	.01	.01	.01	.01
310.8000		.01	.01	.01	.01	.01
311.0500		.01	.01	.01	.01	.01
311.3000		.01	.01	.01	.01	.01
311.5500		.01	.01	.01	.01	.01
311.8000		.01	.01	.01	.01	.01
312.0500		.01	.01	.01	.01	.01
312.3000		.01	.01	.01	.01	.01
312.5500		.01	.01	.01	.01	.01
312.8000		.01	.01	.01	.01	.01
313.0500		.01	.01	.01	.01	.01
313.3000		.01	.01	.01	.01	.01
313.5500		.01	.01	.01	.01	.01
313.8000		.01	.01	.01	.01	.01
314.0500		.01	.01	.01	.01	.01
314.3000		.01	.01	.01	.01	.01
314.5500		.01	.01	.01	.01	.01
314.8000		.01	.01	.01	.01	.01
315.0500		.01	.01	.01	.01	.01
315.3000		.01	.01	.01	.01	.01
315.5500		.01	.01	.01	.01	.01
315.8000		.01	.01	.01	.01	.01
316.0500		.01	.01	.01	.01	.01
316.3000		.01	.01	.01	.01	.01

316.5500	.01	.01	.01	.01	.01
316.8000	.01	.01	.01	.01	.01
317.0500	.01	.01	.01	.01	.01
317.3000	.01	.01	.01	.01	.01
317.5500	.01	.01	.01	.01	.01
317.8000	.01	.01	.01	.01	.01
318.0500	.01	.01	.01	.01	.01
318.3000	.01	.01	.01	.01	.01
318.5500	.01	.01	.01	.01	.01
318.8000	.01	.01	.01	.01	.01
319.0500	.01	.01	.01	.01	.01
319.3000	.01	.01	.01	.01	.01
319.5500	.01	.01	.01	.01	.01
319.8000	.01	.01	.01	.01	.01
320.0500	.01	.01	.01	.01	.01
320.3000	.01	.01	.01	.01	.01

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Node: Addition Summary

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yyyName.... OUT 10

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... TypeII 24hr yTag: 1

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
320.5500	.01	.01	.01	.01	.01
320.8000	.01	.01	.01	.01	.01
321.0500	.01	.01	.01	.01	.01
321.3000	.01	.01	.01	.01	.01
321.5500	.01	.01	.01	.01	.01
321.8000	.01	.01	.01	.01	.01
322.0500	.01	.01	.01	.01	.01
322.3000	.01	.01	.01	.01	.01
322.5500	.01	.01	.01	.01	.01
322.8000	.01	.01	.01	.01	.01
323.0500	.01	.01	.01	.01	.01
323.3000	.01	.01	.01	.01	.01
323.5500	.01	.01	.01	.01	.01
323.8000	.01	.01	.01	.01	.01
324.0500	.01	.01	.01	.01	.01
324.3000	.01	.01	.01	.01	.01
324.5500	.01	.01	.01	.01	.01
324.8000	.01	.01	.01	.01	.01
325.0500	.01	.01	.01	.01	.01
325.3000	.01	.01	.01	.01	.01
325.5500	.01	.01	.01	.01	.01

325.8000	.01	.01	.01	.01	.01
326.0500	.01	.01	.01	.01	.01
326.3000	.01	.01	.01	.01	.01
326.5500	.01	.01	.01	.01	.01
326.8000	.01	.01	.01	.01	.01
327.0500	.01	.01	.01	.01	.01
327.3000	.01	.01	.01	.01	.01
327.5500	.01	.01	.01	.01	.01
327.8000	.01	.01	.01	.01	.01
328.0500	.01	.01	.01	.01	.01
328.3000	.01	.01	.01	.01	.01
328.5500	.01	.01	.01	.01	.01
328.8000	.01	.01	.01	.01	.01
329.0500	.01	.01	.01	.01	.01
329.3000	.01	.01	.01	.01	.01
329.5500	.01	.01	.01	.01	.01
329.8000	.01	.01	.01	.01	.01
330.0500	.01	.01	.01	.01	.01
330.3000	.01	.01	.01	.01	.01
330.5500	.01	.01	.01	.01	.01
330.8000	.01	.01	.01	.01	.01
331.0500	.01	.01	.01	.01	.01
331.3000	.01	.01	.01	.01	.01
331.5500	.01	.01	.01	.01	.01

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Node:ÿAddition Summary

ÿPage 4320

ÿÿÿName.... OUT 10

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1

Time hrs	HYDROGRAPH ORDINATES (cfs)				
	Output Time increment = .0500 hrs				
	Time on left represents time for first value in each row.				
331.8000	.01	.01	.01	.01	.01
332.0500	.01	.01	.01	.01	.01
332.3000	.01	.01	.01	.01	.01
332.5500	.01	.01	.01	.01	.01
332.8000	.01	.01	.01	.01	.01
333.0500	.01	.01	.01	.01	.01
333.3000	.01	.01	.01	.01	.01
333.5500	.01	.01	.01	.01	.01
333.8000	.01	.01	.01	.01	.01
334.0500	.01	.01	.01	.01	.01
334.3000	.01	.01	.01	.01	.01
334.5500	.01	.01	.01	.01	.01
334.8000	.01	.01	.01	.01	.01

335.0500	.01	.01	.01	.01	.01
335.3000	.01	.01	.01	.01	.01
335.5500	.01	.01	.01	.01	.01
335.8000	.01	.01	.01	.01	.01
336.0500	.01	.01	.01	.01	.01
336.3000	.01	.01	.01	.01	.01
336.5500	.01	.01	.01	.01	.01
336.8000	.01	.01	.01	.01	.01
337.0500	.01	.01	.01	.01	.01
337.3000	.01	.01	.01	.01	.01
337.5500	.01	.01	.01	.01	.01
337.8000	.01	.01	.01	.01	.01
338.0500	.01	.01	.01	.01	.01
338.3000	.01	.01	.01	.01	.01
338.5500	.01	.01	.01	.01	.01
338.8000	.01	.01	.01	.01	.01
339.0500	.01	.01	.01	.01	.01
339.3000	.01	.01	.01	.01	.01
339.5500	.01	.01	.01	.01	.01
339.8000	.01	.01	.01	.01	.01
340.0500	.01	.01	.01	.01	.01
340.3000	.01	.01	.01	.01	.01
340.5500	.01	.01	.01	.01	.01
340.8000	.01	.01	.01	.01	.01
341.0500	.01	.01	.01	.01	.01
341.3000	.01	.01	.01	.01	.01
341.5500	.01	.01	.01	.01	.01
341.8000	.01	.01	.01	.01	.01
342.0500	.01	.01	.01	.01	.01
342.3000	.01	.01	.01	.01	.01
342.5500	.01	.01	.01	.01	.01
342.8000	.01	.01	.01	.01	.01

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Node: Addition Summary

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yyyName.... OUT 10

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... TypeII 24hr yTag: 1

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
343.0500	.01	.01	.01	.01	.01
343.3000	.01	.01	.01	.01	.01
343.5500	.01	.01	.01	.01	.01
343.8000	.01	.01	.01	.01	.01
344.0500	.01	.01	.01	.01	.01

344.3000	.01	.01	.01	.01	.01
344.5500	.01	.01	.01	.01	.01
344.8000	.01	.01	.01	.01	.01
345.0500	.01	.01	.01	.01	.01
345.3000	.01	.01	.01	.01	.01
345.5500	.01	.01	.01	.01	.01
345.8000	.01	.01	.01	.01	.01
346.0500	.01	.01	.01	.01	.01
346.3000	.01	.01	.01	.01	.01
346.5500	.01	.01	.01	.01	.01
346.8000	.01	.01	.01	.01	.01
347.0500	.01	.01	.01	.01	.01
347.3000	.01	.01	.01	.01	.01
347.5500	.01	.01	.01	.01	.01
347.8000	.01	.01	.01	.01	.01
348.0500	.01	.01	.01	.01	.01
348.3000	.01	.01	.01	.01	.01
348.5500	.01	.01	.01	.01	.01
348.8000	.01	.01	.01	.01	.01
349.0500	.01	.01	.01	.01	.01
349.3000	.01	.01	.01	.01	.01
349.5500	.01	.01	.01	.01	.01
349.8000	.01	.01	.01	.01	.01
350.0500	.01	.01	.01	.01	.01
350.3000	.01	.01	.01	.01	.01
350.5500	.01	.01	.01	.01	.01
350.8000	.01	.01	.01	.01	.01
351.0500	.01	.01	.01	.01	.01
351.3000	.01	.01	.01	.01	.01
351.5500	.01	.01	.01	.01	.01
351.8000	.01	.01	.01	.01	.01
352.0500	.01	.01	.01	.01	.01
352.3000	.01	.01	.01	.01	.01
352.5500	.01	.01	.01	.01	.01
352.8000	.01	.01	.01	.01	.01
353.0500	.01	.01	.01	.01	.01
353.3000	.01	.01	.01	.01	.01
353.5500	.01	.01	.01	.01	.01
353.8000	.01	.01	.01	.01	.01
354.0500	.01	.01	.01	.01	.01

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Node: Addition Summary

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yyyName.... OUT 10

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... TypeII 24hr yTag: 1

HYDROGRAPH ORDINATES (cfs)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
354.3000	.01	.01	.01	.01	.01
354.5500	.01	.01	.01	.01	.01
354.8000	.01	.01	.01	.01	.01
355.0500	.01	.01	.01	.01	.01
355.3000	.01	.01	.01	.01	.01
355.5500	.01	.01	.01	.01	.01
355.8000	.01	.01	.01	.01	.01
356.0500	.01	.01	.01	.01	.01
356.3000	.01	.01	.01	.01	.01
356.5500	.01	.01	.01	.01	.01
356.8000	.01	.01	.01	.01	.01
357.0500	.01	.01	.01	.01	.01
357.3000	.01	.01	.01	.01	.01
357.5500	.01	.01	.01	.01	.01
357.8000	.01	.01	.01	.01	.01
358.0500	.01	.01	.01	.01	.01
358.3000	.01	.01	.01	.01	.01
358.5500	.01	.01	.01	.01	.01
358.8000	.01	.01	.01	.01	.01
359.0500	.01	.01	.01	.01	.01
359.3000	.01	.01	.01	.01	.01
359.5500	.01	.01	.01	.01	.01
359.8000	.01	.01	.01	.01	.01
360.0500	.01	.01	.01	.01	.01
360.3000	.01	.01	.01	.01	.01
360.5500	.01	.01	.01	.01	.01
360.8000	.01	.01	.01	.01	.01
361.0500	.01	.01	.01	.01	.01
361.3000	.01	.01	.01	.01	.01
361.5500	.01	.01	.01	.01	.01
361.8000	.01	.01	.01	.01	.01
362.0500	.01	.01	.01	.01	.01
362.3000	.01	.01	.01	.01	.01
362.5500	.01	.01	.01	.01	.01
362.8000	.01	.01	.01	.01	.01
363.0500	.01	.01	.01	.01	.01
363.3000	.01	.01	.01	.01	.01
363.5500	.01	.01	.01	.01	.01
363.8000	.01	.01	.01	.01	.01
364.0500	.01	.01	.01	.01	.01
364.3000	.01	.01	.01	.01	.01
364.5500	.01	.01	.01	.01	.01
364.8000	.01	.01	.01	.01	.01
365.0500	.01	.01	.00	.00	.00
365.3000	.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Node: Addition Summary

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Name.... OUT 10

Event: 1 yr

File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

Storm... TypeII 24hr Tag: 1

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time
hrs
Time on left represents time for first value in each row.

365.5500	.00	.00	.00	.00	.00
365.8000	.00	.00	.00	.00	.00
366.0500	.00	.00	.00	.00	.00
366.3000	.00	.00	.00	.00	.00
366.5500	.00	.00	.00	.00	.00
366.8000	.00	.00	.00	.00	.00
367.0500	.00	.00	.00	.00	.00
367.3000	.00	.00	.00	.00	.00
367.5500	.00	.00	.00	.00	.00
367.8000	.00	.00	.00	.00	.00
368.0500	.00	.00	.00	.00	.00
368.3000	.00	.00	.00	.00	.00
368.5500	.00	.00	.00	.00	.00
368.8000	.00	.00	.00	.00	.00
369.0500	.00	.00	.00	.00	.00
369.3000	.00	.00	.00	.00	.00
369.5500	.00	.00	.00	.00	.00
369.8000	.00	.00	.00	.00	.00
370.0500	.00	.00	.00	.00	.00
370.3000	.00	.00	.00	.00	.00
370.5500	.00	.00	.00	.00	.00
370.8000	.00	.00	.00	.00	.00
371.0500	.00	.00	.00	.00	.00
371.3000	.00	.00	.00	.00	.00
371.5500	.00	.00	.00	.00	.00
371.8000	.00	.00	.00	.00	.00
372.0500	.00	.00	.00	.00	.00
372.3000	.00	.00	.00	.00	.00
372.5500	.00	.00	.00	.00	.00
372.8000	.00	.00	.00	.00	.00
373.0500	.00	.00	.00	.00	.00
373.3000	.00	.00	.00	.00	.00
373.5500	.00	.00	.00	.00	.00
373.8000	.00	.00	.00	.00	.00
374.0500	.00	.00	.00	.00	.00
374.3000	.00	.00	.00	.00	.00
374.5500	.00	.00	.00	.00	.00
374.8000	.00	.00	.00	.00	.00
375.0500	.00	.00	.00	.00	.00

375.3000		.00	.00	.00	.00	.00
375.5500		.00	.00	.00	.00	.00
375.8000		.00	.00	.00	.00	.00
376.0500		.00	.00	.00	.00	.00
376.3000		.00	.00	.00	.00	.00
376.5500		.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Node: Addition Summary

Page 4324

yyyName.... OUT 10

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... TypeII 24hr yTag: 1

HYDROGRAPH ORDINATES (cfs)

Time
hrs

Output Time increment = .0500 hrs
Time on left represents time for first value in each row.

376.8000		.00	.00	.00	.00	.00
377.0500		.00	.00	.00	.00	.00
377.3000		.00	.00	.00	.00	.00
377.5500		.00	.00	.00	.00	.00
377.8000		.00	.00	.00	.00	.00
378.0500		.00	.00	.00	.00	.00
378.3000		.00	.00	.00	.00	.00
378.5500		.00	.00	.00	.00	.00
378.8000		.00	.00	.00	.00	.00
379.0500		.00	.00	.00	.00	.00
379.3000		.00	.00	.00	.00	.00
379.5500		.00	.00	.00	.00	.00
379.8000		.00	.00	.00	.00	.00
380.0500		.00	.00	.00	.00	.00
380.3000		.00	.00	.00	.00	.00
380.5500		.00	.00	.00	.00	.00
380.8000		.00	.00	.00	.00	.00
381.0500		.00	.00	.00	.00	.00
381.3000		.00	.00	.00	.00	.00
381.5500		.00	.00	.00	.00	.00
381.8000		.00	.00	.00	.00	.00
382.0500		.00	.00	.00	.00	.00
382.3000		.00	.00	.00	.00	.00
382.5500		.00	.00	.00	.00	.00
382.8000		.00	.00	.00	.00	.00
383.0500		.00	.00	.00	.00	.00
383.3000		.00	.00	.00	.00	.00
383.5500		.00	.00	.00	.00	.00
383.8000		.00	.00	.00	.00	.00
384.0500		.00	.00	.00	.00	.00
384.3000		.00	.00	.00	.00	.00

384.5500	.00	.00	.00	.00	.00
384.8000	.00	.00	.00	.00	.00
385.0500	.00	.00	.00	.00	.00
385.3000	.00	.00	.00	.00	.00
385.5500	.00	.00	.00	.00	.00
385.8000	.00	.00	.00	.00	.00
386.0500	.00	.00	.00	.00	.00
386.3000	.00	.00	.00	.00	.00
386.5500	.00	.00	.00	.00	.00
386.8000	.00	.00	.00	.00	.00
387.0500	.00	.00	.00	.00	.00
387.3000	.00	.00	.00	.00	.00
387.5500	.00	.00	.00	.00	.00
387.8000	.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Node: Addition Summary

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yyyName.... OUT 10

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... TypeII 24hr yTag: 1

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
388.0500	.00	.00	.00	.00	.00
388.3000	.00	.00	.00	.00	.00
388.5500	.00	.00	.00	.00	.00
388.8000	.00	.00	.00	.00	.00
389.0500	.00	.00	.00	.00	.00
389.3000	.00	.00	.00	.00	.00
389.5500	.00	.00	.00	.00	.00
389.8000	.00	.00	.00	.00	.00
390.0500	.00	.00	.00	.00	.00
390.3000	.00	.00	.00	.00	.00
390.5500	.00	.00	.00	.00	.00
390.8000	.00	.00	.00	.00	.00
391.0500	.00	.00	.00	.00	.00
391.3000	.00	.00	.00	.00	.00
391.5500	.00	.00	.00	.00	.00
391.8000	.00	.00	.00	.00	.00
392.0500	.00	.00	.00	.00	.00
392.3000	.00	.00	.00	.00	.00
392.5500	.00	.00	.00	.00	.00
392.8000	.00	.00	.00	.00	.00
393.0500	.00	.00	.00	.00	.00
393.3000	.00	.00	.00	.00	.00
393.5500	.00	.00	.00	.00	.00

393.8000	.00	.00	.00	.00	.00
394.0500	.00	.00	.00	.00	.00
394.3000	.00	.00	.00	.00	.00
394.5500	.00	.00	.00	.00	.00
394.8000	.00	.00	.00	.00	.00
395.0500	.00	.00	.00	.00	.00
395.3000	.00	.00	.00	.00	.00
395.5500	.00	.00	.00	.00	.00
395.8000	.00	.00	.00	.00	.00
396.0500	.00	.00	.00	.00	.00
396.3000	.00	.00	.00	.00	.00
396.5500	.00	.00	.00	.00	.00
396.8000	.00	.00	.00	.00	.00
397.0500	.00	.00	.00	.00	.00
397.3000	.00	.00	.00	.00	.00
397.5500	.00	.00	.00	.00	.00
397.8000	.00	.00	.00	.00	.00
398.0500	.00	.00	.00	.00	.00
398.3000	.00	.00	.00	.00	.00
398.5500	.00	.00	.00	.00	.00
398.8000	.00	.00	.00	.00	.00
399.0500	.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Node: Addition Summary

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yyyName.... OUT 10

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... TypeII 24hr yTag: 1

HYDROGRAPH ORDINATES (cfs)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
399.3000	.00	.00	.00	.00	.00
399.5500	.00	.00	.00	.00	.00
399.8000	.00	.00	.00	.00	.00
400.0500	.00	.00	.00	.00	.00
400.3000	.00	.00	.00	.00	.00
400.5500	.00	.00	.00	.00	.00
400.8000	.00	.00	.00	.00	.00
401.0500	.00	.00	.00	.00	.00
401.3000	.00	.00	.00	.00	.00
401.5500	.00	.00	.00	.00	.00
401.8000	.00	.00	.00	.00	.00
402.0500	.00	.00	.00	.00	.00
402.3000	.00	.00	.00	.00	.00
402.5500	.00	.00	.00	.00	.00
402.8000	.00	.00	.00	.00	.00

403.0500	.00	.00	.00	.00	.00
403.3000	.00	.00	.00	.00	.00
403.5500	.00	.00	.00	.00	.00
403.8000	.00	.00	.00	.00	.00
404.0500	.00	.00	.00	.00	.00
404.3000	.00	.00	.00	.00	.00
404.5500	.00	.00	.00	.00	.00
404.8000	.00	.00	.00	.00	.00
405.0500	.00	.00	.00	.00	.00
405.3000	.00	.00	.00	.00	.00
405.5500	.00	.00	.00	.00	.00
405.8000	.00	.00	.00	.00	.00
406.0500	.00	.00	.00	.00	.00
406.3000	.00	.00	.00	.00	.00
406.5500	.00	.00	.00	.00	.00
406.8000	.00	.00	.00	.00	.00
407.0500	.00	.00	.00	.00	.00
407.3000	.00	.00	.00	.00	.00
407.5500	.00	.00	.00	.00	.00
407.8000	.00	.00	.00	.00	.00
408.0500	.00	.00	.00	.00	.00
408.3000	.00	.00	.00	.00	.00
408.5500	.00	.00	.00	.00	.00
408.8000	.00	.00	.00	.00	.00
409.0500	.00	.00	.00	.00	.00
409.3000	.00	.00	.00	.00	.00
409.5500	.00	.00	.00	.00	.00
409.8000	.00	.00	.00	.00	.00
410.0500	.00	.00	.00	.00	.00
410.3000	.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Node: Addition Summary

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yyyName.... OUT 10

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... TypeII 24hr yTag: 1

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
410.5500	.00	.00	.00	.00	.00
410.8000	.00	.00	.00	.00	.00
411.0500	.00	.00	.00	.00	.00
411.3000	.00	.00	.00	.00	.00
411.5500	.00	.00	.00	.00	.00
411.8000	.00	.00	.00	.00	.00
412.0500	.00	.00	.00	.00	.00

412.3000		.00	.00	.00	.00	.00
412.5500		.00	.00	.00	.00	.00
412.8000		.00	.00	.00	.00	.00
413.0500		.00	.00	.00	.00	.00
413.3000		.00	.00	.00	.00	.00
413.5500		.00	.00	.00	.00	.00
413.8000		.00	.00	.00	.00	.00
414.0500		.00	.00	.00	.00	.00
414.3000		.00	.00	.00	.00	.00
414.5500		.00	.00	.00	.00	.00
414.8000		.00	.00	.00	.00	.00
415.0500		.00	.00	.00	.00	.00
415.3000		.00	.00	.00	.00	.00
415.5500		.00	.00	.00	.00	.00
415.8000		.00	.00	.00	.00	.00
416.0500		.00	.00	.00	.00	.00
416.3000		.00	.00	.00	.00	.00
416.5500		.00	.00	.00	.00	.00
416.8000		.00	.00	.00	.00	.00
417.0500		.00	.00	.00	.00	.00
417.3000		.00	.00	.00	.00	.00
417.5500		.00	.00	.00	.00	.00
417.8000		.00	.00	.00	.00	.00
418.0500		.00	.00	.00	.00	.00
418.3000		.00	.00	.00	.00	.00
418.5500		.00	.00	.00	.00	.00
418.8000		.00	.00	.00	.00	.00
419.0500		.00	.00	.00	.00	.00
419.3000		.00	.00	.00	.00	.00
419.5500		.00	.00	.00	.00	.00
419.8000		.00	.00	.00	.00	.00
420.0500		.00	.00	.00	.00	.00
420.3000		.00	.00	.00	.00	.00
420.5500		.00	.00	.00	.00	.00
420.8000		.00	.00	.00	.00	.00
421.0500		.00	.00	.00	.00	.00
421.3000		.00	.00	.00	.00	.00
421.5500		.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Node: Addition Summary

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yyyName.... OUT 10

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... TypeII 24hr yTag: 1

HYDROGRAPH ORDINATES (cfs)

Time		Output Time increment = .0500 hrs
hrs		Time on left represents time for first value in each row.

-----	-----	-----	-----	-----	-----
421.8000	.00	.00	.00	.00	.00
422.0500	.00	.00	.00	.00	.00
422.3000	.00	.00	.00	.00	.00
422.5500	.00	.00	.00	.00	.00
422.8000	.00	.00	.00	.00	.00
423.0500	.00	.00	.00	.00	.00
423.3000	.00	.00	.00	.00	.00
423.5500	.00	.00	.00	.00	.00
423.8000	.00	.00	.00	.00	.00
424.0500	.00	.00	.00	.00	.00
424.3000	.00	.00	.00	.00	.00
424.5500	.00	.00	.00	.00	.00
424.8000	.00	.00	.00	.00	.00
425.0500	.00	.00	.00	.00	.00
425.3000	.00	.00	.00	.00	.00
425.5500	.00	.00	.00	.00	.00
425.8000	.00	.00	.00	.00	.00
426.0500	.00	.00	.00	.00	.00
426.3000	.00	.00	.00	.00	.00
426.5500	.00	.00	.00	.00	.00
426.8000	.00	.00	.00	.00	.00
427.0500	.00	.00	.00	.00	.00
427.3000	.00	.00	.00	.00	.00
427.5500	.00	.00	.00	.00	.00
427.8000	.00	.00	.00	.00	.00
428.0500	.00	.00	.00	.00	.00
428.3000	.00	.00	.00	.00	.00
428.5500	.00	.00	.00	.00	.00
428.8000	.00	.00	.00	.00	.00
429.0500	.00	.00	.00	.00	.00
429.3000	.00	.00	.00	.00	.00
429.5500	.00	.00	.00	.00	.00
429.8000	.00	.00	.00	.00	.00
430.0500	.00	.00	.00	.00	.00
430.3000	.00	.00	.00	.00	.00
430.5500	.00	.00	.00	.00	.00
430.8000	.00	.00	.00	.00	.00
431.0500	.00	.00	.00	.00	.00
431.3000	.00	.00	.00	.00	.00
431.5500	.00	.00	.00	.00	.00
431.8000	.00	.00	.00	.00	.00
432.0500	.00	.00	.00	.00	.00
432.3000	.00	.00	.00	.00	.00
432.5500	.00	.00	.00	.00	.00
432.8000	.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Node: Addition Summary

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yyyName.... OUT 10

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... TypeII 24hr yTag: 1

Time hrs	HYDROGRAPH ORDINATES (cfs)				
	Output Time increment = .0500 hrs				
	Time on left represents time for first value in each row.				
433.0500	.00	.00	.00	.00	.00
433.3000	.00	.00	.00	.00	.00
433.5500	.00	.00	.00	.00	.00
433.8000	.00	.00	.00	.00	.00
434.0500	.00	.00	.00	.00	.00
434.3000	.00	.00	.00	.00	.00
434.5500	.00	.00	.00	.00	.00
434.8000	.00	.00	.00	.00	.00
435.0500	.00	.00	.00	.00	.00
435.3000	.00	.00	.00	.00	.00
435.5500	.00	.00	.00	.00	.00
435.8000	.00	.00	.00	.00	.00
436.0500	.00	.00	.00	.00	.00
436.3000	.00	.00	.00	.00	.00
436.5500	.00	.00	.00	.00	.00
436.8000	.00	.00	.00	.00	.00
437.0500	.00	.00	.00	.00	.00
437.3000	.00	.00	.00	.00	.00
437.5500	.00	.00	.00	.00	.00
437.8000	.00	.00	.00	.00	.00
438.0500	.00	.00	.00	.00	.00
438.3000	.00	.00	.00	.00	.00
438.5500	.00	.00	.00	.00	.00
438.8000	.00	.00	.00	.00	.00
439.0500	.00	.00	.00	.00	.00
439.3000	.00	.00	.00	.00	.00
439.5500	.00	.00	.00	.00	.00
439.8000	.00	.00	.00	.00	.00
440.0500	.00	.00	.00	.00	.00
440.3000	.00	.00	.00	.00	.00
440.5500	.00	.00	.00	.00	.00
440.8000	.00	.00	.00	.00	.00
441.0500	.00	.00	.00	.00	.00
441.3000	.00	.00	.00	.00	.00
441.5500	.00	.00	.00	.00	.00
441.8000	.00	.00	.00	.00	.00
442.0500	.00	.00	.00	.00	.00
442.3000	.00	.00	.00	.00	.00
442.5500	.00	.00	.00	.00	.00
442.8000	.00	.00	.00	.00	.00
443.0500	.00	.00	.00	.00	.00

443.3000		.00	.00	.00	.00	.00
443.5500		.00	.00	.00	.00	.00
443.8000		.00	.00	.00	.00	.00
444.0500		.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Node: Addition Summary

Page 4330

yyyName.... OUT 10

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... TypeII 24hr yTag: 1

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs						
444.3000	.00	.00	.00	.00	.00	.00
444.5500	.00	.00	.00	.00	.00	.00
444.8000	.00	.00	.00	.00	.00	.00
445.0500	.00	.00	.00	.00	.00	.00
445.3000	.00	.00	.00	.00	.00	.00
445.5500	.00	.00	.00	.00	.00	.00
445.8000	.00	.00	.00	.00	.00	.00
446.0500	.00	.00	.00	.00	.00	.00
446.3000	.00	.00	.00	.00	.00	.00
446.5500	.00	.00	.00	.00	.00	.00
446.8000	.00	.00	.00	.00	.00	.00
447.0500	.00	.00	.00	.00	.00	.00
447.3000	.00	.00	.00	.00	.00	.00
447.5500	.00	.00	.00	.00	.00	.00
447.8000	.00	.00	.00	.00	.00	.00
448.0500	.00	.00	.00	.00	.00	.00
448.3000	.00	.00	.00	.00	.00	.00
448.5500	.00	.00	.00	.00	.00	.00
448.8000	.00	.00	.00	.00	.00	.00
449.0500	.00	.00	.00	.00	.00	.00
449.3000	.00	.00	.00	.00	.00	.00
449.5500	.00	.00	.00	.00	.00	.00
449.8000	.00	.00	.00	.00	.00	.00
450.0500	.00	.00	.00	.00	.00	.00
450.3000	.00	.00	.00	.00	.00	.00
450.5500	.00	.00	.00	.00	.00	.00
450.8000	.00	.00	.00	.00	.00	.00
451.0500	.00	.00	.00	.00	.00	.00
451.3000	.00	.00	.00	.00	.00	.00
451.5500	.00	.00	.00	.00	.00	.00
451.8000	.00	.00	.00	.00	.00	.00
452.0500	.00	.00	.00	.00	.00	.00
452.3000	.00	.00	.00	.00	.00	.00

452.5500		.00	.00	.00	.00	.00
452.8000		.00	.00	.00	.00	.00
453.0500		.00	.00	.00	.00	.00
453.3000		.00	.00	.00	.00	.00
453.5500		.00	.00	.00	.00	.00
453.8000		.00	.00	.00	.00	.00
454.0500		.00	.00	.00	.00	.00
454.3000		.00	.00	.00	.00	.00
454.5500		.00	.00	.00	.00	.00
454.8000		.00	.00	.00	.00	.00
455.0500		.00	.00	.00	.00	.00
455.3000		.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Node: Addition Summary

Page 4331

yyyName.... OUT 10

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... TypeII 24hr yTag: 1

HYDROGRAPH ORDINATES (cfs)						
Output Time increment = .0500 hrs						
Time hrs	Time on left represents time for first value in each row.					

455.5500		.00	.00	.00	.00	.00
455.8000		.00	.00	.00	.00	.00
456.0500		.00	.00	.00	.00	.00
456.3000		.00	.00	.00	.00	.00
456.5500		.00	.00	.00	.00	.00
456.8000		.00	.00	.00	.00	.00
457.0500		.00	.00	.00	.00	.00
457.3000		.00	.00	.00	.00	.00
457.5500		.00	.00	.00	.00	.00
457.8000		.00	.00	.00	.00	.00
458.0500		.00	.00	.00	.00	.00
458.3000		.00	.00	.00	.00	.00
458.5500		.00	.00	.00	.00	.00
458.8000		.00	.00	.00	.00	.00
459.0500		.00	.00	.00	.00	.00
459.3000		.00	.00	.00	.00	.00
459.5500		.00	.00	.00	.00	.00
459.8000		.00	.00	.00	.00	.00
460.0500		.00	.00	.00	.00	.00
460.3000		.00	.00	.00	.00	.00
460.5500		.00	.00	.00	.00	.00
460.8000		.00	.00	.00	.00	.00
461.0500		.00	.00	.00	.00	.00
461.3000		.00	.00	.00	.00	.00
461.5500		.00	.00	.00	.00	.00

461.8000	.00	.00	.00	.00	.00
462.0500	.00	.00	.00	.00	.00
462.3000	.00	.00	.00	.00	.00
462.5500	.00	.00	.00	.00	.00
462.8000	.00	.00	.00	.00	.00
463.0500	.00	.00	.00	.00	.00
463.3000	.00	.00	.00	.00	.00
463.5500	.00	.00	.00	.00	.00
463.8000	.00	.00	.00	.00	.00
464.0500	.00	.00	.00	.00	.00
464.3000	.00	.00	.00	.00	.00
464.5500	.00	.00	.00	.00	.00
464.8000	.00	.00	.00	.00	.00
465.0500	.00	.00	.00	.00	.00
465.3000	.00	.00	.00	.00	.00
465.5500	.00	.00	.00	.00	.00
465.8000	.00	.00	.00	.00	.00
466.0500	.00	.00	.00	.00	.00
466.3000	.00	.00	.00	.00	.00
466.5500	.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Node:ÿAddition Summary

ÿPage 4332

ÿÿÿName.... OUT 10

Event: 1 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

ÿÿÿStorm... TypeII 24hr ÿTag: 1

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
466.8000	.00	.00	.00	.00	.00
467.0500	.00	.00	.00	.00	.00
467.3000	.00	.00	.00	.00	.00
467.5500	.00	.00	.00	.00	.00
467.8000	.00	.00	.00	.00	.00
468.0500	.00	.00	.00	.00	.00
468.3000	.00	.00	.00	.00	.00
468.5500	.00	.00	.00	.00	.00
468.8000	.00	.00	.00	.00	.00
469.0500	.00	.00	.00	.00	.00
469.3000	.00	.00	.00	.00	.00
469.5500	.00	.00	.00	.00	.00
469.8000	.00	.00	.00	.00	.00
470.0500	.00	.00	.00	.00	.00
470.3000	.00	.00	.00	.00	.00
470.5500	.00	.00	.00	.00	.00
470.8000	.00	.00	.00	.00	.00

471.0500	.00	.00	.00	.00	.00
471.3000	.00	.00	.00	.00	.00
471.5500	.00	.00	.00	.00	.00
471.8000	.00	.00	.00	.00	.00
472.0500	.00	.00	.00	.00	.00
472.3000	.00	.00	.00	.00	.00
472.5500	.00	.00	.00	.00	.00
472.8000	.00	.00	.00	.00	.00
473.0500	.00	.00	.00	.00	.00
473.3000	.00	.00	.00	.00	.00
473.5500	.00	.00	.00	.00	.00
473.8000	.00	.00	.00	.00	.00
474.0500	.00	.00	.00	.00	.00
474.3000	.00	.00	.00	.00	.00
474.5500	.00	.00	.00	.00	.00
474.8000	.00	.00	.00	.00	.00
475.0500	.00	.00	.00	.00	.00
475.3000	.00	.00	.00	.00	.00
475.5500	.00	.00	.00	.00	.00
475.8000	.00	.00	.00	.00	.00
476.0500	.00	.00	.00	.00	.00
476.3000	.00	.00	.00	.00	.00
476.5500	.00	.00	.00	.00	.00
476.8000	.00	.00	.00	.00	.00
477.0500	.00	.00	.00	.00	.00
477.3000	.00	.00	.00	.00	.00
477.5500	.00	.00	.00	.00	.00
477.8000	.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Node: Addition Summary

Page 4333

yyyName.... OUT 10

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... TypeII 24hr yTag: 1

Time hrs	HYDROGRAPH ORDINATES (cfs)				
	Output Time increment = .0500 hrs				
	Time on left represents time for first value in each row.				
478.0500	.00	.00	.00	.00	.00
478.3000	.00	.00	.00	.00	.00
478.5500	.00	.00	.00	.00	.00
478.8000	.00	.00	.00	.00	.00
479.0500	.00	.00	.00	.00	.00
479.3000	.00	.00	.00	.00	.00
479.5500	.00	.00	.00	.00	.00
479.8000	.00	.00	.00	.00	.00
480.0500	.00	.00	.00	.00	.00

480.3000	.00	.00	.00	.00	.00
480.5500	.00	.00	.00	.00	.00
480.8000	.00	.00	.00	.00	.00
481.0500	.00	.00	.00	.00	.00
481.3000	.00	.00	.00	.00	.00
481.5500	.00	.00	.00	.00	.00
481.8000	.00	.00	.00	.00	.00
482.0500	.00	.00	.00	.00	.00
482.3000	.00	.00	.00	.00	.00
482.5500	.00	.00	.00	.00	.00
482.8000	.00	.00	.00	.00	.00
483.0500	.00	.00	.00	.00	.00
483.3000	.00	.00	.00	.00	.00
483.5500	.00	.00	.00	.00	.00
483.8000	.00	.00	.00	.00	.00
484.0500	.00	.00	.00	.00	.00
484.3000	.00	.00	.00	.00	.00
484.5500	.00	.00	.00	.00	.00
484.8000	.00	.00	.00	.00	.00
485.0500	.00	.00	.00	.00	.00
485.3000	.00	.00	.00	.00	.00
485.5500	.00	.00	.00	.00	.00
485.8000	.00	.00	.00	.00	.00
486.0500	.00	.00	.00	.00	.00
486.3000	.00	.00	.00	.00	.00
486.5500	.00	.00	.00	.00	.00
486.8000	.00	.00	.00	.00	.00
487.0500	.00	.00	.00	.00	.00
487.3000	.00	.00	.00	.00	.00
487.5500	.00	.00	.00	.00	.00
487.8000	.00	.00	.00	.00	.00
488.0500	.00	.00	.00	.00	.00
488.3000	.00	.00	.00	.00	.00
488.5500	.00	.00	.00	.00	.00
488.8000	.00	.00	.00	.00	.00
489.0500	.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Node: Addition Summary

Page 4334

yyyName.... OUT 10

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... TypeII 24hr yTag: 1

HYDROGRAPH ORDINATES (cfs)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
489.3000	.00	.00	.00	.00	.00

489.5500	.00	.00	.00	.00	.00
489.8000	.00	.00	.00	.00	.00
490.0500	.00	.00	.00	.00	.00
490.3000	.00	.00	.00	.00	.00
490.5500	.00	.00	.00	.00	.00
490.8000	.00	.00	.00	.00	.00
491.0500	.00	.00	.00	.00	.00
491.3000	.00	.00	.00	.00	.00
491.5500	.00	.00	.00	.00	.00
491.8000	.00	.00	.00	.00	.00
492.0500	.00	.00	.00	.00	.00
492.3000	.00	.00	.00	.00	.00
492.5500	.00	.00	.00	.00	.00
492.8000	.00	.00	.00	.00	.00
493.0500	.00	.00	.00	.00	.00
493.3000	.00	.00	.00	.00	.00
493.5500	.00	.00	.00	.00	.00
493.8000	.00	.00	.00	.00	.00
494.0500	.00	.00	.00	.00	.00
494.3000	.00	.00	.00	.00	.00
494.5500	.00	.00	.00	.00	.00
494.8000	.00	.00	.00	.00	.00
495.0500	.00	.00	.00	.00	.00
495.3000	.00	.00	.00	.00	.00
495.5500	.00	.00	.00	.00	.00
495.8000	.00	.00	.00	.00	.00
496.0500	.00	.00	.00	.00	.00
496.3000	.00	.00	.00	.00	.00
496.5500	.00	.00	.00	.00	.00
496.8000	.00	.00	.00	.00	.00
497.0500	.00	.00	.00	.00	.00
497.3000	.00	.00	.00	.00	.00
497.5500	.00	.00	.00	.00	.00
497.8000	.00	.00	.00	.00	.00
498.0500	.00	.00	.00	.00	.00
498.3000	.00	.00	.00	.00	.00
498.5500	.00	.00	.00	.00	.00
498.8000	.00	.00	.00	.00	.00
499.0500	.00	.00	.00	.00	.00
499.3000	.00	.00	.00	.00	.00
499.5500	.00	.00	.00	.00	.00
499.8000	.00	.00	.00	.00	.00
500.0500	.00	.00	.00	.00	.00
500.3000	.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Node:ÿAddition Summary

ÿÿÿName.... OUT 10

ÿPage 4335

Event: 1 yr

File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
 Storm... TypeII 24hr Tag: 1

HYDROGRAPH ORDINATES (cfs)						
Output Time increment = .0500 hrs						
Time hrs	Time on left represents time for first value in each row.					
500.5500	.00	.00	.00	.00	.00	.00
500.8000	.00	.00	.00	.00	.00	.00
501.0500	.00	.00	.00	.00	.00	.00
501.3000	.00	.00	.00	.00	.00	.00
501.5500	.00	.00	.00	.00	.00	.00
501.8000	.00	.00	.00	.00	.00	.00
502.0500	.00	.00	.00	.00	.00	.00
502.3000	.00	.00	.00	.00	.00	.00
502.5500	.00	.00	.00	.00	.00	.00
502.8000	.00	.00	.00	.00	.00	.00
503.0500	.00	.00	.00	.00	.00	.00
503.3000	.00	.00	.00	.00	.00	.00
503.5500	.00	.00	.00	.00	.00	.00
503.8000	.00	.00	.00	.00	.00	.00
504.0500	.00	.00	.00	.00	.00	.00
504.3000	.00	.00	.00	.00	.00	.00
504.5500	.00	.00	.00	.00	.00	.00
504.8000	.00	.00	.00	.00	.00	.00
505.0500	.00	.00	.00	.00	.00	.00
505.3000	.00	.00	.00	.00	.00	.00
505.5500	.00	.00	.00	.00	.00	.00
505.8000	.00	.00	.00	.00	.00	.00
506.0500	.00	.00	.00	.00	.00	.00
506.3000	.00	.00	.00	.00	.00	.00
506.5500	.00	.00	.00	.00	.00	.00
506.8000	.00	.00	.00	.00	.00	.00
507.0500	.00	.00	.00	.00	.00	.00
507.3000	.00	.00	.00	.00	.00	.00
507.5500	.00	.00	.00	.00	.00	.00
507.8000	.00	.00	.00	.00	.00	.00
508.0500	.00	.00	.00	.00	.00	.00
508.3000	.00	.00	.00	.00	.00	.00
508.5500	.00	.00	.00	.00	.00	.00
508.8000	.00	.00	.00	.00	.00	.00
509.0500	.00	.00	.00	.00	.00	.00
509.3000	.00	.00	.00	.00	.00	.00
509.5500	.00	.00	.00	.00	.00	.00
509.8000	.00	.00	.00	.00	.00	.00
510.0500	.00	.00	.00	.00	.00	.00
510.3000	.00	.00	.00	.00	.00	.00
510.5500	.00	.00	.00	.00	.00	.00
510.8000	.00	.00	.00	.00	.00	.00
511.0500	.00	.00	.00	.00	.00	.00

511.3000		.00	.00	.00	.00	.00
511.5500		.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Node: Addition Summary

Page 4336

yyyName.... OUT 10

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... TypeII 24hr yTag: 1

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
511.8000	.00	.00	.00	.00	.00
512.0500	.00	.00	.00	.00	.00
512.3000	.00	.00	.00	.00	.00
512.5500	.00	.00	.00	.00	.00
512.8000	.00	.00	.00	.00	.00
513.0500	.00	.00	.00	.00	.00
513.3000	.00	.00	.00	.00	.00
513.5500	.00	.00	.00	.00	.00
513.8000	.00	.00	.00	.00	.00
514.0500	.00	.00	.00	.00	.00
514.3000	.00	.00	.00	.00	.00
514.5500	.00	.00	.00	.00	.00
514.8000	.00	.00	.00	.00	.00
515.0500	.00	.00	.00	.00	.00
515.3000	.00	.00	.00	.00	.00
515.5500	.00	.00	.00	.00	.00
515.8000	.00	.00	.00	.00	.00
516.0500	.00	.00	.00	.00	.00
516.3000	.00	.00	.00	.00	.00
516.5500	.00	.00	.00	.00	.00
516.8000	.00	.00	.00	.00	.00
517.0500	.00	.00	.00	.00	.00
517.3000	.00	.00	.00	.00	.00
517.5500	.00	.00	.00	.00	.00
517.8000	.00	.00	.00	.00	.00
518.0500	.00	.00	.00	.00	.00
518.3000	.00	.00	.00	.00	.00
518.5500	.00	.00	.00	.00	.00
518.8000	.00	.00	.00	.00	.00
519.0500	.00	.00	.00	.00	.00
519.3000	.00	.00	.00	.00	.00
519.5500	.00	.00	.00	.00	.00
519.8000	.00	.00	.00	.00	.00
520.0500	.00	.00	.00	.00	.00
520.3000	.00	.00	.00	.00	.00

520.5500		.00	.00	.00	.00	.00
520.8000		.00	.00	.00	.00	.00
521.0500		.00	.00	.00	.00	.00
521.3000		.00	.00	.00	.00	.00
521.5500		.00	.00	.00	.00	.00
521.8000		.00	.00	.00	.00	.00
522.0500		.00	.00	.00	.00	.00
522.3000		.00	.00	.00	.00	.00
522.5500		.00	.00	.00	.00	.00
522.8000		.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Node: Addition Summary

Page 4337

yyyName.... OUT 10

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... TypeII 24hr yTag: 1

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
523.0500		.00	.00	.00	.00
523.3000		.00	.00	.00	.00
523.5500		.00	.00	.00	.00
523.8000		.00	.00	.00	.00
524.0500		.00	.00	.00	.00
524.3000		.00	.00	.00	.00
524.5500		.00	.00	.00	.00
524.8000		.00	.00	.00	.00
525.0500		.00	.00	.00	.00
525.3000		.00	.00	.00	.00
525.5500		.00	.00	.00	.00
525.8000		.00	.00	.00	.00
526.0500		.00	.00	.00	.00
526.3000		.00	.00	.00	.00
526.5500		.00	.00	.00	.00
526.8000		.00	.00	.00	.00
527.0500		.00	.00	.00	.00
527.3000		.00	.00	.00	.00
527.5500		.00	.00	.00	.00
527.8000		.00	.00	.00	.00
528.0500		.00	.00	.00	.00
528.3000		.00	.00	.00	.00
528.5500		.00	.00	.00	.00
528.8000		.00	.00	.00	.00
529.0500		.00	.00	.00	.00
529.3000		.00	.00	.00	.00
529.5500		.00	.00	.00	.00

529.8000	.00	.00	.00	.00	.00
530.0500	.00	.00	.00	.00	.00
530.3000	.00	.00	.00	.00	.00
530.5500	.00	.00	.00	.00	.00
530.8000	.00	.00	.00	.00	.00
531.0500	.00	.00	.00	.00	.00
531.3000	.00	.00	.00	.00	.00
531.5500	.00	.00	.00	.00	.00
531.8000	.00	.00	.00	.00	.00
532.0500	.00	.00	.00	.00	.00
532.3000	.00	.00	.00	.00	.00
532.5500	.00	.00	.00	.00	.00
532.8000	.00	.00	.00	.00	.00
533.0500	.00	.00	.00	.00	.00
533.3000	.00	.00	.00	.00	.00
533.5500	.00	.00	.00	.00	.00
533.8000	.00	.00	.00	.00	.00
534.0500	.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Node: Addition Summary

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yyyName.... OUT 10

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... TypeII 24hr yTag: 1

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
534.3000	.00	.00	.00	.00	.00
534.5500	.00	.00	.00	.00	.00
534.8000	.00	.00	.00	.00	.00
535.0500	.00	.00	.00	.00	.00
535.3000	.00	.00	.00	.00	.00
535.5500	.00	.00	.00	.00	.00
535.8000	.00	.00	.00	.00	.00
536.0500	.00	.00	.00	.00	.00
536.3000	.00	.00	.00	.00	.00
536.5500	.00	.00	.00	.00	.00
536.8000	.00	.00	.00	.00	.00
537.0500	.00	.00	.00	.00	.00
537.3000	.00	.00	.00	.00	.00
537.5500	.00	.00	.00	.00	.00
537.8000	.00	.00	.00	.00	.00
538.0500	.00	.00	.00	.00	.00
538.3000	.00	.00	.00	.00	.00
538.5500	.00	.00	.00	.00	.00
538.8000	.00	.00	.00	.00	.00

539.0500	.00	.00	.00	.00	.00
539.3000	.00	.00	.00	.00	.00
539.5500	.00	.00	.00	.00	.00
539.8000	.00	.00	.00	.00	.00
540.0500	.00	.00	.00	.00	.00
540.3000	.00	.00	.00	.00	.00
540.5500	.00	.00	.00	.00	.00
540.8000	.00	.00	.00	.00	.00
541.0500	.00	.00	.00	.00	.00
541.3000	.00	.00	.00	.00	.00
541.5500	.00	.00	.00	.00	.00
541.8000	.00	.00	.00	.00	.00
542.0500	.00	.00	.00	.00	.00
542.3000	.00	.00	.00	.00	.00
542.5500	.00	.00	.00	.00	.00
542.8000	.00	.00	.00	.00	.00
543.0500	.00	.00	.00	.00	.00
543.3000	.00	.00	.00	.00	.00
543.5500	.00	.00	.00	.00	.00
543.8000	.00	.00	.00	.00	.00
544.0500	.00	.00	.00	.00	.00
544.3000	.00	.00	.00	.00	.00
544.5500	.00	.00	.00	.00	.00
544.8000	.00	.00	.00	.00	.00
545.0500	.00	.00	.00	.00	.00
545.3000	.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Node: Addition Summary

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yyyName.... OUT 10

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... TypeII 24hr yTag: 1

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time
hrs
Time on left represents time for first value in each row.

545.5500	.00	.00	.00	.00	.00
545.8000	.00	.00	.00	.00	.00
546.0500	.00	.00	.00	.00	.00
546.3000	.00	.00	.00	.00	.00
546.5500	.00	.00	.00	.00	.00
546.8000	.00	.00	.00	.00	.00
547.0500	.00	.00	.00	.00	.00
547.3000	.00	.00	.00	.00	.00
547.5500	.00	.00	.00	.00	.00
547.8000	.00	.00	.00	.00	.00
548.0500	.00	.00	.00	.00	.00

548.3000	.00	.00	.00	.00	.00
548.5500	.00	.00	.00	.00	.00
548.8000	.00	.00	.00	.00	.00
549.0500	.00	.00	.00	.00	.00
549.3000	.00	.00	.00	.00	.00
549.5500	.00	.00	.00	.00	.00
549.8000	.00	.00	.00	.00	.00
550.0500	.00	.00	.00	.00	.00
550.3000	.00	.00	.00	.00	.00
550.5500	.00	.00	.00	.00	.00
550.8000	.00	.00	.00	.00	.00
551.0500	.00	.00	.00	.00	.00
551.3000	.00	.00	.00	.00	.00
551.5500	.00	.00	.00	.00	.00
551.8000	.00	.00	.00	.00	.00
552.0500	.00	.00	.00	.00	.00
552.3000	.00	.00	.00	.00	.00
552.5500	.00	.00	.00	.00	.00
552.8000	.00	.00	.00	.00	.00
553.0500	.00	.00	.00	.00	.00
553.3000	.00	.00	.00	.00	.00
553.5500	.00	.00	.00	.00	.00
553.8000	.00	.00	.00	.00	.00
554.0500	.00	.00	.00	.00	.00
554.3000	.00	.00	.00	.00	.00
554.5500	.00	.00	.00	.00	.00
554.8000	.00	.00	.00	.00	.00
555.0500	.00	.00	.00	.00	.00
555.3000	.00	.00	.00	.00	.00
555.5500	.00	.00	.00	.00	.00
555.8000	.00	.00	.00	.00	.00
556.0500	.00	.00	.00	.00	.00
556.3000	.00	.00	.00	.00	.00
556.5500	.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Node: Addition Summary

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yyyName.... OUT 10

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... TypeII 24hr yTag: 1

HYDROGRAPH ORDINATES (cfs)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
556.8000	.00	.00	.00	.00	.00
557.0500	.00	.00	.00	.00	.00
557.3000	.00	.00	.00	.00	.00

557.5500	.00	.00	.00	.00	.00
557.8000	.00	.00	.00	.00	.00
558.0500	.00	.00	.00	.00	.00
558.3000	.00	.00	.00	.00	.00
558.5500	.00	.00	.00	.00	.00
558.8000	.00	.00	.00	.00	.00
559.0500	.00	.00	.00	.00	.00
559.3000	.00	.00	.00	.00	.00
559.5500	.00	.00	.00	.00	.00
559.8000	.00	.00	.00	.00	.00
560.0500	.00	.00	.00	.00	.00
560.3000	.00	.00	.00	.00	.00
560.5500	.00	.00	.00	.00	.00
560.8000	.00	.00	.00	.00	.00
561.0500	.00	.00	.00	.00	.00
561.3000	.00	.00	.00	.00	.00
561.5500	.00	.00	.00	.00	.00
561.8000	.00	.00	.00	.00	.00
562.0500	.00	.00	.00	.00	.00
562.3000	.00	.00	.00	.00	.00
562.5500	.00	.00	.00	.00	.00
562.8000	.00	.00	.00	.00	.00
563.0500	.00	.00	.00	.00	.00
563.3000	.00	.00	.00	.00	.00
563.5500	.00	.00	.00	.00	.00
563.8000	.00	.00	.00	.00	.00
564.0500	.00	.00	.00	.00	.00
564.3000	.00	.00	.00	.00	.00
564.5500	.00	.00	.00	.00	.00
564.8000	.00	.00	.00	.00	.00
565.0500	.00	.00	.00	.00	.00
565.3000	.00	.00	.00	.00	.00
565.5500	.00	.00	.00	.00	.00
565.8000	.00	.00	.00	.00	.00
566.0500	.00	.00	.00	.00	.00
566.3000	.00	.00	.00	.00	.00
566.5500	.00	.00	.00	.00	.00
566.8000	.00	.00	.00	.00	.00
567.0500	.00	.00	.00	.00	.00
567.3000	.00	.00	.00	.00	.00
567.5500	.00	.00	.00	.00	.00
567.8000	.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Node: Addition Summary

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yyyName.... OUT 10

Event: 1 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... TypeII 24hr yTag: 1

HYDROGRAPH ORDINATES (cfs)						
Output Time increment = .0500 hrs						
Time hrs	Time on left represents time for first value in each row.					
568.0500	.00	.00	.00	.00	.00	.00
568.3000	.00	.00	.00	.00	.00	.00
568.5500	.00	.00	.00	.00	.00	.00
568.8000	.00	.00	.00	.00	.00	.00
569.0500	.00	.00	.00	.00	.00	.00
569.3000	.00	.00	.00	.00	.00	.00
569.5500	.00	.00	.00	.00	.00	.00
569.8000	.00	.00	.00	.00	.00	.00
570.0500	.00	.00	.00	.00	.00	.00
570.3000	.00	.00	.00	.00	.00	.00
570.5500	.00	.00	.00	.00	.00	.00
570.8000	.00	.00	.00	.00	.00	.00
571.0500	.00	.00	.00	.00	.00	.00
571.3000	.00	.00	.00	.00	.00	.00
571.5500	.00	.00	.00	.00	.00	.00
571.8000	.00	.00	.00	.00	.00	.00
572.0500	.00	.00	.00	.00	.00	.00
572.3000	.00	.00	.00	.00	.00	.00
572.5500	.00	.00	.00	.00	.00	.00
572.8000	.00	.00	.00	.00	.00	.00
573.0500	.00	.00	.00	.00	.00	.00
573.3000	.00	.00	.00	.00	.00	.00
573.5500	.00	.00	.00	.00	.00	.00
573.8000	.00	.00	.00	.00	.00	.00
574.0500	.00	.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Design Storms

ÿÿÿName.... Bul 71 - 3rd Q(5

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\

ÿÿÿStorm... TypeII 24hr ÿTag: 1

ÿPage 4342

Event: 1 yr

DESIGN STORMS SUMMARY

Design Storm File,ID =

Bul 71 - 3rd Q(5

Storm Tag Name = 1

Data Type, File, ID = Synthetic Storm TypeII 24hr

Storm Frequency = 1 yr

Total Rainfall Depth= 2.1700 in

Duration Multiplier = 24

Resulting Duration = 576.0000 hrs
Resulting Start Time= .0000 hrs Step= 2.4000 hrs End= 576.0000 hrs

Storm Tag Name = 2

Data Type, File, ID = Synthetic Storm 0-10 3rdQ 50%
Storm Frequency = 2 yr
Total Rainfall Depth= 2.7000 in
Duration Multiplier = 24
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= 1.2000 hrs End= 24.0000 hrs

Storm Tag Name = 5

Data Type, File, ID = Synthetic Storm 0-10 3rdQ 50%
Storm Frequency = 5 yr
Total Rainfall Depth= 3.3500 in
Duration Multiplier = 24
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= 1.2000 hrs End= 24.0000 hrs

Storm Tag Name = 10

Data Type, File, ID = Synthetic Storm 0-10 3rdQ 50%
Storm Frequency = 10 yr
Total Rainfall Depth= 3.8600 in
Duration Multiplier = 24
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= 1.2000 hrs End= 24.0000 hrs

Storm Tag Name = 25

Data Type, File, ID = Synthetic Storm 0-10 3rdQ 50%
Storm Frequency = 25 yr
Total Rainfall Depth= 4.6400 in
Duration Multiplier = 24
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= 1.2000 hrs End= 24.0000 hrs

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Design Storms

yyyName.... Bul 71 - 3rd Q(5

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\

yyyStorm... TypeII 24hr yTag: 1

yPage 4343

Event: 1 yr

DESIGN STORMS SUMMARY

Design Storm File,ID = Bul 71 - 3rd Q(5

Storm Tag Name = 50

 Data Type, File, ID = Synthetic Storm 0-10 3rdQ 50%
 Storm Frequency = 50 yr
 Total Rainfall Depth= 5.3300 in
 Duration Multiplier = 24
 Resulting Duration = 24.0000 hrs
 Resulting Start Time= .0000 hrs Step= 1.2000 hrs End= 24.0000 hrs

Storm Tag Name = 100

 Data Type, File, ID = Synthetic Storm 0-10 3rdQ 50%
 Storm Frequency = 100 yr
 Total Rainfall Depth= 6.0600 in
 Duration Multiplier = 24
 Resulting Duration = 24.0000 hrs
 Resulting Start Time= .0000 hrs Step= 1.2000 hrs End= 24.0000 hrs

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Executive Summary (Nodes) ÿPage 4344
 ÿÿÿName.... Watershed Event: 1 yr
 ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
 ÿÿÿStorm... TypeII 24hr ÿTag: 1

NETWORK SUMMARY -- NODES

(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

DEFAULT Design Storm File,ID = Bul 71 - 3rd Q(5

Storm Tag Name = 1

 Data Type, File, ID = Synthetic Storm TypeII 24hr
 Storm Frequency = 1 yr
 Total Rainfall Depth= 2.1700 in
 Duration Multiplier = 24
 Resulting Duration = 576.0000 hrs
 Resulting Start Time= .0000 hrs Step= 2.4000 hrs End= 576.0000 hrs

Node ID	Type	HYG Vol ac-ft	Qpeak Trun. hrs	Qpeak cfs	Max WSEL ft
---------	------	------------------	--------------------	--------------	----------------

OFF 003	AREA	.174	290.4000	.20
Outfall OUT 10	JCT	.174	290.4000	.20

S/N:

PondPack Ver:

Compute Time:

Date:

↑
 Type.... Executive Summary (Links) Page 4345
 Name.... Watershed Event: 1 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
 Storm... TypeII 24hr Tag: 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 = Bul 71 - 3rd Q(5)

Storm Tag Name = 1

 Data Type, File, ID = Synthetic Storm TypeII 24hr
 Storm Frequency = 1 yr
 Total Rainfall Depth= 2.1700 in
 Duration Multiplier = 24
 Resulting Duration = 576.0000 hrs
 Resulting Start Time= .0000 hrs Step= 2.4000 hrs End= 576.0000 hrs

Link ID	Type		HYG Vol ac-ft	Peak Time Trun. hrs	Peak Q cfs	End Points
ADDLINK 10	ADD	UN	.174	290.4000	.20	OFF 003
		DL	.174	290.4000	.20	
		DN	.174	290.4000	.20	OUT 10

S/N:

PondPack Ver:

Compute Time:

Date:

↑
 Type.... Synthetic Curve Page 4346
 Name.... 0-10 3rdQ 50% Tag: 2
 File.... Q:\PROJECT\stormwater\stormwater\20040287\

CUMULATIVE RAINFALL FRACTIONS

(Duration was multiplied by: 24)

Output Time increment = 1.2000 hrs

Time on left represents time for first value in each row.

Time hrs					
.0000	.000	.030	.060	.090	.120
6.0000	.150	.190	.230	.270	.320

12.0000		.380	.450	.570	.700	.790
18.0000		.850	.890	.920	.950	.970
24.0000		1.000				

S/N:

PondPack Ver:

Compute Time:

Date:

↑

```

yyyType.... Synthetic Cumulative Depth          yPage 4347
yyyName.... 0-10 3rdQ 50%      yTag:      2      Event: 2 yr
yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\
yyyStorm... 0-10 3rdQ 50%  yTag:      2

```

CUMULATIVE RAINFALL DEPTHS (in)
(Duration was multiplied by: 24)

Output Time increment = 1.2000 hrs

Time hrs	Time on left represents time for first value in each row.				
-----	-----				
.0000	.0000	.0810	.1620	.2430	.3240
6.0000	.4050	.5130	.6210	.7290	.8640
12.0000	1.0260	1.2150	1.5390	1.8900	2.1330
18.0000	2.2950	2.4030	2.4840	2.5650	2.6190
24.0000	2.7000				

S/N:

PondPack Ver:

Compute Time:

Date:

↑

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yyyType.... Unit Hyd. Summary          yPage 4348
yyyName.... OFF 003      yTag:      2      Event: 2 yr
yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
yyyStorm... 0-10 3rdQ 50%  yTag:      2

```

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm

Duration = 24.0000 hrs Rain Depth = 2.7000 in

Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\

Rain File -ID = - 0-10 3rdQ 50%

Unit Hyd Type = Default Curvilinear

HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\

HYG File - ID = work_pad.hyg - OFF 003 2

Tc = .3500 hrs

Drainage Area = 3.860 acres Runoff CN= 77

```

=====
Computational Time Increment = .04667 hrs
Computed Peak Time          = 15.6333 hrs
Computed Peak Flow          = .56 cfs

```

Time Increment for HYG File = .0500 hrs

Peak Time, Interpolated Output = 15.6500 hrs

Peak Flow, Interpolated Output = .56 cfs
=====

DRAINAGE AREA

ID:OFF 003
CN = 77
Area = 3.860 acres
S = 2.9870 in
0.2S = .5974 in

Cumulative Runoff

.8686 in
.279 ac-ft

HYG Volume... .279 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .35000 hrs (ID: OFF 003)
Computational Incr, Tm = .04667 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 = 12.50 cfs
Unit peak time Tp = .23333 hrs
Unit receding limb, Tr = .93333 hrs
Total unit time, Tb = 1.16667 hrs

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output) ÿPage 4349
ÿÿÿName.... OFF 003 ÿTag: 2 Event: 2 yr
ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
ÿÿÿStorm... 0-10 3rdQ 50% ÿTag: 2

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration = 24.0000 hrs Rain Depth = 2.7000 in
Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\
Rain File -ID = - 0-10 3rdQ 50%
Unit Hyd Type = Default Curvilinear
HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\
HYG File - ID = work_pad.hyg - OFF 003 2
Tc = .3500 hrs

Drainage Area = 3.860 acres Runoff CN= 77
 Calc.Increment= .04667 hrs Out.Incr.= .0500 hrs
 HYG Volume = .279 ac-ft

HYDROGRAPH ORDINATES (cfs)						
Output Time increment = .0500 hrs						
Time hrs	Time on left represents time for first value in each row.					
8.3500	.00	.00	.00	.00	.00	.00
8.6000	.00	.01	.01	.01	.01	.01
8.8500	.01	.01	.01	.01	.01	.01
9.1000	.01	.01	.02	.02	.02	.02
9.3500	.02	.02	.02	.02	.02	.02
9.6000	.02	.02	.03	.03	.03	.03
9.8500	.03	.03	.04	.04	.04	.04
10.1000	.04	.04	.05	.05	.05	.05
10.3500	.05	.05	.05	.05	.05	.05
10.6000	.06	.06	.06	.06	.06	.06
10.8500	.06	.07	.07	.07	.07	.08
11.1000	.08	.08	.08	.09	.09	.09
11.3500	.09	.09	.10	.10	.10	.10
11.6000	.10	.10	.10	.11	.11	.11
11.8500	.11	.11	.11	.11	.11	.12
12.1000	.12	.12	.13	.13	.13	.14
12.3500	.14	.15	.15	.15	.15	.15
12.6000	.16	.16	.16	.16	.16	.17
12.8500	.17	.17	.17	.17	.17	.18
13.1000	.18	.18	.18	.19	.19	.20
13.3500	.21	.24	.26	.29	.29	.30
13.6000	.32	.33	.34	.35	.35	.36
13.8500	.36	.37	.38	.38	.38	.39
14.1000	.39	.40	.40	.41	.41	.41
14.3500	.41	.42	.42	.43	.43	.44
14.6000	.45	.46	.47	.48	.48	.49
14.8500	.49	.50	.50	.51	.51	.51
15.1000	.52	.52	.53	.53	.53	.54
15.3500	.54	.55	.55	.55	.55	.56
15.6000	.56	.56	.55	.54	.54	.51

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Unit Hyd. (HYG output) Page 4350
 Name.... OFF 003 Tag: 2 Event: 2 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
 Storm... 0-10 3rdQ 50% Tag: 2

HYDROGRAPH ORDINATES (cfs)	
Output Time increment = .0500 hrs	
Time hrs	Time on left represents time for first value in each row.

15.8500	.49	.47	.45	.44	.43
16.1000	.43	.42	.42	.42	.42
16.3500	.42	.42	.43	.43	.43
16.6000	.43	.43	.43	.43	.44
16.8500	.43	.43	.41	.39	.37
17.1000	.35	.33	.32	.32	.31
17.3500	.31	.31	.31	.30	.30
17.6000	.30	.30	.31	.31	.31
17.8500	.31	.31	.31	.31	.31
18.1000	.30	.29	.28	.26	.25
18.3500	.23	.23	.22	.22	.22
18.6000	.21	.21	.21	.21	.21
18.8500	.21	.21	.21	.21	.21
19.1000	.21	.21	.21	.21	.21
19.3500	.20	.20	.19	.18	.17
19.6000	.17	.17	.17	.16	.16
19.8500	.16	.16	.16	.16	.16
20.1000	.16	.16	.16	.16	.16
20.3500	.16	.16	.16	.16	.16
20.6000	.16	.16	.16	.16	.16
20.8500	.16	.16	.16	.16	.17
21.1000	.17	.17	.17	.17	.17
21.3500	.17	.17	.17	.17	.17
21.6000	.17	.17	.16	.16	.15
21.8500	.14	.13	.13	.12	.12
22.1000	.12	.12	.11	.11	.11
22.3500	.11	.11	.11	.11	.11
22.6000	.11	.11	.11	.11	.11
22.8500	.11	.12	.12	.13	.14
23.1000	.15	.16	.16	.16	.16
23.3500	.17	.17	.17	.17	.17
23.6000	.17	.17	.17	.17	.17
23.8500	.17	.17	.17	.17	.17
24.1000	.16	.14	.11	.09	.06
24.3500	.04	.03	.02	.01	.01
24.6000	.01	.01	.00	.00	.00
24.8500	.00	.00			

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Node: Addition Summary

Page 4351

yyyName.... OUT 10

Event: 2 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... 0-10 3rdQ 50% yTag: 2

SUMMARY FOR HYDROGRAPH ADDITION
at Node: OUT 10

HYG Directory: Q:\PROJECT\stormwater\stormwater\20040287\

```
=====
Upstream Link ID  Upstream Node ID  HYG file      HYG ID          HYG tag
-----
ADDLINK 10        OFF 003        work_pad.hyg  OFF 003         2
=====
```

INFLOWS TO: OUT 10

```
-----
HYG file      HYG ID          HYG tag      Volume      Peak Time      Peak Flow
ac-ft         hrs             cfs
-----
work_pad.hyg  OFF 003         2            .279        15.6000       .56
```

TOTAL FLOW INTO: OUT 10

```
-----
HYG file      HYG ID          HYG tag      Volume      Peak Time      Peak Flow
ac-ft         hrs             cfs
-----
work_pad.hyg  OUT 10         2            .279        15.6000       .56
```

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Node:ÿAddition Summary

ÿPage 4352

ÿÿÿName.... OUT 10

Event: 2 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

ÿÿÿStorm... 0-10 3rdQ 50% ÿTag: 2

TOTAL NODE INFLOW...

HYG file = Q:\PROJECT\stormwater\stormwater\20040287\work_pad.hyg

HYG ID = OUT 10

HYG Tag = 2

Peak Discharge = .56 cfs

Time to Peak = 15.6000 hrs

HYG Volume = .279 ac-ft

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

```
-----
Time |
hrs  |
-----|-----
8.3500 | .00 .00 .00 .00 .00
8.6000 | .00 .01 .01 .01 .01
8.8500 | .01 .01 .01 .01 .01
9.1000 | .01 .01 .02 .02 .02
9.3500 | .02 .02 .02 .02 .02
```

9.6000	.02	.02	.03	.03	.03
9.8500	.03	.03	.04	.04	.04
10.1000	.04	.04	.05	.05	.05
10.3500	.05	.05	.05	.05	.05
10.6000	.06	.06	.06	.06	.06
10.8500	.06	.07	.07	.07	.08
11.1000	.08	.08	.08	.09	.09
11.3500	.09	.09	.10	.10	.10
11.6000	.10	.10	.10	.11	.11
11.8500	.11	.11	.11	.11	.12
12.1000	.12	.12	.13	.13	.14
12.3500	.14	.15	.15	.15	.15
12.6000	.16	.16	.16	.16	.17
12.8500	.17	.17	.17	.17	.18
13.1000	.18	.18	.18	.19	.20
13.3500	.21	.24	.26	.29	.30
13.6000	.32	.33	.34	.35	.36
13.8500	.36	.37	.38	.38	.39
14.1000	.39	.40	.40	.41	.41
14.3500	.41	.42	.42	.43	.44
14.6000	.45	.46	.47	.48	.49
14.8500	.49	.50	.50	.51	.51
15.1000	.52	.52	.53	.53	.54
15.3500	.54	.55	.55	.55	.56
15.6000	.56	.56	.55	.54	.51
15.8500	.49	.47	.45	.44	.43

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Node: Addition Summary

Page 4353

yyyName.... OUT 10

Event: 2 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... 0-10 3rdQ 50% yTag: 2

HYDROGRAPH ORDINATES (cfs)					
Output Time increment = .0500 hrs					
Time hrs	Time on left represents time for first value in each row.				
16.1000	.43	.42	.42	.42	.42
16.3500	.42	.42	.43	.43	.43
16.6000	.43	.43	.43	.43	.44
16.8500	.43	.43	.41	.39	.37
17.1000	.35	.33	.32	.32	.31
17.3500	.31	.31	.31	.30	.30
17.6000	.30	.30	.31	.31	.31
17.8500	.31	.31	.31	.31	.31
18.1000	.30	.29	.28	.26	.25
18.3500	.23	.23	.22	.22	.22
18.6000	.21	.21	.21	.21	.21

18.8500	.21	.21	.21	.21	.21
19.1000	.21	.21	.21	.21	.21
19.3500	.20	.20	.19	.18	.17
19.6000	.17	.17	.17	.16	.16
19.8500	.16	.16	.16	.16	.16
20.1000	.16	.16	.16	.16	.16
20.3500	.16	.16	.16	.16	.16
20.6000	.16	.16	.16	.16	.16
20.8500	.16	.16	.16	.16	.17
21.1000	.17	.17	.17	.17	.17
21.3500	.17	.17	.17	.17	.17
21.6000	.17	.17	.16	.16	.15
21.8500	.14	.13	.13	.12	.12
22.1000	.12	.12	.11	.11	.11
22.3500	.11	.11	.11	.11	.11
22.6000	.11	.11	.11	.11	.11
22.8500	.11	.12	.12	.13	.14
23.1000	.15	.16	.16	.16	.16
23.3500	.17	.17	.17	.17	.17
23.6000	.17	.17	.17	.17	.17
23.8500	.17	.17	.17	.17	.17
24.1000	.16	.14	.11	.09	.06
24.3500	.04	.03	.02	.01	.01
24.6000	.01	.01	.00	.00	.00
24.8500	.00	.00			

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Executive Summary (Nodes) Page 4354
 Name.... Watershed Event: 2 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
 Storm... 0-10 3rdQ 50% Tag: 2

NETWORK SUMMARY -- NODES

(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

DEFAULT Design Storm File,ID = Bul 71 - 3rd Q(5

Storm Tag Name = 2

 Data Type, File, ID = Synthetic Storm 0-10 3rdQ 50%

Storm Frequency = 2 yr

Total Rainfall Depth= 2.7000 in

Duration Multiplier = 24

Resulting Duration = 24.0000 hrs

Resulting Start Time= .0000 hrs Step= 1.2000 hrs End= 24.0000 hrs

HYG Vol

Qpeak

Qpeak

Max WSEL

Node ID	Type	ac-ft	Trun.	hrs	cfs	ft
OFF 003	AREA	.279		15.6000	.56	
Outfall OUT 10	JCT	.279		15.6000	.56	

S/N:

PondPack Ver:

Compute Time:

Date:

↑
 Type.... Executive Summary (Links) Page 4355
 Name.... Watershed Event: 2 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
 Storm... 0-10 3rdQ 50% Tag: 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 = Bul 71 - 3rd Q(5

Storm Tag Name = 2

 Data Type, File, ID = Synthetic Storm 0-10 3rdQ 50%
 Storm Frequency = 2 yr
 Total Rainfall Depth= 2.7000 in
 Duration Multiplier = 24
 Resulting Duration = 24.0000 hrs
 Resulting Start Time= .0000 hrs Step= 1.2000 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	.279		15.6000	.56	OFF 003
		DL	.279		15.6000	.56	
		DN	.279		15.6000	.56	OUT 10

S/N:

PondPack Ver:

Compute Time:

Date:

↑
 Type.... Synthetic Curve Page 4356
 Name.... 0-10 3rdQ 50% Tag: 5
 File.... Q:\PROJECT\stormwater\stormwater\20040287\

CUMULATIVE RAINFALL FRACTIONS

(Duration was multiplied by: 24)

Output Time increment = 1.2000 hrs

Time on left represents time for first value in each row.

Time hrs					
.0000	.000	.030	.060	.090	.120

6.0000		.150	.190	.230	.270	.320
12.0000		.380	.450	.570	.700	.790
18.0000		.850	.890	.920	.950	.970
24.0000		1.000				

S/N:

PondPack Ver:

Compute Time:

Date:

↑

Type.... Synthetic Cumulative Depth Page 4357
 Name.... 0-10 3rdQ 50% Tag: 5 Event: 5 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\
 Storm... 0-10 3rdQ 50% Tag: 5

CUMULATIVE RAINFALL DEPTHS (in)
(Duration was multiplied by: 24)

Output Time increment = 1.2000 hrs

Time hrs	Time on left represents time for first value in each row.				
-----	-----	-----	-----	-----	-----
.0000	.0000	.1005	.2010	.3015	.4020
6.0000	.5025	.6365	.7705	.9045	1.0720
12.0000	1.2730	1.5075	1.9095	2.3450	2.6465
18.0000	2.8475	2.9815	3.0820	3.1825	3.2495
24.0000	3.3500				

S/N:

PondPack Ver:

Compute Time:

Date:

↑

Type.... Unit Hyd. Summary Page 4358
 Name.... OFF 003 Tag: 5 Event: 5 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
 Storm... 0-10 3rdQ 50% Tag: 5

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 5 year storm

Duration = 24.0000 hrs Rain Depth = 3.3500 in

Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\

Rain File -ID = - 0-10 3rdQ 50%

Unit Hyd Type = Default Curvilinear

HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\

HYG File - ID = work_pad.hyg - OFF 003 5

Tc = .3500 hrs

Drainage Area = 3.860 acres Runoff CN= 77

=====

Computational Time Increment	=	.04667 hrs
Computed Peak Time	=	15.6333 hrs
Computed Peak Flow	=	.83 cfs

Time Increment for HYG File = .0500 hrs

Peak Time, Interpolated Output = 15.6000 hrs
Peak Flow, Interpolated Output = .82 cfs
=====

DRAINAGE AREA

ID:OFF 003
CN = 77
Area = 3.860 acres
S = 2.9870 in
0.2S = .5974 in

Cumulative Runoff

1.3201 in
.425 ac-ft

HYG Volume... .425 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .35000 hrs (ID: OFF 003)
Computational Incr, Tm = .04667 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 = 12.50 cfs
Unit peak time Tp = .23333 hrs
Unit receding limb, Tr = .93333 hrs
Total unit time, Tb = 1.16667 hrs

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output) ÿPage 4359
ÿÿÿName.... OFF 003 ÿTag: 5 Event: 5 yr
ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
ÿÿÿStorm... 0-10 3rdQ 50% ÿTag: 5

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 5 year storm
Duration = 24.0000 hrs Rain Depth = 3.3500 in
Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\
Rain File -ID = - 0-10 3rdQ 50%
Unit Hyd Type = Default Curvilinear
HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\
HYG File - ID = work_pad.hyg - OFF 003 5

Tc = .3500 hrs
 Drainage Area = 3.860 acres Runoff CN= 77
 Calc.Increment= .04667 hrs Out.Incr.= .0500 hrs
 HYG Volume = .425 ac-ft

HYDROGRAPH ORDINATES (cfs)						
Output Time increment = .0500 hrs						
Time hrs	Time on left represents time for first value in each row.					
7.0500	.00	.00	.00	.00	.00	.00
7.3000	.01	.01	.01	.01	.01	.01
7.5500	.01	.01	.02	.02	.02	.02
7.8000	.02	.02	.02	.03	.03	.03
8.0500	.03	.03	.03	.03	.03	.03
8.3000	.04	.04	.04	.04	.04	.04
8.5500	.04	.04	.05	.05	.05	.05
8.8000	.05	.05	.05	.05	.05	.05
9.0500	.06	.06	.06	.06	.06	.06
9.3000	.06	.06	.07	.07	.07	.07
9.5500	.07	.07	.07	.07	.08	.08
9.8000	.08	.09	.09	.09	.10	.10
10.0500	.10	.10	.11	.11	.11	.11
10.3000	.11	.11	.12	.12	.12	.12
10.5500	.12	.12	.12	.13	.13	.13
10.8000	.13	.13	.14	.14	.15	.15
11.0500	.15	.16	.16	.17	.17	.17
11.3000	.17	.18	.18	.18	.19	.19
11.5500	.19	.19	.19	.19	.20	.20
11.8000	.20	.20	.20	.20	.21	.21
12.0500	.21	.21	.22	.23	.24	.24
12.3000	.24	.25	.26	.26	.26	.26
12.5500	.27	.27	.27	.28	.28	.28
12.8000	.28	.28	.29	.29	.29	.29
13.0500	.29	.30	.30	.30	.31	.31
13.3000	.32	.35	.39	.43	.46	.46
13.5500	.49	.52	.53	.55	.56	.56
13.8000	.57	.58	.59	.59	.60	.60
14.0500	.61	.61	.62	.62	.63	.63
14.3000	.64	.64	.65	.65	.66	.66

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Unit Hyd. (HYG output) Page 4360
 Name.... OFF 003 Tag: 5 Event: 5 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
 Storm... 0-10 3rdQ 50% Tag: 5

Time | HYDROGRAPH ORDINATES (cfs)
 Output Time increment = .0500 hrs

hrs	Time on left represents time for first value in each row.				
14.5500	.67	.69	.70	.71	.72
14.8000	.73	.74	.75	.76	.76
15.0500	.77	.78	.78	.79	.79
15.3000	.80	.80	.81	.81	.82
15.5500	.82	.82	.82	.81	.79
15.8000	.75	.72	.68	.66	.64
16.0500	.63	.62	.62	.61	.61
16.3000	.61	.61	.61	.61	.61
16.5500	.62	.62	.62	.62	.62
16.8000	.62	.62	.61	.59	.56
17.0500	.53	.50	.48	.46	.45
17.3000	.44	.44	.44	.43	.43
17.5500	.43	.43	.43	.43	.43
17.8000	.43	.43	.43	.44	.44
18.0500	.43	.43	.41	.39	.37
18.3000	.35	.33	.32	.31	.31
18.5500	.30	.30	.30	.30	.30
18.8000	.30	.30	.30	.30	.30
19.0500	.30	.30	.30	.30	.30
19.3000	.29	.28	.27	.26	.25
19.5500	.24	.24	.24	.23	.23
19.8000	.23	.23	.23	.23	.23
20.0500	.23	.23	.23	.23	.23
20.3000	.23	.23	.23	.23	.23
20.5500	.23	.23	.23	.23	.23
20.8000	.23	.23	.23	.23	.23
21.0500	.23	.23	.23	.23	.23
21.3000	.23	.23	.23	.23	.23
21.5500	.23	.23	.23	.23	.22
21.8000	.21	.19	.18	.17	.17
22.0500	.16	.16	.16	.16	.16
22.3000	.16	.16	.16	.16	.16
22.5500	.16	.16	.16	.16	.16
22.8000	.16	.16	.16	.17	.18
23.0500	.20	.21	.22	.22	.23
23.3000	.23	.23	.23	.23	.23
23.5500	.23	.24	.24	.24	.24
23.8000	.24	.24	.24	.24	.24
24.0500	.23	.22	.19	.16	.12
24.3000	.09	.06	.04	.03	.02
24.5500	.01	.01	.01	.00	.00
24.8000	.00	.00	.00	.00	

S/N:

PondPack Ver:

Compute Time:

Date:

↑
 Type.... Node: Addition Summary
 Name.... OUT 10

Page 4361
 Event: 5 yr

File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
 Storm... 0-10 3rdQ 50% Tag: 5

SUMMARY FOR HYDROGRAPH ADDITION
 at Node: OUT 10

HYG Directory: Q:\PROJECT\stormwater\stormwater\20040287\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ADDLINK 10	OFF 003	work_pad.hyg	OFF 003	5

INFLOWS TO: OUT 10

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	OFF 003	5	.425	15.6000	.82

TOTAL FLOW INTO: OUT 10

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	OUT 10	5	.425	15.6000	.82

S/N:

PondPack Ver:

Compute Time:

Date:

Type.... Node: Addition Summary Page 4362
 Name.... OUT 10 Event: 5 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
 Storm... 0-10 3rdQ 50% Tag: 5

TOTAL NODE INFLOW...

HYG file = Q:\PROJECT\stormwater\stormwater\20040287\work_pad.hyg
 HYG ID = OUT 10
 HYG Tag = 5

Peak Discharge = .82 cfs
 Time to Peak = 15.6000 hrs
 HYG Volume = .425 ac-ft

HYDROGRAPH ORDINATES (cfs)

Time | Output Time increment = .0500 hrs
 hrs | Time on left represents time for first value in each row.

7.0500	.00	.00	.00	.00	.00
7.3000	.01	.01	.01	.01	.01
7.5500	.01	.01	.02	.02	.02
7.8000	.02	.02	.02	.03	.03
8.0500	.03	.03	.03	.03	.03
8.3000	.04	.04	.04	.04	.04
8.5500	.04	.04	.05	.05	.05
8.8000	.05	.05	.05	.05	.05
9.0500	.06	.06	.06	.06	.06
9.3000	.06	.06	.07	.07	.07
9.5500	.07	.07	.07	.07	.08
9.8000	.08	.09	.09	.09	.10
10.0500	.10	.10	.11	.11	.11
10.3000	.11	.11	.12	.12	.12
10.5500	.12	.12	.12	.13	.13
10.8000	.13	.13	.14	.14	.15
11.0500	.15	.16	.16	.17	.17
11.3000	.17	.18	.18	.18	.19
11.5500	.19	.19	.19	.19	.20
11.8000	.20	.20	.20	.20	.21
12.0500	.21	.21	.22	.23	.24
12.3000	.24	.25	.26	.26	.26
12.5500	.27	.27	.27	.28	.28
12.8000	.28	.28	.29	.29	.29
13.0500	.29	.30	.30	.30	.31
13.3000	.32	.35	.39	.43	.46
13.5500	.49	.52	.53	.55	.56
13.8000	.57	.58	.59	.59	.60
14.0500	.61	.61	.62	.62	.63
14.3000	.64	.64	.65	.65	.66
14.5500	.67	.69	.70	.71	.72

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Node: Addition Summary

Page 4363

yyyName.... OUT 10

Event: 5 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... 0-10 3rdQ 50% yTag: 5

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
14.8000	.73	.74	.75	.76	.76
15.0500	.77	.78	.78	.79	.79
15.3000	.80	.80	.81	.81	.82
15.5500	.82	.82	.82	.81	.79
15.8000	.75	.72	.68	.66	.64

16.0500	.63	.62	.62	.61	.61
16.3000	.61	.61	.61	.61	.61
16.5500	.62	.62	.62	.62	.62
16.8000	.62	.62	.61	.59	.56
17.0500	.53	.50	.48	.46	.45
17.3000	.44	.44	.44	.43	.43
17.5500	.43	.43	.43	.43	.43
17.8000	.43	.43	.43	.44	.44
18.0500	.43	.43	.41	.39	.37
18.3000	.35	.33	.32	.31	.31
18.5500	.30	.30	.30	.30	.30
18.8000	.30	.30	.30	.30	.30
19.0500	.30	.30	.30	.30	.30
19.3000	.29	.28	.27	.26	.25
19.5500	.24	.24	.24	.23	.23
19.8000	.23	.23	.23	.23	.23
20.0500	.23	.23	.23	.23	.23
20.3000	.23	.23	.23	.23	.23
20.5500	.23	.23	.23	.23	.23
20.8000	.23	.23	.23	.23	.23
21.0500	.23	.23	.23	.23	.23
21.3000	.23	.23	.23	.23	.23
21.5500	.23	.23	.23	.23	.22
21.8000	.21	.19	.18	.17	.17
22.0500	.16	.16	.16	.16	.16
22.3000	.16	.16	.16	.16	.16
22.5500	.16	.16	.16	.16	.16
22.8000	.16	.16	.16	.17	.18
23.0500	.20	.21	.22	.22	.23
23.3000	.23	.23	.23	.23	.23
23.5500	.23	.24	.24	.24	.24
23.8000	.24	.24	.24	.24	.24
24.0500	.23	.22	.19	.16	.12
24.3000	.09	.06	.04	.03	.02
24.5500	.01	.01	.01	.00	.00
24.8000	.00	.00	.00	.00	.00

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Executive Summary (Nodes)

Page 4364

yyyName.... Watershed

Event: 5 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... 0-10 3rdQ 50% yTag: 5

NETWORK SUMMARY -- NODES

(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

DEFAULT Design Storm File,ID = Bul 71 - 3rd Q(5

Storm Tag Name = 5

Data Type, File, ID = Synthetic Storm 0-10 3rdQ 50%

Storm Frequency = 5 yr

Total Rainfall Depth= 3.3500 in

Duration Multiplier = 24

Resulting Duration = 24.0000 hrs

Resulting Start Time= .0000 hrs Step= 1.2000 hrs End= 24.0000 hrs

Node ID	Type	HYG Vol ac-ft	Qpeak Trun. hrs	Qpeak cfs	Max WSEL ft
OFF 003	AREA	.425	15.6000	.82	
Outfall OUT 10	JCT	.425	15.6000	.82	

S/N:

PondPack Ver:

Compute Time:

Date:

↑
Type.... Executive Summary (Links) Page 4365
Name.... Watershed Event: 5 yr
File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
Storm... 0-10 3rdQ 50% Tag: 5

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 = Bul 71 - 3rd Q(5

Storm Tag Name = 5

Data Type, File, ID = Synthetic Storm 0-10 3rdQ 50%

Storm Frequency = 5 yr

Total Rainfall Depth= 3.3500 in

Duration Multiplier = 24

Resulting Duration = 24.0000 hrs

Resulting Start Time= .0000 hrs Step= 1.2000 hrs End= 24.0000 hrs

Link ID	Type	HYG Vol ac-ft	Peak Time Trun. hrs	Peak Q cfs	End Points
ADDLINK 10	ADD	UN .425	15.6000	.82	OFF 003
		DL .425	15.6000	.82	
		DN .425	15.6000	.82	OUT 10

S/N:

PondPack Ver:

Compute Time:

Date:

↑

ÿÿÿType.... Synthetic Curve

ÿPage 4366

ÿÿÿName.... 0-10 3rdQ 50% ÿTag: 10

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\

CUMULATIVE RAINFALL FRACTIONS

(Duration was multiplied by: 24)

Output Time increment = 1.2000 hrs

Time on left represents time for first value in each row.

Time hrs					
.0000	.000	.030	.060	.090	.120
6.0000	.150	.190	.230	.270	.320
12.0000	.380	.450	.570	.700	.790
18.0000	.850	.890	.920	.950	.970
24.0000	1.000				

S/N:

PondPack Ver:

Compute Time:

Date:

↑

ÿÿÿType.... Synthetic Cumulative Depth

ÿPage 4367

ÿÿÿName.... 0-10 3rdQ 50% ÿTag: 10

Event: 10 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\

ÿÿÿStorm... 0-10 3rdQ 50% ÿTag: 10

CUMULATIVE RAINFALL DEPTHS (in)

(Duration was multiplied by: 24)

Output Time increment = 1.2000 hrs

Time on left represents time for first value in each row.

Time hrs					
.0000	.0000	.1158	.2316	.3474	.4632
6.0000	.5790	.7334	.8878	1.0422	1.2352
12.0000	1.4668	1.7370	2.2002	2.7020	3.0494
18.0000	3.2810	3.4354	3.5512	3.6670	3.7442
24.0000	3.8600				

S/N:

PondPack Ver:

Compute Time:

Date:

↑

ÿÿÿType.... Unit Hyd. Summary

ÿPage 4368

ÿÿÿName.... OFF 003 ÿTag: 10

Event: 10 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

ÿÿÿStorm... 0-10 3rdQ 50% ÿTag: 10

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm

Duration = 24.0000 hrs Rain Depth = 3.8600 in

Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\

Rain File -ID = - 0-10 3rdQ 50%

Unit Hyd Type = Default Curvilinear

HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\
HYG File - ID = work_pad.hyg - OFF 003 10
Tc = .3500 hrs
Drainage Area = 3.860 acres Runoff CN= 77

=====
Computational Time Increment = .04667 hrs
Computed Peak Time = 15.6333 hrs
Computed Peak Flow = 1.04 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 15.6000 hrs
Peak Flow, Interpolated Output = 1.04 cfs
=====

DRAINAGE AREA

ID:OFF 003
CN = 77
Area = 3.860 acres
S = 2.9870 in
0.2S = .5974 in

Cumulative Runoff

1.7032 in
.548 ac-ft

HYG Volume... .548 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .35000 hrs (ID: OFF 003)
Computational Incr, Tm = .04667 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 = 12.50 cfs
Unit peak time Tp = .23333 hrs
Unit receding limb, Tr = .93333 hrs
Total unit time, Tb = 1.16667 hrs

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output)

ÿPage 4369

ÿÿÿName.... OFF 003 ÿTag: 10

Event: 10 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... 0-10 3rdQ 50% yTag: 10

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm

Duration = 24.0000 hrs Rain Depth = 3.8600 in

Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\

Rain File -ID = - 0-10 3rdQ 50%

Unit Hyd Type = Default Curvilinear

HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\

HYG File - ID = work_pad.hyg - OFF 003 10

Tc = .3500 hrs

Drainage Area = 3.860 acres Runoff CN= 77

Calc.Increment= .04667 hrs Out.Incr.= .0500 hrs

HYG Volume = .548 ac-ft

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
6.3000	.00	.00	.00	.00	.00
6.5500	.01	.01	.01	.01	.01
6.8000	.02	.02	.02	.02	.02
7.0500	.03	.03	.03	.03	.03
7.3000	.04	.04	.04	.04	.04
7.5500	.05	.05	.05	.05	.05
7.8000	.05	.06	.06	.06	.06
8.0500	.06	.07	.07	.07	.07
8.3000	.07	.07	.08	.08	.08
8.5500	.08	.08	.08	.09	.09
8.8000	.09	.09	.09	.09	.10
9.0500	.10	.10	.10	.10	.10
9.3000	.10	.11	.11	.11	.11
9.5500	.11	.11	.12	.12	.12
9.8000	.13	.14	.14	.15	.15
10.0500	.16	.16	.16	.16	.17
10.3000	.17	.17	.17	.18	.18
10.5500	.18	.18	.18	.19	.19
10.8000	.19	.19	.20	.20	.21
11.0500	.22	.23	.24	.24	.25
11.3000	.25	.25	.26	.26	.26
11.5500	.27	.27	.27	.27	.28
11.8000	.28	.28	.28	.29	.29
12.0500	.29	.30	.30	.31	.32
12.3000	.33	.34	.35	.35	.36
12.5500	.36	.37	.37	.37	.38
12.8000	.38	.38	.39	.39	.39
13.0500	.39	.40	.40	.40	.41
13.3000	.43	.47	.52	.57	.62
13.5500	.65	.68	.70	.72	.74

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Unit Hyd. (HYG output)

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yyyName.... OFF 003 yTag: 10

Event: 10 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... 0-10 3rdQ 50% yTag: 10

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
13.8000	.75	.76	.77	.78	.78
14.0500	.79	.80	.80	.81	.82
14.3000	.82	.83	.84	.84	.85
14.5500	.87	.88	.90	.92	.93
14.8000	.94	.95	.96	.97	.97
15.0500	.98	.99	.99	1.00	1.00
15.3000	1.01	1.01	1.02	1.03	1.03
15.5500	1.04	1.04	1.04	1.02	.99
15.8000	.95	.90	.86	.82	.80
16.0500	.79	.78	.77	.77	.76
16.3000	.76	.76	.76	.77	.77
16.5500	.77	.77	.77	.77	.77
16.8000	.78	.77	.76	.73	.69
17.0500	.65	.62	.59	.57	.56
17.3000	.55	.54	.54	.54	.54
17.5500	.54	.54	.54	.54	.54
17.8000	.54	.54	.54	.54	.54
18.0500	.54	.53	.51	.48	.45
18.3000	.43	.41	.39	.39	.38
18.5500	.37	.37	.37	.37	.37
18.8000	.37	.37	.37	.37	.37
19.0500	.37	.37	.37	.37	.37
19.3000	.36	.35	.34	.32	.31
19.5500	.30	.29	.29	.29	.28
19.8000	.28	.28	.28	.28	.28
20.0500	.28	.28	.28	.28	.28
20.3000	.28	.28	.28	.28	.28
20.5500	.28	.28	.28	.28	.28
20.8000	.28	.28	.28	.28	.28
21.0500	.28	.28	.28	.28	.28
21.3000	.28	.28	.28	.28	.28
21.5500	.28	.28	.28	.28	.27
21.8000	.25	.24	.22	.21	.21
22.0500	.20	.20	.20	.19	.19
22.3000	.19	.19	.19	.19	.19
22.5500	.19	.19	.19	.19	.19
22.8000	.19	.19	.20	.21	.22

23.0500		.24	.25	.26	.27	.28
23.3000		.28	.28	.28	.28	.29
23.5500		.29	.29	.29	.29	.29
23.8000		.29	.29	.29	.29	.29
24.0500		.28	.26	.23	.19	.15
24.3000		.10	.07	.05	.04	.03
24.5500		.02	.01	.01	.01	.00
24.8000		.00	.00	.00	.00	

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Node: Addition Summary

Page 4371

yyyName.... OUT 10

Event: 10 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... 0-10 3rdQ 50% yTag: 10

SUMMARY FOR HYDROGRAPH ADDITION
at Node: OUT 10

HYG Directory: Q:\PROJECT\stormwater\stormwater\20040287\

=====				
Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag

ADDLINK 10	OFF 003	work_pad.hyg	OFF 003	10
=====				

INFLOWS TO: OUT 10

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs

work_pad.hyg	OFF 003	10	.548	15.6000	1.04

TOTAL FLOW INTO: OUT 10

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs

work_pad.hyg	OUT 10	10	.548	15.6000	1.04

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Node: Addition Summary

Page 4372

yyyName.... OUT 10

Event: 10 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... 0-10 3rdQ 50% yTag: 10

TOTAL NODE INFLOW...

HYG file = Q:\PROJECT\stormwater\stormwater\20040287\work_pad.hyg

HYG ID = OUT 10

HYG Tag = 10

Peak Discharge = 1.04 cfs

Time to Peak = 15.6000 hrs

HYG Volume = .548 ac-ft

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
6.3000	.00	.00	.00	.00	.00
6.5500	.01	.01	.01	.01	.01
6.8000	.02	.02	.02	.02	.02
7.0500	.03	.03	.03	.03	.03
7.3000	.04	.04	.04	.04	.04
7.5500	.05	.05	.05	.05	.05
7.8000	.05	.06	.06	.06	.06
8.0500	.06	.07	.07	.07	.07
8.3000	.07	.07	.08	.08	.08
8.5500	.08	.08	.08	.09	.09
8.8000	.09	.09	.09	.09	.10
9.0500	.10	.10	.10	.10	.10
9.3000	.10	.11	.11	.11	.11
9.5500	.11	.11	.12	.12	.12
9.8000	.13	.14	.14	.15	.15
10.0500	.16	.16	.16	.16	.17
10.3000	.17	.17	.17	.18	.18
10.5500	.18	.18	.18	.19	.19
10.8000	.19	.19	.20	.20	.21
11.0500	.22	.23	.24	.24	.25
11.3000	.25	.25	.26	.26	.26
11.5500	.27	.27	.27	.27	.28
11.8000	.28	.28	.28	.29	.29
12.0500	.29	.30	.30	.31	.32
12.3000	.33	.34	.35	.35	.36
12.5500	.36	.37	.37	.37	.38
12.8000	.38	.38	.39	.39	.39
13.0500	.39	.40	.40	.40	.41
13.3000	.43	.47	.52	.57	.62
13.5500	.65	.68	.70	.72	.74
13.8000	.75	.76	.77	.78	.78

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Node: Addition Summary

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yyyName.... OUT 10

Event: 10 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... 0-10 3rdQ 50% yTag: 10

HYDROGRAPH ORDINATES (cfs)					
Output Time increment = .0500 hrs					
Time hrs	Time on left represents time for first value in each row.				
14.0500	.79	.80	.80	.81	.82
14.3000	.82	.83	.84	.84	.85
14.5500	.87	.88	.90	.92	.93
14.8000	.94	.95	.96	.97	.97
15.0500	.98	.99	.99	1.00	1.00
15.3000	1.01	1.01	1.02	1.03	1.03
15.5500	1.04	1.04	1.04	1.02	.99
15.8000	.95	.90	.86	.82	.80
16.0500	.79	.78	.77	.77	.76
16.3000	.76	.76	.76	.77	.77
16.5500	.77	.77	.77	.77	.77
16.8000	.78	.77	.76	.73	.69
17.0500	.65	.62	.59	.57	.56
17.3000	.55	.54	.54	.54	.54
17.5500	.54	.54	.54	.54	.54
17.8000	.54	.54	.54	.54	.54
18.0500	.54	.53	.51	.48	.45
18.3000	.43	.41	.39	.39	.38
18.5500	.37	.37	.37	.37	.37
18.8000	.37	.37	.37	.37	.37
19.0500	.37	.37	.37	.37	.37
19.3000	.36	.35	.34	.32	.31
19.5500	.30	.29	.29	.29	.28
19.8000	.28	.28	.28	.28	.28
20.0500	.28	.28	.28	.28	.28
20.3000	.28	.28	.28	.28	.28
20.5500	.28	.28	.28	.28	.28
20.8000	.28	.28	.28	.28	.28
21.0500	.28	.28	.28	.28	.28
21.3000	.28	.28	.28	.28	.28
21.5500	.28	.28	.28	.28	.27
21.8000	.25	.24	.22	.21	.21
22.0500	.20	.20	.20	.19	.19
22.3000	.19	.19	.19	.19	.19
22.5500	.19	.19	.19	.19	.19
22.8000	.19	.19	.20	.21	.22
23.0500	.24	.25	.26	.27	.28
23.3000	.28	.28	.28	.28	.29
23.5500	.29	.29	.29	.29	.29
23.8000	.29	.29	.29	.29	.29
24.0500	.28	.26	.23	.19	.15

24.3000		.10	.07	.05	.04	.03
24.5500		.02	.01	.01	.01	.00
24.8000		.00	.00	.00	.00	

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Executive Summary (Nodes) Page 4374
 Name.... Watershed Event: 10 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
 Storm... 0-10 3rdQ 50% Tag: 10

NETWORK SUMMARY -- NODES

(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

DEFAULT Design Storm File,ID = Bul 71 - 3rd Q(5)

Storm Tag Name = 10

 Data Type, File, ID = Synthetic Storm 0-10 3rdQ 50%
 Storm Frequency = 10 yr
 Total Rainfall Depth= 3.8600 in
 Duration Multiplier = 24
 Resulting Duration = 24.0000 hrs
 Resulting Start Time= .0000 hrs Step= 1.2000 hrs End= 24.0000 hrs

Node ID	Type	HYG Vol ac-ft	Qpeak Trun. hrs	Qpeak cfs	Max WSEL ft
OFF 003	AREA	.548	15.6000	1.04	
Outfall OUT 10	JCT	.548	15.6000	1.04	

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Executive Summary (Links) Page 4375
 Name.... Watershed Event: 10 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
 Storm... 0-10 3rdQ 50% Tag: 10

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 = Bul 71 - 3rd Q(5)

Storm Tag Name = 10

Data Type, File, ID = Synthetic Storm 0-10 3rdQ 50%
Storm Frequency = 10 yr
Total Rainfall Depth= 3.8600 in
Duration Multiplier = 24
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= 1.2000 hrs End= 24.0000 hrs

Link ID	Type		HYG Vol ac-ft	Peak Time Trun. hrs	Peak Q cfs	End Points
ADDLINK 10	ADD	UN	.548	15.6000	1.04	OFF 003
		DL	.548	15.6000	1.04	
		DN	.548	15.6000	1.04	OUT 10

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Synthetic Curve

ÿPage 4376

ÿÿÿName.... 0-10 3rdQ 50% ÿTag: 25

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\

CUMULATIVE RAINFALL FRACTIONS

(Duration was multiplied by: 24)

Output Time increment = 1.2000 hrs

Time on left represents time for first value in each row.

Time hrs					
.0000	.000	.030	.060	.090	.120
6.0000	.150	.190	.230	.270	.320
12.0000	.380	.450	.570	.700	.790
18.0000	.850	.890	.920	.950	.970
24.0000	1.000				

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Synthetic Cumulative Depth

ÿPage 4377

ÿÿÿName.... 0-10 3rdQ 50% ÿTag: 25

Event: 25 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\

ÿÿÿStorm... 0-10 3rdQ 50% ÿTag: 25

CUMULATIVE RAINFALL DEPTHS (in)

(Duration was multiplied by: 24)

Output Time increment = 1.2000 hrs

Time on left represents time for first value in each row.

Time hrs					
.0000	.0000	.1392	.2784	.4176	.5568
6.0000	.6960	.8816	1.0672	1.2528	1.4848
12.0000	1.7632	2.0880	2.6448	3.2480	3.6656
18.0000	3.9440	4.1296	4.2688	4.4080	4.5008

24.0000 | 4.6400

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. Summary

ÿPage 4378

ÿÿÿName.... OFF 003

ÿTag: 25

Event: 25 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

ÿÿÿStorm... 0-10 3rdQ 50% ÿTag: 25

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 25 year storm

Duration = 24.0000 hrs Rain Depth = 4.6400 in

Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\

Rain File -ID = - 0-10 3rdQ 50%

Unit Hyd Type = Default Curvilinear

HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\

HYG File - ID = work_pad.hyg - OFF 003 25

Tc = .3500 hrs

Drainage Area = 3.860 acres Runoff CN= 77

=====
Computational Time Increment = .04667 hrs
Computed Peak Time = 15.6333 hrs
Computed Peak Flow = 1.38 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 15.6000 hrs
Peak Flow, Interpolated Output = 1.38 cfs
=====

DRAINAGE AREA

ID:OFF 003

CN = 77

Area = 3.860 acres

S = 2.9870 in

0.2S = .5974 in

Cumulative Runoff

2.3248 in

.748 ac-ft

HYG Volume... .748 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .35000 hrs (ID: OFF 003)

Computational Incr, Tm = .04667 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 = 12.50 cfs
Unit peak time Tp = .23333 hrs
Unit receding limb, Tr = .93333 hrs
Total unit time, Tb = 1.16667 hrs

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Unit Hyd. (HYG output) yPage 4379
yyyName.... OFF 003 yTag: 25 Event: 25 yr
yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
yyyStorm... 0-10 3rdQ 50% yTag: 25

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 25 year storm
Duration = 24.0000 hrs Rain Depth = 4.6400 in
Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\
Rain File -ID = - 0-10 3rdQ 50%
Unit Hyd Type = Default Curvilinear
HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\
HYG File - ID = work_pad.hyg - OFF 003 25
Tc = .3500 hrs
Drainage Area = 3.860 acres Runoff CN= 77
Calc.Increment= .04667 hrs Out.Incr.= .0500 hrs
HYG Volume = .748 ac-ft

HYDROGRAPH ORDINATES (cfs)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
5.3500	.00	.00	.00	.00	.01
5.6000	.01	.01	.01	.01	.01
5.8500	.01	.02	.02	.02	.02
6.1000	.02	.03	.03	.03	.04
6.3500	.04	.04	.05	.05	.05
6.6000	.06	.06	.06	.06	.07
6.8500	.07	.07	.07	.08	.08
7.1000	.08	.08	.09	.09	.09
7.3500	.09	.10	.10	.10	.10
7.6000	.11	.11	.11	.11	.11
7.8500	.12	.12	.12	.12	.13
8.1000	.13	.13	.13	.13	.14
8.3500	.14	.14	.14	.15	.15

8.6000	.15	.15	.15	.16	.16
8.8500	.16	.16	.16	.17	.17
9.1000	.17	.17	.17	.17	.18
9.3500	.18	.18	.18	.18	.19
9.6000	.19	.19	.19	.20	.21
9.8500	.22	.23	.24	.24	.25
10.1000	.25	.26	.26	.26	.27
10.3500	.27	.27	.28	.28	.28
10.6000	.28	.29	.29	.29	.29
10.8500	.30	.30	.31	.32	.34
11.1000	.35	.36	.36	.37	.38
11.3500	.38	.38	.39	.39	.39
11.6000	.40	.40	.40	.41	.41
11.8500	.41	.42	.42	.42	.43
12.1000	.43	.44	.46	.47	.48
12.3500	.50	.50	.51	.52	.52
12.6000	.53	.53	.54	.54	.54

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output)

ÿPage 4380

ÿÿÿName.... OFF 003

ÿTag: 25

Event: 25 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

ÿÿÿStorm... 0-10 3rdQ 50% ÿTag: 25

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
12.8500	.55	.55	.55	.56	.56
13.1000	.56	.57	.57	.58	.61
13.3500	.66	.73	.80	.86	.91
13.6000	.95	.98	1.00	1.02	1.04
13.8500	1.05	1.06	1.07	1.08	1.09
14.1000	1.09	1.10	1.11	1.12	1.12
14.3500	1.13	1.14	1.14	1.16	1.17
14.6000	1.19	1.22	1.24	1.25	1.27
14.8500	1.28	1.29	1.30	1.31	1.31
15.1000	1.32	1.33	1.33	1.34	1.35
15.3500	1.35	1.36	1.36	1.37	1.37
15.6000	1.38	1.37	1.35	1.31	1.25
15.8500	1.19	1.13	1.09	1.06	1.04
16.1000	1.02	1.01	1.01	1.00	1.00
16.3500	1.00	1.00	1.00	1.00	1.00
16.6000	1.01	1.01	1.01	1.01	1.01
16.8500	1.01	.99	.95	.90	.85
17.1000	.81	.77	.74	.73	.72
17.3500	.71	.70	.70	.70	.70
17.6000	.70	.69	.69	.69	.70

17.8500	.70	.70	.70	.70	.69
18.1000	.68	.66	.62	.58	.55
18.3500	.53	.51	.50	.49	.48
18.6000	.48	.48	.48	.47	.47
18.8500	.47	.47	.47	.47	.47
19.1000	.47	.47	.47	.47	.46
19.3500	.45	.43	.42	.40	.39
19.6000	.38	.37	.37	.36	.36
19.8500	.36	.36	.36	.36	.36
20.1000	.36	.36	.36	.36	.36
20.3500	.36	.36	.36	.36	.36
20.6000	.36	.36	.36	.36	.36
20.8500	.36	.36	.36	.36	.36
21.1000	.36	.36	.36	.36	.36
21.3500	.36	.36	.36	.36	.36
21.6000	.36	.36	.35	.34	.32
21.8500	.30	.29	.27	.26	.26
22.1000	.25	.25	.25	.25	.25
22.3500	.25	.24	.24	.24	.24
22.6000	.24	.24	.24	.24	.24
22.8500	.25	.25	.27	.29	.31
23.1000	.32	.34	.35	.35	.36
23.3500	.36	.36	.36	.37	.37
23.6000	.37	.37	.37	.37	.37
23.8500	.37	.37	.37	.37	.36

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Unit Hyd. (HYG output) Page 4381
 Name.... OFF 003 Tag: 25 Event: 25 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
 Storm... 0-10 3rdQ 50% Tag: 25

HYDROGRAPH ORDINATES (cfs)					
Output Time increment = .0500 hrs					
Time hrs	Time on left represents time for first value in each row.				
24.1000	.34	.30	.24	.19	.13
24.3500	.09	.07	.05	.03	.02
24.6000	.02	.01	.01	.01	.00
24.8500	.00	.00	.00		

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Node: Addition Summary Page 4382
 Name.... OUT 10 Tag: 25 Event: 25 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
 Storm... 0-10 3rdQ 50% Tag: 25

SUMMARY FOR HYDROGRAPH ADDITION
at Node: OUT 10

HYG Directory: Q:\PROJECT\stormwater\stormwater\20040287\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ADDLINK 10	OFF 003	work_pad.hyg	OFF 003	25

INFLOWS TO: OUT 10

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	OFF 003	25	.748	15.6000	1.38

TOTAL FLOW INTO: OUT 10

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	OUT 10	25	.748	15.6000	1.38

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Node:ÿAddition Summary

ÿPage 4383

ÿÿÿName.... OUT 10

Event: 25 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

ÿÿÿStorm... 0-10 3rdQ 50% ÿTag: 25

TOTAL NODE INFLOW...

HYG file = Q:\PROJECT\stormwater\stormwater\20040287\work_pad.hyg

HYG ID = OUT 10

HYG Tag = 25

Peak Discharge = 1.38 cfs

Time to Peak = 15.6000 hrs

HYG Volume = .748 ac-ft

HYDROGRAPH ORDINATES (cfs)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
5.3500	.00	.00	.00	.00	.01

5.6000	.01	.01	.01	.01	.01
5.8500	.01	.02	.02	.02	.02
6.1000	.02	.03	.03	.03	.04
6.3500	.04	.04	.05	.05	.05
6.6000	.06	.06	.06	.06	.07
6.8500	.07	.07	.07	.08	.08
7.1000	.08	.08	.09	.09	.09
7.3500	.09	.10	.10	.10	.10
7.6000	.11	.11	.11	.11	.11
7.8500	.12	.12	.12	.12	.13
8.1000	.13	.13	.13	.13	.14
8.3500	.14	.14	.14	.15	.15
8.6000	.15	.15	.15	.16	.16
8.8500	.16	.16	.16	.17	.17
9.1000	.17	.17	.17	.17	.18
9.3500	.18	.18	.18	.18	.19
9.6000	.19	.19	.19	.20	.21
9.8500	.22	.23	.24	.24	.25
10.1000	.25	.26	.26	.26	.27
10.3500	.27	.27	.28	.28	.28
10.6000	.28	.29	.29	.29	.29
10.8500	.30	.30	.31	.32	.34
11.1000	.35	.36	.36	.37	.38
11.3500	.38	.38	.39	.39	.39
11.6000	.40	.40	.40	.41	.41
11.8500	.41	.42	.42	.42	.43
12.1000	.43	.44	.46	.47	.48
12.3500	.50	.50	.51	.52	.52
12.6000	.53	.53	.54	.54	.54
12.8500	.55	.55	.55	.56	.56

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Node: Addition Summary

Page 4384

yyyName.... OUT 10

Event: 25 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... 0-10 3rdQ 50% yTag: 25

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
13.1000	.56	.57	.57	.58	.61
13.3500	.66	.73	.80	.86	.91
13.6000	.95	.98	1.00	1.02	1.04
13.8500	1.05	1.06	1.07	1.08	1.09
14.1000	1.09	1.10	1.11	1.12	1.12
14.3500	1.13	1.14	1.14	1.16	1.17
14.6000	1.19	1.22	1.24	1.25	1.27

14.8500	1.28	1.29	1.30	1.31	1.31
15.1000	1.32	1.33	1.33	1.34	1.35
15.3500	1.35	1.36	1.36	1.37	1.37
15.6000	1.38	1.37	1.35	1.31	1.25
15.8500	1.19	1.13	1.09	1.06	1.04
16.1000	1.02	1.01	1.01	1.00	1.00
16.3500	1.00	1.00	1.00	1.00	1.00
16.6000	1.01	1.01	1.01	1.01	1.01
16.8500	1.01	.99	.95	.90	.85
17.1000	.81	.77	.74	.73	.72
17.3500	.71	.70	.70	.70	.70
17.6000	.70	.69	.69	.69	.70
17.8500	.70	.70	.70	.70	.69
18.1000	.68	.66	.62	.58	.55
18.3500	.53	.51	.50	.49	.48
18.6000	.48	.48	.48	.47	.47
18.8500	.47	.47	.47	.47	.47
19.1000	.47	.47	.47	.47	.46
19.3500	.45	.43	.42	.40	.39
19.6000	.38	.37	.37	.36	.36
19.8500	.36	.36	.36	.36	.36
20.1000	.36	.36	.36	.36	.36
20.3500	.36	.36	.36	.36	.36
20.6000	.36	.36	.36	.36	.36
20.8500	.36	.36	.36	.36	.36
21.1000	.36	.36	.36	.36	.36
21.3500	.36	.36	.36	.36	.36
21.6000	.36	.36	.35	.34	.32
21.8500	.30	.29	.27	.26	.26
22.1000	.25	.25	.25	.25	.25
22.3500	.25	.24	.24	.24	.24
22.6000	.24	.24	.24	.24	.24
22.8500	.25	.25	.27	.29	.31
23.1000	.32	.34	.35	.35	.36
23.3500	.36	.36	.36	.37	.37
23.6000	.37	.37	.37	.37	.37
23.8500	.37	.37	.37	.37	.36
24.1000	.34	.30	.24	.19	.13

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Node: Addition Summary

Page 4385

yyyName.... OUT 10

Event: 25 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... 0-10 3rdQ 50% yTag: 25

HYDROGRAPH ORDINATES (cfs)

Time	Output Time increment = .0500 hrs
hrs	Time on left represents time for first value in each row.

24.3500	.09	.07	.05	.03	.02
24.6000	.02	.01	.01	.01	.00
24.8500	.00	.00	.00		

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Executive Summary (Nodes) Page 4386
 Name.... Watershed Event: 25 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
 Storm... 0-10 3rdQ 50% Tag: 25

NETWORK SUMMARY -- NODES

(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

DEFAULT Design Storm File,ID = Bul 71 - 3rd Q(5)

Storm Tag Name = 25

Data Type, File, ID = Synthetic Storm 0-10 3rdQ 50%
 Storm Frequency = 25 yr
 Total Rainfall Depth= 4.6400 in
 Duration Multiplier = 24
 Resulting Duration = 24.0000 hrs
 Resulting Start Time= .0000 hrs Step= 1.2000 hrs End= 24.0000 hrs

Node ID	Type	HYG Vol ac-ft	Qpeak Trun. hrs	Qpeak cfs	Max WSEL ft
OFF 003	AREA	.748	15.6000	1.38	
Outfall OUT 10	JCT	.748	15.6000	1.38	

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Executive Summary (Links) Page 4387
 Name.... Watershed Event: 25 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
 Storm... 0-10 3rdQ 50% Tag: 25

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 = Bul 71 - 3rd Q(5)

Storm Tag Name = 25

```

-----
Data Type, File, ID = Synthetic Storm    0-10 3rdQ 50%
Storm Frequency      = 25 yr
Total Rainfall Depth= 4.6400 in
Duration Multiplier  = 24
Resulting Duration   = 24.0000 hrs
Resulting Start Time= .0000 hrs  Step= 1.2000 hrs  End= 24.0000 hrs

```

Link ID	Type		HYG Vol ac-ft	Peak Time Trun. hrs	Peak Q cfs	End Points
ADDLINK 10	ADD	UN	.748	15.6000	1.38	OFF 003
		DL	.748	15.6000	1.38	
		DN	.748	15.6000	1.38	OUT 10

S/N:
PondPack Ver: Compute Time: Date:

↑
Type.... Synthetic Curve Page 4388
Name.... 0-10 3rdQ 50% Tag: 50
File.... Q:\PROJECT\stormwater\stormwater\20040287\

CUMULATIVE RAINFALL FRACTIONS
(Duration was multiplied by: 24)
Output Time increment = 1.2000 hrs
Time on left represents time for first value in each row.

Time hrs					
.0000	.000	.030	.060	.090	.120
6.0000	.150	.190	.230	.270	.320
12.0000	.380	.450	.570	.700	.790
18.0000	.850	.890	.920	.950	.970
24.0000	1.000				

S/N:
PondPack Ver: Compute Time: Date:

↑
Type.... Synthetic Cumulative Depth Page 4389
Name.... 0-10 3rdQ 50% Tag: 50 Event: 50 yr
File.... Q:\PROJECT\stormwater\stormwater\20040287\
Storm... 0-10 3rdQ 50% Tag: 50

CUMULATIVE RAINFALL DEPTHS (in)
(Duration was multiplied by: 24)
Output Time increment = 1.2000 hrs
Time on left represents time for first value in each row.

Time hrs					
.0000	.0000	.1599	.3198	.4797	.6396
6.0000	.7995	1.0127	1.2259	1.4391	1.7056
12.0000	2.0254	2.3985	3.0381	3.7310	4.2107

18.0000	4.5305	4.7437	4.9036	5.0635	5.1701
24.0000	5.3300				

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Unit Hyd. Summary Page 4390
 Name.... OFF 003 Tag: 50 Event: 50 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
 Storm... 0-10 3rdQ 50% Tag: 50

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 50 year storm
 Duration = 24.0000 hrs Rain Depth = 5.3300 in
 Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\
 Rain File -ID = - 0-10 3rdQ 50%
 Unit Hyd Type = Default Curvilinear
 HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\
 HYG File - ID = work_pad.hyg - OFF 003 50
 Tc = .3500 hrs
 Drainage Area = 3.860 acres Runoff CN= 77

=====
 Computational Time Increment = .04667 hrs
 Computed Peak Time = 15.5867 hrs
 Computed Peak Flow = 1.68 cfs

Time Increment for HYG File = .0500 hrs
 Peak Time, Interpolated Output = 15.6000 hrs
 Peak Flow, Interpolated Output = 1.68 cfs
 =====

DRAINAGE AREA

 ID:OFF 003
 CN = 77
 Area = 3.860 acres
 S = 2.9870 in
 0.2S = .5974 in

Cumulative Runoff

 2.9014 in
 .933 ac-ft

HYG Volume... .933 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .35000 hrs (ID: OFF 003)
Computational Incr, Tm = .04667 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 = 12.50 cfs
Unit peak time Tp = .23333 hrs
Unit receding limb, Tr = .93333 hrs
Total unit time, Tb = 1.16667 hrs

S/N:

PondPack Ver:

Compute Time:

Date:

↑
yyyType.... Unit Hyd. (HYG output) yPage 4391
yyyName.... OFF 003 yTag: 50 Event: 50 yr
yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
yyyStorm... 0-10 3rdQ 50% yTag: 50

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 50 year storm
Duration = 24.0000 hrs Rain Depth = 5.3300 in
Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\
Rain File -ID = - 0-10 3rdQ 50%
Unit Hyd Type = Default Curvilinear
HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\
HYG File - ID = work_pad.hyg - OFF 003 50
Tc = .3500 hrs
Drainage Area = 3.860 acres Runoff CN= 77
Calc.Increment= .04667 hrs Out.Incr.= .0500 hrs
HYG Volume = .933 ac-ft

HYDROGRAPH ORDINATES (cfs)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
4.6500	.00	.00	.00	.00	.01
4.9000	.01	.01	.01	.01	.02
5.1500	.02	.02	.02	.02	.03
5.4000	.03	.03	.03	.03	.04
5.6500	.04	.04	.04	.04	.05
5.9000	.05	.05	.05	.06	.06
6.1500	.06	.07	.07	.08	.09
6.4000	.09	.09	.10	.10	.11
6.6500	.11	.11	.12	.12	.12
6.9000	.12	.13	.13	.13	.14
7.1500	.14	.14	.15	.15	.15
7.4000	.15	.16	.16	.16	.17

7.6500	.17	.17	.17	.18	.18
7.9000	.18	.18	.19	.19	.19
8.1500	.19	.20	.20	.20	.20
8.4000	.21	.21	.21	.21	.22
8.6500	.22	.22	.22	.23	.23
8.9000	.23	.23	.23	.24	.24
9.1500	.24	.24	.24	.25	.25
9.4000	.25	.25	.26	.26	.26
9.6500	.26	.27	.28	.29	.30
9.9000	.32	.33	.33	.34	.35
10.1500	.35	.35	.36	.36	.36
10.4000	.37	.37	.37	.38	.38
10.6500	.38	.38	.39	.39	.39
10.9000	.40	.41	.43	.44	.46
11.1500	.47	.48	.49	.49	.50
11.4000	.50	.51	.51	.52	.52
11.6500	.52	.53	.53	.53	.54
11.9000	.54	.54	.55	.55	.56

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output)

ÿPage 4392

ÿÿÿName.... OFF 003

ÿTag: 50

Event: 50 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

ÿÿÿStorm... 0-10 3rdQ 50% ÿTag: 50

HYDROGRAPH ORDINATES (cfs)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
12.1500	.57	.59	.61	.62	.64
12.4000	.65	.66	.67	.67	.68
12.6500	.68	.69	.69	.69	.70
12.9000	.70	.70	.71	.71	.72
13.1500	.72	.72	.74	.77	.83
13.4000	.92	1.01	1.09	1.15	1.20
13.6500	1.23	1.26	1.28	1.30	1.31
13.9000	1.33	1.34	1.35	1.36	1.37
14.1500	1.37	1.38	1.39	1.40	1.40
14.4000	1.41	1.42	1.43	1.45	1.48
14.6500	1.50	1.53	1.55	1.56	1.58
14.9000	1.59	1.60	1.61	1.61	1.62
15.1500	1.63	1.63	1.64	1.65	1.65
15.4000	1.66	1.67	1.67	1.68	1.68
15.6500	1.68	1.65	1.59	1.52	1.44
15.9000	1.37	1.32	1.28	1.26	1.24
16.1500	1.23	1.22	1.22	1.22	1.21
16.4000	1.21	1.21	1.22	1.22	1.22
16.6500	1.22	1.22	1.22	1.23	1.22

16.9000	1.20	1.15	1.09	1.03	.97
17.1500	.93	.90	.88	.86	.85
17.4000	.85	.84	.84	.84	.84
17.6500	.84	.84	.84	.84	.84
17.9000	.84	.84	.84	.83	.82
18.1500	.79	.75	.70	.66	.63
18.4000	.61	.60	.59	.58	.58
18.6500	.57	.57	.57	.57	.57
18.9000	.57	.57	.57	.57	.57
19.1500	.57	.57	.57	.56	.54
19.4000	.52	.50	.48	.46	.45
19.6500	.45	.44	.44	.43	.43
19.9000	.43	.43	.43	.43	.43
20.1500	.43	.43	.43	.43	.43
20.4000	.43	.43	.43	.43	.43
20.6500	.43	.43	.43	.43	.43
20.9000	.43	.43	.43	.43	.43
21.1500	.43	.43	.43	.43	.43
21.4000	.43	.43	.43	.43	.43
21.6500	.43	.42	.41	.39	.36
21.9000	.34	.33	.32	.31	.30
22.1500	.30	.30	.30	.29	.29
22.4000	.29	.29	.29	.29	.29
22.6500	.29	.29	.29	.29	.30
22.9000	.30	.32	.34	.36	.39
23.1500	.40	.41	.42	.43	.43

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output)

ÿPage 4393

ÿÿÿName.... OFF 003

ÿTag: 50

Event: 50 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

ÿÿÿStorm... 0-10 3rdQ 50% ÿTag: 50

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
23.4000	.43	.43	.44	.44	.44
23.6500	.44	.44	.44	.44	.44
23.9000	.44	.44	.44	.43	.40
24.1500	.35	.29	.22	.16	.11
24.4000	.08	.05	.04	.03	.02
24.6500	.01	.01	.01	.00	.00
24.9000	.00	.00	.00		

S/N:

PondPack Ver:

Compute Time:

Date:



```

yyyType.... Node: Addition Summary
yyyName.... OUT 10
yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
yyyStorm... 0-10 3rdQ 50% yTag: 50

```

SUMMARY FOR HYDROGRAPH ADDITION
at Node: OUT 10

HYG Directory: Q:\PROJECT\stormwater\stormwater\20040287\

```

=====
Upstream Link ID  Upstream Node ID  HYG file      HYG ID      HYG tag
-----
ADDLINK 10        OFF 003        work_pad.hyg  OFF 003      50
=====

```

INFLOWS TO: OUT 10

```

-----
HYG file      HYG ID      HYG tag      Volume      Peak Time      Peak Flow
ac-ft         hrs         cfs
-----
work_pad.hyg  OFF 003      50           .933         15.6000        1.68

```

TOTAL FLOW INTO: OUT 10

```

-----
HYG file      HYG ID      HYG tag      Volume      Peak Time      Peak Flow
ac-ft         hrs         cfs
-----
work_pad.hyg  OUT 10       50           .933         15.6000        1.68

```

S/N:

PondPack Ver:

Compute Time:

Date:



```

yyyType.... Node: Addition Summary
yyyName.... OUT 10
yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
yyyStorm... 0-10 3rdQ 50% yTag: 50

```

TOTAL NODE INFLOW...

```

HYG file = Q:\PROJECT\stormwater\stormwater\20040287\work_pad.hyg
HYG ID   = OUT 10
HYG Tag  = 50

```

```

-----
Peak Discharge = 1.68 cfs
Time to Peak   = 15.6000 hrs
HYG Volume     = .933 ac-ft
-----

```

HYDROGRAPH ORDINATES (cfs)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
4.6500	.00	.00	.00	.00	.01
4.9000	.01	.01	.01	.01	.02
5.1500	.02	.02	.02	.02	.03
5.4000	.03	.03	.03	.03	.04
5.6500	.04	.04	.04	.04	.05
5.9000	.05	.05	.05	.06	.06
6.1500	.06	.07	.07	.08	.09
6.4000	.09	.09	.10	.10	.11
6.6500	.11	.11	.12	.12	.12
6.9000	.12	.13	.13	.13	.14
7.1500	.14	.14	.15	.15	.15
7.4000	.15	.16	.16	.16	.17
7.6500	.17	.17	.17	.18	.18
7.9000	.18	.18	.19	.19	.19
8.1500	.19	.20	.20	.20	.20
8.4000	.21	.21	.21	.21	.22
8.6500	.22	.22	.22	.23	.23
8.9000	.23	.23	.23	.24	.24
9.1500	.24	.24	.24	.25	.25
9.4000	.25	.25	.26	.26	.26
9.6500	.26	.27	.28	.29	.30
9.9000	.32	.33	.33	.34	.35
10.1500	.35	.35	.36	.36	.36
10.4000	.37	.37	.37	.38	.38
10.6500	.38	.38	.39	.39	.39
10.9000	.40	.41	.43	.44	.46
11.1500	.47	.48	.49	.49	.50
11.4000	.50	.51	.51	.52	.52
11.6500	.52	.53	.53	.53	.54
11.9000	.54	.54	.55	.55	.56
12.1500	.57	.59	.61	.62	.64

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Node: yAddition Summary

yPage 4396

yyyName.... OUT 10

Event: 50 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... 0-10 3rdQ 50% yTag: 50

Time hrs	HYDROGRAPH ORDINATES (cfs) Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
12.4000	.65	.66	.67	.67	.68
12.6500	.68	.69	.69	.69	.70
12.9000	.70	.70	.71	.71	.72

13.1500	.72	.72	.74	.77	.83
13.4000	.92	1.01	1.09	1.15	1.20
13.6500	1.23	1.26	1.28	1.30	1.31
13.9000	1.33	1.34	1.35	1.36	1.37
14.1500	1.37	1.38	1.39	1.40	1.40
14.4000	1.41	1.42	1.43	1.45	1.48
14.6500	1.50	1.53	1.55	1.56	1.58
14.9000	1.59	1.60	1.61	1.61	1.62
15.1500	1.63	1.63	1.64	1.65	1.65
15.4000	1.66	1.67	1.67	1.68	1.68
15.6500	1.68	1.65	1.59	1.52	1.44
15.9000	1.37	1.32	1.28	1.26	1.24
16.1500	1.23	1.22	1.22	1.22	1.21
16.4000	1.21	1.21	1.22	1.22	1.22
16.6500	1.22	1.22	1.22	1.23	1.22
16.9000	1.20	1.15	1.09	1.03	.97
17.1500	.93	.90	.88	.86	.85
17.4000	.85	.84	.84	.84	.84
17.6500	.84	.84	.84	.84	.84
17.9000	.84	.84	.84	.83	.82
18.1500	.79	.75	.70	.66	.63
18.4000	.61	.60	.59	.58	.58
18.6500	.57	.57	.57	.57	.57
18.9000	.57	.57	.57	.57	.57
19.1500	.57	.57	.57	.56	.54
19.4000	.52	.50	.48	.46	.45
19.6500	.45	.44	.44	.43	.43
19.9000	.43	.43	.43	.43	.43
20.1500	.43	.43	.43	.43	.43
20.4000	.43	.43	.43	.43	.43
20.6500	.43	.43	.43	.43	.43
20.9000	.43	.43	.43	.43	.43
21.1500	.43	.43	.43	.43	.43
21.4000	.43	.43	.43	.43	.43
21.6500	.43	.42	.41	.39	.36
21.9000	.34	.33	.32	.31	.30
22.1500	.30	.30	.30	.29	.29
22.4000	.29	.29	.29	.29	.29
22.6500	.29	.29	.29	.29	.30
22.9000	.30	.32	.34	.36	.39
23.1500	.40	.41	.42	.43	.43
23.4000	.43	.43	.44	.44	.44

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Node: Addition Summary

Page 4397

yyyName.... OUT 10

Event: 50 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... 0-10 3rdQ 50% yTag: 50

HYDROGRAPH ORDINATES (cfs)						
Output Time increment = .0500 hrs						
Time hrs	Time on left represents time for first value in each row.					
23.6500	.44	.44	.44	.44	.44	.44
23.9000	.44	.44	.44	.43	.40	.40
24.1500	.35	.29	.22	.16	.11	.11
24.4000	.08	.05	.04	.03	.02	.02
24.6500	.01	.01	.01	.00	.00	.00
24.9000	.00	.00	.00			

S/N:

PondPack Ver:

Compute Time:

Date:

↑
 Type.... Executive Summary (Nodes) Page 4398
 Name.... Watershed Event: 50 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
 Storm... 0-10 3rdQ 50% Tag: 50

NETWORK SUMMARY -- NODES

(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

DEFAULT Design Storm File,ID = Bul 71 - 3rd Q(5

Storm Tag Name = 50

 Data Type, File, ID = Synthetic Storm 0-10 3rdQ 50%
 Storm Frequency = 50 yr
 Total Rainfall Depth= 5.3300 in
 Duration Multiplier = 24
 Resulting Duration = 24.0000 hrs
 Resulting Start Time= .0000 hrs Step= 1.2000 hrs End= 24.0000 hrs

Node ID	Type	HYG Vol ac-ft	Qpeak Trun. hrs	Qpeak cfs	Max WSEL ft
OFF 003	AREA	.933	15.6000	1.68	
Outfall OUT 10	JCT	.933	15.6000	1.68	

S/N:

PondPack Ver:

Compute Time:

Date:

↑
 Type.... Executive Summary (Links) Page 4399
 Name.... Watershed Event: 50 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
 Storm... 0-10 3rdQ 50% Tag: 50

NETWORK SUMMARY -- LINKS

CUMULATIVE RAINFALL DEPTHS (in)

(Duration was multiplied by: 24)
Output Time increment = 1.2000 hrs

Time hrs	Time on left represents time for first value in each row.				
.0000	.0000	.1818	.3636	.5454	.7272
6.0000	.9090	1.1514	1.3938	1.6362	1.9392
12.0000	2.3028	2.7270	3.4542	4.2420	4.7874
18.0000	5.1510	5.3934	5.5752	5.7570	5.8782
24.0000	6.0600				

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. Summary

ÿPage 4402

ÿÿÿName.... OFF 003

ÿTag: 100

Event: 100 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

ÿÿÿStorm... 0-10 3rdQ 50% ÿTag: 100

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm

Duration = 24.0000 hrs Rain Depth = 6.0600 in

Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\

Rain File -ID = - 0-10 3rdQ 50%

Unit Hyd Type = Default Curvilinear

HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\

HYG File - ID = work_pad.hyg - OFF 003 100

Tc = .3500 hrs

Drainage Area = 3.860 acres Runoff CN= 77

=====
Computational Time Increment = .04667 hrs

Computed Peak Time = 15.5867 hrs

Computed Peak Flow = 2.01 cfs

Time Increment for HYG File = .0500 hrs

Peak Time, Interpolated Output = 15.6000 hrs

Peak Flow, Interpolated Output = 2.00 cfs
=====

DRAINAGE AREA

ID:OFF 003

CN = 77

Area = 3.860 acres

S = 2.9870 in

0.2S = .5974 in

Cumulative Runoff

3.5315 in
1.136 ac-ft

HYG Volume... 1.136 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .35000 hrs (ID: OFF 003)
Computational Incr, Tm = .04667 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 = 12.50 cfs
Unit peak time Tp = .23333 hrs
Unit receding limb, Tr = .93333 hrs
Total unit time, Tb = 1.16667 hrs

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output) ÿPage 4403
ÿÿÿName.... OFF 003 ÿTag: 100 Event: 100 yr
ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
ÿÿÿStorm... 0-10 3rdQ 50% ÿTag: 100

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration = 24.0000 hrs Rain Depth = 6.0600 in
Rain Dir = Q:\PROJECT\stormwater\stormwater\20040287\
Rain File -ID = - 0-10 3rdQ 50%
Unit Hyd Type = Default Curvilinear
HYG Dir = Q:\PROJECT\stormwater\stormwater\20040287\
HYG File - ID = work_pad.hyg - OFF 003 100
Tc = .3500 hrs
Drainage Area = 3.860 acres Runoff CN= 77
Calc.Increment= .04667 hrs Out.Incr.= .0500 hrs
HYG Volume = 1.136 ac-ft

HYDROGRAPH ORDINATES (cfs)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
4.1000	.00	.00	.00	.00	.01
4.3500	.01	.01	.01	.02	.02
4.6000	.02	.02	.03	.03	.03
4.8500	.04	.04	.04	.04	.05
5.1000	.05	.05	.05	.06	.06

5.3500	.06	.06	.07	.07	.07
5.6000	.07	.08	.08	.08	.08
5.8500	.09	.09	.09	.09	.10
6.1000	.10	.11	.12	.12	.13
6.3500	.14	.15	.15	.16	.16
6.6000	.16	.17	.17	.18	.18
6.8500	.18	.19	.19	.19	.20
7.1000	.20	.21	.21	.21	.22
7.3500	.22	.22	.22	.23	.23
7.6000	.23	.24	.24	.24	.25
7.8500	.25	.25	.26	.26	.26
8.1000	.26	.27	.27	.27	.28
8.3500	.28	.28	.28	.29	.29
8.6000	.29	.29	.30	.30	.30
8.8500	.30	.31	.31	.31	.31
9.1000	.32	.32	.32	.32	.33
9.3500	.33	.33	.33	.34	.34
9.6000	.34	.35	.35	.36	.38
9.8500	.40	.41	.42	.43	.44
10.1000	.45	.45	.46	.46	.47
10.3500	.47	.47	.48	.48	.48
10.6000	.49	.49	.49	.50	.50
10.8500	.50	.51	.53	.55	.57
11.1000	.58	.60	.61	.62	.63
11.3500	.63	.64	.64	.65	.65

S/N:

PondPack Ver:

Compute Time:

Date:



ÿÿÿType.... Unit Hyd. (HYG output)

ÿPage 4404

ÿÿÿName.... OFF 003

ÿTag: 100

Event: 100 yr

ÿÿÿFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

ÿÿÿStorm... 0-10 3rdQ 50% ÿTag: 100

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0500 hrs

Time on left represents time for first value in each row.

Time hrs					
11.6000	.66	.66	.66	.67	.67
11.8500	.67	.68	.68	.68	.69
12.1000	.70	.72	.74	.76	.78
12.3500	.80	.81	.82	.83	.83
12.6000	.84	.84	.85	.85	.86
12.8500	.86	.87	.87	.87	.88
13.1000	.88	.88	.89	.90	.94
13.3500	1.02	1.13	1.23	1.33	1.41
13.6000	1.47	1.51	1.54	1.56	1.58
13.8500	1.60	1.62	1.63	1.64	1.65
14.1000	1.66	1.67	1.67	1.68	1.69
14.3500	1.70	1.71	1.72	1.73	1.75

14.6000	1.78	1.81	1.84	1.86	1.88
14.8500	1.89	1.91	1.92	1.93	1.94
15.1000	1.94	1.95	1.96	1.96	1.97
15.3500	1.98	1.98	1.99	2.00	2.00
15.6000	2.00	2.00	1.96	1.90	1.81
15.8500	1.72	1.64	1.57	1.53	1.50
16.1000	1.47	1.46	1.45	1.45	1.44
16.3500	1.44	1.44	1.44	1.44	1.44
16.6000	1.44	1.45	1.45	1.45	1.45
16.8500	1.44	1.42	1.36	1.29	1.22
17.1000	1.15	1.10	1.06	1.04	1.02
17.3500	1.01	1.00	1.00	.99	.99
17.6000	.99	.99	.99	.99	.99
17.8500	.99	.99	.99	.99	.98
18.1000	.96	.93	.88	.83	.78
18.3500	.75	.72	.71	.69	.69
18.6000	.68	.68	.67	.67	.67
18.8500	.67	.67	.67	.67	.67
19.1000	.67	.67	.67	.66	.66
19.3500	.64	.61	.59	.56	.55
19.6000	.53	.52	.52	.51	.51
19.8500	.51	.51	.51	.51	.51
20.1000	.51	.51	.51	.51	.51
20.3500	.51	.51	.51	.51	.51
20.6000	.51	.51	.51	.51	.51
20.8500	.51	.51	.51	.51	.51
21.1000	.51	.51	.51	.51	.51
21.3500	.51	.51	.51	.51	.51
21.6000	.51	.51	.50	.48	.45
21.8500	.43	.40	.38	.37	.36
22.1000	.36	.35	.35	.35	.34
22.3500	.34	.34	.34	.34	.34
22.6000	.34	.34	.34	.34	.34

S/N:

PondPack Ver:

Compute Time:

Date:



Type.... Unit Hyd. (HYG output) Page 4405
 Name.... OFF 003 Tag: 100 Event: 100 yr
 File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
 Storm... 0-10 3rdQ 50% Tag: 100

HYDROGRAPH ORDINATES (cfs)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
22.8500	.35	.36	.37	.40	.43
23.1000	.45	.47	.48	.49	.50
23.3500	.50	.51	.51	.51	.51
23.6000	.51	.51	.51	.51	.51

23.8500		.51	.51	.52	.51	.50
24.1000		.47	.41	.34	.26	.19
24.3500		.13	.09	.06	.04	.03
24.6000		.02	.02	.01	.01	.01
24.8500		.00	.00	.00	.00	

S/N:

PondPack Ver:

Compute Time:

Date:

↑

yyyType.... Node: Addition Summary

Page 4406

yyyName.... OUT 10

Event: 100 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... 0-10 3rdQ 50% yTag: 100

SUMMARY FOR HYDROGRAPH ADDITION at Node: OUT 10

HYG Directory: Q:\PROJECT\stormwater\stormwater\20040287\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ADDLINK 10	OFF 003	work_pad.hyg	OFF 003	100

INFLOWS TO: OUT 10

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	OFF 003	100	1.136	15.6000	2.00

TOTAL FLOW INTO: OUT 10

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	OUT 10	100	1.136	15.6000	2.00

S/N:

PondPack Ver:

Compute Time:

Date:

↑

yyyType.... Node: Addition Summary

Page 4407

yyyName.... OUT 10

Event: 100 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... 0-10 3rdQ 50% yTag: 100

TOTAL NODE INFLOW...

HYG file = Q:\PROJECT\stormwater\stormwater\20040287\work_pad.hyg

HYG ID = OUT 10
HYG Tag = 100

Peak Discharge = 2.00 cfs
Time to Peak = 15.6000 hrs
HYG Volume = 1.136 ac-ft

Time hrs	HYDROGRAPH ORDINATES (cfs)				
	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
4.1000	.00	.00	.00	.00	.01
4.3500	.01	.01	.01	.02	.02
4.6000	.02	.02	.03	.03	.03
4.8500	.04	.04	.04	.04	.05
5.1000	.05	.05	.05	.06	.06
5.3500	.06	.06	.07	.07	.07
5.6000	.07	.08	.08	.08	.08
5.8500	.09	.09	.09	.09	.10
6.1000	.10	.11	.12	.12	.13
6.3500	.14	.15	.15	.16	.16
6.6000	.16	.17	.17	.18	.18
6.8500	.18	.19	.19	.19	.20
7.1000	.20	.21	.21	.21	.22
7.3500	.22	.22	.22	.23	.23
7.6000	.23	.24	.24	.24	.25
7.8500	.25	.25	.26	.26	.26
8.1000	.26	.27	.27	.27	.28
8.3500	.28	.28	.28	.29	.29
8.6000	.29	.29	.30	.30	.30
8.8500	.30	.31	.31	.31	.31
9.1000	.32	.32	.32	.32	.33
9.3500	.33	.33	.33	.34	.34
9.6000	.34	.35	.35	.36	.38
9.8500	.40	.41	.42	.43	.44
10.1000	.45	.45	.46	.46	.47
10.3500	.47	.47	.48	.48	.48
10.6000	.49	.49	.49	.50	.50
10.8500	.50	.51	.53	.55	.57
11.1000	.58	.60	.61	.62	.63
11.3500	.63	.64	.64	.65	.65
11.6000	.66	.66	.66	.67	.67

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Node: Addition Summary

Page 4408

yyyName.... OUT 10

Event: 100 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... 0-10 3rdQ 50% yTag: 100

HYDROGRAPH ORDINATES (cfs)					
Output Time increment = .0500 hrs					
Time hrs	Time on left represents time for first value in each row.				
11.8500	.67	.68	.68	.68	.69
12.1000	.70	.72	.74	.76	.78
12.3500	.80	.81	.82	.83	.83
12.6000	.84	.84	.85	.85	.86
12.8500	.86	.87	.87	.87	.88
13.1000	.88	.88	.89	.90	.94
13.3500	1.02	1.13	1.23	1.33	1.41
13.6000	1.47	1.51	1.54	1.56	1.58
13.8500	1.60	1.62	1.63	1.64	1.65
14.1000	1.66	1.67	1.67	1.68	1.69
14.3500	1.70	1.71	1.72	1.73	1.75
14.6000	1.78	1.81	1.84	1.86	1.88
14.8500	1.89	1.91	1.92	1.93	1.94
15.1000	1.94	1.95	1.96	1.96	1.97
15.3500	1.98	1.98	1.99	2.00	2.00
15.6000	2.00	2.00	1.96	1.90	1.81
15.8500	1.72	1.64	1.57	1.53	1.50
16.1000	1.47	1.46	1.45	1.45	1.44
16.3500	1.44	1.44	1.44	1.44	1.44
16.6000	1.44	1.45	1.45	1.45	1.45
16.8500	1.44	1.42	1.36	1.29	1.22
17.1000	1.15	1.10	1.06	1.04	1.02
17.3500	1.01	1.00	1.00	.99	.99
17.6000	.99	.99	.99	.99	.99
17.8500	.99	.99	.99	.99	.98
18.1000	.96	.93	.88	.83	.78
18.3500	.75	.72	.71	.69	.69
18.6000	.68	.68	.67	.67	.67
18.8500	.67	.67	.67	.67	.67
19.1000	.67	.67	.67	.66	.66
19.3500	.64	.61	.59	.56	.55
19.6000	.53	.52	.52	.51	.51
19.8500	.51	.51	.51	.51	.51
20.1000	.51	.51	.51	.51	.51
20.3500	.51	.51	.51	.51	.51
20.6000	.51	.51	.51	.51	.51
20.8500	.51	.51	.51	.51	.51
21.1000	.51	.51	.51	.51	.51
21.3500	.51	.51	.51	.51	.51
21.6000	.51	.51	.50	.48	.45
21.8500	.43	.40	.38	.37	.36
22.1000	.36	.35	.35	.35	.34
22.3500	.34	.34	.34	.34	.34
22.6000	.34	.34	.34	.34	.34

22.8500 | .35 .36 .37 .40 .43

S/N:

PondPack Ver:

Compute Time:

Date:

↑

yyyType.... Node: Addition Summary

Page 4409

yyyName.... OUT 10

Event: 100 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... 0-10 3rdQ 50% yTag: 100

HYDROGRAPH ORDINATES (cfs)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
23.1000	.45	.47	.48	.49	.50
23.3500	.50	.51	.51	.51	.51
23.6000	.51	.51	.51	.51	.51
23.8500	.51	.51	.52	.51	.50
24.1000	.47	.41	.34	.26	.19
24.3500	.13	.09	.06	.04	.03
24.6000	.02	.02	.01	.01	.01
24.8500	.00	.00	.00	.00	

S/N:

PondPack Ver:

Compute Time:

Date:

↑

yyyType.... Executive Summary (Nodes)

Page 4410

yyyName.... Watershed

Event: 100 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... 0-10 3rdQ 50% yTag: 100

NETWORK SUMMARY -- NODES

(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

DEFAULT Design Storm File, ID = Bul 71 - 3rd Q(5

Storm Tag Name = 100

Data Type, File, ID = Synthetic Storm 0-10 3rdQ 50%

Storm Frequency = 100 yr

Total Rainfall Depth= 6.0600 in

Duration Multiplier = 24

Resulting Duration = 24.0000 hrs

Resulting Start Time= .0000 hrs Step= 1.2000 hrs End= 24.0000 hrs

Node ID	Type	HYG Vol ac-ft	Qpeak Trun. hrs	Qpeak cfs	Max WSEL ft
OFF 003	AREA	1.136	15.6000	2.00	

Outfall OUT 10 JCT 1.136 15.6000 2.00

S/N:

PondPack Ver:

Compute Time:

Date:

↑
Type.... Executive Summary (Links) Page 4411
Name.... Watershed Event: 100 yr
File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
Storm... 0-10 3rdQ 50% Tag: 100

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 = Bul 71 - 3rd Q(5

Storm Tag Name = 100

Data Type, File, ID = Synthetic Storm 0-10 3rdQ 50%
Storm Frequency = 100 yr
Total Rainfall Depth= 6.0600 in
Duration Multiplier = 24
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= 1.2000 hrs End= 24.0000 hrs

Link ID	Type		HYG Vol ac-ft	Peak Time Trun. hrs	Peak Q cfs	End Points
ADDLINK 10	ADD	UN	1.136	15.6000	2.00	OFF 003
		DL	1.136	15.6000	2.00	
		DN	1.136	15.6000	2.00	OUT 10

S/N:

PondPack Ver:

Compute Time:

Date:

↑
Type.... Network Calcs Sequence Page 4412
Name.... Watershed Event: 100 yr
File.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW
Storm... 0-10 3rdQ 50% Tag: 100

NETWORK RUNOFF NODE SEQUENCE

Runoff Data	Apply to Node	Receiving Link
SCS UH OFF 003	Subarea OFF 003	Add Hyd OFF 003

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Network Calcs Sequence

Page 4413

yyyName.... Watershed

Event: 100 yr

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

yyyStorm... 0-10 3rdQ 50% yTag: 100

NETWORK ROUTING SEQUENCE

```
=====
Link Operation          UPstream Node          DNstream Node
=====
Add Hyd ADDLINK 10      Subarea OFF 003      Jct      OUT 10
=====
```

S/N:

PondPack Ver:

Compute Time:

Date:



yyyType.... Master Network Summary

Page 4414

yyyName.... Watershed

yyyFile.... Q:\PROJECT\stormwater\stormwater\20040287\OFFSITE 003.PPW

MASTER DESIGN STORM SUMMARY

Network Storm Collection: Bul 71 - 3rd Q(5

Return Event	Total Depth in	Rainfall Type	RNF ID
-----	-----	-----	-----
1	2.1700	Synthetic Curve	TypeII 24hr
2	2.7000	Synthetic Curve	0-10 3rdQ 50%
5	3.3500	Synthetic Curve	0-10 3rdQ 50%
10	3.8600	Synthetic Curve	0-10 3rdQ 50%
25	4.6400	Synthetic Curve	0-10 3rdQ 50%
50	5.3300	Synthetic Curve	0-10 3rdQ 50%
100	6.0600	Synthetic Curve	0-10 3rdQ 50%

MASTER NETWORK SUMMARY SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Pond Storage
Node ID
ac-ft

HYG Vol

Qpeak

Qpeak

Max WSEL

Type Event

ac-ft

Trun

hrs

cfs

ft

S/N:

Compute Time:

Date:

1

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lrj 9

JobTitle

$$\begin{array}{cccc} \square & \square & \square & v \end{array}$$

ò Master Network Summary

9 1H 1S

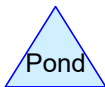
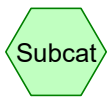
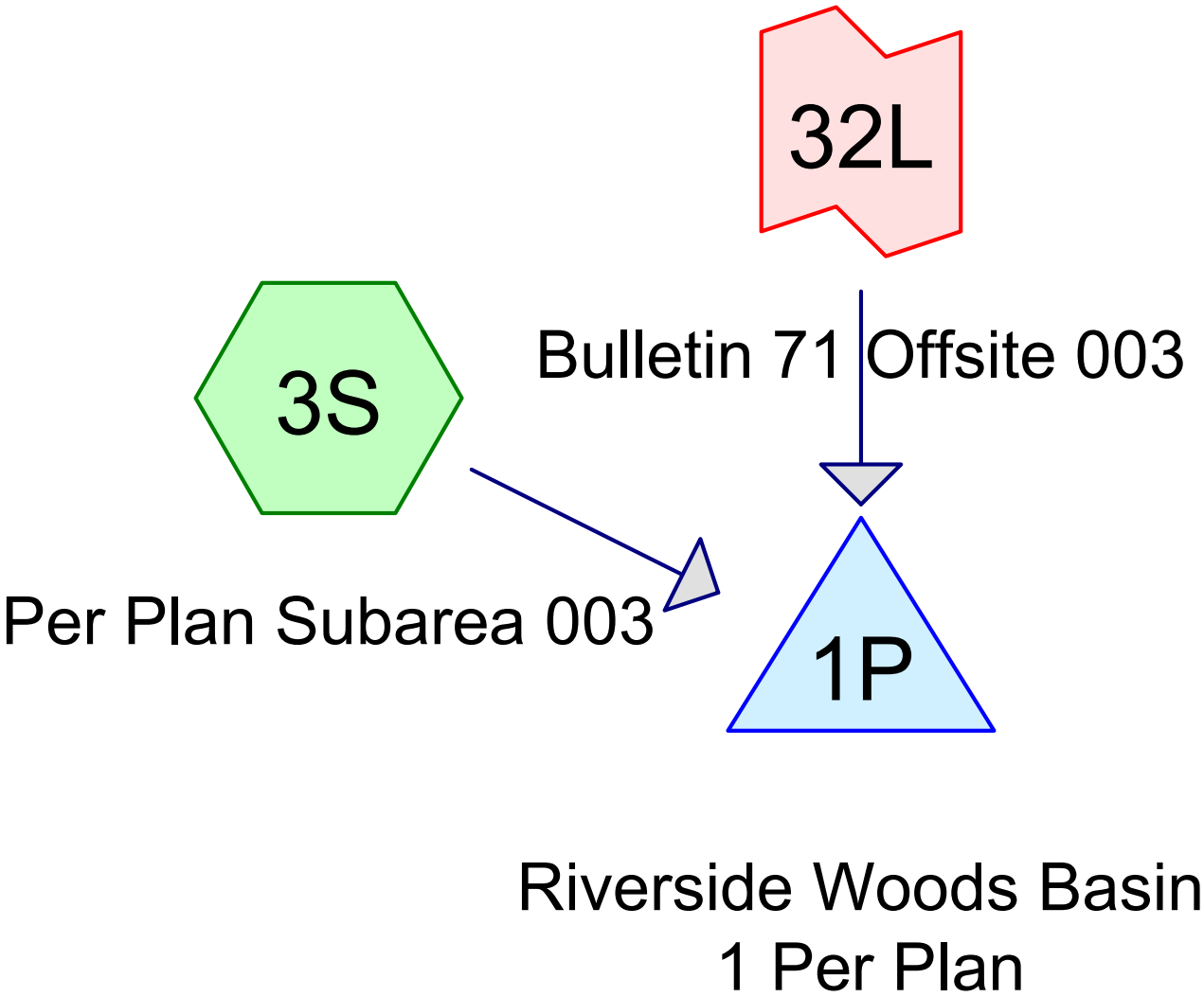
Watershed

11

Executive Summary (Nodes)

Watershed

1



Riverside Woods Basin 1 - AKJ Updates

Prepared by EMH&T

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Type II 24-hr 1-yr Rainfall=2.17"

Printed 3/17/2026

Page 2

Summary for Subcatchment 3S: Per Plan Subarea 003

Runoff = 3.26 cfs @ 12.03 hrs, Volume= 0.181 af, Depth= 1.04"
Routed to Pond 1P : Riverside Woods Basin 1 Per Plan

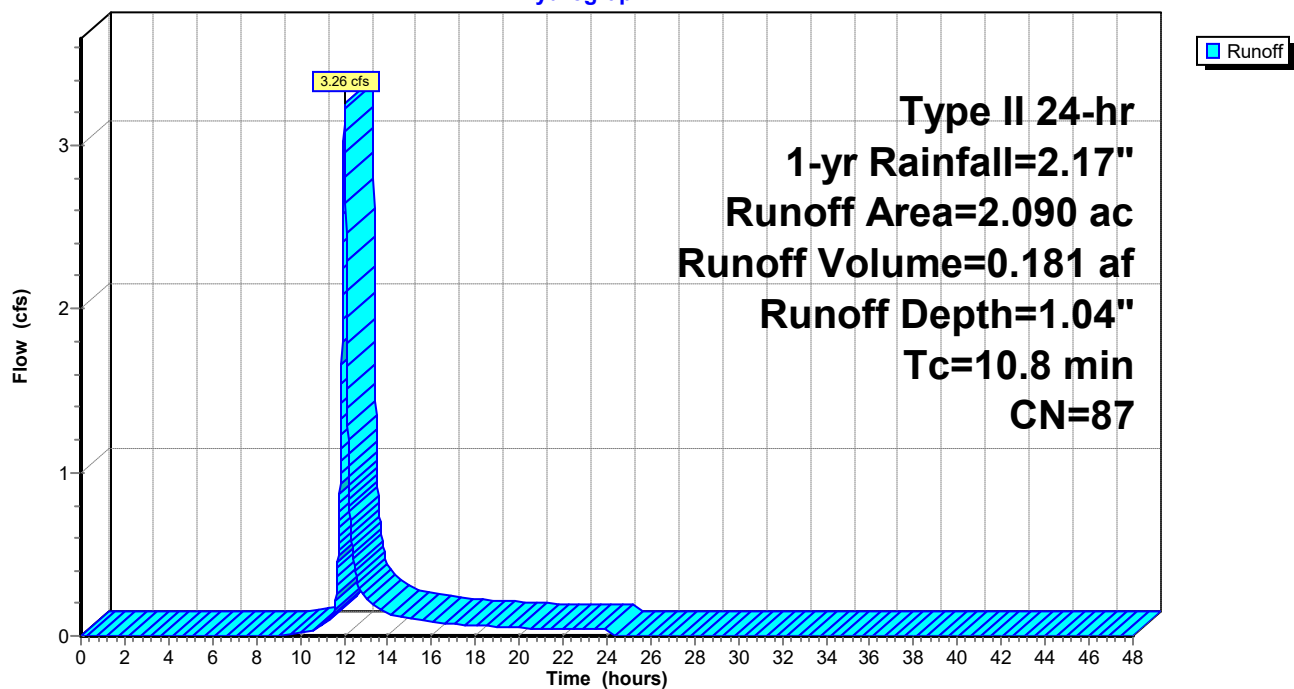
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-yr Rainfall=2.17"

Area (ac)	CN	Description
* 2.090	87	Sourced from 2004 SWMP
2.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8					Direct Entry, Sourced from 2004 SWMP

Subcatchment 3S: Per Plan Subarea 003

Hydrograph



Riverside Woods Basin 1 - AKJ Updates

Prepared by EMH&T

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Type II 24-hr 1-yr Rainfall=2.17"

Printed 3/17/2026

Page 3

Summary for Pond 1P: Riverside Woods Basin 1 Per Plan

Inflow Area = 5.950 ac, 0.00% Impervious, Inflow Depth = 0.72" for 1-yr event
 Inflow = 3.29 cfs @ 12.03 hrs, Volume= 0.356 af
 Outflow = 0.38 cfs @ 16.92 hrs, Volume= 0.276 af, Atten= 88%, Lag= 293.3 min
 Primary = 0.38 cfs @ 16.92 hrs, Volume= 0.276 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 844.56' @ 16.92 hrs Surf.Area= 5,714 sf Storage= 7,780 cf

Plug-Flow detention time= 571.9 min calculated for 0.276 af (77% of inflow)
 Center-of-Mass det. time= 478.3 min (1,424.5 - 946.2)

Volume	Invert	Avail.Storage	Storage Description
#1	840.00'	29,382 cf	Per Plan (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
840.00	0	0	0
841.00	101	51	51
842.00	725	413	464
843.00	2,068	1,397	1,860
844.00	4,187	3,128	4,988
845.00	6,893	5,540	10,528
846.00	10,272	8,583	19,110
847.00	10,272	10,272	29,382

Device	Routing	Invert	Outlet Devices
#1	Primary	840.03'	18.00" Round 18" Outlet AsBuilt Plan 2006 L= 37.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 840.03' / 839.62' S= 0.0111 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	844.40'	6.00" Horiz. Top Riser Per Plan C= 0.600 Limited to weir flow at low heads
#3	Device 1	841.00'	0.25" Vert. WQ Orifice Holes Per Plan X 6.00 C= 0.600 Limited to weir flow at low heads
#4	Device 1	843.25'	0.75" Vert. 2nd Stage Per Drainage Report X 2.00 C= 0.600 Limited to weir flow at low heads
#5	Device 1	845.18'	2.10" x 2.10" Horiz. Top Grate Per AsBuilt Plan 2006 X 7.00 columns X 7 rows C= 0.600 in 23.60" x 23.60" Grate (39% open area) Limited to weir flow at low heads
#6	Secondary	845.80'	10.0' long + 2.0 '/' SideZ x 10.0' breadth Emergency Spillway Per Plan Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#7	Tertiary	846.00'	90.0' long + 10.0 '/' SideZ x 10.0' breadth Embankment Per Plan Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Riverside Woods Basin 1 - AKJ Updates

Prepared by EMH&T

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Type II 24-hr 1-yr Rainfall=2.17"

Printed 3/17/2026

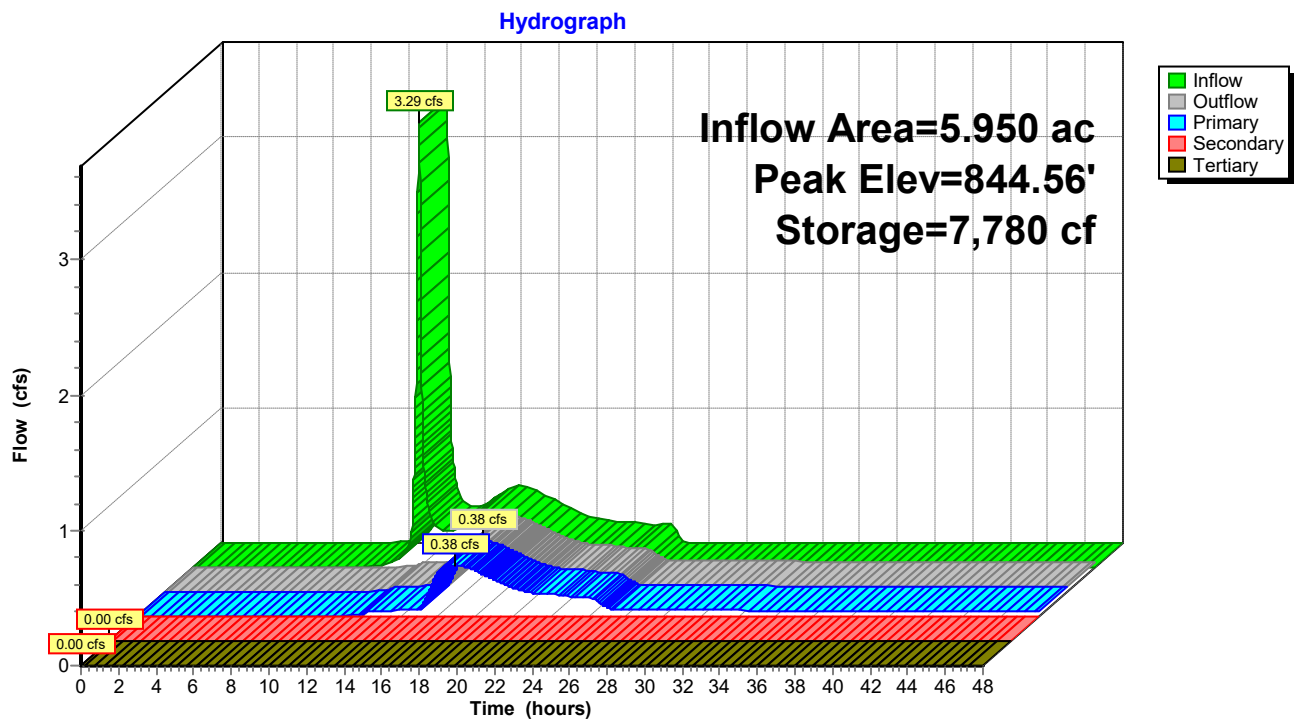
Page 4

Primary OutFlow Max=0.39 cfs @ 16.92 hrs HW=844.56' (Free Discharge)
1=18" Outlet AsBuilt Plan 2006 (Passes 0.39 cfs of 16.55 cfs potential flow)
2=Top Riser Per Plan (Weir Controls 0.34 cfs @ 1.33 fps)
3=WQ Orifice Holes Per Plan (Orifice Controls 0.02 cfs @ 9.08 fps)
4=2nd Stage Per Drainage Report (Orifice Controls 0.03 cfs @ 5.45 fps)
5=Top Grate Per AsBuilt Plan 2006 (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=840.00' (Free Discharge)
6=Emergency Spillway Per Plan (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=840.00' (Free Discharge)
7=Embankment Per Plan (Controls 0.00 cfs)

Pond 1P: Riverside Woods Basin 1 Per Plan



Riverside Woods Basin 1 - AKJ Updates

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Type II 24-hr 1-yr Rainfall=2.17"

Printed 3/17/2026

Page 5

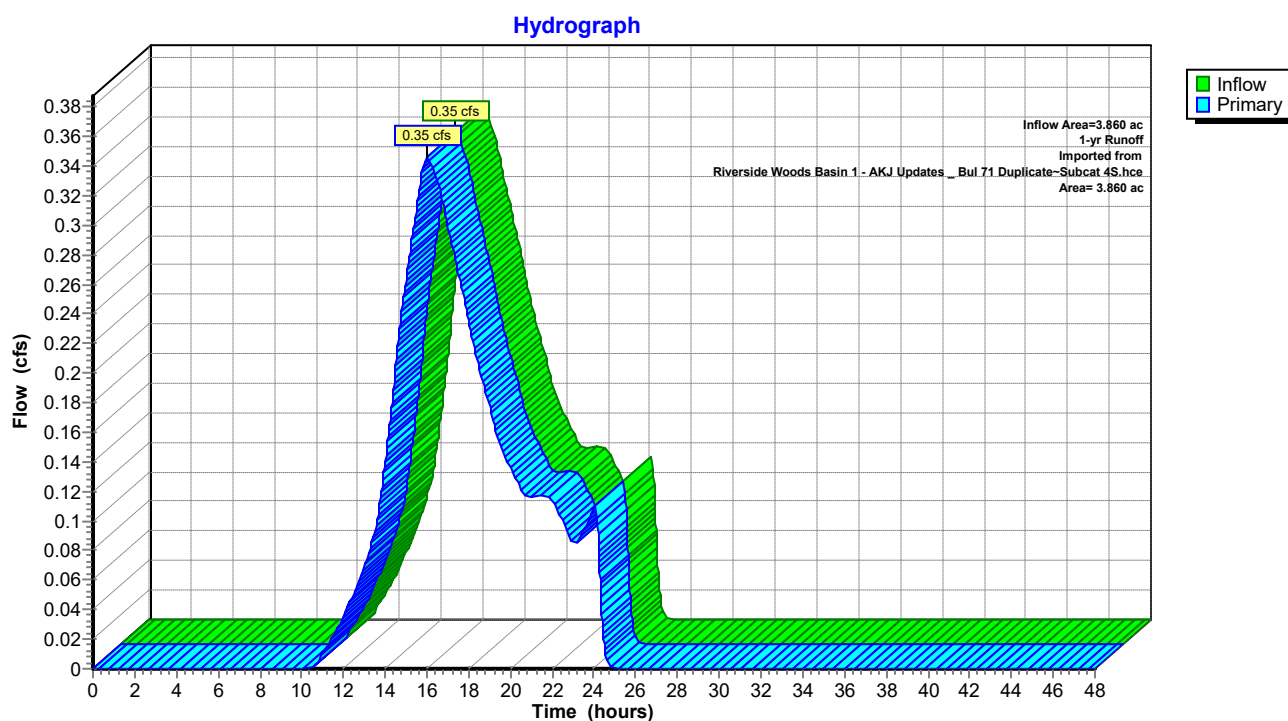
Summary for Link 32L: Bulletin 71 Offsite 003

Inflow Area = 3.860 ac, 0.00% Impervious, Inflow Depth = 0.54" for 1-yr event
Inflow = 0.35 cfs @ 16.03 hrs, Volume= 0.174 af
Primary = 0.35 cfs @ 16.03 hrs, Volume= 0.174 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 1P : Riverside Woods Basin 1 Per Plan

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

1-yr Runoff Imported from Riverside Woods Basin 1 - AKJ Updates _ Bul 71 Duplicate~Subcat 4S.hce

Link 32L: Bulletin 71 Offsite 003



Riverside Woods Basin 1 - AKJ Updates

Prepared by EMH&T

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Type II 24-hr 2-yr Rainfall=2.70"

Printed 3/17/2026

Page 6

Summary for Subcatchment 3S: Per Plan Subarea 003

Runoff = 4.62 cfs @ 12.03 hrs, Volume= 0.258 af, Depth= 1.48"
Routed to Pond 1P : Riverside Woods Basin 1 Per Plan

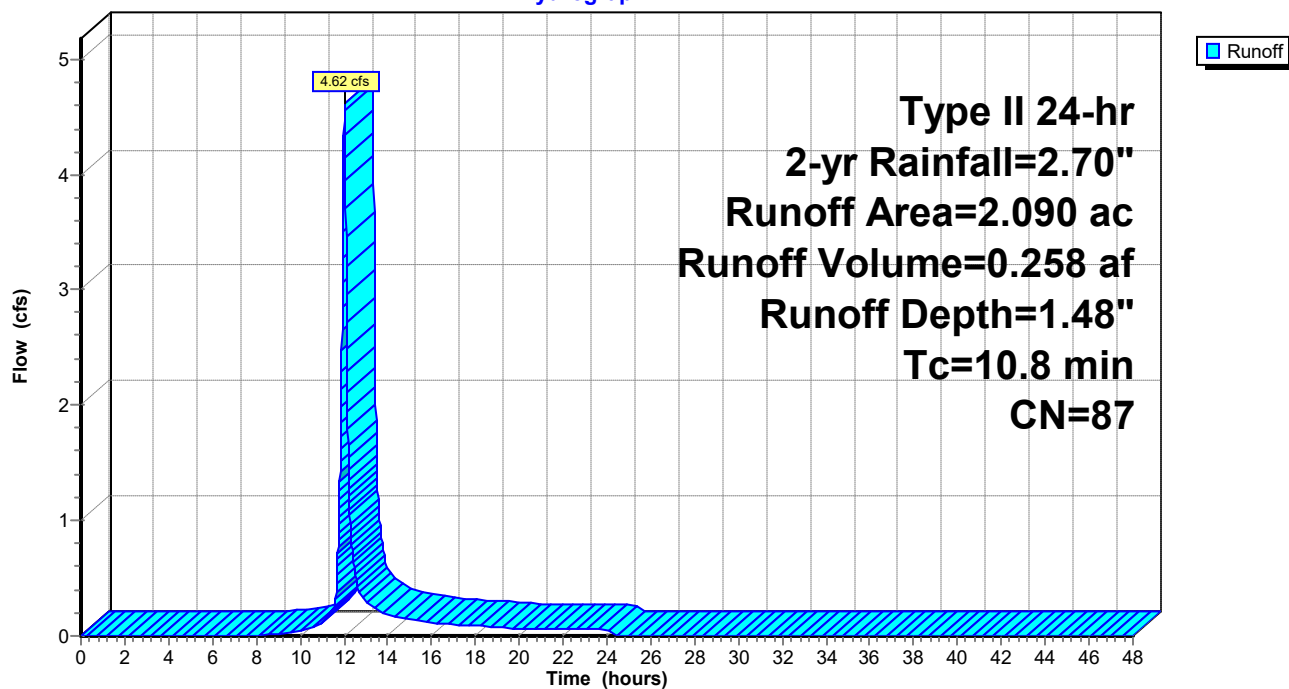
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=2.70"

Area (ac)	CN	Description
* 2.090	87	Sourced from 2004 SWMP
2.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8					Direct Entry, Sourced from 2004 SWMP

Subcatchment 3S: Per Plan Subarea 003

Hydrograph



Riverside Woods Basin 1 - AKJ Updates

Type II 24-hr 2-yr Rainfall=2.70"

Prepared by EMH&T

Printed 3/17/2026

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Page 7

Summary for Pond 1P: Riverside Woods Basin 1 Per Plan

Inflow Area = 5.950 ac, 0.00% Impervious, Inflow Depth = 1.08" for 2-yr event
 Inflow = 4.72 cfs @ 12.03 hrs, Volume= 0.537 af
 Outflow = 0.58 cfs @ 16.81 hrs, Volume= 0.456 af, Atten= 88%, Lag= 287.0 min
 Primary = 0.58 cfs @ 16.81 hrs, Volume= 0.456 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 844.70' @ 16.81 hrs Surf.Area= 6,092 sf Storage= 8,607 cf

Plug-Flow detention time= 388.8 min calculated for 0.456 af (85% of inflow)
 Center-of-Mass det. time= 321.6 min (1,257.3 - 935.8)

Volume	Invert	Avail.Storage	Storage Description
#1	840.00'	29,382 cf	Per Plan (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
840.00	0	0	0
841.00	101	51	51
842.00	725	413	464
843.00	2,068	1,397	1,860
844.00	4,187	3,128	4,988
845.00	6,893	5,540	10,528
846.00	10,272	8,583	19,110
847.00	10,272	10,272	29,382

Device	Routing	Invert	Outlet Devices
#1	Primary	840.03'	18.00" Round 18" Outlet AsBuilt Plan 2006 L= 37.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 840.03' / 839.62' S= 0.0111 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	844.40'	6.00" Horiz. Top Riser Per Plan C= 0.600 Limited to weir flow at low heads
#3	Device 1	841.00'	0.25" Vert. WQ Orifice Holes Per Plan X 6.00 C= 0.600 Limited to weir flow at low heads
#4	Device 1	843.25'	0.75" Vert. 2nd Stage Per Drainage Report X 2.00 C= 0.600 Limited to weir flow at low heads
#5	Device 1	845.18'	2.10" x 2.10" Horiz. Top Grate Per AsBuilt Plan 2006 X 7.00 columns X 7 rows C= 0.600 in 23.60" x 23.60" Grate (39% open area) Limited to weir flow at low heads
#6	Secondary	845.80'	10.0' long + 2.0 '/' SideZ x 10.0' breadth Emergency Spillway Per Plan Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#7	Tertiary	846.00'	90.0' long + 10.0 '/' SideZ x 10.0' breadth Embankment Per Plan Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Riverside Woods Basin 1 - AKJ Updates

Prepared by EMH&T

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Type II 24-hr 2-yr Rainfall=2.70"

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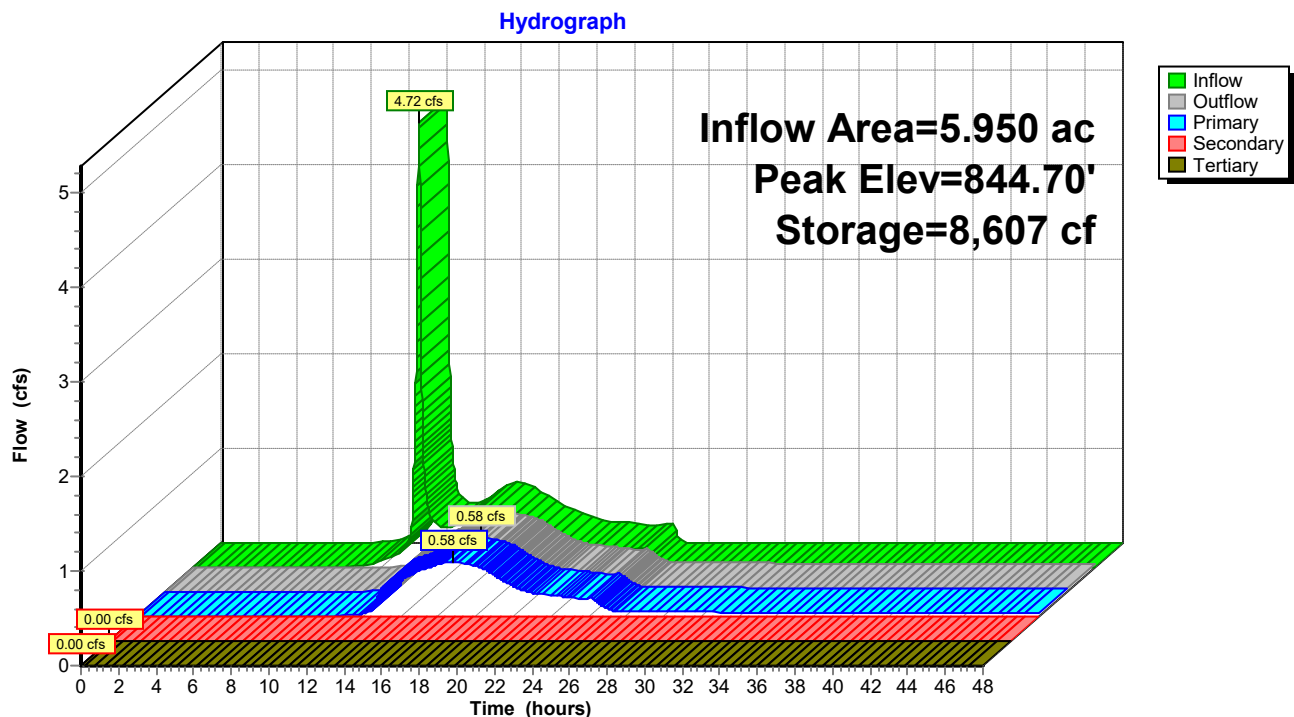
Page 8

Primary OutFlow Max=0.58 cfs @ 16.81 hrs HW=844.70' (Free Discharge)
↑ **1=18" Outlet AsBuilt Plan 2006** (Passes 0.58 cfs of 16.86 cfs potential flow)
↑ **2=Top Riser Per Plan** (Orifice Controls 0.52 cfs @ 2.66 fps)
↑ **3=WQ Orifice Holes Per Plan** (Orifice Controls 0.02 cfs @ 9.25 fps)
↑ **4=2nd Stage Per Drainage Report** (Orifice Controls 0.04 cfs @ 5.74 fps)
↑ **5=Top Grate Per AsBuilt Plan 2006** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=840.00' (Free Discharge)
↑ **6=Emergency Spillway Per Plan** (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=840.00' (Free Discharge)
↑ **7=Embankment Per Plan** (Controls 0.00 cfs)

Pond 1P: Riverside Woods Basin 1 Per Plan



Riverside Woods Basin 1 - AKJ Updates

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Type II 24-hr 2-yr Rainfall=2.70"

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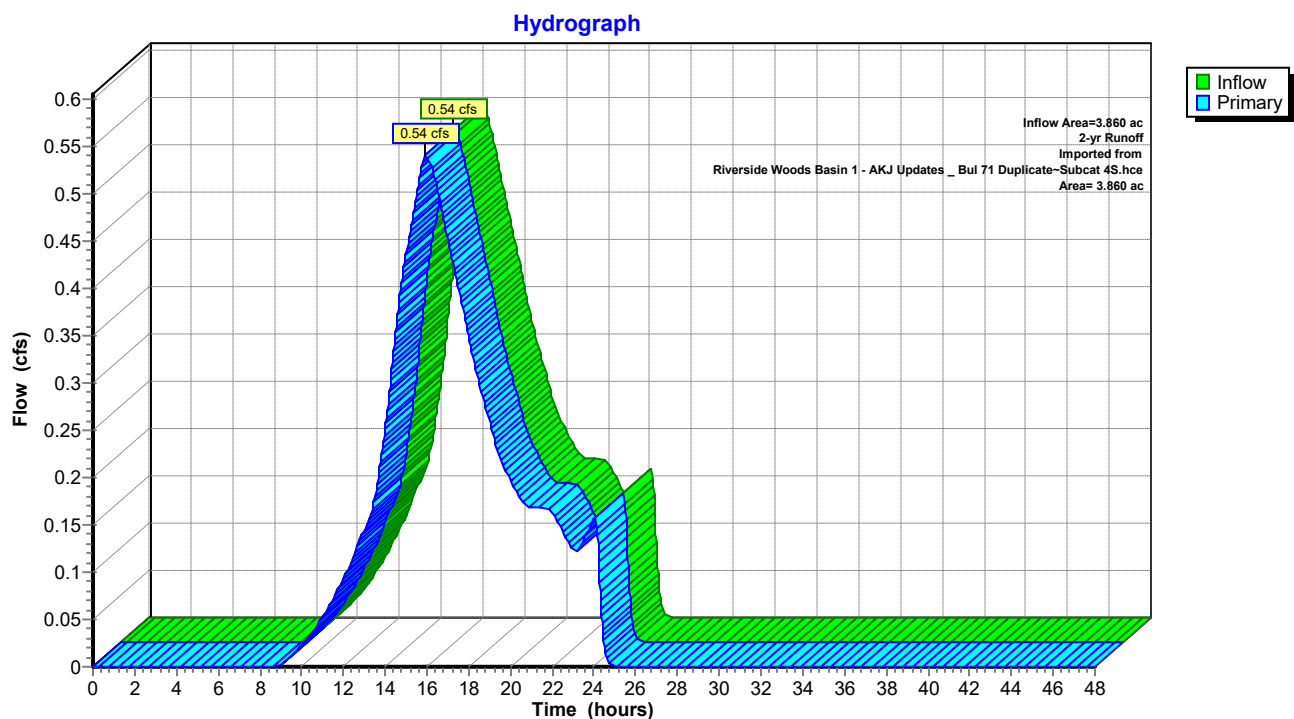
Summary for Link 32L: Bulletin 71 Offsite 003

Inflow Area = 3.860 ac, 0.00% Impervious, Inflow Depth = 0.87" for 2-yr event
Inflow = 0.54 cfs @ 15.94 hrs, Volume= 0.279 af
Primary = 0.54 cfs @ 15.94 hrs, Volume= 0.279 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 1P : Riverside Woods Basin 1 Per Plan

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

2-yr Runoff Imported from Riverside Woods Basin 1 - AKJ Updates _ Bul 71 Duplicate~Subcat 4S.hce

Link 32L: Bulletin 71 Offsite 003



Riverside Woods Basin 1 - AKJ Updates

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Type II 24-hr 5-yr Rainfall=3.35"

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Summary for Subcatchment 3S: Per Plan Subarea 003

Runoff = 6.35 cfs @ 12.02 hrs, Volume= 0.357 af, Depth= 2.05"
Routed to Pond 1P : Riverside Woods Basin 1 Per Plan

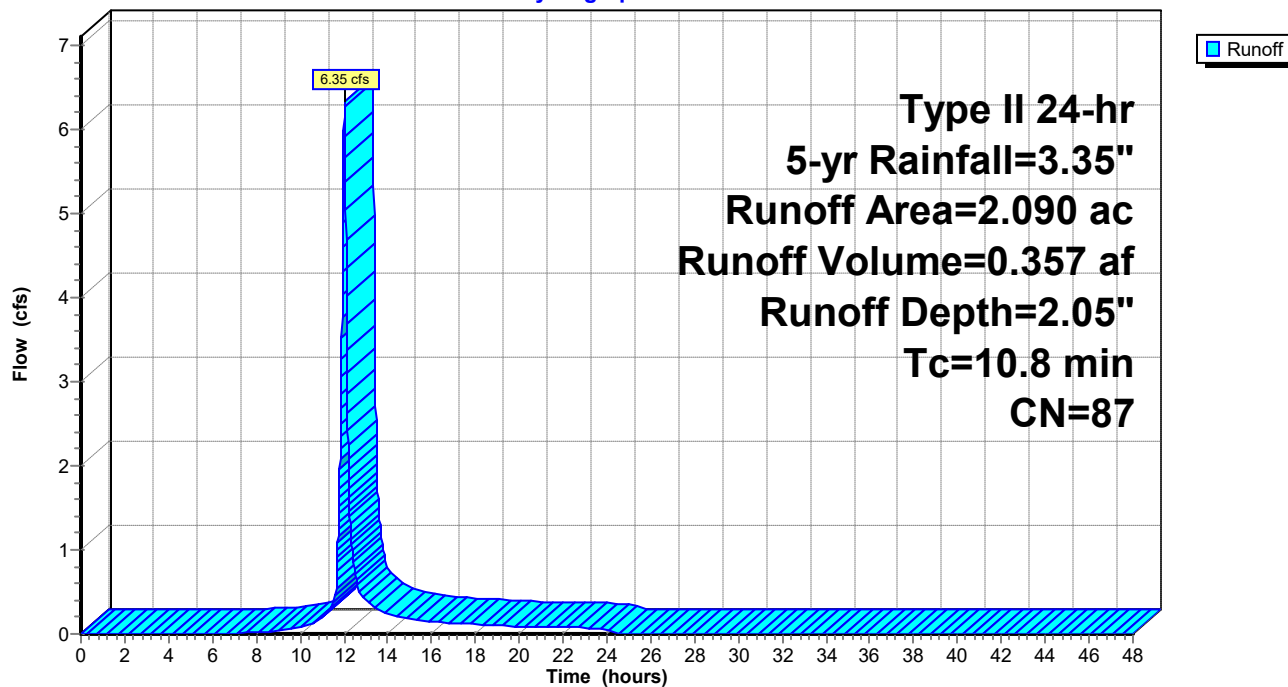
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=3.35"

Area (ac)	CN	Description
* 2.090	87	Sourced from 2004 SWMP
2.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8					Direct Entry, Sourced from 2004 SWMP

Subcatchment 3S: Per Plan Subarea 003

Hydrograph



Riverside Woods Basin 1 - AKJ Updates

Prepared by EMH&T

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Type II 24-hr 5-yr Rainfall=3.35"

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Summary for Pond 1P: Riverside Woods Basin 1 Per Plan

Inflow Area = 5.950 ac, 0.00% Impervious, Inflow Depth = 1.58" for 5-yr event
 Inflow = 6.53 cfs @ 12.02 hrs, Volume= 0.781 af
 Outflow = 0.80 cfs @ 16.89 hrs, Volume= 0.700 af, Atten= 88%, Lag= 292.0 min
 Primary = 0.80 cfs @ 16.89 hrs, Volume= 0.700 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 845.02' @ 16.89 hrs Surf.Area= 6,950 sf Storage= 10,645 cf

Plug-Flow detention time= 294.7 min calculated for 0.700 af (90% of inflow)
 Center-of-Mass det. time= 245.5 min (1,170.4 - 924.8)

Volume	Invert	Avail.Storage	Storage Description
#1	840.00'	29,382 cf	Per Plan (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
840.00	0	0	0
841.00	101	51	51
842.00	725	413	464
843.00	2,068	1,397	1,860
844.00	4,187	3,128	4,988
845.00	6,893	5,540	10,528
846.00	10,272	8,583	19,110
847.00	10,272	10,272	29,382

Device	Routing	Invert	Outlet Devices
#1	Primary	840.03'	18.00" Round 18" Outlet AsBuilt Plan 2006 L= 37.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 840.03' / 839.62' S= 0.0111 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	844.40'	6.00" Horiz. Top Riser Per Plan C= 0.600 Limited to weir flow at low heads
#3	Device 1	841.00'	0.25" Vert. WQ Orifice Holes Per Plan X 6.00 C= 0.600 Limited to weir flow at low heads
#4	Device 1	843.25'	0.75" Vert. 2nd Stage Per Drainage Report X 2.00 C= 0.600 Limited to weir flow at low heads
#5	Device 1	845.18'	2.10" x 2.10" Horiz. Top Grate Per AsBuilt Plan 2006 X 7.00 columns X 7 rows C= 0.600 in 23.60" x 23.60" Grate (39% open area) Limited to weir flow at low heads
#6	Secondary	845.80'	10.0' long + 2.0 '/' SideZ x 10.0' breadth Emergency Spillway Per Plan Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#7	Tertiary	846.00'	90.0' long + 10.0 '/' SideZ x 10.0' breadth Embankment Per Plan Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Riverside Woods Basin 1 - AKJ Updates

Prepared by EMH&T

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Type II 24-hr 5-yr Rainfall=3.35"

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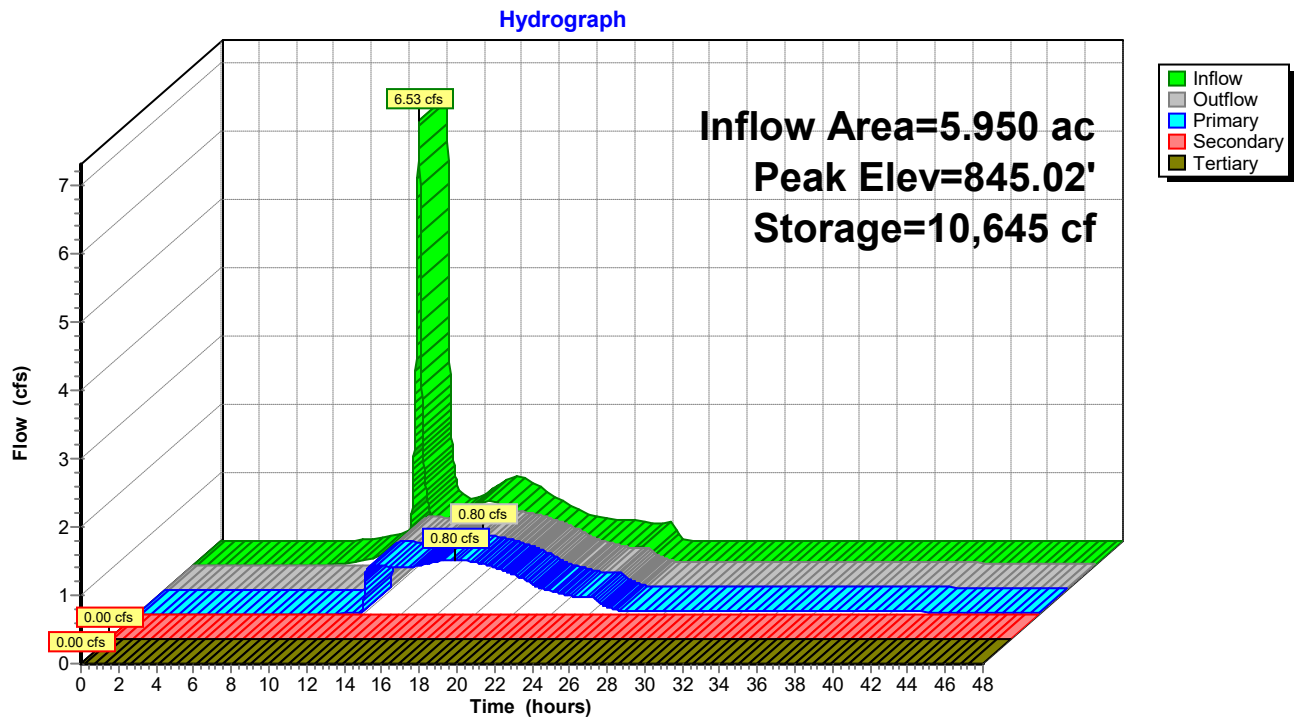
Page 12

Primary OutFlow Max=0.80 cfs @ 16.89 hrs HW=845.02' (Free Discharge)
 1=18" Outlet AsBuilt Plan 2006 (Passes 0.80 cfs of 17.51 cfs potential flow)
 2=Top Riser Per Plan (Orifice Controls 0.74 cfs @ 3.78 fps)
 3=WQ Orifice Holes Per Plan (Orifice Controls 0.02 cfs @ 9.64 fps)
 4=2nd Stage Per Drainage Report (Orifice Controls 0.04 cfs @ 6.34 fps)
 5=Top Grate Per AsBuilt Plan 2006 (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=840.00' (Free Discharge)
 6=Emergency Spillway Per Plan (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=840.00' (Free Discharge)
 7=Embankment Per Plan (Controls 0.00 cfs)

Pond 1P: Riverside Woods Basin 1 Per Plan



Riverside Woods Basin 1 - AKJ Updates

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Type II 24-hr 5-yr Rainfall=3.35"

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Summary for Link 32L: Bulletin 71 Offsite 003

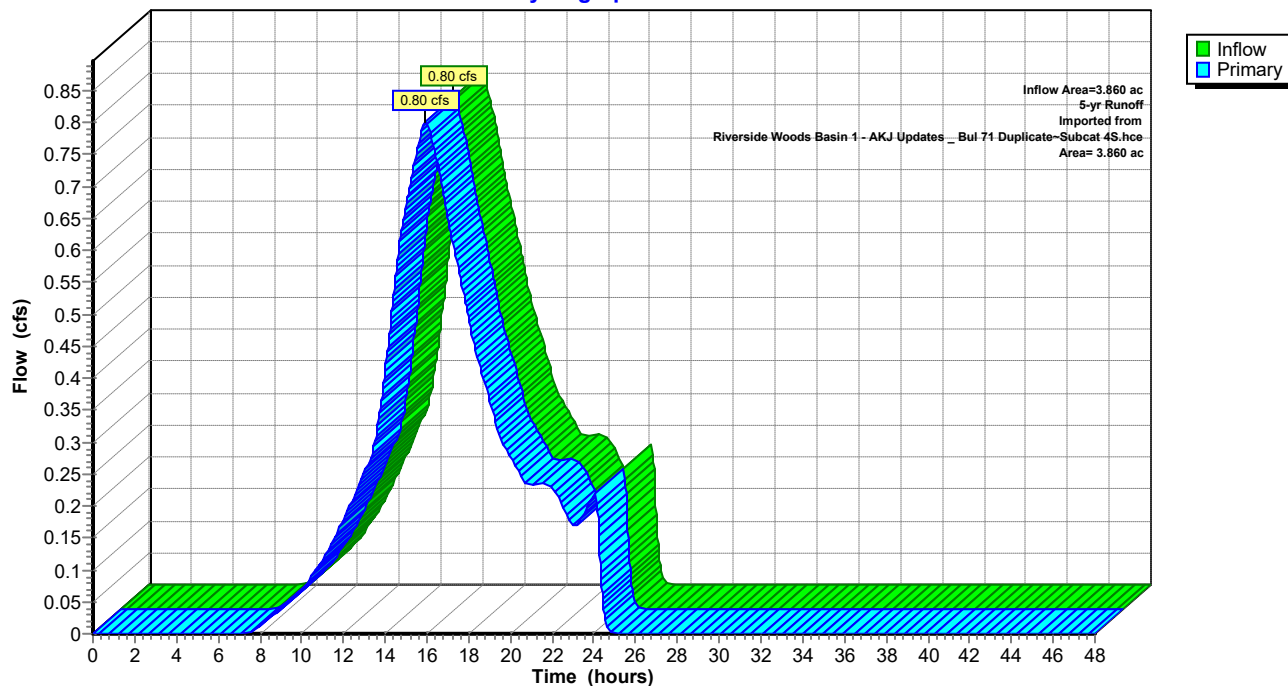
Inflow Area = 3.860 ac, 0.00% Impervious, Inflow Depth = 1.32" for 5-yr event
Inflow = 0.80 cfs @ 15.94 hrs, Volume= 0.425 af
Primary = 0.80 cfs @ 15.94 hrs, Volume= 0.425 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 1P : Riverside Woods Basin 1 Per Plan

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

5-yr Runoff Imported from Riverside Woods Basin 1 - AKJ Updates _ Bul 71 Duplicate~Subcat 4S.hce

Link 32L: Bulletin 71 Offsite 003

Hydrograph



Riverside Woods Basin 1 - AKJ Updates

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Type II 24-hr 10-yr Rainfall=3.86"

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Summary for Subcatchment 3S: Per Plan Subarea 003

Runoff = 7.72 cfs @ 12.02 hrs, Volume= 0.437 af, Depth= 2.51"

Routed to Pond 1P : Riverside Woods Basin 1 Per Plan

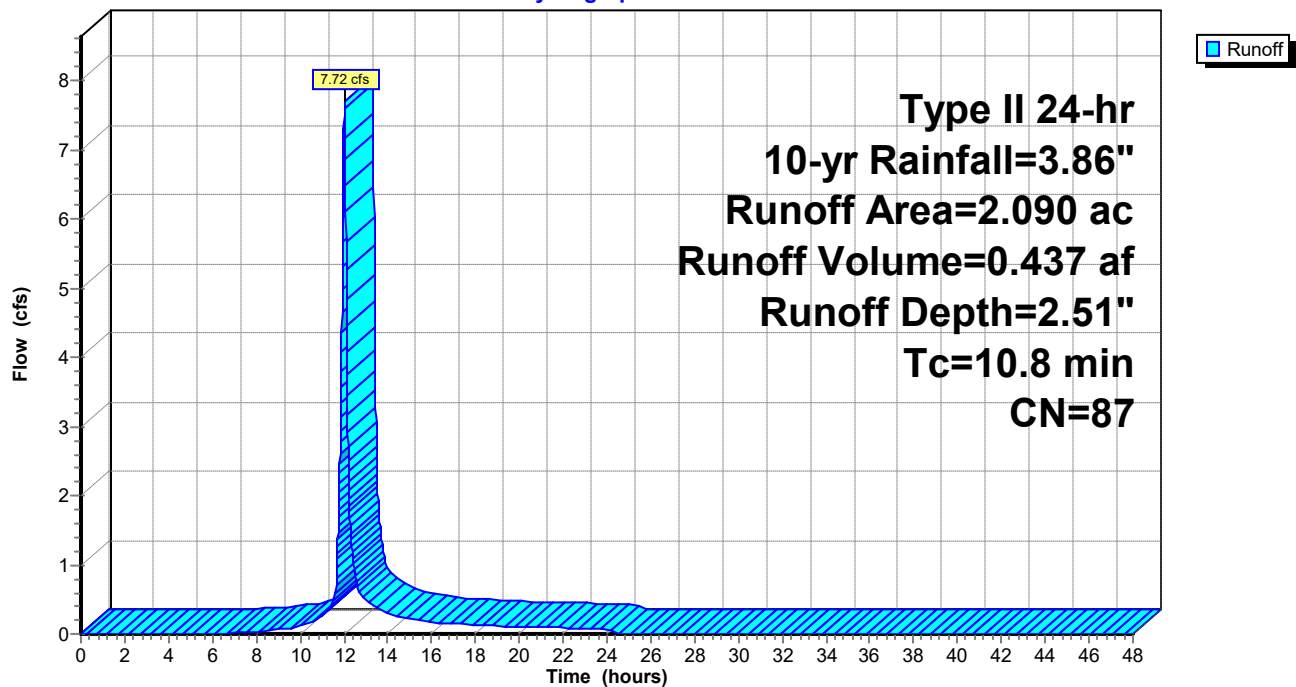
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=3.86"

Area (ac)	CN	Description
* 2.090	87	Sourced from 2004 SWMP
2.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8					Direct Entry, Sourced from 2004 SWMP

Subcatchment 3S: Per Plan Subarea 003

Hydrograph



Riverside Woods Basin 1 - AKJ Updates

Type II 24-hr 10-yr Rainfall=3.86"

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Summary for Pond 1P: Riverside Woods Basin 1 Per Plan

Inflow Area = 5.950 ac, 0.00% Impervious, Inflow Depth = 1.99" for 10-yr event
 Inflow = 7.97 cfs @ 12.02 hrs, Volume= 0.985 af
 Outflow = 1.20 cfs @ 12.49 hrs, Volume= 0.903 af, Atten= 85%, Lag= 28.1 min
 Primary = 1.20 cfs @ 12.49 hrs, Volume= 0.903 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 845.22' @ 12.49 hrs Surf.Area= 7,641 sf Storage= 12,135 cf

Plug-Flow detention time= 259.1 min calculated for 0.903 af (92% of inflow)
 Center-of-Mass det. time= 218.6 min (1,136.1 - 917.4)

Volume	Invert	Avail.Storage	Storage Description
#1	840.00'	29,382 cf	Per Plan (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
840.00	0	0	0
841.00	101	51	51
842.00	725	413	464
843.00	2,068	1,397	1,860
844.00	4,187	3,128	4,988
845.00	6,893	5,540	10,528
846.00	10,272	8,583	19,110
847.00	10,272	10,272	29,382

Device	Routing	Invert	Outlet Devices
#1	Primary	840.03'	18.00" Round 18" Outlet AsBuilt Plan 2006 L= 37.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 840.03' / 839.62' S= 0.0111 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	844.40'	6.00" Horiz. Top Riser Per Plan C= 0.600 Limited to weir flow at low heads
#3	Device 1	841.00'	0.25" Vert. WQ Orifice Holes Per Plan X 6.00 C= 0.600 Limited to weir flow at low heads
#4	Device 1	843.25'	0.75" Vert. 2nd Stage Per Drainage Report X 2.00 C= 0.600 Limited to weir flow at low heads
#5	Device 1	845.18'	2.10" x 2.10" Horiz. Top Grate Per AsBuilt Plan 2006 X 7.00 columns X 7 rows C= 0.600 in 23.60" x 23.60" Grate (39% open area) Limited to weir flow at low heads
#6	Secondary	845.80'	10.0' long + 2.0 '/' SideZ x 10.0' breadth Emergency Spillway Per Plan Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#7	Tertiary	846.00'	90.0' long + 10.0 '/' SideZ x 10.0' breadth Embankment Per Plan Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Riverside Woods Basin 1 - AKJ Updates

Prepared by EMH&T

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Type II 24-hr 10-yr Rainfall=3.86"

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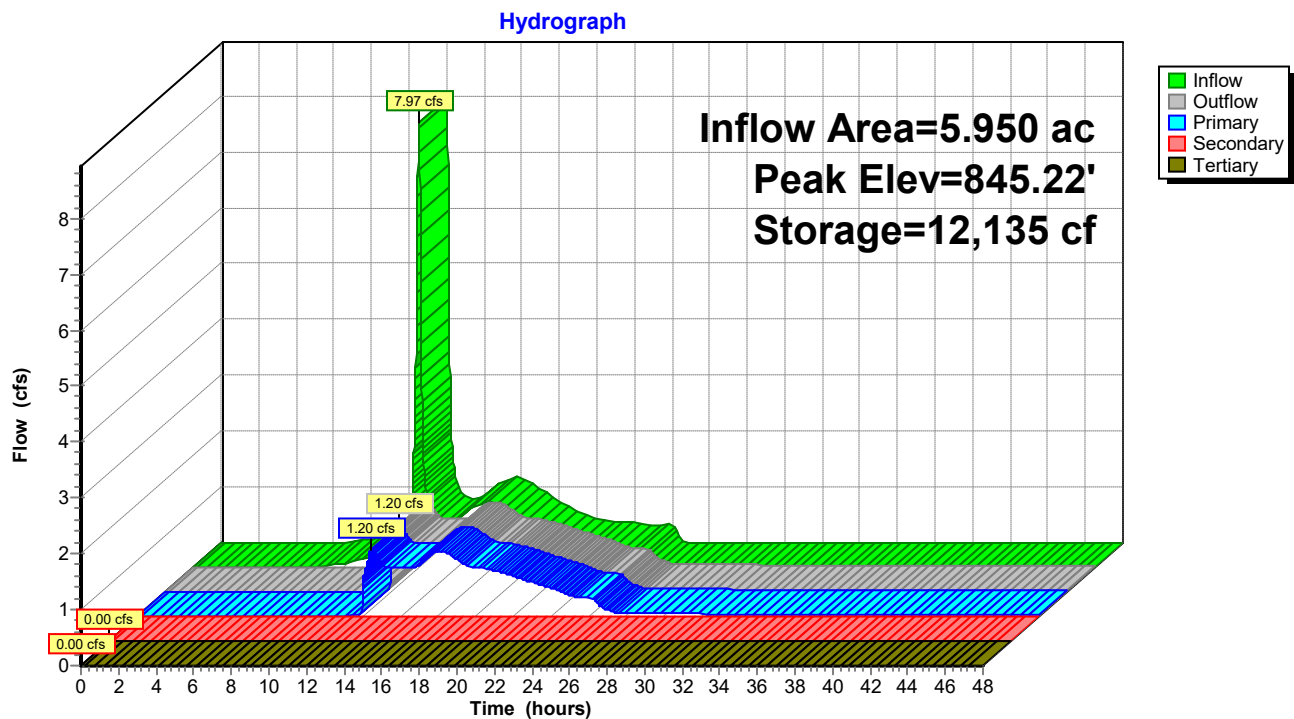
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Primary OutFlow Max=1.13 cfs @ 12.49 hrs HW=845.22' (Free Discharge)
 1=18" Outlet AsBuilt Plan 2006 (Passes 1.13 cfs of 17.93 cfs potential flow)
 2=Top Riser Per Plan (Orifice Controls 0.86 cfs @ 4.36 fps)
 3=WQ Orifice Holes Per Plan (Orifice Controls 0.02 cfs @ 9.88 fps)
 4=2nd Stage Per Drainage Report (Orifice Controls 0.04 cfs @ 6.71 fps)
 5=Top Grate Per AsBuilt Plan 2006 (Weir Controls 0.22 cfs @ 0.66 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=840.00' (Free Discharge)
 6=Emergency Spillway Per Plan (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=840.00' (Free Discharge)
 7=Embankment Per Plan (Controls 0.00 cfs)

Pond 1P: Riverside Woods Basin 1 Per Plan



Riverside Woods Basin 1 - AKJ Updates

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Type II 24-hr 10-yr Rainfall=3.86"

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Summary for Link 32L: Bulletin 71 Offsite 003

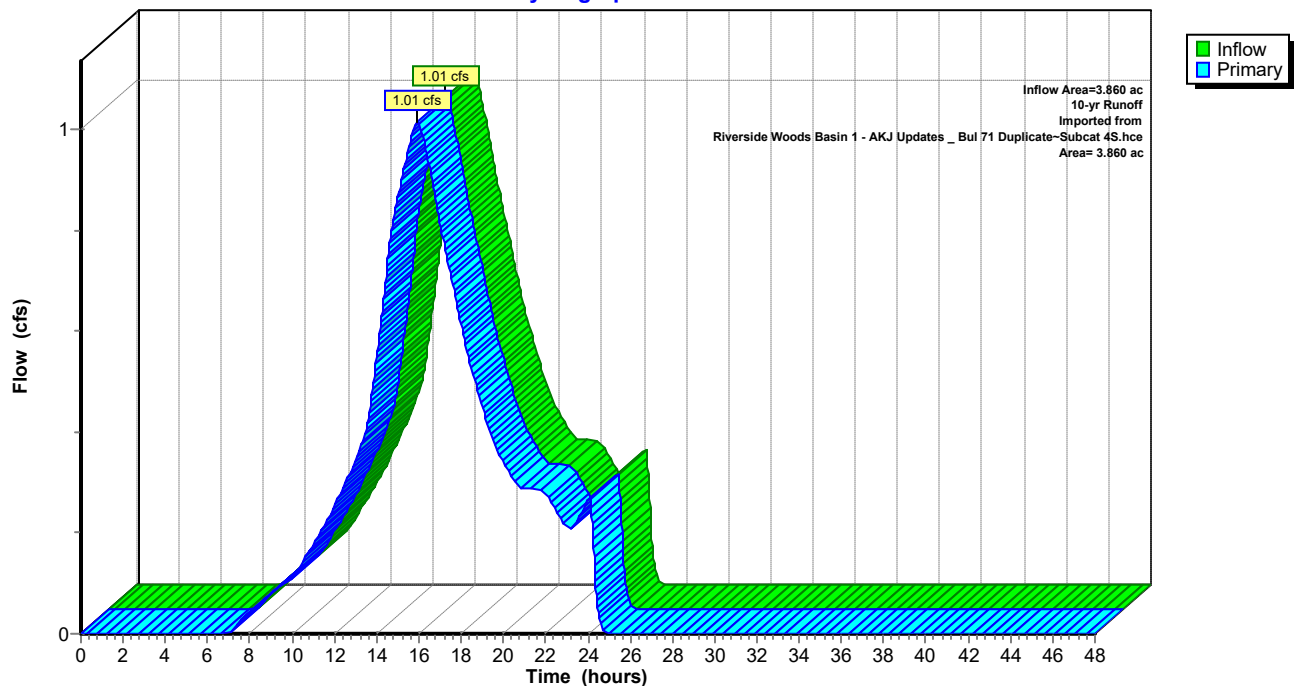
Inflow Area = 3.860 ac, 0.00% Impervious, Inflow Depth = 1.70" for 10-yr event
Inflow = 1.01 cfs @ 15.89 hrs, Volume= 0.548 af
Primary = 1.01 cfs @ 15.89 hrs, Volume= 0.548 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 1P : Riverside Woods Basin 1 Per Plan

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

10-yr Runoff Imported from Riverside Woods Basin 1 - AKJ Updates _ Bul 71 Duplicate~Subcat 4S.hce

Link 32L: Bulletin 71 Offsite 003

Hydrograph



Riverside Woods Basin 1 - AKJ Updates

Prepared by EMH&T

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Type II 24-hr 25-yr Rainfall=4.64"

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Summary for Subcatchment 3S: Per Plan Subarea 003

Runoff = 9.83 cfs @ 12.02 hrs, Volume= 0.562 af, Depth= 3.23"
Routed to Pond 1P : Riverside Woods Basin 1 Per Plan

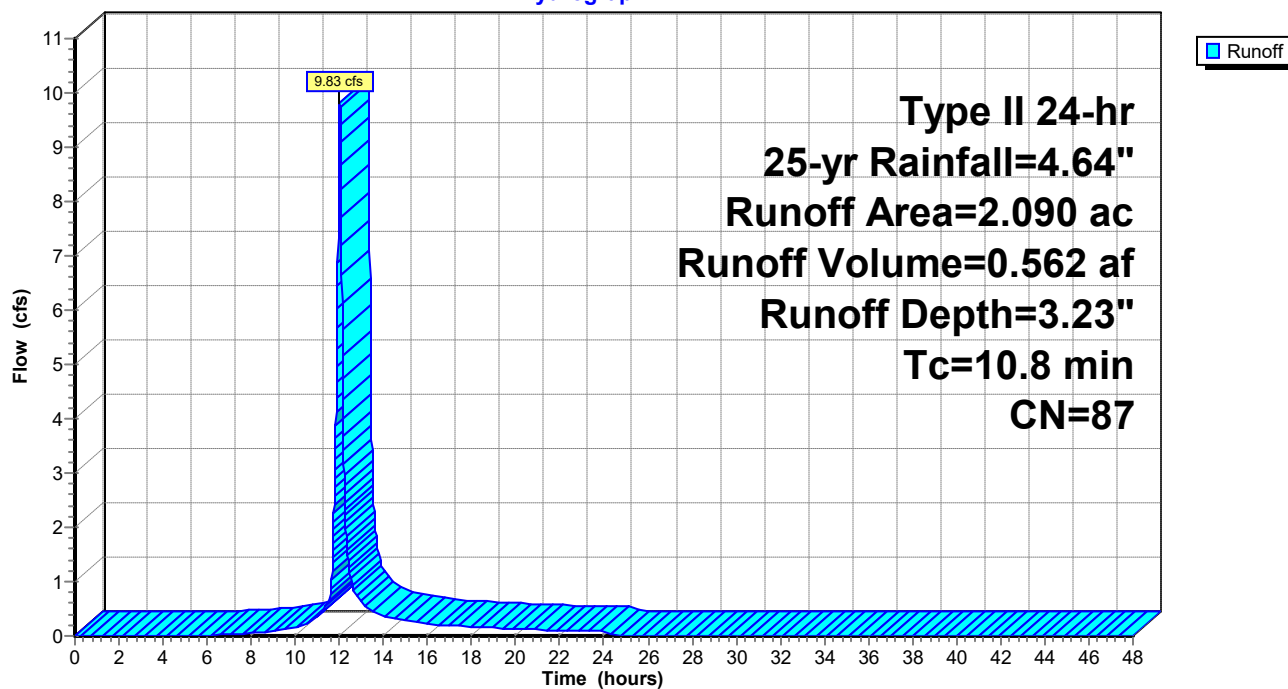
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=4.64"

Area (ac)	CN	Description
* 2.090	87	Sourced from 2004 SWMP
2.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8					Direct Entry, Sourced from 2004 SWMP

Subcatchment 3S: Per Plan Subarea 003

Hydrograph



Riverside Woods Basin 1 - AKJ Updates

Type II 24-hr 25-yr Rainfall=4.64"

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Summary for Pond 1P: Riverside Woods Basin 1 Per Plan

Inflow Area = 5.950 ac, 0.00% Impervious, Inflow Depth = 2.64" for 25-yr event
 Inflow = 10.21 cfs @ 12.02 hrs, Volume= 1.310 af
 Outflow = 4.86 cfs @ 12.16 hrs, Volume= 1.228 af, Atten= 52%, Lag= 8.1 min
 Primary = 4.86 cfs @ 12.16 hrs, Volume= 1.228 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 845.46' @ 12.16 hrs Surf.Area= 8,450 sf Storage= 14,063 cf

Plug-Flow detention time= 206.7 min calculated for 1.228 af (94% of inflow)
 Center-of-Mass det. time= 174.9 min (1,082.6 - 907.7)

Volume	Invert	Avail.Storage	Storage Description
#1	840.00'	29,382 cf	Per Plan (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
840.00	0	0	0
841.00	101	51	51
842.00	725	413	464
843.00	2,068	1,397	1,860
844.00	4,187	3,128	4,988
845.00	6,893	5,540	10,528
846.00	10,272	8,583	19,110
847.00	10,272	10,272	29,382

Device	Routing	Invert	Outlet Devices
#1	Primary	840.03'	18.00" Round 18" Outlet AsBuilt Plan 2006 L= 37.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 840.03' / 839.62' S= 0.0111 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	844.40'	6.00" Horiz. Top Riser Per Plan C= 0.600 Limited to weir flow at low heads
#3	Device 1	841.00'	0.25" Vert. WQ Orifice Holes Per Plan X 6.00 C= 0.600 Limited to weir flow at low heads
#4	Device 1	843.25'	0.75" Vert. 2nd Stage Per Drainage Report X 2.00 C= 0.600 Limited to weir flow at low heads
#5	Device 1	845.18'	2.10" x 2.10" Horiz. Top Grate Per AsBuilt Plan 2006 X 7.00 columns X 7 rows C= 0.600 in 23.60" x 23.60" Grate (39% open area) Limited to weir flow at low heads
#6	Secondary	845.80'	10.0' long + 2.0 '/' SideZ x 10.0' breadth Emergency Spillway Per Plan Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#7	Tertiary	846.00'	90.0' long + 10.0 '/' SideZ x 10.0' breadth Embankment Per Plan Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Riverside Woods Basin 1 - AKJ Updates

Prepared by EMH&T

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Type II 24-hr 25-yr Rainfall=4.64"

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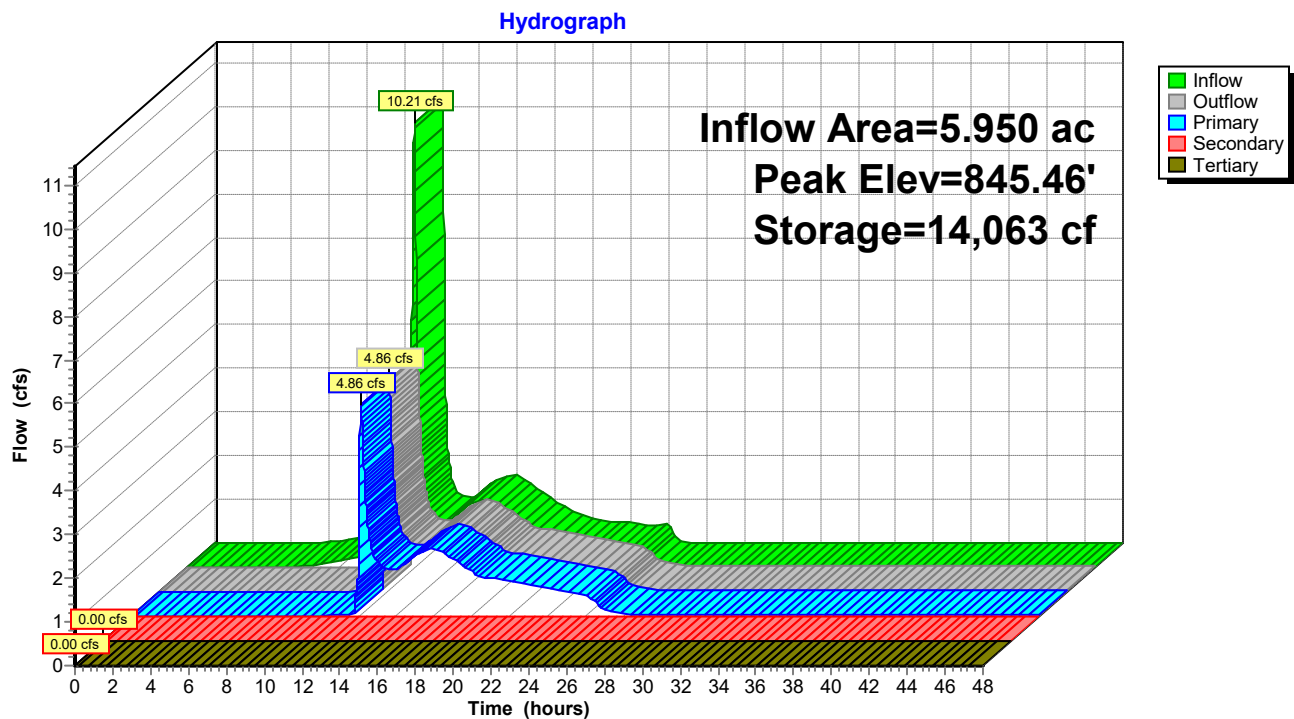
Page 20

Primary OutFlow Max=4.86 cfs @ 12.16 hrs HW=845.46' (Free Discharge)
1=18" Outlet AsBuilt Plan 2006 (Passes 4.86 cfs of 18.41 cfs potential flow)
2=Top Riser Per Plan (Orifice Controls 0.97 cfs @ 4.96 fps)
3=WQ Orifice Holes Per Plan (Orifice Controls 0.02 cfs @ 10.16 fps)
4=2nd Stage Per Drainage Report (Orifice Controls 0.04 cfs @ 7.11 fps)
5=Top Grate Per AsBuilt Plan 2006 (Weir Controls 3.82 cfs @ 1.73 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=840.00' (Free Discharge)
6=Emergency Spillway Per Plan (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=840.00' (Free Discharge)
7=Embankment Per Plan (Controls 0.00 cfs)

Pond 1P: Riverside Woods Basin 1 Per Plan



Riverside Woods Basin 1 - AKJ Updates

Prepared by EMH&T

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Type II 24-hr 25-yr Rainfall=4.64"

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Summary for Link 32L: Bulletin 71 Offsite 003

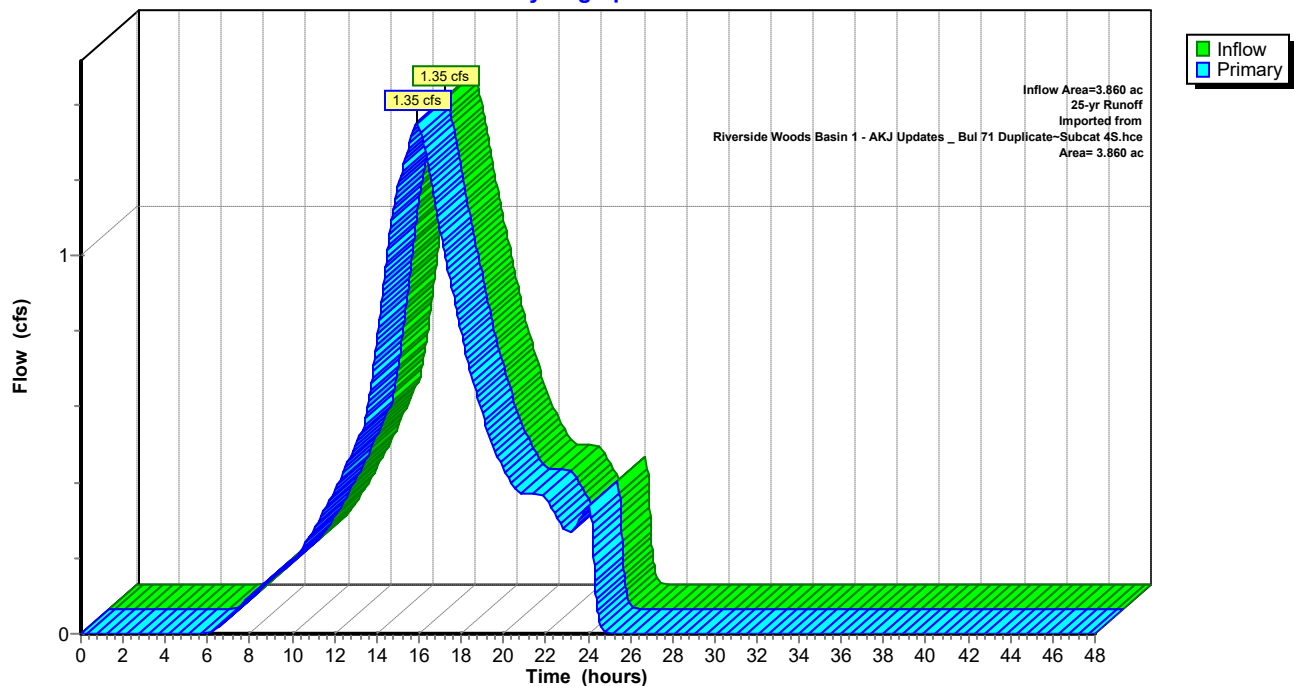
Inflow Area = 3.860 ac, 0.00% Impervious, Inflow Depth = 2.32" for 25-yr event
Inflow = 1.35 cfs @ 15.89 hrs, Volume= 0.748 af
Primary = 1.35 cfs @ 15.89 hrs, Volume= 0.748 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 1P : Riverside Woods Basin 1 Per Plan

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

25-yr Runoff Imported from Riverside Woods Basin 1 - AKJ Updates _ Bul 71 Duplicate~Subcat 4S.hce

Link 32L: Bulletin 71 Offsite 003

Hydrograph



Riverside Woods Basin 1 - AKJ Updates

Prepared by EMH&T

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Type II 24-hr 50-yr Rainfall=5.33"

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Summary for Subcatchment 3S: Per Plan Subarea 003

Runoff = 11.70 cfs @ 12.02 hrs, Volume= 0.676 af, Depth= 3.88"

Routed to Pond 1P : Riverside Woods Basin 1 Per Plan

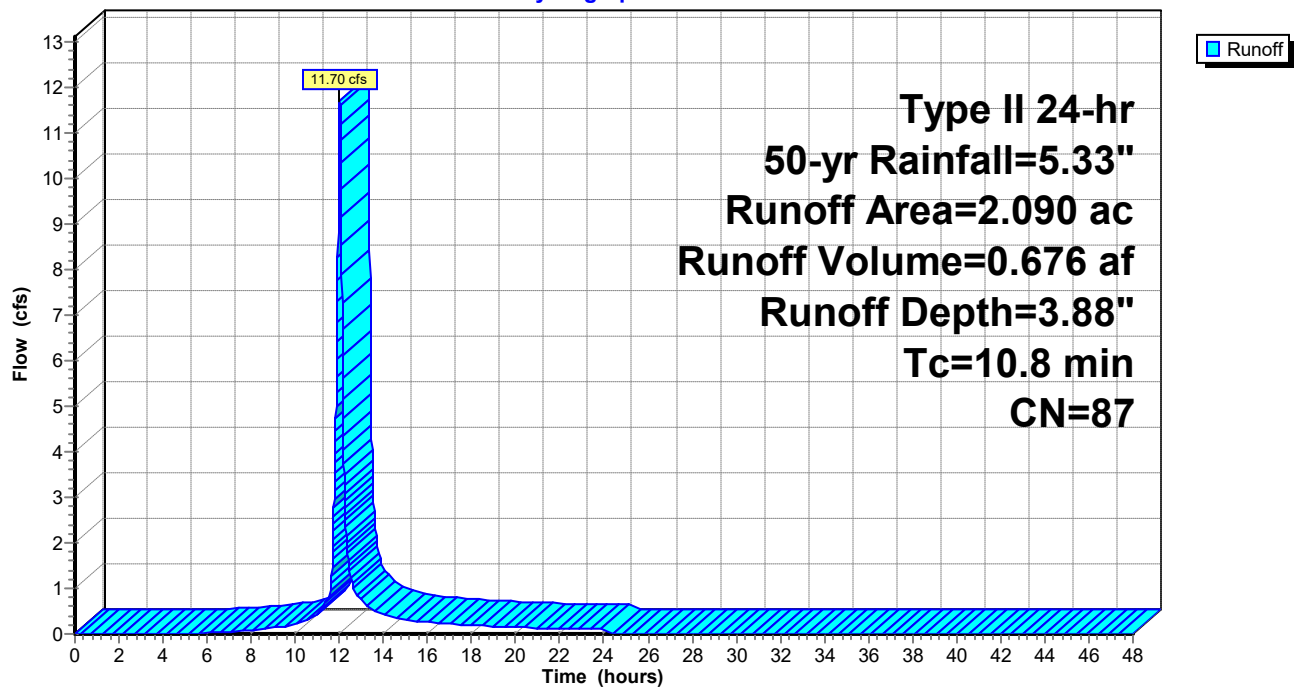
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=5.33"

Area (ac)	CN	Description
* 2.090	87	Sourced from 2004 SWMP
2.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8					Direct Entry, Sourced from 2004 SWMP

Subcatchment 3S: Per Plan Subarea 003

Hydrograph



Riverside Woods Basin 1 - AKJ Updates

Type II 24-hr 50-yr Rainfall=5.33"

Prepared by EMH&T

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Summary for Pond 1P: Riverside Woods Basin 1 Per Plan

Inflow Area = 5.950 ac, 0.00% Impervious, Inflow Depth = 3.24" for 50-yr event
 Inflow = 12.20 cfs @ 12.02 hrs, Volume= 1.609 af
 Outflow = 6.27 cfs @ 12.15 hrs, Volume= 1.526 af, Atten= 49%, Lag= 7.6 min
 Primary = 6.27 cfs @ 12.15 hrs, Volume= 1.526 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 845.69' @ 12.15 hrs Surf.Area= 9,209 sf Storage= 16,047 cf

Plug-Flow detention time= 177.8 min calculated for 1.526 af (95% of inflow)
 Center-of-Mass det. time= 150.8 min (1,051.2 - 900.4)

Volume	Invert	Avail.Storage	Storage Description
#1	840.00'	29,382 cf	Per Plan (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
840.00	0	0	0
841.00	101	51	51
842.00	725	413	464
843.00	2,068	1,397	1,860
844.00	4,187	3,128	4,988
845.00	6,893	5,540	10,528
846.00	10,272	8,583	19,110
847.00	10,272	10,272	29,382

Device	Routing	Invert	Outlet Devices
#1	Primary	840.03'	18.00" Round 18" Outlet AsBuilt Plan 2006 L= 37.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 840.03' / 839.62' S= 0.0111 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	844.40'	6.00" Horiz. Top Riser Per Plan C= 0.600 Limited to weir flow at low heads
#3	Device 1	841.00'	0.25" Vert. WQ Orifice Holes Per Plan X 6.00 C= 0.600 Limited to weir flow at low heads
#4	Device 1	843.25'	0.75" Vert. 2nd Stage Per Drainage Report X 2.00 C= 0.600 Limited to weir flow at low heads
#5	Device 1	845.18'	2.10" x 2.10" Horiz. Top Grate Per AsBuilt Plan 2006 X 7.00 columns X 7 rows C= 0.600 in 23.60" x 23.60" Grate (39% open area) Limited to weir flow at low heads
#6	Secondary	845.80'	10.0' long + 2.0 '/' SideZ x 10.0' breadth Emergency Spillway Per Plan Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#7	Tertiary	846.00'	90.0' long + 10.0 '/' SideZ x 10.0' breadth Embankment Per Plan Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Riverside Woods Basin 1 - AKJ Updates

Prepared by EMH&T

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Type II 24-hr 50-yr Rainfall=5.33"

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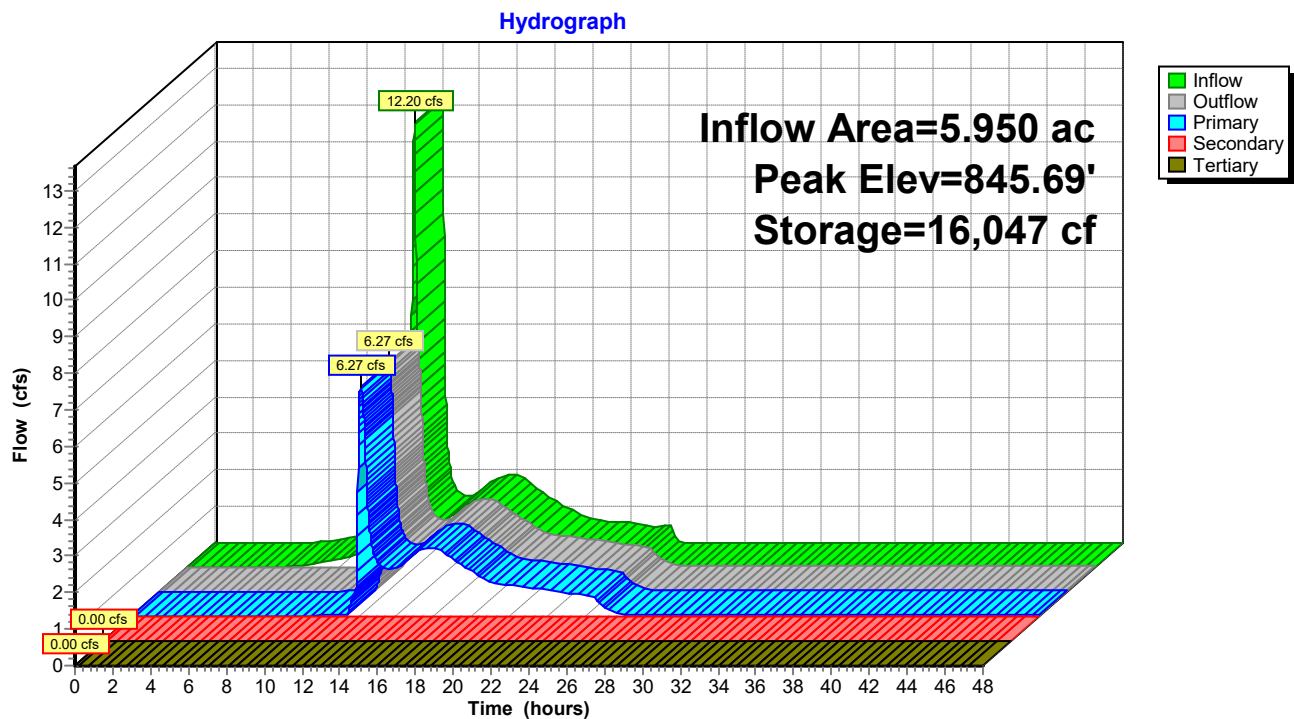
Page 24

Primary OutFlow Max=6.28 cfs @ 12.15 hrs HW=845.69' (Free Discharge)
1=18" Outlet AsBuilt Plan 2006 (Passes 6.28 cfs of 18.85 cfs potential flow)
2=Top Riser Per Plan (Orifice Controls 1.07 cfs @ 5.46 fps)
3=WQ Orifice Holes Per Plan (Orifice Controls 0.02 cfs @ 10.41 fps)
4=2nd Stage Per Drainage Report (Orifice Controls 0.05 cfs @ 7.47 fps)
5=Top Grate Per AsBuilt Plan 2006 (Orifice Controls 5.14 cfs @ 3.42 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=840.00' (Free Discharge)
6=Emergency Spillway Per Plan (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=840.00' (Free Discharge)
7=Embankment Per Plan (Controls 0.00 cfs)

Pond 1P: Riverside Woods Basin 1 Per Plan



Riverside Woods Basin 1 - AKJ Updates

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Type II 24-hr 50-yr Rainfall=5.33"

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Summary for Link 32L: Bulletin 71 Offsite 003

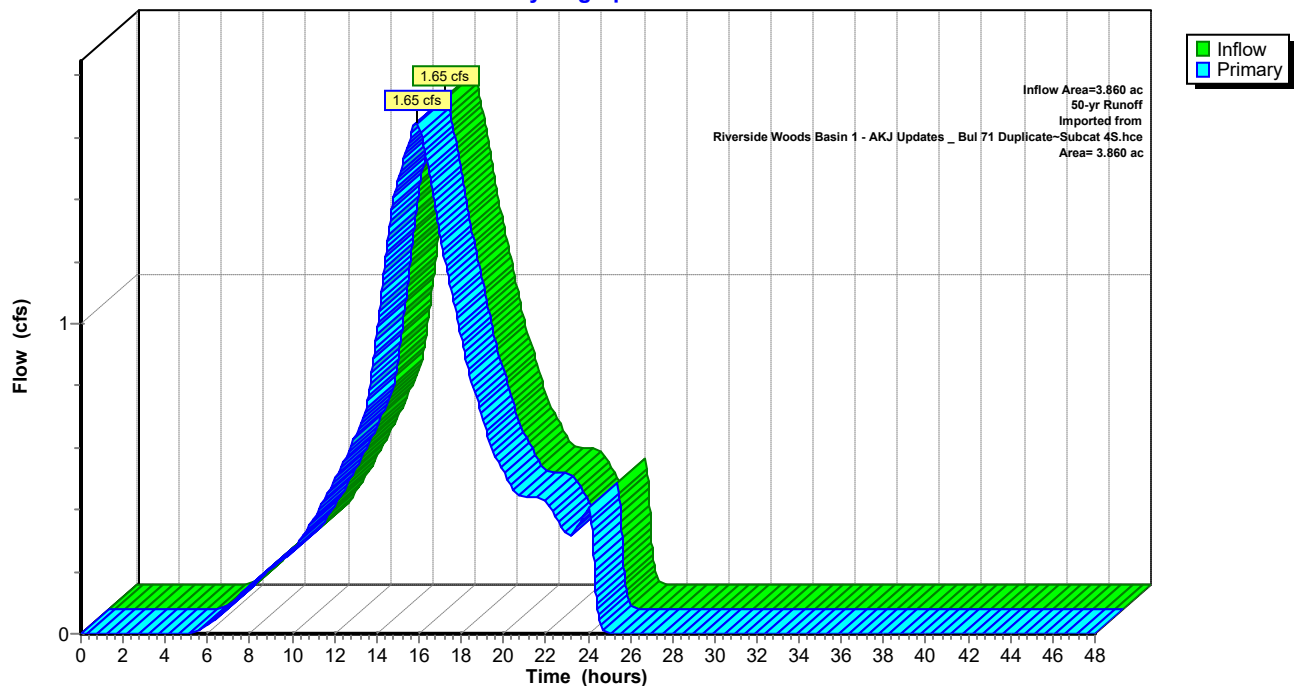
Inflow Area = 3.860 ac, 0.00% Impervious, Inflow Depth = 2.90" for 50-yr event
Inflow = 1.65 cfs @ 15.89 hrs, Volume= 0.933 af
Primary = 1.65 cfs @ 15.89 hrs, Volume= 0.933 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 1P : Riverside Woods Basin 1 Per Plan

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

50-yr Runoff Imported from Riverside Woods Basin 1 - AKJ Updates _ Bul 71 Duplicate~Subcat 4S.hce

Link 32L: Bulletin 71 Offsite 003

Hydrograph



Riverside Woods Basin 1 - AKJ Updates

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Type II 24-hr 100-yr Rainfall=6.06"

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Summary for Subcatchment 3S: Per Plan Subarea 003

Runoff = 13.68 cfs @ 12.02 hrs, Volume= 0.797 af, Depth= 4.57"

Routed to Pond 1P : Riverside Woods Basin 1 Per Plan

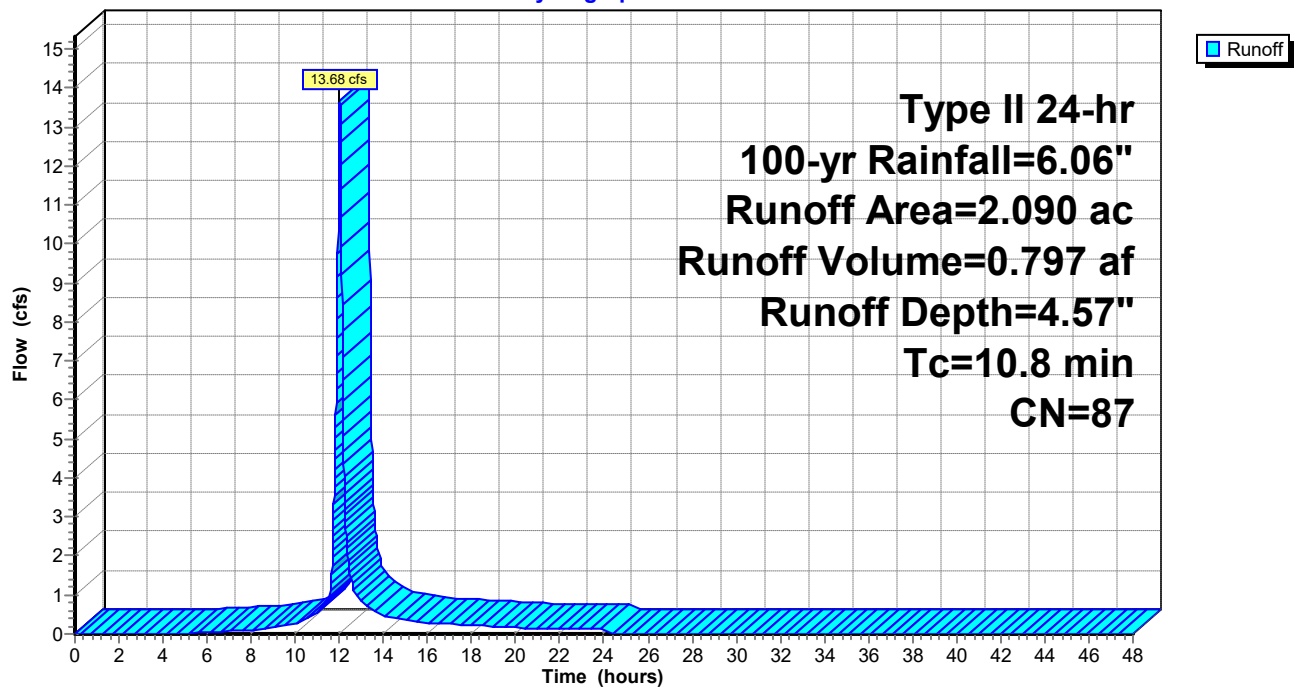
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=6.06"

Area (ac)	CN	Description
* 2.090	87	Sourced from 2004 SWMP
2.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8					Direct Entry, Sourced from 2004 SWMP

Subcatchment 3S: Per Plan Subarea 003

Hydrograph



Riverside Woods Basin 1 - AKJ Updates

Type II 24-hr 100-yr Rainfall=6.06"

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Summary for Pond 1P: Riverside Woods Basin 1 Per Plan

Inflow Area = 5.950 ac, 0.00% Impervious, Inflow Depth = 3.90" for 100-yr event
 Inflow = 14.31 cfs @ 12.02 hrs, Volume= 1.933 af
 Outflow = 7.91 cfs @ 12.14 hrs, Volume= 1.849 af, Atten= 45%, Lag= 7.1 min
 Primary = 7.28 cfs @ 12.14 hrs, Volume= 1.843 af
 Secondary = 0.62 cfs @ 12.14 hrs, Volume= 0.006 af
 Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 845.88' @ 12.14 hrs Surf.Area= 9,880 sf Storage= 17,942 cf

Plug-Flow detention time= 156.1 min calculated for 1.848 af (96% of inflow)
 Center-of-Mass det. time= 133.1 min (1,026.8 - 893.7)

Volume	Invert	Avail.Storage	Storage Description
#1	840.00'	29,382 cf	Per Plan (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
840.00	0	0	0
841.00	101	51	51
842.00	725	413	464
843.00	2,068	1,397	1,860
844.00	4,187	3,128	4,988
845.00	6,893	5,540	10,528
846.00	10,272	8,583	19,110
847.00	10,272	10,272	29,382

Device	Routing	Invert	Outlet Devices
#1	Primary	840.03'	18.00" Round 18" Outlet AsBuilt Plan 2006 L= 37.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 840.03' / 839.62' S= 0.0111 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	844.40'	6.00" Horiz. Top Riser Per Plan C= 0.600 Limited to weir flow at low heads
#3	Device 1	841.00'	0.25" Vert. WQ Orifice Holes Per Plan X 6.00 C= 0.600 Limited to weir flow at low heads
#4	Device 1	843.25'	0.75" Vert. 2nd Stage Per Drainage Report X 2.00 C= 0.600 Limited to weir flow at low heads
#5	Device 1	845.18'	2.10" x 2.10" Horiz. Top Grate Per AsBuilt Plan 2006 X 7.00 columns X 7 rows C= 0.600 in 23.60" x 23.60" Grate (39% open area) Limited to weir flow at low heads
#6	Secondary	845.80'	10.0' long + 2.0 '/' SideZ x 10.0' breadth Emergency Spillway Per Plan Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#7	Tertiary	846.00'	90.0' long + 10.0 '/' SideZ x 10.0' breadth Embankment Per Plan Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Riverside Woods Basin 1 - AKJ Updates

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Type II 24-hr 100-yr Rainfall=6.06"

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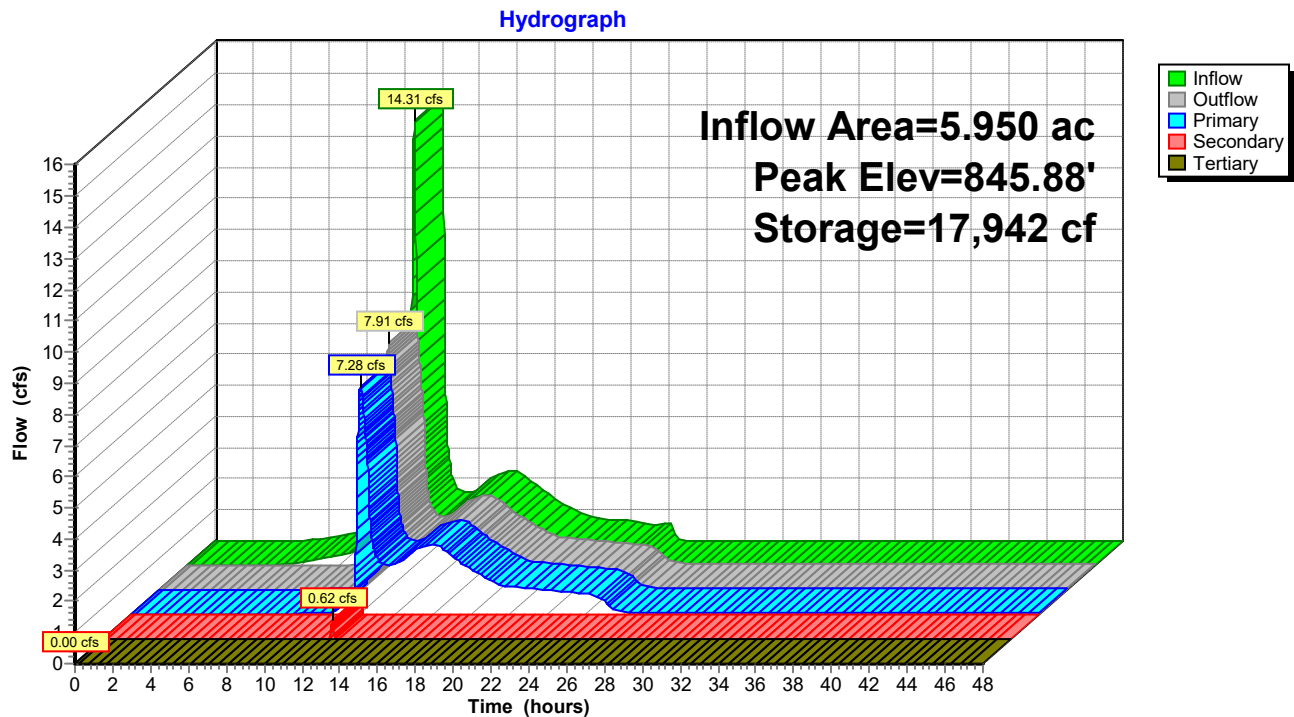
Page 28

Primary OutFlow Max=7.28 cfs @ 12.14 hrs HW=845.88' (Free Discharge)
1=18" Outlet AsBuilt Plan 2006 (Passes 7.28 cfs of 19.22 cfs potential flow)
2=Top Riser Per Plan (Orifice Controls 1.15 cfs @ 5.87 fps)
3=WQ Orifice Holes Per Plan (Orifice Controls 0.02 cfs @ 10.63 fps)
4=2nd Stage Per Drainage Report (Orifice Controls 0.05 cfs @ 7.77 fps)
5=Top Grate Per AsBuilt Plan 2006 (Orifice Controls 6.06 cfs @ 4.04 fps)

Secondary OutFlow Max=0.61 cfs @ 12.14 hrs HW=845.88' (Free Discharge)
6=Emergency Spillway Per Plan (Weir Controls 0.61 cfs @ 0.72 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=840.00' (Free Discharge)
7=Embankment Per Plan (Controls 0.00 cfs)

Pond 1P: Riverside Woods Basin 1 Per Plan



Riverside Woods Basin 1 - AKJ Updates

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Type II 24-hr 100-yr Rainfall=6.06"

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Summary for Link 32L: Bulletin 71 Offsite 003

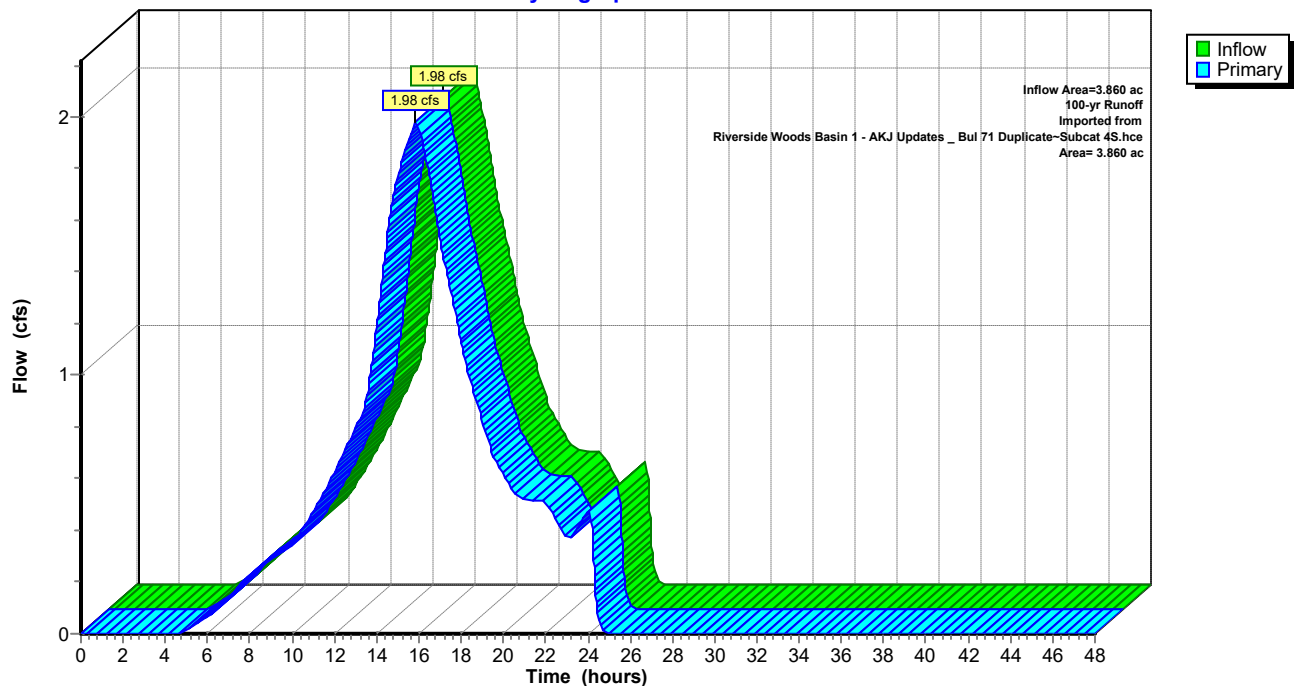
Inflow Area = 3.860 ac, 0.00% Impervious, Inflow Depth = 3.53" for 100-yr event
Inflow = 1.98 cfs @ 15.84 hrs, Volume= 1.136 af
Primary = 1.98 cfs @ 15.84 hrs, Volume= 1.136 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 1P : Riverside Woods Basin 1 Per Plan

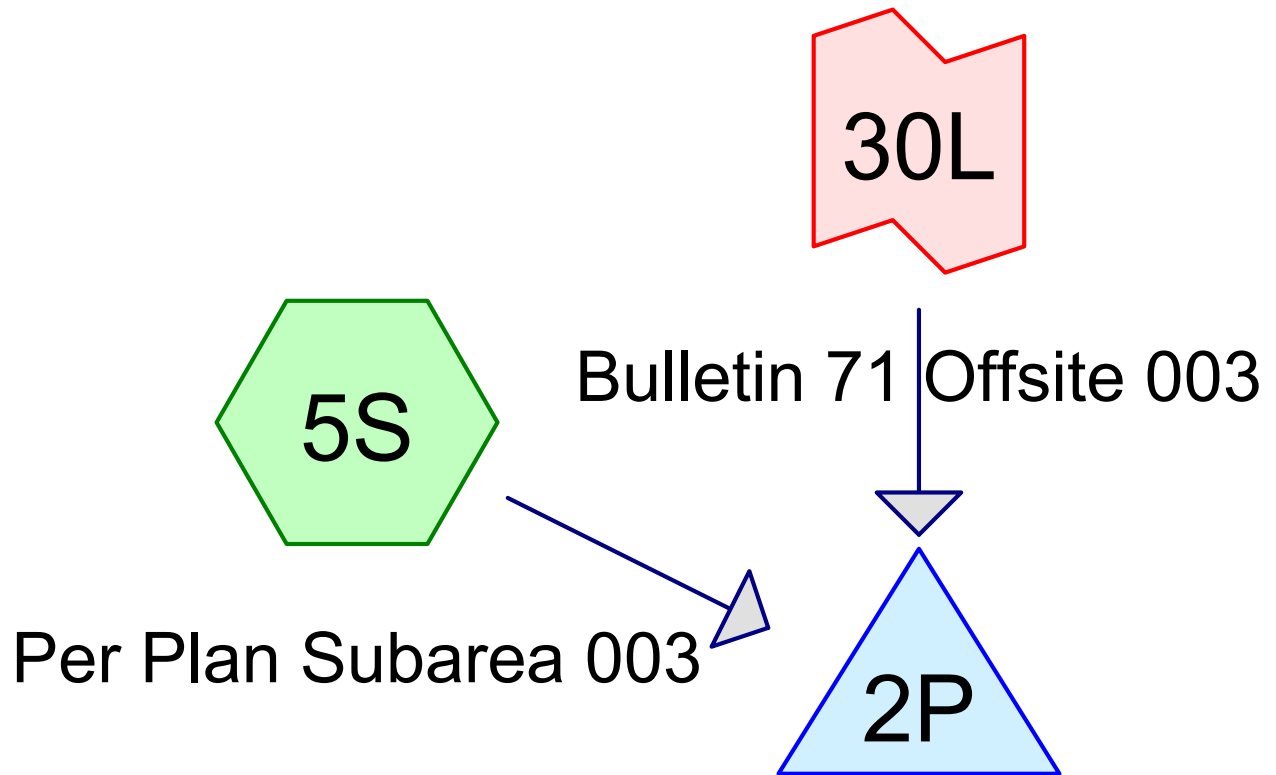
Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

100-yr Runoff Imported from Riverside Woods Basin 1 - AKJ Updates _ Bul 71 Duplicate~Subcat 4S.hce

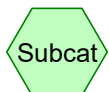
Link 32L: Bulletin 71 Offsite 003

Hydrograph





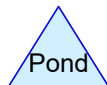
Riverside Woods Basin 1 Ex Conditions



Subcat



Reach



Pond



Link

Routing Diagram for Riverside Woods Basin 1 - AKJ Updates

Prepared by EMH&T, Printed 8/1/2026

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Riverside Woods Basin 1 - AKJ Updates

Prepared by EMH&T

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Page 2

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-yr	Type II 24-hr		Default	24.00	1	2.17	2
2	2-yr	Type II 24-hr		Default	24.00	1	2.70	2
3	5-yr	Type II 24-hr		Default	24.00	1	3.35	2
4	10-yr	Type II 24-hr		Default	24.00	1	3.86	2
5	25-yr	Type II 24-hr		Default	24.00	1	4.64	2
6	50-yr	Type II 24-hr		Default	24.00	1	5.33	2
7	100-yr	Type II 24-hr		Default	24.00	1	6.06	2

Riverside Woods Basin 1 - AKJ Updates

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Type II 24-hr 1-yr Rainfall=2.17"

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Summary for Subcatchment 5S: Per Plan Subarea 003

Runoff = 3.26 cfs @ 12.03 hrs, Volume= 0.181 af, Depth= 1.04"

Routed to Pond 2P : Riverside Woods Basin 1 Ex Conditions

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

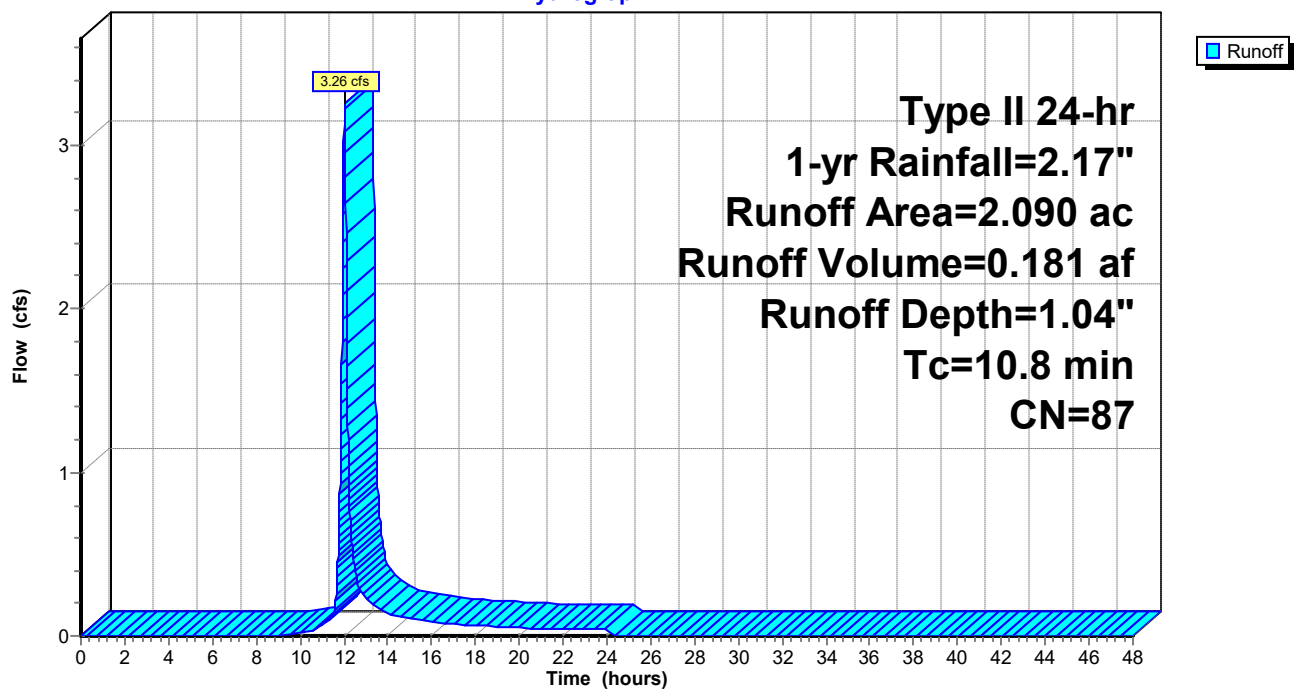
Type II 24-hr 1-yr Rainfall=2.17"

Area (ac)	CN	Description
* 2.090	87	
2.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8					Direct Entry,

Subcatchment 5S: Per Plan Subarea 003

Hydrograph



Riverside Woods Basin 1 - AKJ Updates

Type II 24-hr 1-yr Rainfall=2.17"

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Summary for Pond 2P: Riverside Woods Basin 1 Ex Conditions

Inflow Area = 5.950 ac, 0.00% Impervious, Inflow Depth = 0.72" for 1-yr event
 Inflow = 3.29 cfs @ 12.03 hrs, Volume= 0.356 af
 Outflow = 0.28 cfs @ 18.25 hrs, Volume= 0.243 af, Atten= 91%, Lag= 373.4 min
 Primary = 0.28 cfs @ 18.25 hrs, Volume= 0.243 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 844.69' @ 18.25 hrs Surf.Area= 0.175 ac Storage= 0.220 af

Plug-Flow detention time= 717.0 min calculated for 0.243 af (68% of inflow)
 Center-of-Mass det. time= 593.9 min (1,540.1 - 946.2)

Volume	Invert	Avail.Storage	Storage Description
#1	841.00'	0.516 af	Ex Survey (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
841.00	0.000	0.000	0.000
842.00	0.001	0.000	0.000
843.00	0.052	0.027	0.027
844.00	0.125	0.089	0.116
845.00	0.198	0.161	0.277
846.00	0.281	0.239	0.516

Device	Routing	Invert	Outlet Devices
#1	Primary	840.44'	18.00" Round Surveyed Outlet Pipe 2025 L= 37.6' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 840.44' / 839.73' S= 0.0189 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	844.57'	6.00" Horiz. Surveyed Riser Top 2025 C= 0.600 Limited to weir flow at low heads
#3	Device 1	840.98'	0.25" Vert. As Built WQ Holes X 6.00 C= 0.600 Limited to weir flow at low heads
#4	Device 1	843.26'	0.75" Vert. As Built 2nd Stage Holes X 2.00 C= 0.600 Limited to weir flow at low heads
#5	Device 1	845.53'	2.10" x 2.10" Horiz. Surveyed Grate 2025 X 7.00 columns X 7 rows C= 0.600 in 23.60" x 23.60" Grate (39% open area) Limited to weir flow at low heads
#6	Secondary	845.32'	Surveyed Embankment, C= 3.27 Offset (feet) 0.00 4.34 9.01 14.72 22.05 39.20 45.37 47.98 58.04 66.39 73.01 76.23 79.39 89.57 97.37 Elev. (feet) 846.00 845.64 845.54 845.36 845.34 845.40 845.33 845.40 845.32 845.45 845.70 845.37 845.76 845.73 846.00

Riverside Woods Basin 1 - AKJ Updates

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Type II 24-hr 1-yr Rainfall=2.17"

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Primary OutFlow Max=0.28 cfs @ 18.25 hrs HW=844.69' (Free Discharge)

1=Surveyed Outlet Pipe 2025 (Passes 0.28 cfs of 15.93 cfs potential flow)

2=Surveyed Riser Top 2025 (Weir Controls 0.23 cfs @ 1.15 fps)

3=As Built WQ Holes (Orifice Controls 0.02 cfs @ 9.27 fps)

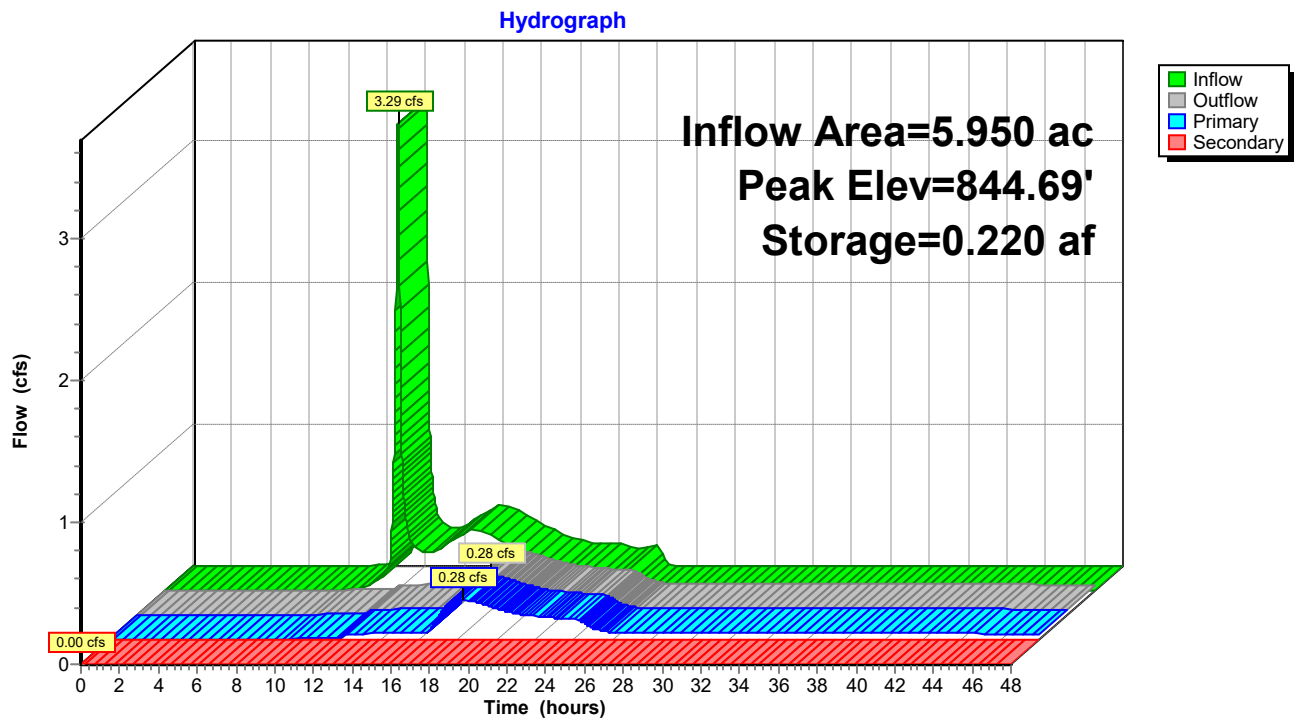
4=As Built 2nd Stage Holes (Orifice Controls 0.03 cfs @ 5.70 fps)

5=Surveyed Grate 2025 (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=841.00' (Free Discharge)

6=Surveyed Embankment (Controls 0.00 cfs)

Pond 2P: Riverside Woods Basin 1 Ex Conditions



Riverside Woods Basin 1 - AKJ Updates

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Type II 24-hr 1-yr Rainfall=2.17"

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Summary for Link 30L: Bulletin 71 Offsite 003

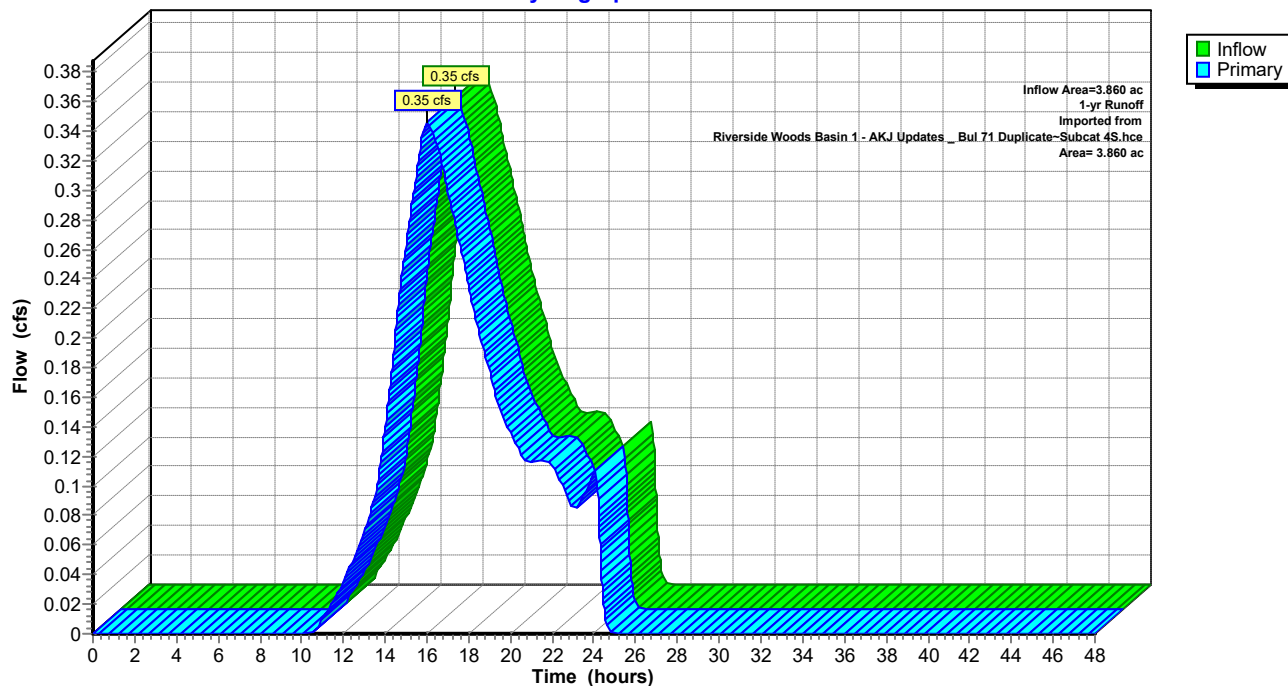
Inflow Area = 3.860 ac, 0.00% Impervious, Inflow Depth = 0.54" for 1-yr event
Inflow = 0.35 cfs @ 16.03 hrs, Volume= 0.174 af
Primary = 0.35 cfs @ 16.03 hrs, Volume= 0.174 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 2P : Riverside Woods Basin 1 Ex Conditions

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

1-yr Runoff Imported from Riverside Woods Basin 1 - AKJ Updates _ Bul 71 Duplicate~Subcat 4S.hce

Link 30L: Bulletin 71 Offsite 003

Hydrograph



Riverside Woods Basin 1 - AKJ Updates

Prepared by EMH&T

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Type II 24-hr 2-yr Rainfall=2.70"

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Summary for Subcatchment 5S: Per Plan Subarea 003

Runoff = 4.62 cfs @ 12.03 hrs, Volume= 0.258 af, Depth= 1.48"

Routed to Pond 2P : Riverside Woods Basin 1 Ex Conditions

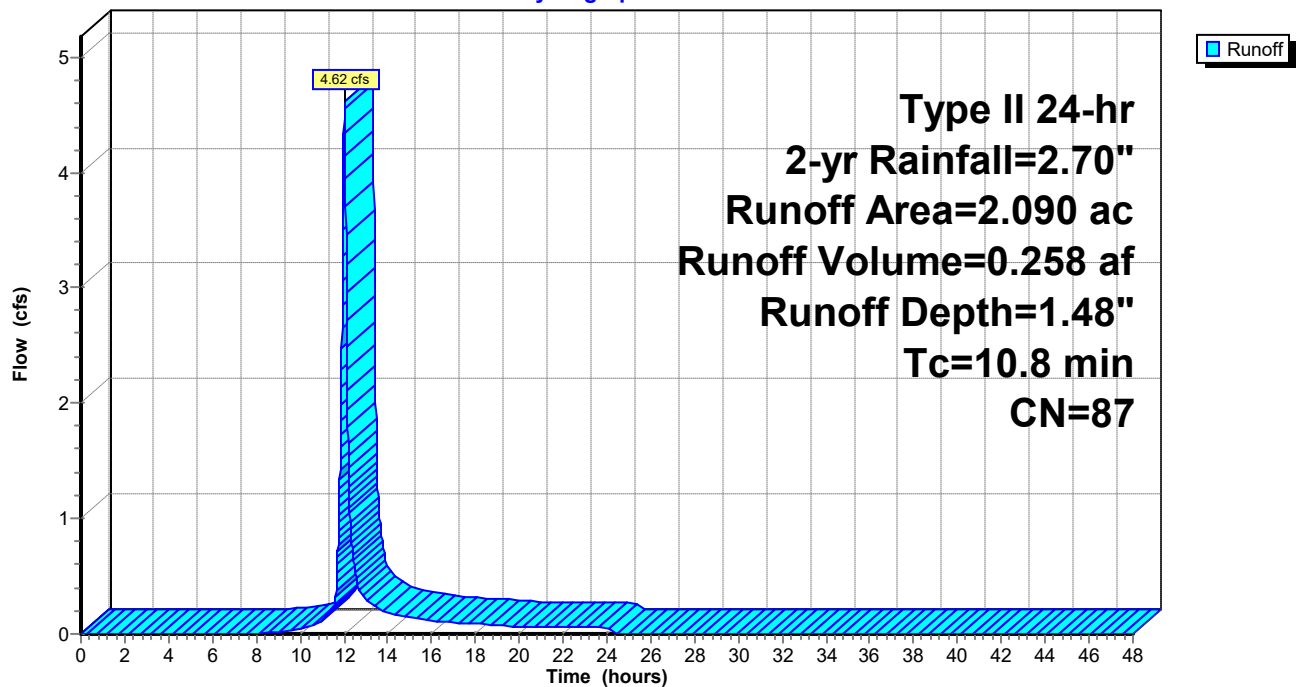
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=2.70"

Area (ac)	CN	Description
* 2.090	87	
2.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8					Direct Entry,

Subcatchment 5S: Per Plan Subarea 003

Hydrograph



Riverside Woods Basin 1 - AKJ Updates

Type II 24-hr 2-yr Rainfall=2.70"

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Summary for Pond 2P: Riverside Woods Basin 1 Ex Conditions

Inflow Area = 5.950 ac, 0.00% Impervious, Inflow Depth = 1.08" for 2-yr event
 Inflow = 4.72 cfs @ 12.03 hrs, Volume= 0.537 af
 Outflow = 0.55 cfs @ 17.03 hrs, Volume= 0.423 af, Atten= 88%, Lag= 300.4 min
 Primary = 0.55 cfs @ 17.03 hrs, Volume= 0.423 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 844.84' @ 17.03 hrs Surf.Area= 0.186 ac Storage= 0.246 af

Plug-Flow detention time= 484.6 min calculated for 0.423 af (79% of inflow)
 Center-of-Mass det. time= 395.7 min (1,331.5 - 935.8)

Volume	Invert	Avail.Storage	Storage Description
#1	841.00'	0.516 af	Ex Survey (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
841.00	0.000	0.000	0.000
842.00	0.001	0.000	0.000
843.00	0.052	0.027	0.027
844.00	0.125	0.089	0.116
845.00	0.198	0.161	0.277
846.00	0.281	0.239	0.516

Device	Routing	Invert	Outlet Devices
#1	Primary	840.44'	18.00" Round Surveyed Outlet Pipe 2025 L= 37.6' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 840.44' / 839.73' S= 0.0189 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	844.57'	6.00" Horiz. Surveyed Riser Top 2025 C= 0.600 Limited to weir flow at low heads
#3	Device 1	840.98'	0.25" Vert. As Built WQ Holes X 6.00 C= 0.600 Limited to weir flow at low heads
#4	Device 1	843.26'	0.75" Vert. As Built 2nd Stage Holes X 2.00 C= 0.600 Limited to weir flow at low heads
#5	Device 1	845.53'	2.10" x 2.10" Horiz. Surveyed Grate 2025 X 7.00 columns X 7 rows C= 0.600 in 23.60" x 23.60" Grate (39% open area) Limited to weir flow at low heads
#6	Secondary	845.32'	Surveyed Embankment, C= 3.27 Offset (feet) 0.00 4.34 9.01 14.72 22.05 39.20 45.37 47.98 58.04 66.39 73.01 76.23 79.39 89.57 97.37 Elev. (feet) 846.00 845.64 845.54 845.36 845.34 845.40 845.33 845.40 845.32 845.45 845.70 845.37 845.76 845.73 846.00

Riverside Woods Basin 1 - AKJ Updates

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Type II 24-hr 2-yr Rainfall=2.70"

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Primary OutFlow Max=0.55 cfs @ 17.03 hrs HW=844.84' (Free Discharge)

1=Surveyed Outlet Pipe 2025 (Passes 0.55 cfs of 16.26 cfs potential flow)

2=Surveyed Riser Top 2025 (Orifice Controls 0.49 cfs @ 2.50 fps)

3=As Built WQ Holes (Orifice Controls 0.02 cfs @ 9.45 fps)

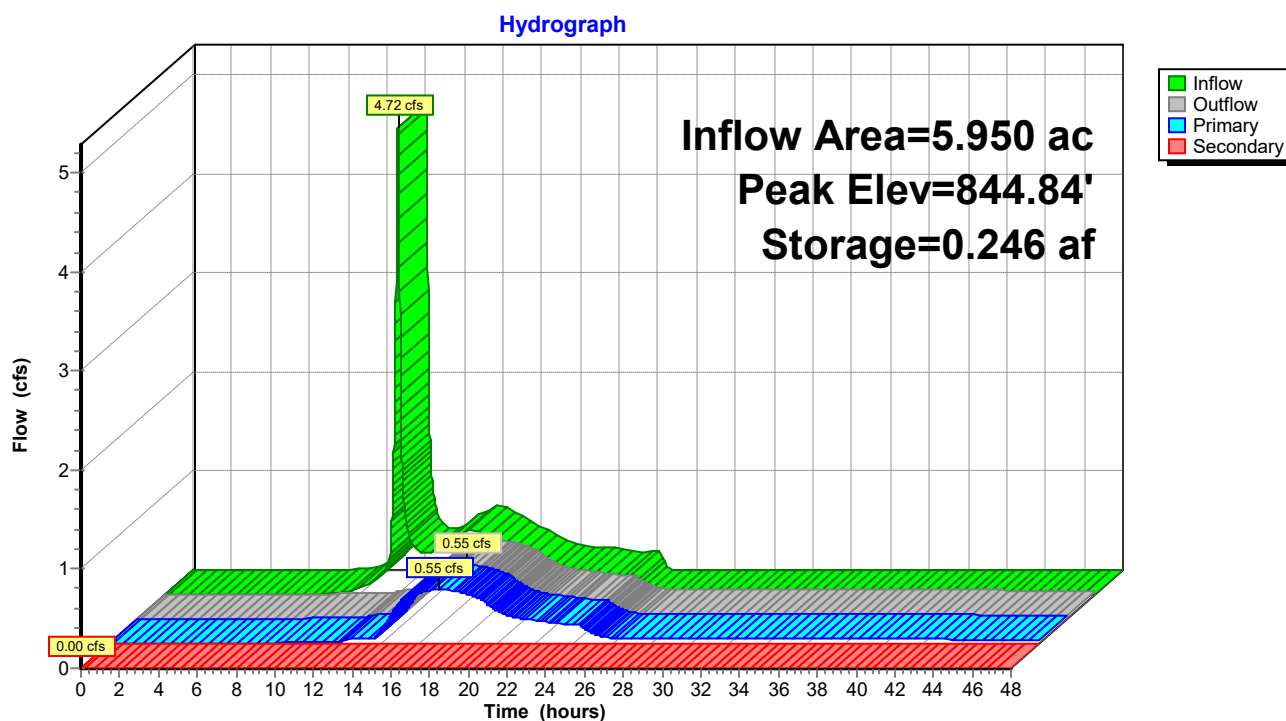
4=As Built 2nd Stage Holes (Orifice Controls 0.04 cfs @ 5.99 fps)

5=Surveyed Grate 2025 (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=841.00' (Free Discharge)

6=Surveyed Embankment (Controls 0.00 cfs)

Pond 2P: Riverside Woods Basin 1 Ex Conditions



Riverside Woods Basin 1 - AKJ Updates

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Type II 24-hr 2-yr Rainfall=2.70"

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Summary for Link 30L: Bulletin 71 Offsite 003

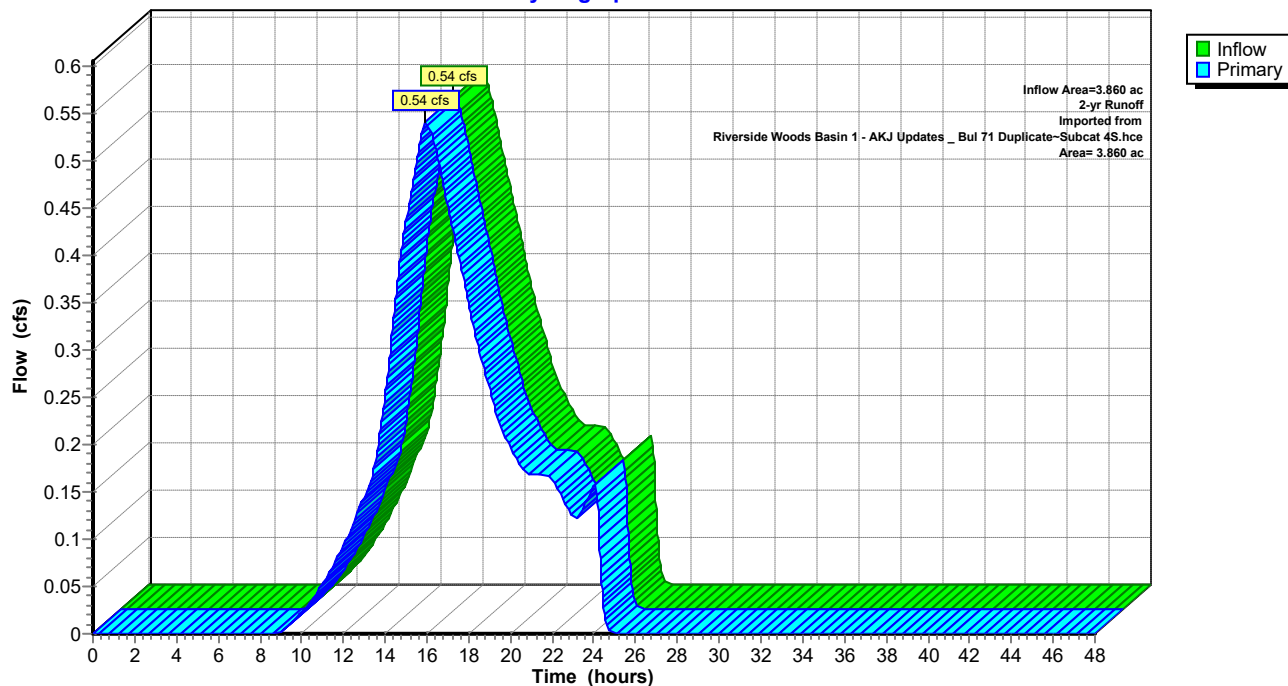
Inflow Area = 3.860 ac, 0.00% Impervious, Inflow Depth = 0.87" for 2-yr event
Inflow = 0.54 cfs @ 15.94 hrs, Volume= 0.279 af
Primary = 0.54 cfs @ 15.94 hrs, Volume= 0.279 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 2P : Riverside Woods Basin 1 Ex Conditions

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

2-yr Runoff Imported from Riverside Woods Basin 1 - AKJ Updates _ Bul 71 Duplicate~Subcat 4S.hce

Link 30L: Bulletin 71 Offsite 003

Hydrograph



Riverside Woods Basin 1 - AKJ Updates

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Type II 24-hr 5-yr Rainfall=3.35"

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Summary for Subcatchment 5S: Per Plan Subarea 003

Runoff = 6.35 cfs @ 12.02 hrs, Volume= 0.357 af, Depth= 2.05"
Routed to Pond 2P : Riverside Woods Basin 1 Ex Conditions

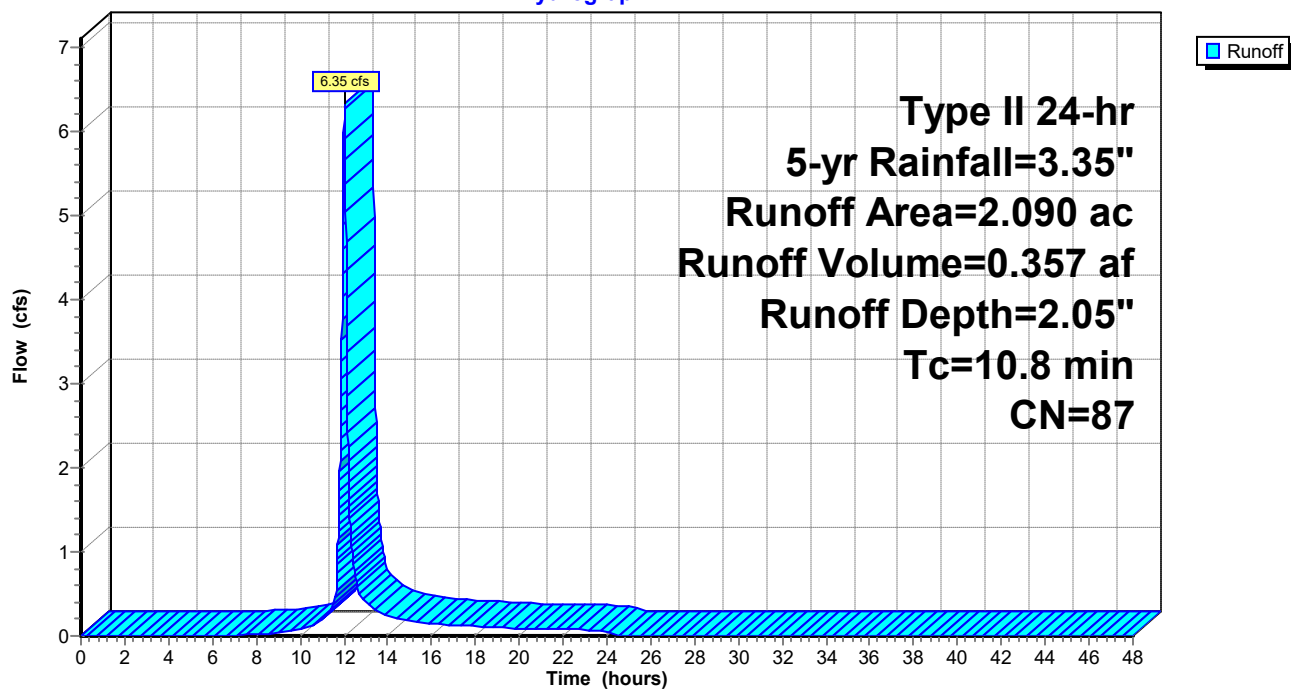
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=3.35"

Area (ac)	CN	Description
* 2.090	87	
2.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8					Direct Entry,

Subcatchment 5S: Per Plan Subarea 003

Hydrograph



Riverside Woods Basin 1 - AKJ Updates

Type II 24-hr 5-yr Rainfall=3.35"

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Summary for Pond 2P: Riverside Woods Basin 1 Ex Conditions

Inflow Area = 5.950 ac, 0.00% Impervious, Inflow Depth = 1.58" for 5-yr event
 Inflow = 6.53 cfs @ 12.02 hrs, Volume= 0.781 af
 Outflow = 0.75 cfs @ 17.19 hrs, Volume= 0.666 af, Atten= 89%, Lag= 310.1 min
 Primary = 0.75 cfs @ 17.19 hrs, Volume= 0.666 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 845.10' @ 17.19 hrs Surf.Area= 0.206 ac Storage= 0.297 af

Plug-Flow detention time= 360.0 min calculated for 0.666 af (85% of inflow)
 Center-of-Mass det. time= 293.9 min (1,218.7 - 924.8)

Volume	Invert	Avail.Storage	Storage Description
#1	841.00'	0.516 af	Ex Survey (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
841.00	0.000	0.000	0.000
842.00	0.001	0.000	0.000
843.00	0.052	0.027	0.027
844.00	0.125	0.089	0.116
845.00	0.198	0.161	0.277
846.00	0.281	0.239	0.516

Device	Routing	Invert	Outlet Devices
#1	Primary	840.44'	18.00" Round Surveyed Outlet Pipe 2025 L= 37.6' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 840.44' / 839.73' S= 0.0189 ' S= 0.0189 ' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	844.57'	6.00" Horiz. Surveyed Riser Top 2025 C= 0.600 Limited to weir flow at low heads
#3	Device 1	840.98'	0.25" Vert. As Built WQ Holes X 6.00 C= 0.600 Limited to weir flow at low heads
#4	Device 1	843.26'	0.75" Vert. As Built 2nd Stage Holes X 2.00 C= 0.600 Limited to weir flow at low heads
#5	Device 1	845.53'	2.10" x 2.10" Horiz. Surveyed Grate 2025 X 7.00 columns X 7 rows C= 0.600 in 23.60" x 23.60" Grate (39% open area) Limited to weir flow at low heads
#6	Secondary	845.32'	Surveyed Embankment, C= 3.27 Offset (feet) 0.00 4.34 9.01 14.72 22.05 39.20 45.37 47.98 58.04 66.39 73.01 76.23 79.39 89.57 97.37 Elev. (feet) 846.00 845.64 845.54 845.36 845.34 845.40 845.33 845.40 845.32 845.45 845.70 845.37 845.76 845.73 846.00

Riverside Woods Basin 1 - AKJ Updates

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Type II 24-hr 5-yr Rainfall=3.35"

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Primary OutFlow Max=0.75 cfs @ 17.19 hrs HW=845.10' (Free Discharge)

1=Surveyed Outlet Pipe 2025 (Passes 0.75 cfs of 16.82 cfs potential flow)

2=Surveyed Riser Top 2025 (Orifice Controls 0.69 cfs @ 3.50 fps)

3=As Built WQ Holes (Orifice Controls 0.02 cfs @ 9.76 fps)

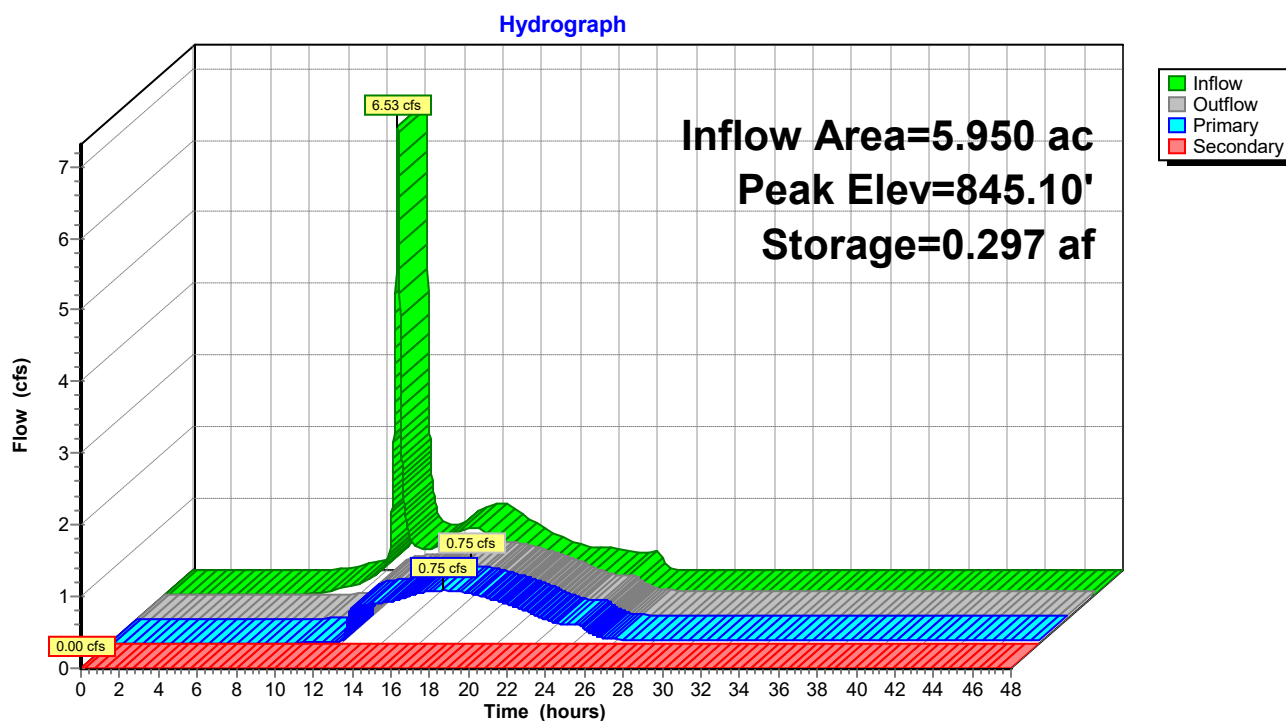
4=As Built 2nd Stage Holes (Orifice Controls 0.04 cfs @ 6.47 fps)

5=Surveyed Grate 2025 (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=841.00' (Free Discharge)

6=Surveyed Embankment (Controls 0.00 cfs)

Pond 2P: Riverside Woods Basin 1 Ex Conditions



Riverside Woods Basin 1 - AKJ Updates

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Type II 24-hr 5-yr Rainfall=3.35"

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Summary for Link 30L: Bulletin 71 Offsite 003

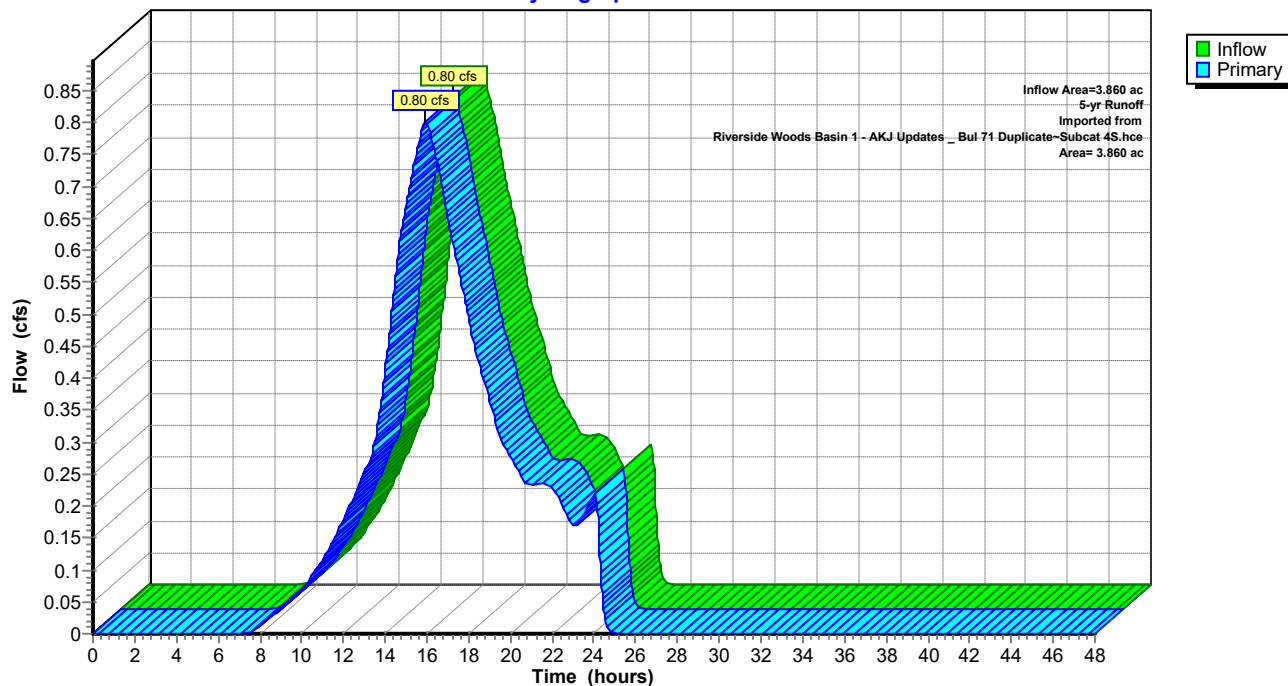
Inflow Area = 3.860 ac, 0.00% Impervious, Inflow Depth = 1.32" for 5-yr event
Inflow = 0.80 cfs @ 15.94 hrs, Volume= 0.425 af
Primary = 0.80 cfs @ 15.94 hrs, Volume= 0.425 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 2P : Riverside Woods Basin 1 Ex Conditions

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

5-yr Runoff Imported from Riverside Woods Basin 1 - AKJ Updates _ Bul 71 Duplicate~Subcat 4S.hce

Link 30L: Bulletin 71 Offsite 003

Hydrograph



Riverside Woods Basin 1 - AKJ Updates

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Type II 24-hr 10-yr Rainfall=3.86"

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Summary for Subcatchment 5S: Per Plan Subarea 003

Runoff = 7.72 cfs @ 12.02 hrs, Volume= 0.437 af, Depth= 2.51"

Routed to Pond 2P : Riverside Woods Basin 1 Ex Conditions

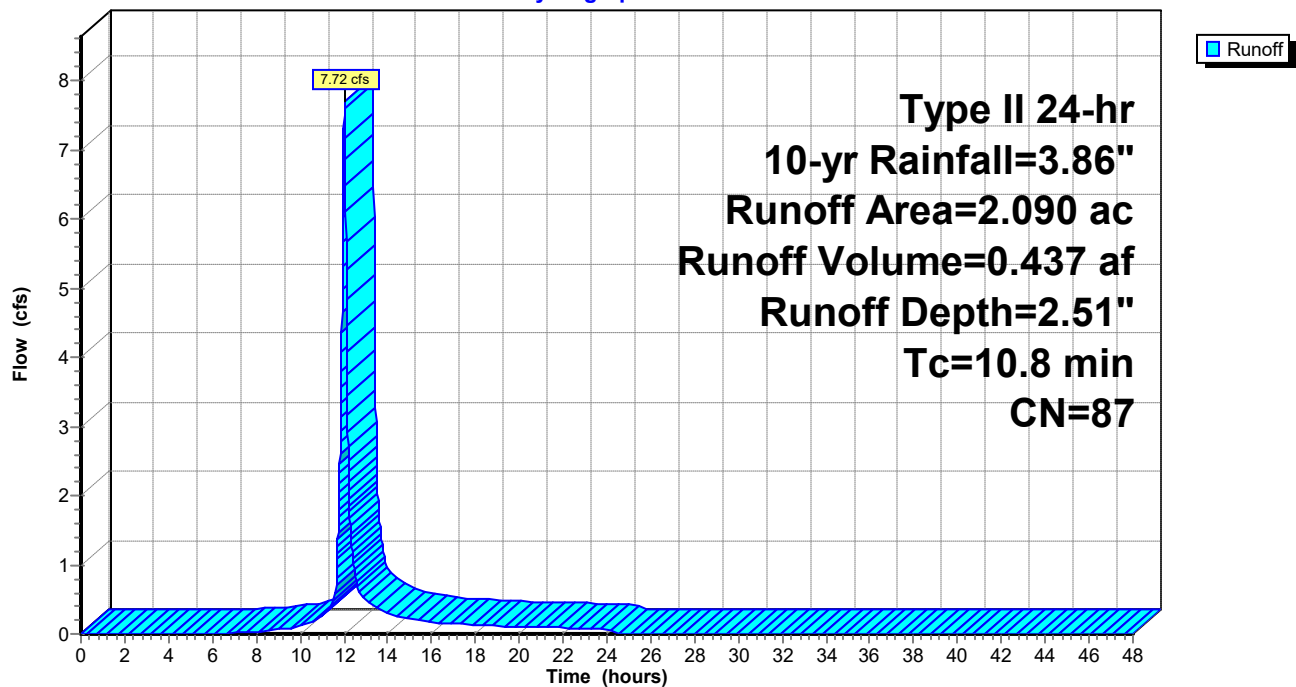
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=3.86"

Area (ac)	CN	Description
* 2.090	87	
2.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8					Direct Entry,

Subcatchment 5S: Per Plan Subarea 003

Hydrograph



Riverside Woods Basin 1 - AKJ Updates

Type II 24-hr 10-yr Rainfall=3.86"

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Summary for Pond 2P: Riverside Woods Basin 1 Ex Conditions

Inflow Area = 5.950 ac, 0.00% Impervious, Inflow Depth = 1.99" for 10-yr event
 Inflow = 7.97 cfs @ 12.02 hrs, Volume= 0.985 af
 Outflow = 1.06 cfs @ 16.60 hrs, Volume= 0.869 af, Atten= 87%, Lag= 274.7 min
 Primary = 0.90 cfs @ 16.60 hrs, Volume= 0.858 af
 Secondary = 0.16 cfs @ 16.60 hrs, Volume= 0.011 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 845.35' @ 16.60 hrs Surf.Area= 0.227 ac Storage= 0.352 af

Plug-Flow detention time= 320.6 min calculated for 0.869 af (88% of inflow)
 Center-of-Mass det. time= 265.6 min (1,183.0 - 917.4)

Volume	Invert	Avail.Storage	Storage Description
#1	841.00'	0.516 af	Ex Survey (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
841.00	0.000	0.000	0.000
842.00	0.001	0.000	0.000
843.00	0.052	0.027	0.027
844.00	0.125	0.089	0.116
845.00	0.198	0.161	0.277
846.00	0.281	0.239	0.516

Device	Routing	Invert	Outlet Devices
#1	Primary	840.44'	18.00" Round Surveyed Outlet Pipe 2025 L= 37.6' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 840.44' / 839.73' S= 0.0189 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	844.57'	6.00" Horiz. Surveyed Riser Top 2025 C= 0.600 Limited to weir flow at low heads
#3	Device 1	840.98'	0.25" Vert. As Built WQ Holes X 6.00 C= 0.600 Limited to weir flow at low heads
#4	Device 1	843.26'	0.75" Vert. As Built 2nd Stage Holes X 2.00 C= 0.600 Limited to weir flow at low heads
#5	Device 1	845.53'	2.10" x 2.10" Horiz. Surveyed Grate 2025 X 7.00 columns X 7 rows C= 0.600 in 23.60" x 23.60" Grate (39% open area) Limited to weir flow at low heads
#6	Secondary	845.32'	Surveyed Embankment, C= 3.27 Offset (feet) 0.00 4.34 9.01 14.72 22.05 39.20 45.37 47.98 58.04 66.39 73.01 76.23 79.39 89.57 97.37 Elev. (feet) 846.00 845.64 845.54 845.36 845.34 845.40 845.33 845.40 845.32 845.45 845.70 845.37 845.76 845.73 846.00

Riverside Woods Basin 1 - AKJ Updates

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Type II 24-hr 10-yr Rainfall=3.86"

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Primary OutFlow Max=0.90 cfs @ 16.60 hrs HW=845.35' (Free Discharge)

1=Surveyed Outlet Pipe 2025 (Passes 0.90 cfs of 17.36 cfs potential flow)

2=Surveyed Riser Top 2025 (Orifice Controls 0.84 cfs @ 4.26 fps)

3=As Built WQ Holes (Orifice Controls 0.02 cfs @ 10.06 fps)

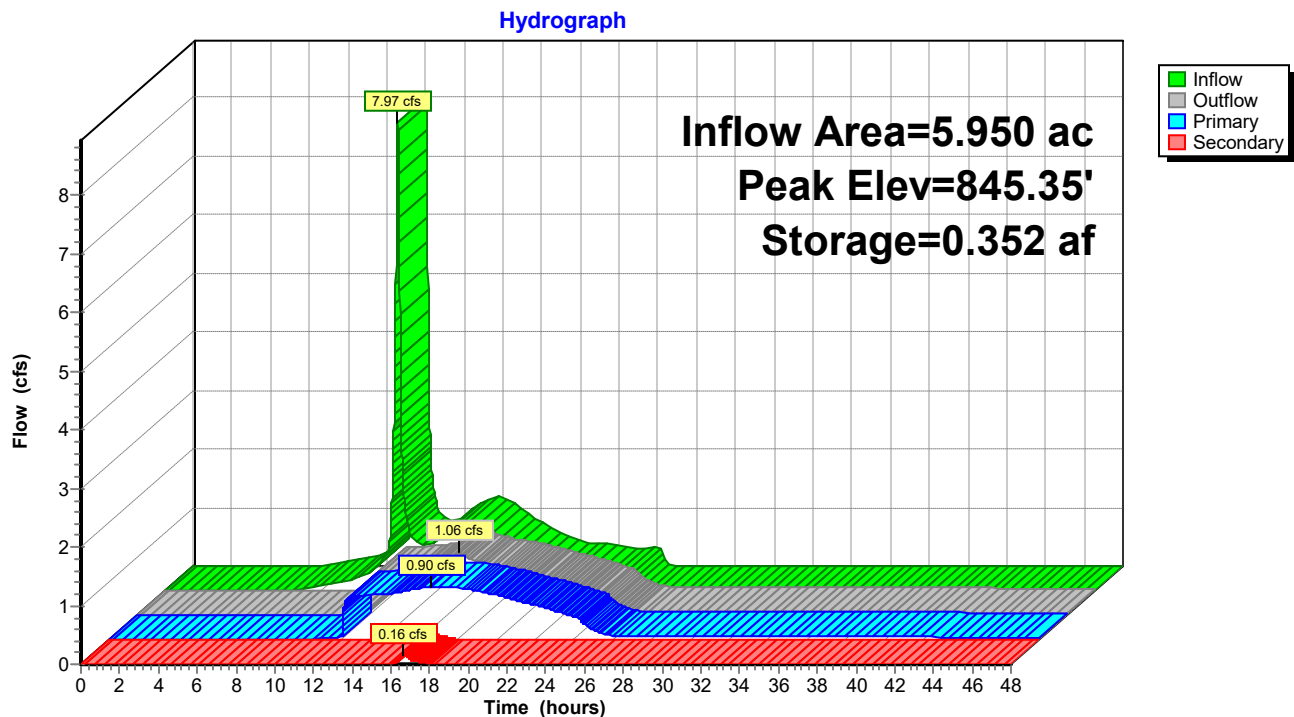
4=As Built 2nd Stage Holes (Orifice Controls 0.04 cfs @ 6.92 fps)

5=Surveyed Grate 2025 (Controls 0.00 cfs)

Secondary OutFlow Max=0.09 cfs @ 16.60 hrs HW=845.35' (Free Discharge)

6=Surveyed Embankment (Weir Controls 0.09 cfs @ 0.21 fps)

Pond 2P: Riverside Woods Basin 1 Ex Conditions



Riverside Woods Basin 1 - AKJ Updates

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Type II 24-hr 10-yr Rainfall=3.86"

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Summary for Link 30L: Bulletin 71 Offsite 003

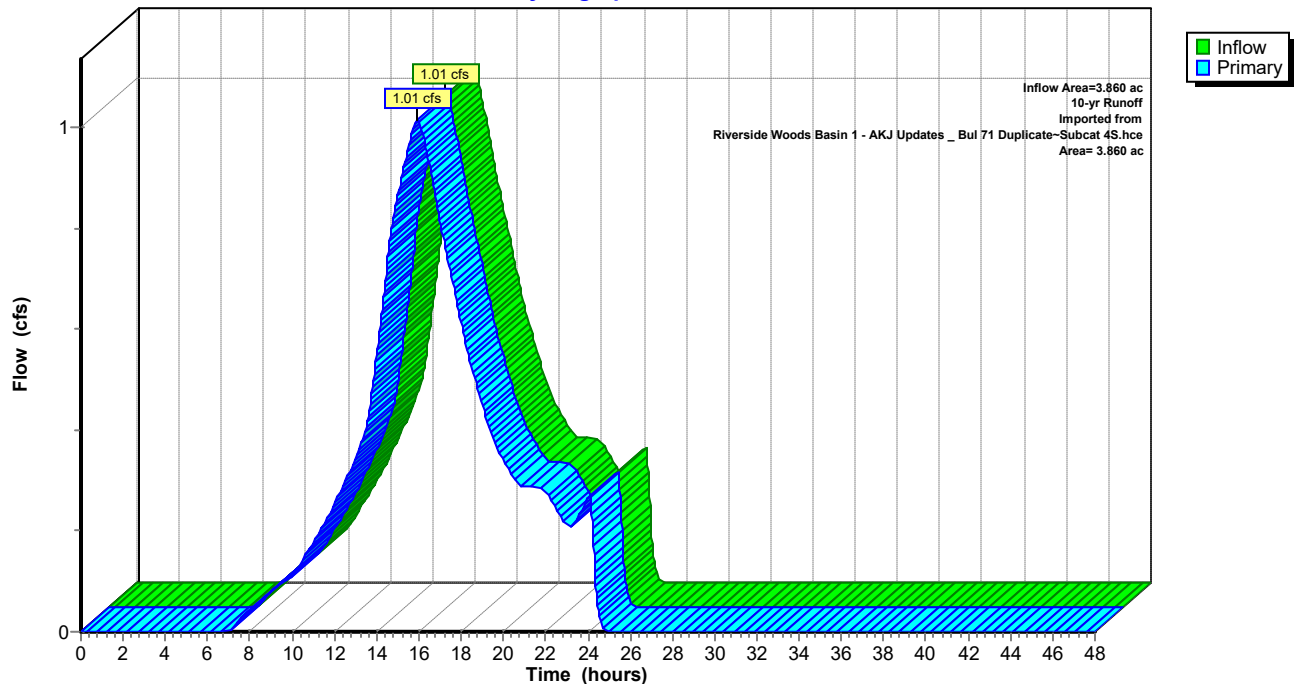
Inflow Area = 3.860 ac, 0.00% Impervious, Inflow Depth = 1.70" for 10-yr event
Inflow = 1.01 cfs @ 15.89 hrs, Volume= 0.548 af
Primary = 1.01 cfs @ 15.89 hrs, Volume= 0.548 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 2P : Riverside Woods Basin 1 Ex Conditions

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

10-yr Runoff Imported from Riverside Woods Basin 1 - AKJ Updates _ Bul 71 Duplicate~Subcat 4S.hce

Link 30L: Bulletin 71 Offsite 003

Hydrograph



Riverside Woods Basin 1 - AKJ Updates

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Type II 24-hr 25-yr Rainfall=4.64"

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Summary for Subcatchment 5S: Per Plan Subarea 003

Runoff = 9.83 cfs @ 12.02 hrs, Volume= 0.562 af, Depth= 3.23"
Routed to Pond 2P : Riverside Woods Basin 1 Ex Conditions

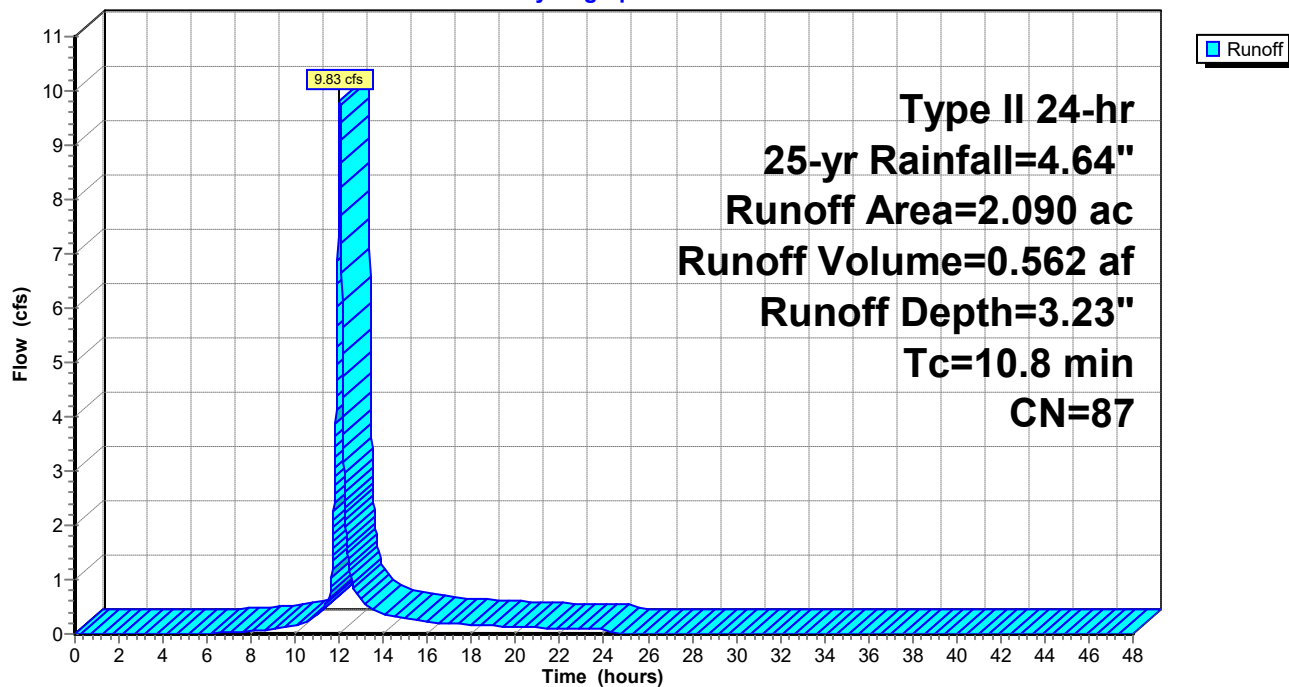
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=4.64"

Area (ac)	CN	Description
* 2.090	87	
2.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8					Direct Entry,

Subcatchment 5S: Per Plan Subarea 003

Hydrograph



Riverside Woods Basin 1 - AKJ Updates

Type II 24-hr 25-yr Rainfall=4.64"

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Summary for Pond 2P: Riverside Woods Basin 1 Ex Conditions

Inflow Area = 5.950 ac, 0.00% Impervious, Inflow Depth = 2.64" for 25-yr event
 Inflow = 10.21 cfs @ 12.02 hrs, Volume= 1.310 af
 Outflow = 2.83 cfs @ 12.24 hrs, Volume= 1.193 af, Atten= 72%, Lag= 13.3 min
 Primary = 0.93 cfs @ 12.24 hrs, Volume= 0.973 af
 Secondary = 1.90 cfs @ 12.24 hrs, Volume= 0.220 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 845.41' @ 12.24 hrs Surf.Area= 0.232 ac Storage= 0.365 af

Plug-Flow detention time= 259.7 min calculated for 1.193 af (91% of inflow)
 Center-of-Mass det. time= 215.6 min (1,123.3 - 907.7)

Volume	Invert	Avail.Storage	Storage Description
#1	841.00'	0.516 af	Ex Survey (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
841.00	0.000	0.000	0.000
842.00	0.001	0.000	0.000
843.00	0.052	0.027	0.027
844.00	0.125	0.089	0.116
845.00	0.198	0.161	0.277
846.00	0.281	0.239	0.516

Device	Routing	Invert	Outlet Devices
#1	Primary	840.44'	18.00" Round Surveyed Outlet Pipe 2025 L= 37.6' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 840.44' / 839.73' S= 0.0189 ' S= 0.0189 ' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	844.57'	6.00" Horiz. Surveyed Riser Top 2025 C= 0.600 Limited to weir flow at low heads
#3	Device 1	840.98'	0.25" Vert. As Built WQ Holes X 6.00 C= 0.600 Limited to weir flow at low heads
#4	Device 1	843.26'	0.75" Vert. As Built 2nd Stage Holes X 2.00 C= 0.600 Limited to weir flow at low heads
#5	Device 1	845.53'	2.10" x 2.10" Horiz. Surveyed Grate 2025 X 7.00 columns X 7 rows C= 0.600 in 23.60" x 23.60" Grate (39% open area) Limited to weir flow at low heads
#6	Secondary	845.32'	Surveyed Embankment, C= 3.27 Offset (feet) 0.00 4.34 9.01 14.72 22.05 39.20 45.37 47.98 58.04 66.39 73.01 76.23 79.39 89.57 97.37 Elev. (feet) 846.00 845.64 845.54 845.36 845.34 845.40 845.33 845.40 845.32 845.45 845.70 845.37 845.76 845.73 846.00

Riverside Woods Basin 1 - AKJ Updates

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Type II 24-hr 25-yr Rainfall=4.64"

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Primary OutFlow Max=0.93 cfs @ 12.24 hrs HW=845.41' (Free Discharge)

1=Surveyed Outlet Pipe 2025 (Passes 0.93 cfs of 17.48 cfs potential flow)

2=Surveyed Riser Top 2025 (Orifice Controls 0.87 cfs @ 4.41 fps)

3=As Built WQ Holes (Orifice Controls 0.02 cfs @ 10.12 fps)

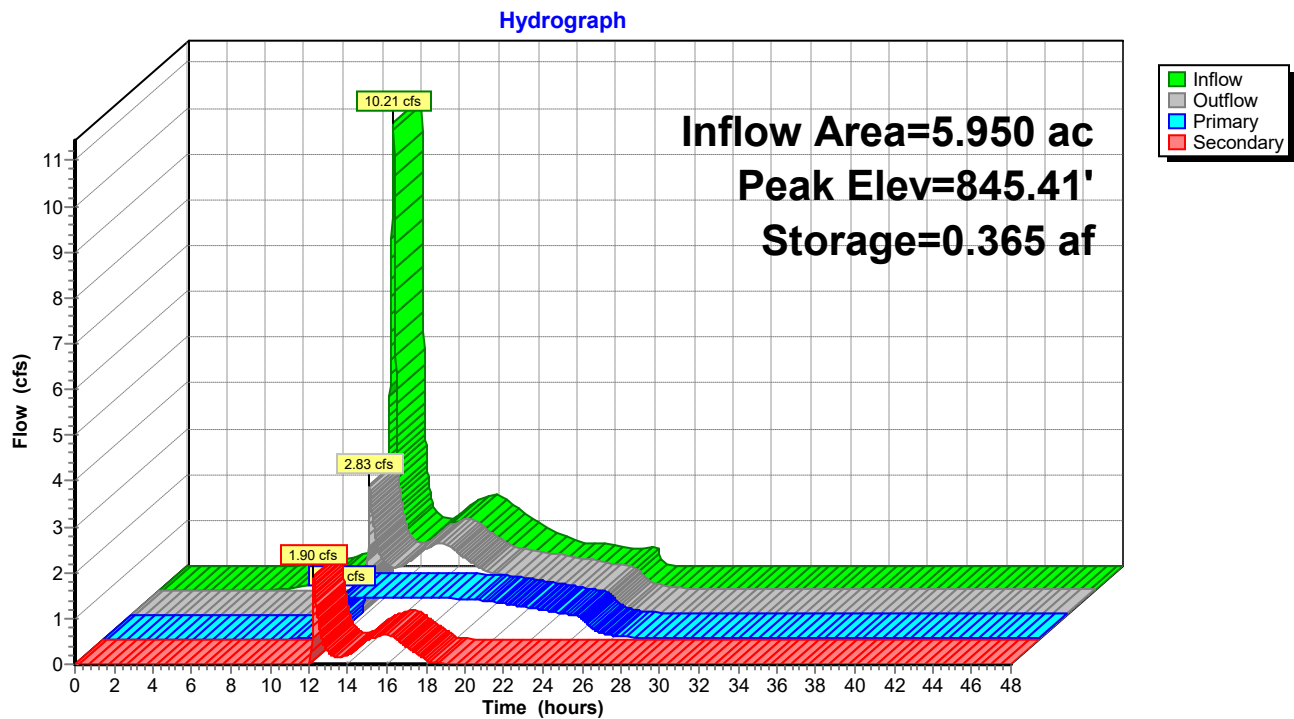
4=As Built 2nd Stage Holes (Orifice Controls 0.04 cfs @ 7.01 fps)

5=Surveyed Grate 2025 (Controls 0.00 cfs)

Secondary OutFlow Max=1.77 cfs @ 12.24 hrs HW=845.41' (Free Discharge)

6=Surveyed Embankment (Weir Controls 1.77 cfs @ 0.45 fps)

Pond 2P: Riverside Woods Basin 1 Ex Conditions



Riverside Woods Basin 1 - AKJ Updates

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Type II 24-hr 25-yr Rainfall=4.64"

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Summary for Link 30L: Bulletin 71 Offsite 003

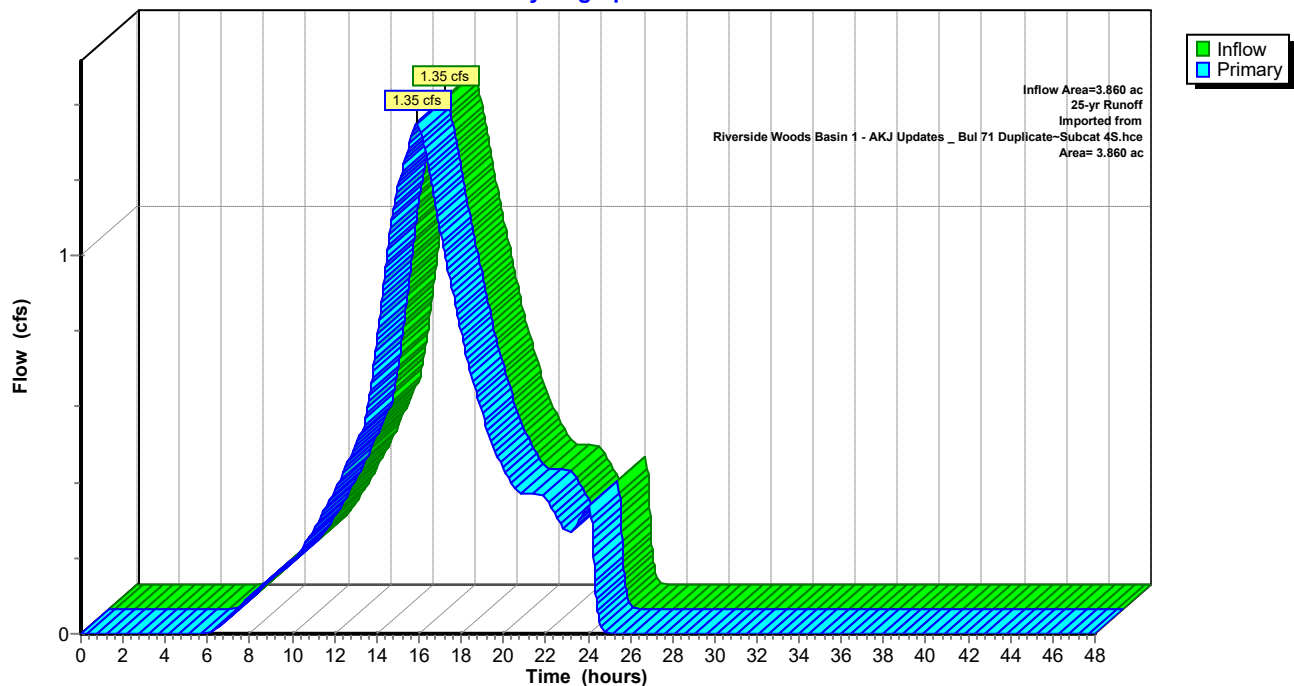
Inflow Area = 3.860 ac, 0.00% Impervious, Inflow Depth = 2.32" for 25-yr event
Inflow = 1.35 cfs @ 15.89 hrs, Volume= 0.748 af
Primary = 1.35 cfs @ 15.89 hrs, Volume= 0.748 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 2P : Riverside Woods Basin 1 Ex Conditions

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

25-yr Runoff Imported from Riverside Woods Basin 1 - AKJ Updates _ Bul 71 Duplicate~Subcat 4S.hce

Link 30L: Bulletin 71 Offsite 003

Hydrograph



Riverside Woods Basin 1 - AKJ Updates

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Type II 24-hr 50-yr Rainfall=5.33"

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Summary for Subcatchment 5S: Per Plan Subarea 003

Runoff = 11.70 cfs @ 12.02 hrs, Volume= 0.676 af, Depth= 3.88"

Routed to Pond 2P : Riverside Woods Basin 1 Ex Conditions

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

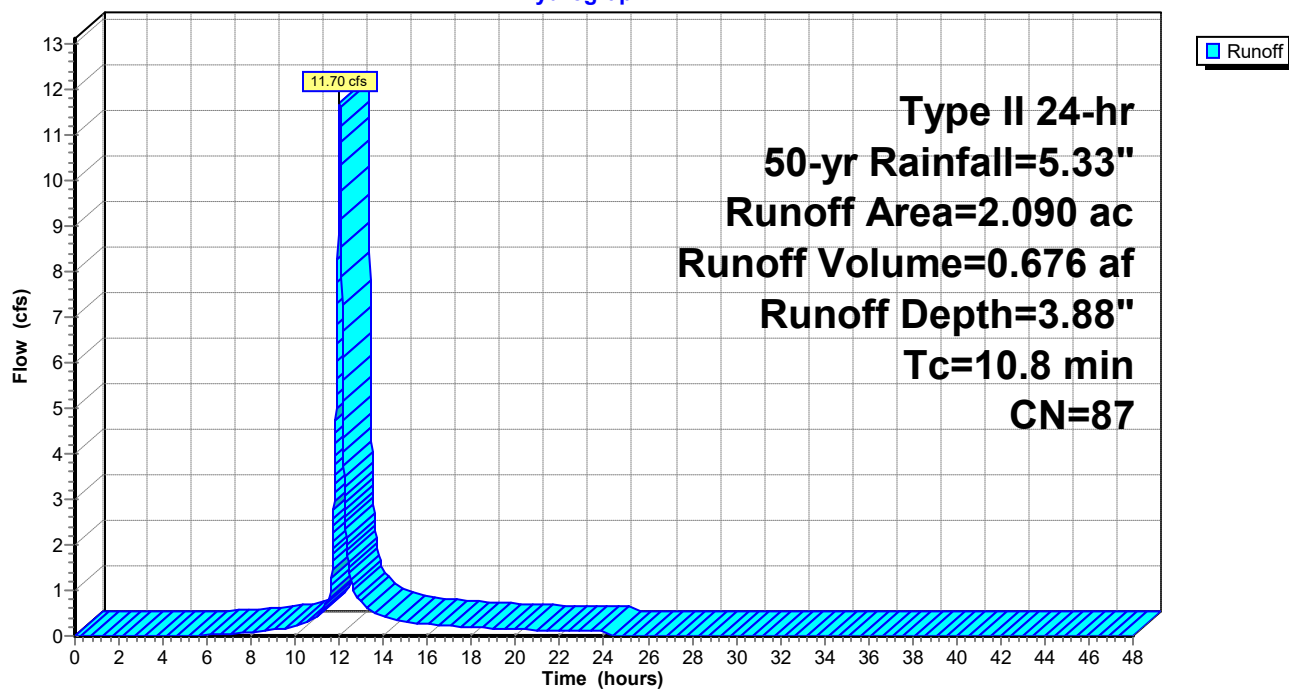
Type II 24-hr 50-yr Rainfall=5.33"

Area (ac)	CN	Description
* 2.090	87	
2.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8					Direct Entry,

Subcatchment 5S: Per Plan Subarea 003

Hydrograph



Riverside Woods Basin 1 - AKJ Updates

Type II 24-hr 50-yr Rainfall=5.33"

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Summary for Pond 2P: Riverside Woods Basin 1 Ex Conditions

Inflow Area = 5.950 ac, 0.00% Impervious, Inflow Depth = 3.24" for 50-yr event
 Inflow = 12.20 cfs @ 12.02 hrs, Volume= 1.609 af
 Outflow = 9.12 cfs @ 12.10 hrs, Volume= 1.490 af, Atten= 25%, Lag= 4.7 min
 Primary = 0.97 cfs @ 12.10 hrs, Volume= 1.033 af
 Secondary = 8.14 cfs @ 12.10 hrs, Volume= 0.457 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 845.49' @ 12.10 hrs Surf.Area= 0.239 ac Storage= 0.384 af

Plug-Flow detention time= 219.7 min calculated for 1.490 af (93% of inflow)
 Center-of-Mass det. time= 182.5 min (1,082.9 - 900.4)

Volume	Invert	Avail.Storage	Storage Description
#1	841.00'	0.516 af	Ex Survey (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
841.00	0.000	0.000	0.000
842.00	0.001	0.000	0.000
843.00	0.052	0.027	0.027
844.00	0.125	0.089	0.116
845.00	0.198	0.161	0.277
846.00	0.281	0.239	0.516

Device	Routing	Invert	Outlet Devices
#1	Primary	840.44'	18.00" Round Surveyed Outlet Pipe 2025 L= 37.6' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 840.44' / 839.73' S= 0.0189 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	844.57'	6.00" Horiz. Surveyed Riser Top 2025 C= 0.600 Limited to weir flow at low heads
#3	Device 1	840.98'	0.25" Vert. As Built WQ Holes X 6.00 C= 0.600 Limited to weir flow at low heads
#4	Device 1	843.26'	0.75" Vert. As Built 2nd Stage Holes X 2.00 C= 0.600 Limited to weir flow at low heads
#5	Device 1	845.53'	2.10" x 2.10" Horiz. Surveyed Grate 2025 X 7.00 columns X 7 rows C= 0.600 in 23.60" x 23.60" Grate (39% open area) Limited to weir flow at low heads
#6	Secondary	845.32'	Surveyed Embankment, C= 3.27 Offset (feet) 0.00 4.34 9.01 14.72 22.05 39.20 45.37 47.98 58.04 66.39 73.01 76.23 79.39 89.57 97.37 Elev. (feet) 846.00 845.64 845.54 845.36 845.34 845.40 845.33 845.40 845.32 845.45 845.70 845.37 845.76 845.73 846.00

Riverside Woods Basin 1 - AKJ Updates

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Type II 24-hr 50-yr Rainfall=5.33"

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Primary OutFlow Max=0.97 cfs @ 12.10 hrs HW=845.49' (Free Discharge)

1=Surveyed Outlet Pipe 2025 (Passes 0.97 cfs of 17.65 cfs potential flow)

2=Surveyed Riser Top 2025 (Orifice Controls 0.91 cfs @ 4.63 fps)

3=As Built WQ Holes (Orifice Controls 0.02 cfs @ 10.22 fps)

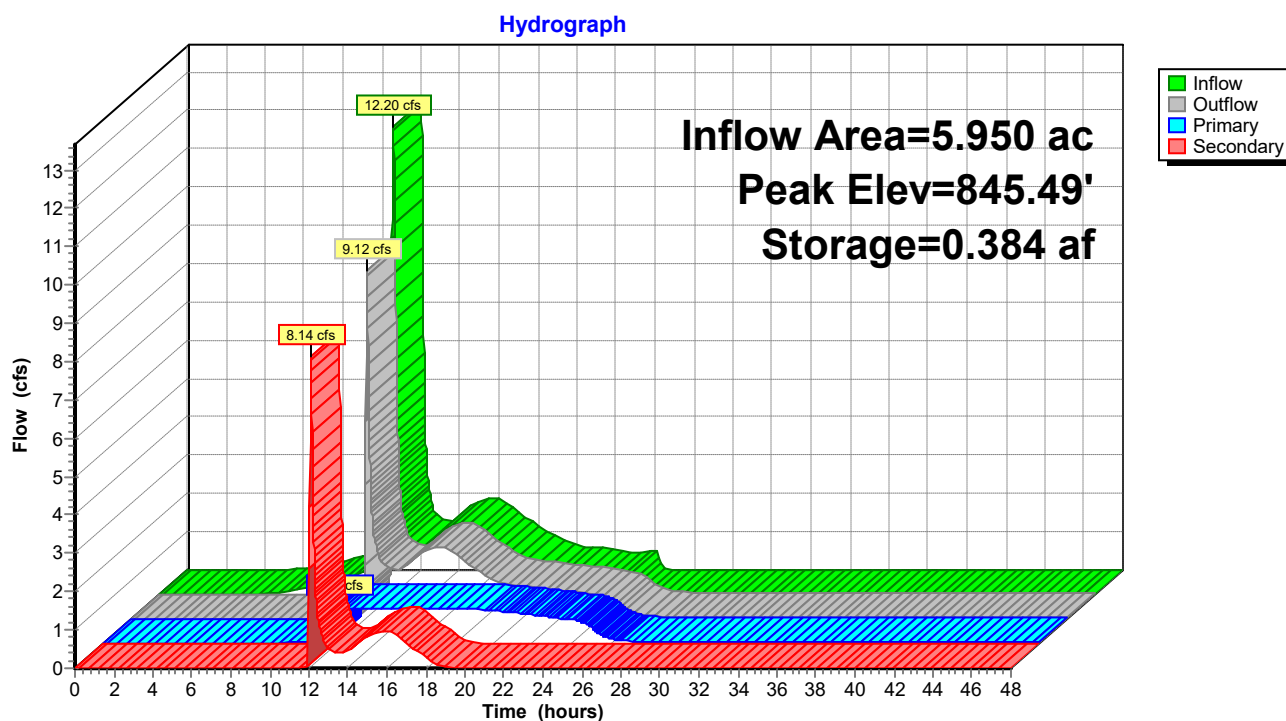
4=As Built 2nd Stage Holes (Orifice Controls 0.04 cfs @ 7.14 fps)

5=Surveyed Grate 2025 (Controls 0.00 cfs)

Secondary OutFlow Max=8.06 cfs @ 12.10 hrs HW=845.49' (Free Discharge)

6=Surveyed Embankment (Weir Controls 8.06 cfs @ 0.87 fps)

Pond 2P: Riverside Woods Basin 1 Ex Conditions



Riverside Woods Basin 1 - AKJ Updates

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Type II 24-hr 50-yr Rainfall=5.33"

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Summary for Link 30L: Bulletin 71 Offsite 003

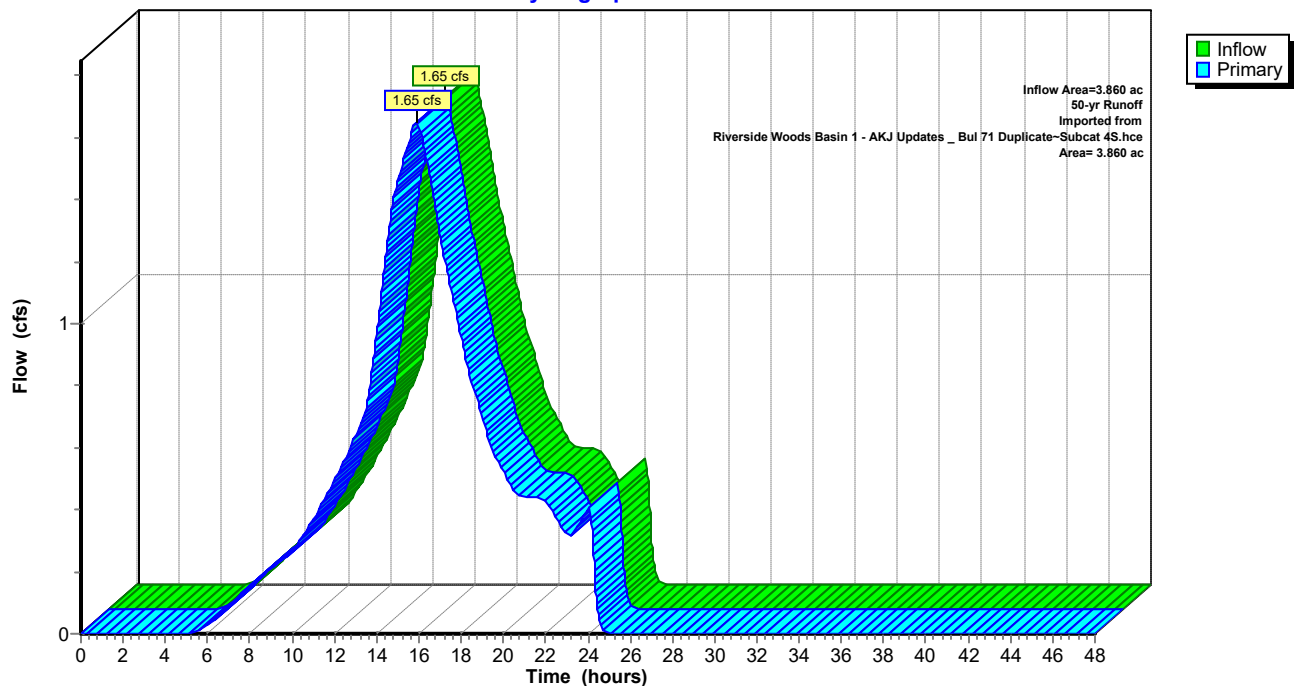
Inflow Area = 3.860 ac, 0.00% Impervious, Inflow Depth = 2.90" for 50-yr event
Inflow = 1.65 cfs @ 15.89 hrs, Volume= 0.933 af
Primary = 1.65 cfs @ 15.89 hrs, Volume= 0.933 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 2P : Riverside Woods Basin 1 Ex Conditions

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

50-yr Runoff Imported from Riverside Woods Basin 1 - AKJ Updates _ Bul 71 Duplicate~Subcat 4S.hce

Link 30L: Bulletin 71 Offsite 003

Hydrograph



Riverside Woods Basin 1 - AKJ Updates

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Type II 24-hr 100-yr Rainfall=6.06"

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Summary for Subcatchment 5S: Per Plan Subarea 003

Runoff = 13.68 cfs @ 12.02 hrs, Volume= 0.797 af, Depth= 4.57"

Routed to Pond 2P : Riverside Woods Basin 1 Ex Conditions

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

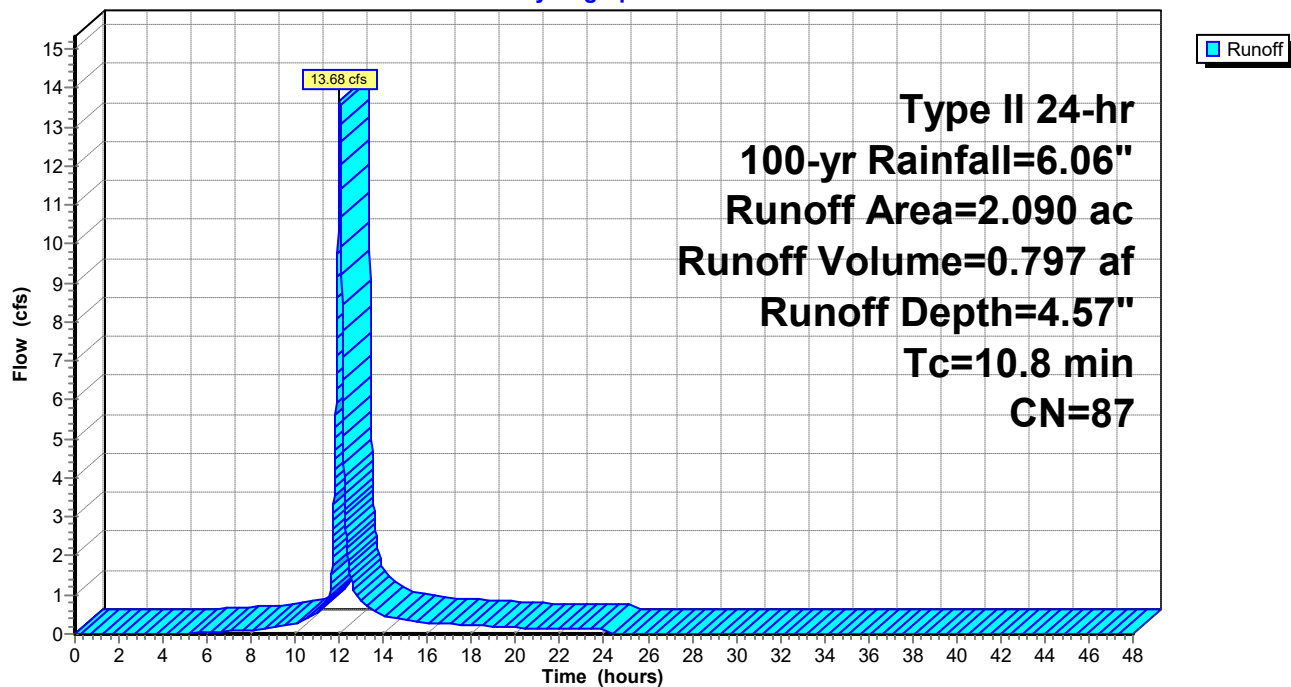
Type II 24-hr 100-yr Rainfall=6.06"

Area (ac)	CN	Description
* 2.090	87	
2.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8					Direct Entry,

Subcatchment 5S: Per Plan Subarea 003

Hydrograph



Riverside Woods Basin 1 - AKJ Updates

Type II 24-hr 100-yr Rainfall=6.06"

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Summary for Pond 2P: Riverside Woods Basin 1 Ex Conditions

Inflow Area = 5.950 ac, 0.00% Impervious, Inflow Depth = 3.90" for 100-yr event
 Inflow = 14.31 cfs @ 12.02 hrs, Volume= 1.933 af
 Outflow = 13.55 cfs @ 12.05 hrs, Volume= 1.813 af, Atten= 5%, Lag= 2.0 min
 Primary = 1.01 cfs @ 12.05 hrs, Volume= 1.095 af
 Secondary = 12.54 cfs @ 12.05 hrs, Volume= 0.718 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 845.53' @ 12.05 hrs Surf.Area= 0.242 ac Storage= 0.394 af

Plug-Flow detention time= 191.0 min calculated for 1.813 af (94% of inflow)
 Center-of-Mass det. time= 158.7 min (1,052.3 - 893.7)

Volume	Invert	Avail.Storage	Storage Description
#1	841.00'	0.516 af	Ex Survey (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
841.00	0.000	0.000	0.000
842.00	0.001	0.000	0.000
843.00	0.052	0.027	0.027
844.00	0.125	0.089	0.116
845.00	0.198	0.161	0.277
846.00	0.281	0.239	0.516

Device	Routing	Invert	Outlet Devices
#1	Primary	840.44'	18.00" Round Surveyed Outlet Pipe 2025 L= 37.6' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 840.44' / 839.73' S= 0.0189 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	844.57'	6.00" Horiz. Surveyed Riser Top 2025 C= 0.600 Limited to weir flow at low heads
#3	Device 1	840.98'	0.25" Vert. As Built WQ Holes X 6.00 C= 0.600 Limited to weir flow at low heads
#4	Device 1	843.26'	0.75" Vert. As Built 2nd Stage Holes X 2.00 C= 0.600 Limited to weir flow at low heads
#5	Device 1	845.53'	2.10" x 2.10" Horiz. Surveyed Grate 2025 X 7.00 columns X 7 rows C= 0.600 in 23.60" x 23.60" Grate (39% open area) Limited to weir flow at low heads
#6	Secondary	845.32'	Surveyed Embankment, C= 3.27 Offset (feet) 0.00 4.34 9.01 14.72 22.05 39.20 45.37 47.98 58.04 66.39 73.01 76.23 79.39 89.57 97.37 Elev. (feet) 846.00 845.64 845.54 845.36 845.34 845.40 845.33 845.40 845.32 845.45 845.70 845.37 845.76 845.73 846.00

Riverside Woods Basin 1 - AKJ Updates

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Type II 24-hr 100-yr Rainfall=6.06"

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Primary OutFlow Max=1.00 cfs @ 12.05 hrs HW=845.53' (Free Discharge)

1=Surveyed Outlet Pipe 2025 (Passes 1.00 cfs of 17.73 cfs potential flow)

2=Surveyed Riser Top 2025 (Orifice Controls 0.93 cfs @ 4.73 fps)

3=As Built WQ Holes (Orifice Controls 0.02 cfs @ 10.26 fps)

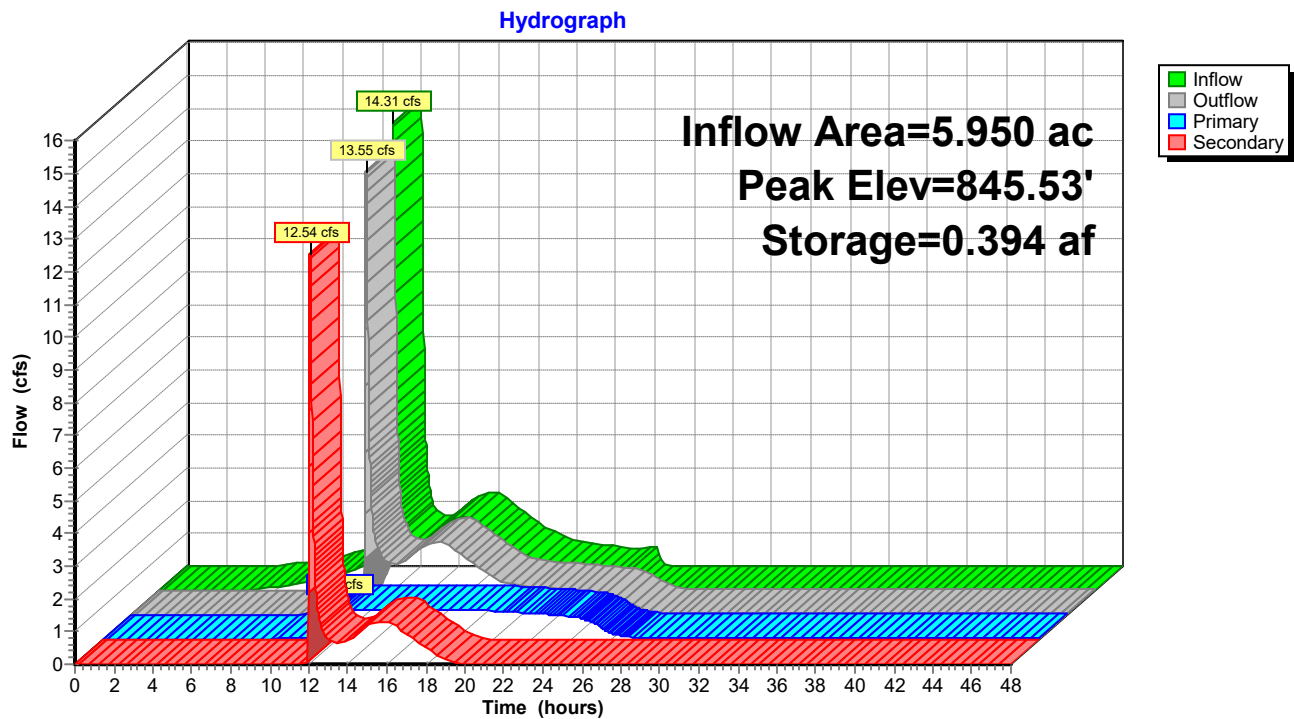
4=As Built 2nd Stage Holes (Orifice Controls 0.04 cfs @ 7.21 fps)

5=Surveyed Grate 2025 (Weir Controls 0.01 cfs @ 0.21 fps)

Secondary OutFlow Max=12.51 cfs @ 12.05 hrs HW=845.53' (Free Discharge)

6=Surveyed Embankment (Weir Controls 12.51 cfs @ 1.03 fps)

Pond 2P: Riverside Woods Basin 1 Ex Conditions



Riverside Woods Basin 1 - AKJ Updates

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Type II 24-hr 100-yr Rainfall=6.06"

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Summary for Link 30L: Bulletin 71 Offsite 003

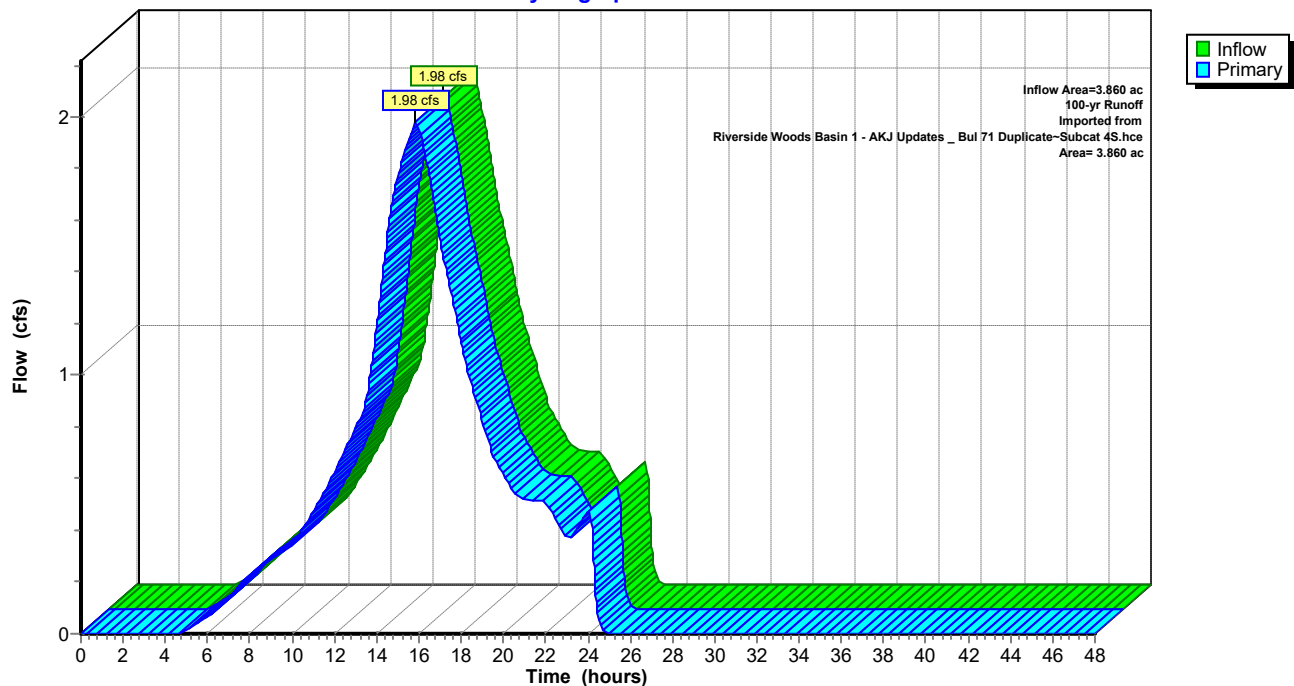
Inflow Area = 3.860 ac, 0.00% Impervious, Inflow Depth = 3.53" for 100-yr event
Inflow = 1.98 cfs @ 15.84 hrs, Volume= 1.136 af
Primary = 1.98 cfs @ 15.84 hrs, Volume= 1.136 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 2P : Riverside Woods Basin 1 Ex Conditions

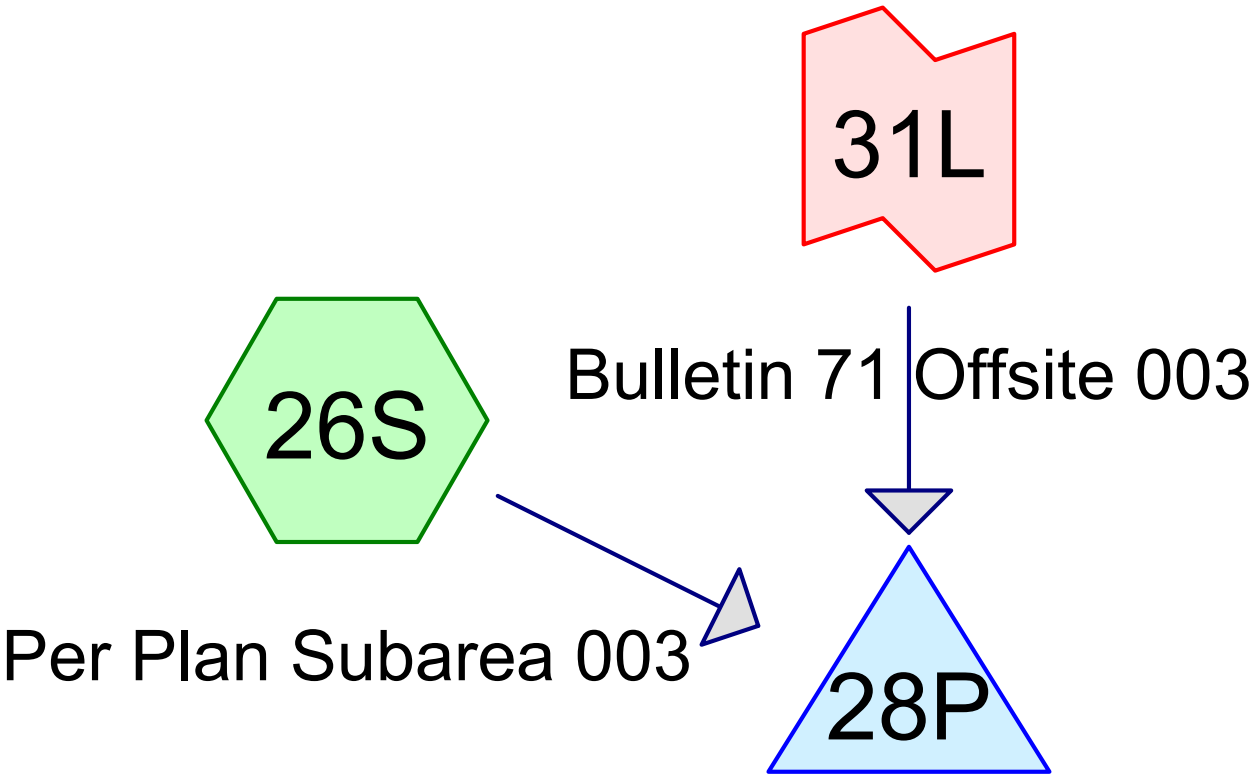
Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

100-yr Runoff Imported from Riverside Woods Basin 1 - AKJ Updates _ Bul 71 Duplicate~Subcat 4S.hce

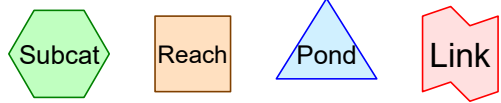
Link 30L: Bulletin 71 Offsite 003

Hydrograph





Riverside Woods Basin
1 Prop Rebuild



Riverside Woods Basin 1 - AKJ Updates 100

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Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-yr	Type II 24-hr		Default	24.00	1	2.17	2
2	2-yr	Type II 24-hr		Default	24.00	1	2.70	2
3	5-yr	Type II 24-hr		Default	24.00	1	3.35	2
4	10-yr	Type II 24-hr		Default	24.00	1	3.86	2
5	25-yr	Type II 24-hr		Default	24.00	1	4.64	2
6	50-yr	Type II 24-hr		Default	24.00	1	5.33	2
7	100-yr	Type II 24-hr		Default	24.00	1	6.06	2

Riverside Woods Basin 1 - AKJ Updates 100

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Type II 24-hr 1-yr Rainfall=2.17"

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Summary for Subcatchment 26S: Per Plan Subarea 003

Runoff = 3.26 cfs @ 12.03 hrs, Volume= 0.181 af, Depth= 1.04"

Routed to Pond 28P : Riverside Woods Basin 1 Prop Rebuild

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

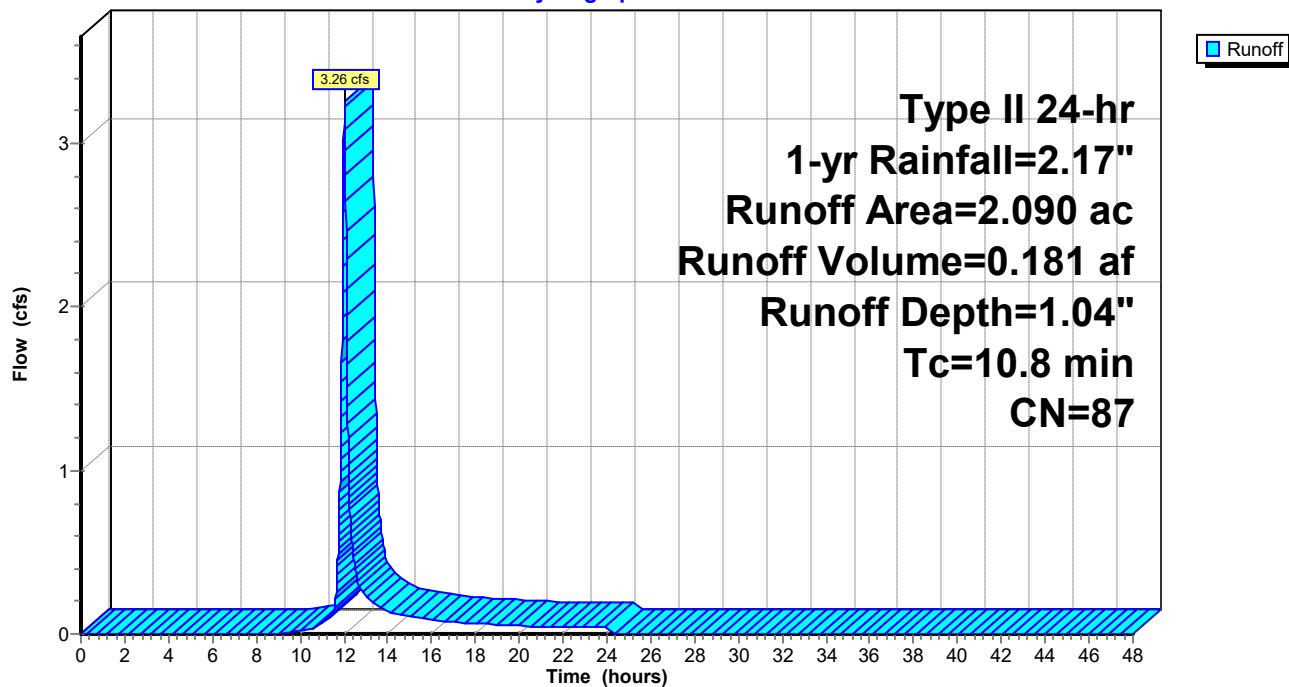
Type II 24-hr 1-yr Rainfall=2.17"

Area (ac)	CN	Description
* 2.090	87	
2.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8					Direct Entry,

Subcatchment 26S: Per Plan Subarea 003

Hydrograph



Riverside Woods Basin 1 - AKJ Updates 100

Type II 24-hr 1-yr Rainfall=2.17"

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Summary for Pond 28P: Riverside Woods Basin 1 Prop Rebuild

Inflow Area = 5.950 ac, 0.00% Impervious, Inflow Depth = 0.72" for 1-yr event
 Inflow = 3.29 cfs @ 12.03 hrs, Volume= 0.356 af
 Outflow = 0.20 cfs @ 19.61 hrs, Volume= 0.154 af, Atten= 94%, Lag= 454.9 min
 Primary = 0.20 cfs @ 19.61 hrs, Volume= 0.154 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 843.98' @ 19.61 hrs Surf.Area= 0.170 ac Storage= 0.256 af

Plug-Flow detention time= 681.0 min calculated for 0.154 af (43% of inflow)
 Center-of-Mass det. time= 482.1 min (1,428.3 - 946.2)

Volume	Invert	Avail.Storage	Storage Description
--------	--------	---------------	---------------------

#1	841.00'	1.084 af	Prop Storage (Prismatic) Listed below (Recalc) x 1.15
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Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
841.00	0.000	0.000	0.000
842.00	0.053	0.026	0.026
843.00	0.098	0.075	0.102
844.00	0.149	0.123	0.225
845.00	0.211	0.180	0.405
846.00	0.288	0.250	0.655
847.00	0.288	0.288	0.943

Device	Routing	Invert	Outlet Devices
--------	---------	--------	----------------

#1	Primary	839.50'	18.00" Round Prop 18" Outlet Pipe L= 30.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 839.50' / 839.42' S= 0.0027 ' / Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	839.50'	0.50" Horiz. New WQ Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	843.75'	Weir Wall, Cv= 2.62 (C= 3.28) Elev. (feet) 843.75 844.50 844.50 845.00 Width (feet) 0.50 0.50 6.00 6.00
#4	Device 1	844.50'	24.00" W x 6.00" H Vert. Window X 2.00 C= 0.600 Limited to weir flow at low heads
#5	Device 1	845.50'	4.00" x 4.00" Horiz. New Grate ODOT CB2-6 X 14.00 columns X 14 rows C= 0.600 in 72.00" x 72.00" Grate (60% open area)
#6	Secondary	845.50'	18.0' long + 2.0 ' / SideZ x 8.0' breadth New Emergency Spillway Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Riverside Woods Basin 1 - AKJ Updates 100

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Type II 24-hr 1-yr Rainfall=2.17"

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Primary OutFlow Max=0.20 cfs @ 19.61 hrs HW=843.98' (Free Discharge)

1=Prop 18" Outlet Pipe (Passes 0.20 cfs of 16.44 cfs potential flow)

2=New WQ Orifice (Orifice Controls 0.01 cfs @ 10.19 fps)

3=Weir Wall (Weir Controls 0.18 cfs @ 1.58 fps)

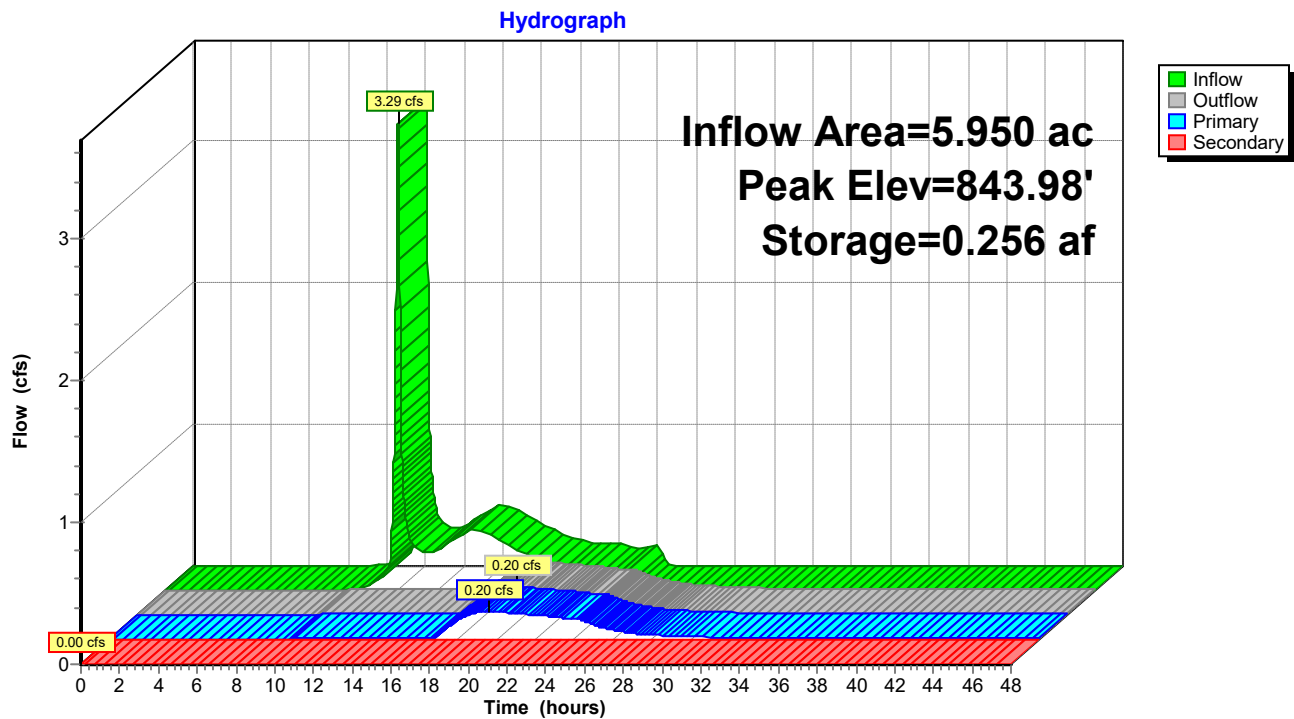
4=Window (Controls 0.00 cfs)

5=New Grate ODOT CB2-6 (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=841.00' (Free Discharge)

6=New Emergency Spillway (Controls 0.00 cfs)

Pond 28P: Riverside Woods Basin 1 Prop Rebuild

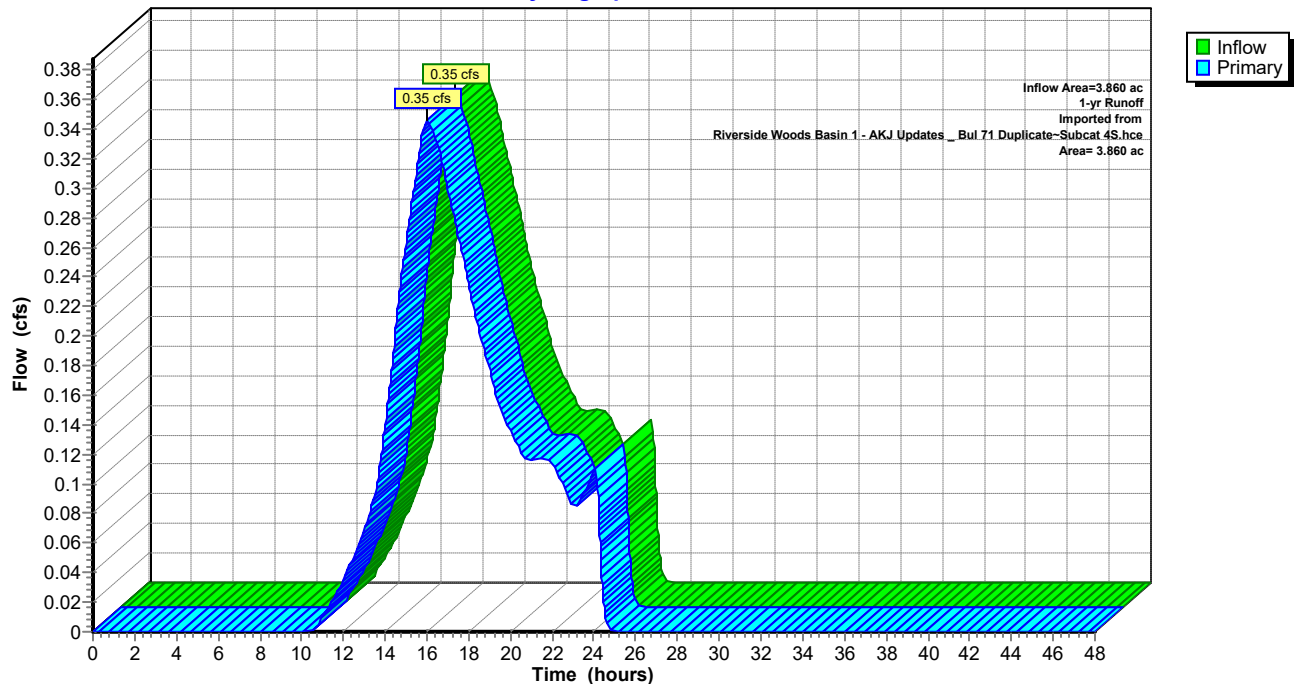


Summary for Link 31L: Bulletin 71 Offsite 003

Inflow Area = 3.860 ac, 0.00% Impervious, Inflow Depth = 0.54" for 1-yr event
Inflow = 0.35 cfs @ 16.03 hrs, Volume= 0.174 af
Primary = 0.35 cfs @ 16.03 hrs, Volume= 0.174 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 28P : Riverside Woods Basin 1 Prop Rebuild

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

1-yr Runoff Imported from Riverside Woods Basin 1 - AKJ Updates _ Bul 71 Duplicate~Subcat 4S.hce

Link 31L: Bulletin 71 Offsite 003**Hydrograph**

Riverside Woods Basin 1 - AKJ Updates 100

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Type II 24-hr 2-yr Rainfall=2.70"

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Summary for Subcatchment 26S: Per Plan Subarea 003

Runoff = 4.62 cfs @ 12.03 hrs, Volume= 0.258 af, Depth= 1.48"

Routed to Pond 28P : Riverside Woods Basin 1 Prop Rebuild

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

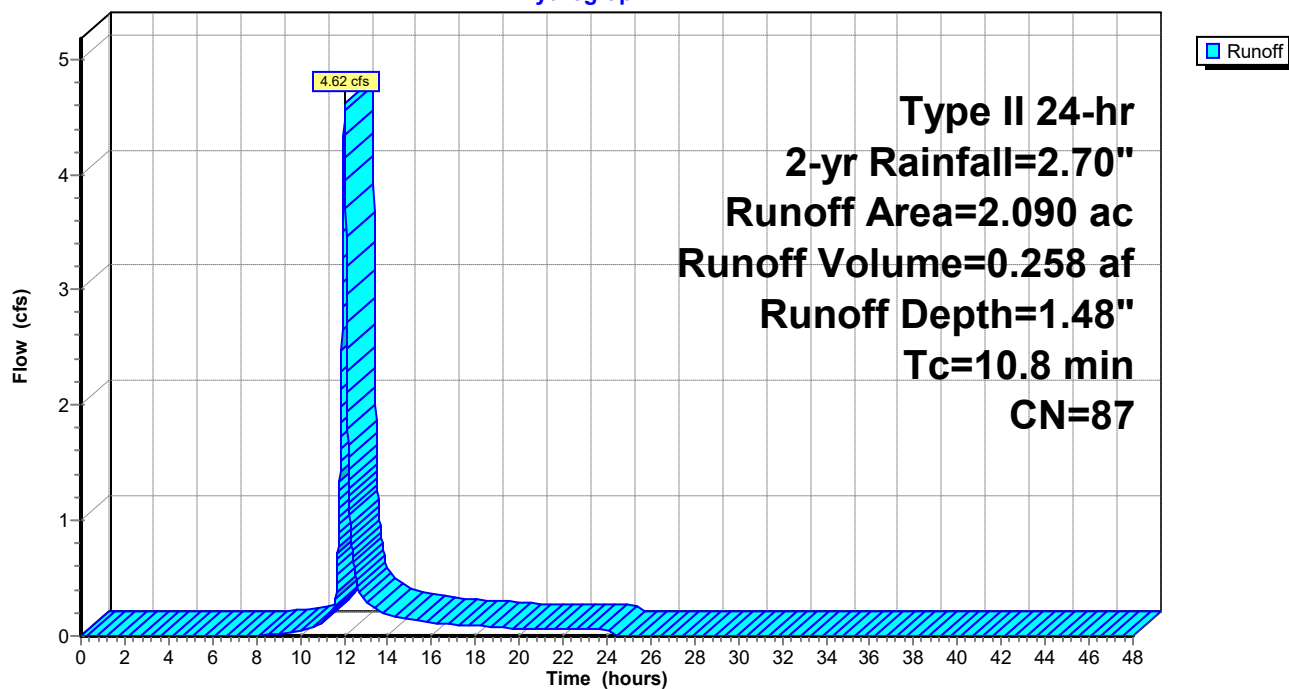
Type II 24-hr 2-yr Rainfall=2.70"

Area (ac)	CN	Description
* 2.090	87	
2.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8					Direct Entry,

Subcatchment 26S: Per Plan Subarea 003

Hydrograph



Riverside Woods Basin 1 - AKJ Updates 100

Type II 24-hr 2-yr Rainfall=2.70"

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Summary for Pond 28P: Riverside Woods Basin 1 Prop Rebuild

Inflow Area = 5.950 ac, 0.00% Impervious, Inflow Depth = 1.08" for 2-yr event
 Inflow = 4.72 cfs @ 12.03 hrs, Volume= 0.537 af
 Outflow = 0.50 cfs @ 17.43 hrs, Volume= 0.335 af, Atten= 89%, Lag= 324.2 min
 Primary = 0.50 cfs @ 17.43 hrs, Volume= 0.335 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 844.20' @ 17.43 hrs Surf.Area= 0.185 ac Storage= 0.294 af

Plug-Flow detention time= 461.0 min calculated for 0.335 af (62% of inflow)
 Center-of-Mass det. time= 320.6 min (1,256.4 - 935.8)

Volume	Invert	Avail.Storage	Storage Description
--------	--------	---------------	---------------------

#1	841.00'	1.084 af	Prop Storage (Prismatic) Listed below (Recalc) x 1.15
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Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
841.00	0.000	0.000	0.000
842.00	0.053	0.026	0.026
843.00	0.098	0.075	0.102
844.00	0.149	0.123	0.225
845.00	0.211	0.180	0.405
846.00	0.288	0.250	0.655
847.00	0.288	0.288	0.943

Device	Routing	Invert	Outlet Devices
--------	---------	--------	----------------

#1	Primary	839.50'	18.00" Round Prop 18" Outlet Pipe L= 30.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 839.50' / 839.42' S= 0.0027 ' / Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	839.50'	0.50" Horiz. New WQ Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	843.75'	Weir Wall, Cv= 2.62 (C= 3.28) Elev. (feet) 843.75 844.50 844.50 845.00 Width (feet) 0.50 0.50 6.00 6.00
#4	Device 1	844.50'	24.00" W x 6.00" H Vert. Window X 2.00 C= 0.600 Limited to weir flow at low heads
#5	Device 1	845.50'	4.00" x 4.00" Horiz. New Grate ODOT CB2-6 X 14.00 columns X 14 rows C= 0.600 in 72.00" x 72.00" Grate (60% open area)
#6	Secondary	845.50'	18.0' long + 2.0 ' / SideZ x 8.0' breadth New Emergency Spillway Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Riverside Woods Basin 1 - AKJ Updates 100

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Type II 24-hr 2-yr Rainfall=2.70"

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Primary OutFlow Max=0.50 cfs @ 17.43 hrs HW=844.20' (Free Discharge)

1=Prop 18" Outlet Pipe (Passes 0.50 cfs of 16.90 cfs potential flow)

2=New WQ Orifice (Orifice Controls 0.01 cfs @ 10.43 fps)

3=Weir Wall (Weir Controls 0.49 cfs @ 2.19 fps)

4=Window (Controls 0.00 cfs)

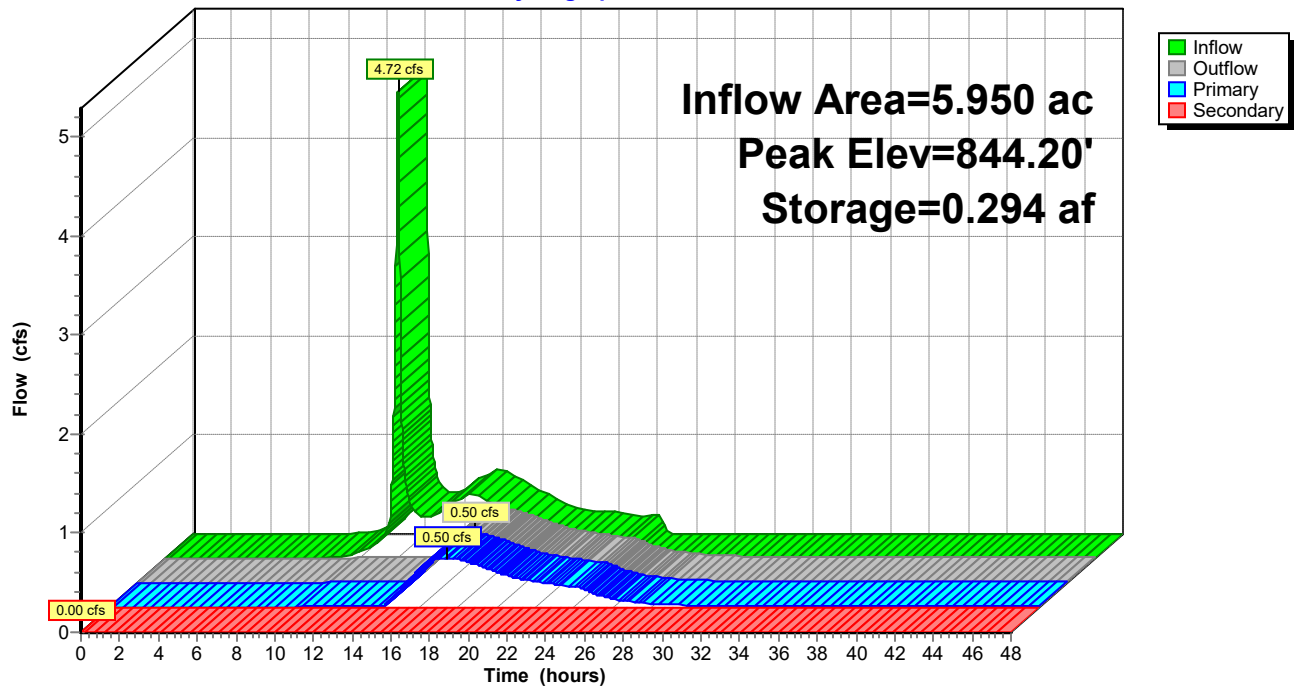
5=New Grate ODOT CB2-6 (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=841.00' (Free Discharge)

6=New Emergency Spillway (Controls 0.00 cfs)

Pond 28P: Riverside Woods Basin 1 Prop Rebuild

Hydrograph



Summary for Link 31L: Bulletin 71 Offsite 003

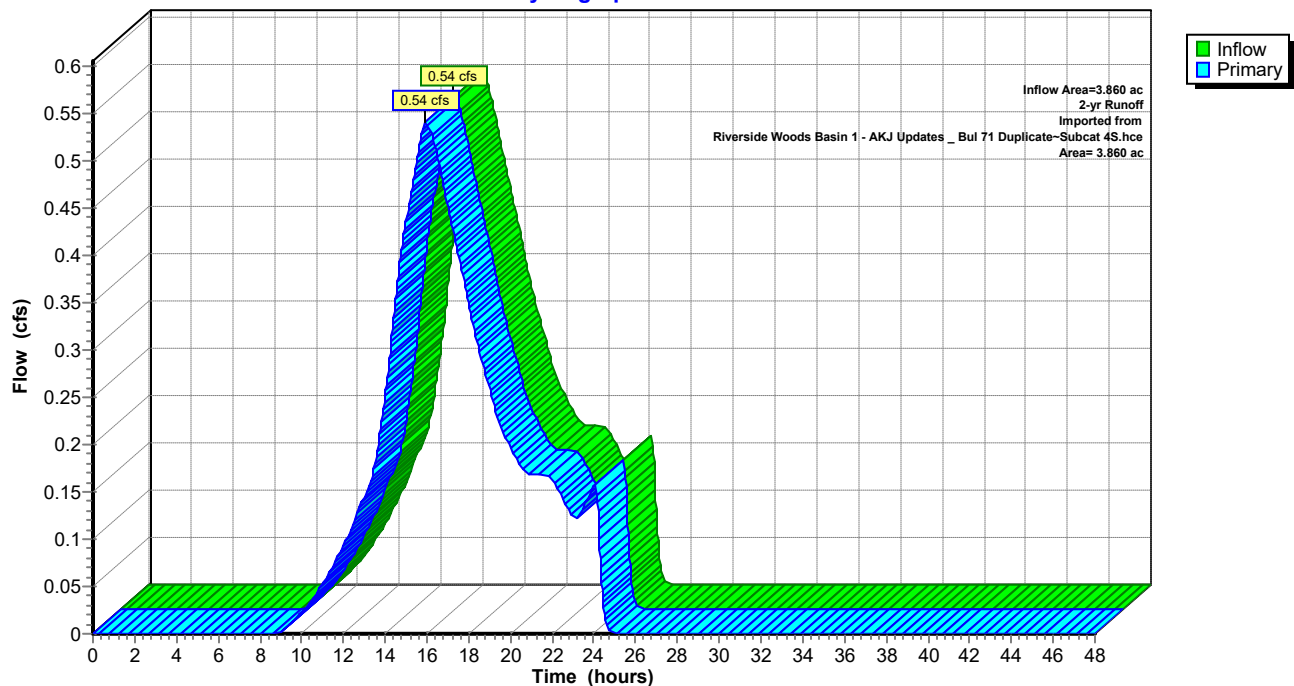
Inflow Area = 3.860 ac, 0.00% Impervious, Inflow Depth = 0.87" for 2-yr event
 Inflow = 0.54 cfs @ 15.94 hrs, Volume= 0.279 af
 Primary = 0.54 cfs @ 15.94 hrs, Volume= 0.279 af, Atten= 0%, Lag= 0.0 min
 Routed to Pond 28P : Riverside Woods Basin 1 Prop Rebuild

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

2-yr Runoff Imported from Riverside Woods Basin 1 - AKJ Updates _ Bul 71 Duplicate~Subcat 4S.hce

Link 31L: Bulletin 71 Offsite 003

Hydrograph



Riverside Woods Basin 1 - AKJ Updates 100

Prepared by EMH&T

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Type II 24-hr 5-yr Rainfall=3.35"

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Summary for Subcatchment 26S: Per Plan Subarea 003

Runoff = 6.35 cfs @ 12.02 hrs, Volume= 0.357 af, Depth= 2.05"

Routed to Pond 28P : Riverside Woods Basin 1 Prop Rebuild

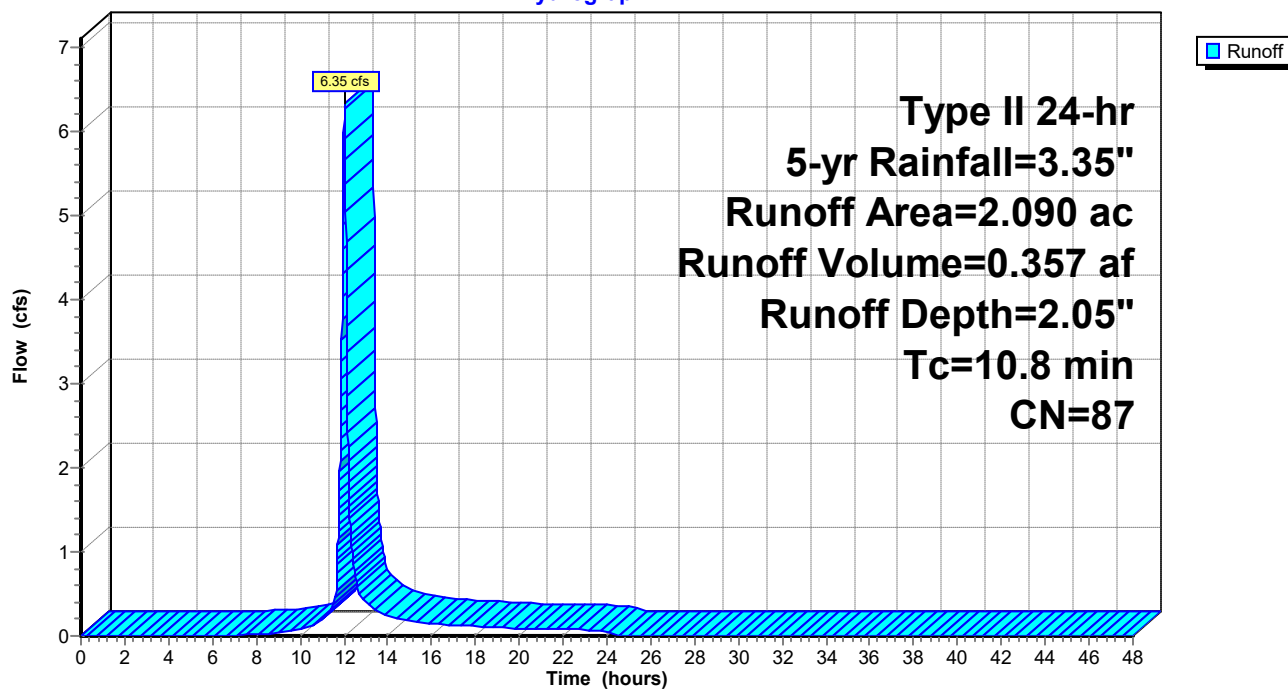
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=3.35"

Area (ac)	CN	Description
* 2.090	87	
2.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8					Direct Entry,

Subcatchment 26S: Per Plan Subarea 003

Hydrograph



Riverside Woods Basin 1 - AKJ Updates 100

Type II 24-hr 5-yr Rainfall=3.35"

Prepared by EMH&T

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Summary for Pond 28P: Riverside Woods Basin 1 Prop Rebuild

Inflow Area = 5.950 ac, 0.00% Impervious, Inflow Depth = 1.58" for 5-yr event
 Inflow = 6.53 cfs @ 12.02 hrs, Volume= 0.781 af
 Outflow = 0.83 cfs @ 16.74 hrs, Volume= 0.579 af, Atten= 87%, Lag= 282.8 min
 Primary = 0.83 cfs @ 16.74 hrs, Volume= 0.579 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 844.38' @ 16.74 hrs Surf.Area= 0.198 ac Storage= 0.329 af

Plug-Flow detention time= 338.9 min calculated for 0.579 af (74% of inflow)
 Center-of-Mass det. time= 234.1 min (1,158.9 - 924.8)

Volume	Invert	Avail.Storage	Storage Description
--------	--------	---------------	---------------------

#1	841.00'	1.084 af	Prop Storage (Prismatic) Listed below (Recalc) x 1.15
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Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
841.00	0.000	0.000	0.000
842.00	0.053	0.026	0.026
843.00	0.098	0.075	0.102
844.00	0.149	0.123	0.225
845.00	0.211	0.180	0.405
846.00	0.288	0.250	0.655
847.00	0.288	0.288	0.943

Device	Routing	Invert	Outlet Devices
--------	---------	--------	----------------

#1	Primary	839.50'	18.00" Round Prop 18" Outlet Pipe L= 30.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 839.50' / 839.42' S= 0.0027 ' / Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	839.50'	0.50" Horiz. New WQ Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	843.75'	Weir Wall, Cv= 2.62 (C= 3.28) Elev. (feet) 843.75 844.50 844.50 845.00 Width (feet) 0.50 0.50 6.00 6.00
#4	Device 1	844.50'	24.00" W x 6.00" H Vert. Window X 2.00 C= 0.600 Limited to weir flow at low heads
#5	Device 1	845.50'	4.00" x 4.00" Horiz. New Grate ODOT CB2-6 X 14.00 columns X 14 rows C= 0.600 in 72.00" x 72.00" Grate (60% open area)
#6	Secondary	845.50'	18.0' long + 2.0 ' / SideZ x 8.0' breadth New Emergency Spillway Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Riverside Woods Basin 1 - AKJ Updates 100

Prepared by EMH&T

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Type II 24-hr 5-yr Rainfall=3.35"

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Primary OutFlow Max=0.83 cfs @ 16.74 hrs HW=844.38' (Free Discharge)

1=Prop 18" Outlet Pipe (Passes 0.83 cfs of 17.29 cfs potential flow)

2=New WQ Orifice (Orifice Controls 0.01 cfs @ 10.64 fps)

3=Weir Wall (Weir Controls 0.82 cfs @ 2.60 fps)

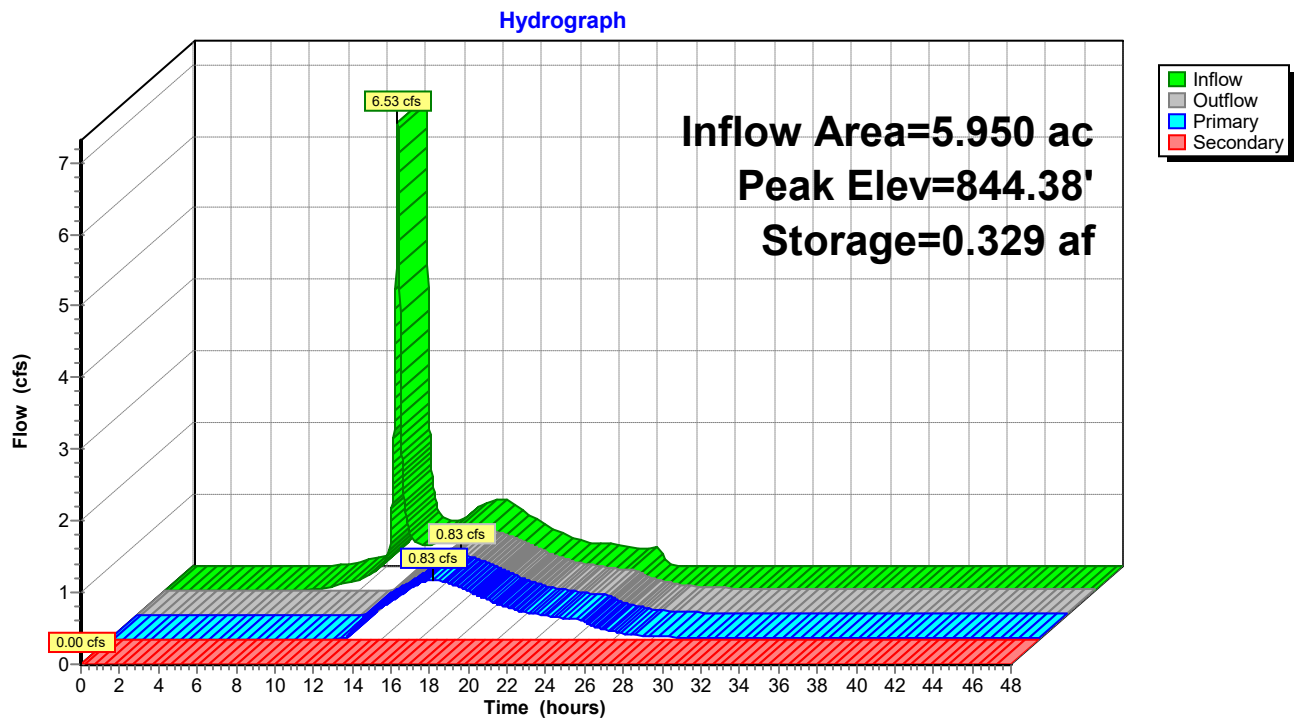
4=Window (Controls 0.00 cfs)

5=New Grate ODOT CB2-6 (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=841.00' (Free Discharge)

6=New Emergency Spillway (Controls 0.00 cfs)

Pond 28P: Riverside Woods Basin 1 Prop Rebuild



Riverside Woods Basin 1 - AKJ Updates 100

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Type II 24-hr 5-yr Rainfall=3.35"

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Summary for Link 31L: Bulletin 71 Offsite 003

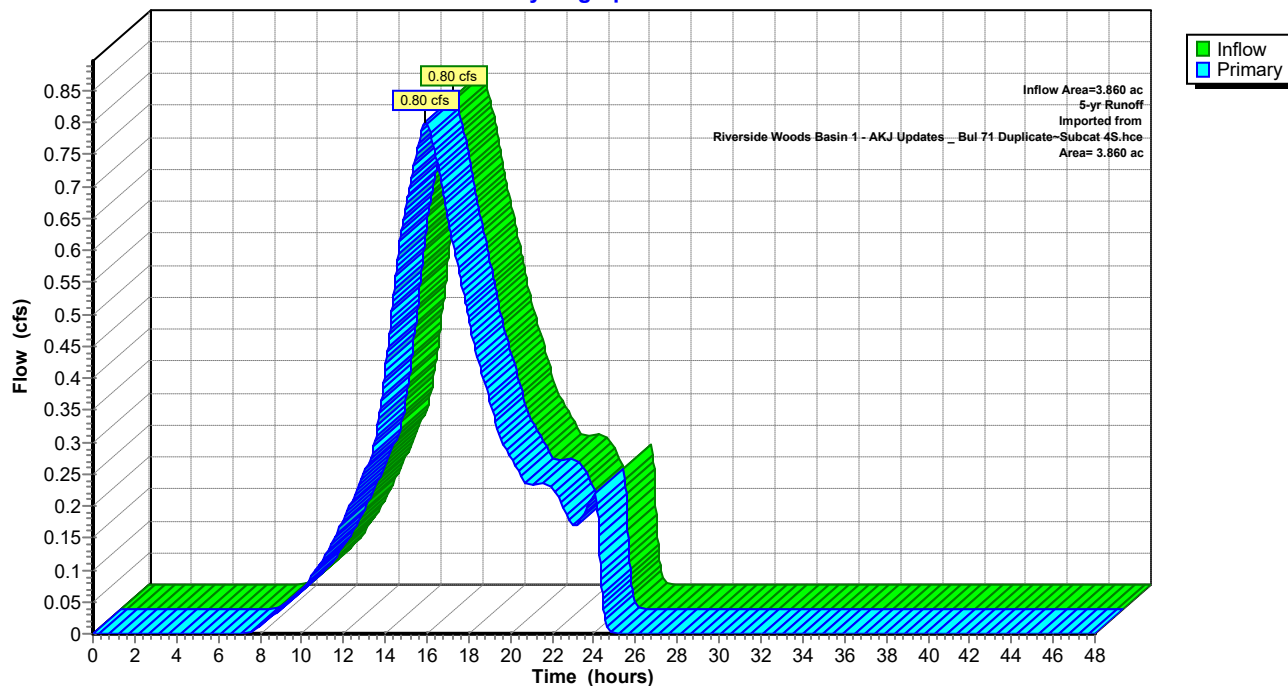
Inflow Area = 3.860 ac, 0.00% Impervious, Inflow Depth = 1.32" for 5-yr event
Inflow = 0.80 cfs @ 15.94 hrs, Volume= 0.425 af
Primary = 0.80 cfs @ 15.94 hrs, Volume= 0.425 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 28P : Riverside Woods Basin 1 Prop Rebuild

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

5-yr Runoff Imported from Riverside Woods Basin 1 - AKJ Updates _ Bul 71 Duplicate~Subcat 4S.hce

Link 31L: Bulletin 71 Offsite 003

Hydrograph



Riverside Woods Basin 1 - AKJ Updates 100

Prepared by EMH&T

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Type II 24-hr 10-yr Rainfall=3.86"

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Summary for Subcatchment 26S: Per Plan Subarea 003

Runoff = 7.72 cfs @ 12.02 hrs, Volume= 0.437 af, Depth= 2.51"

Routed to Pond 28P : Riverside Woods Basin 1 Prop Rebuild

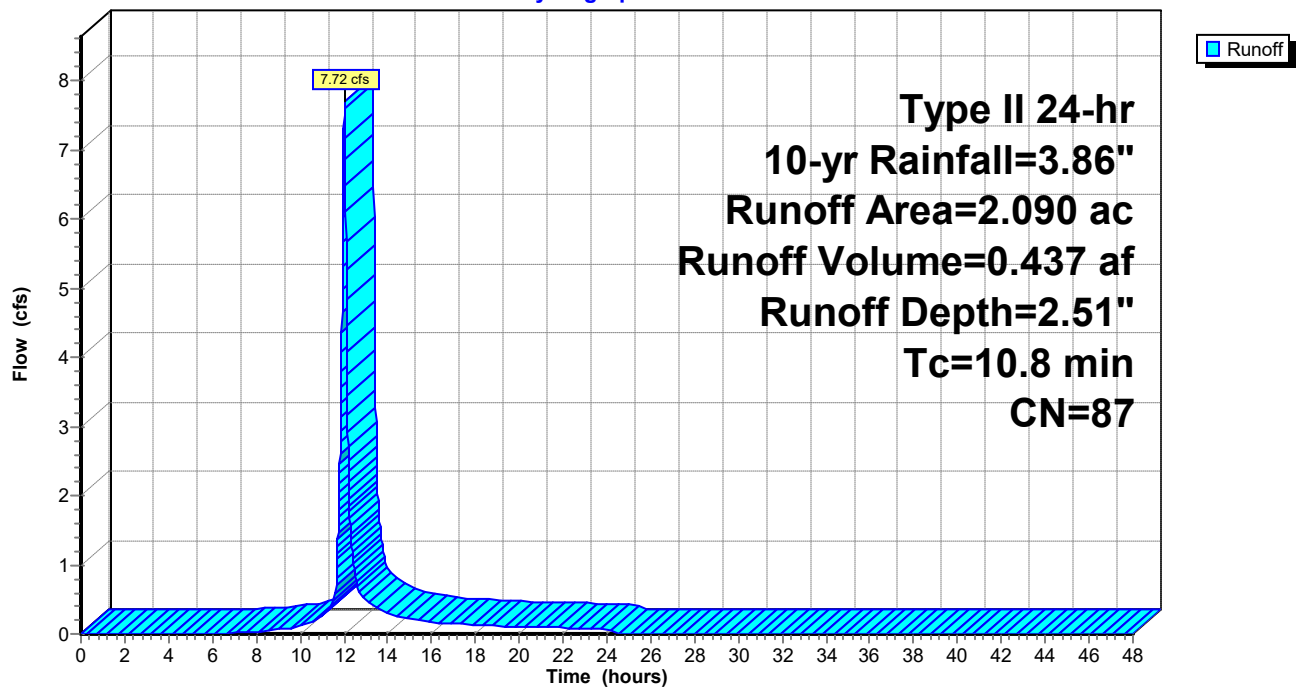
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=3.86"

Area (ac)	CN	Description
* 2.090	87	
2.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8					Direct Entry,

Subcatchment 26S: Per Plan Subarea 003

Hydrograph



Riverside Woods Basin 1 - AKJ Updates 100

Type II 24-hr 10-yr Rainfall=3.86"

Prepared by EMH&T

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Summary for Pond 28P: Riverside Woods Basin 1 Prop Rebuild

Inflow Area = 5.950 ac, 0.00% Impervious, Inflow Depth = 1.99" for 10-yr event
 Inflow = 7.97 cfs @ 12.02 hrs, Volume= 0.985 af
 Outflow = 1.07 cfs @ 16.55 hrs, Volume= 0.782 af, Atten= 87%, Lag= 271.8 min
 Primary = 1.07 cfs @ 16.55 hrs, Volume= 0.782 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 844.50' @ 16.55 hrs Surf.Area= 0.207 ac Storage= 0.354 af

Plug-Flow detention time= 285.1 min calculated for 0.782 af (79% of inflow)
 Center-of-Mass det. time= 197.4 min (1,114.8 - 917.4)

Volume	Invert	Avail.Storage	Storage Description
--------	--------	---------------	---------------------

#1	841.00'	1.084 af	Prop Storage (Prismatic) Listed below (Recalc) x 1.15
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Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
841.00	0.000	0.000	0.000
842.00	0.053	0.026	0.026
843.00	0.098	0.075	0.102
844.00	0.149	0.123	0.225
845.00	0.211	0.180	0.405
846.00	0.288	0.250	0.655
847.00	0.288	0.288	0.943

Device	Routing	Invert	Outlet Devices
--------	---------	--------	----------------

#1	Primary	839.50'	18.00" Round Prop 18" Outlet Pipe L= 30.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 839.50' / 839.42' S= 0.0027 ' S= 0.0027 ' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	839.50'	0.50" Horiz. New WQ Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	843.75'	Weir Wall, Cv= 2.62 (C= 3.28) Elev. (feet) 843.75 844.50 844.50 845.00 Width (feet) 0.50 0.50 6.00 6.00
#4	Device 1	844.50'	24.00" W x 6.00" H Vert. Window X 2.00 C= 0.600 Limited to weir flow at low heads
#5	Device 1	845.50'	4.00" x 4.00" Horiz. New Grate ODOT CB2-6 X 14.00 columns X 14 rows C= 0.600 in 72.00" x 72.00" Grate (60% open area)
#6	Secondary	845.50'	18.0' long + 2.0 ' SideZ x 8.0' breadth New Emergency Spillway Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Riverside Woods Basin 1 - AKJ Updates 100

Prepared by EMH&T

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Type II 24-hr 10-yr Rainfall=3.86"

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Primary OutFlow Max=1.07 cfs @ 16.55 hrs HW=844.50' (Free Discharge)

1=Prop 18" Outlet Pipe (Passes 1.07 cfs of 17.54 cfs potential flow)

2=New WQ Orifice (Orifice Controls 0.01 cfs @ 10.76 fps)

3=Weir Wall (Weir Controls 1.06 cfs @ 2.83 fps)

4=Window (Controls 0.00 cfs)

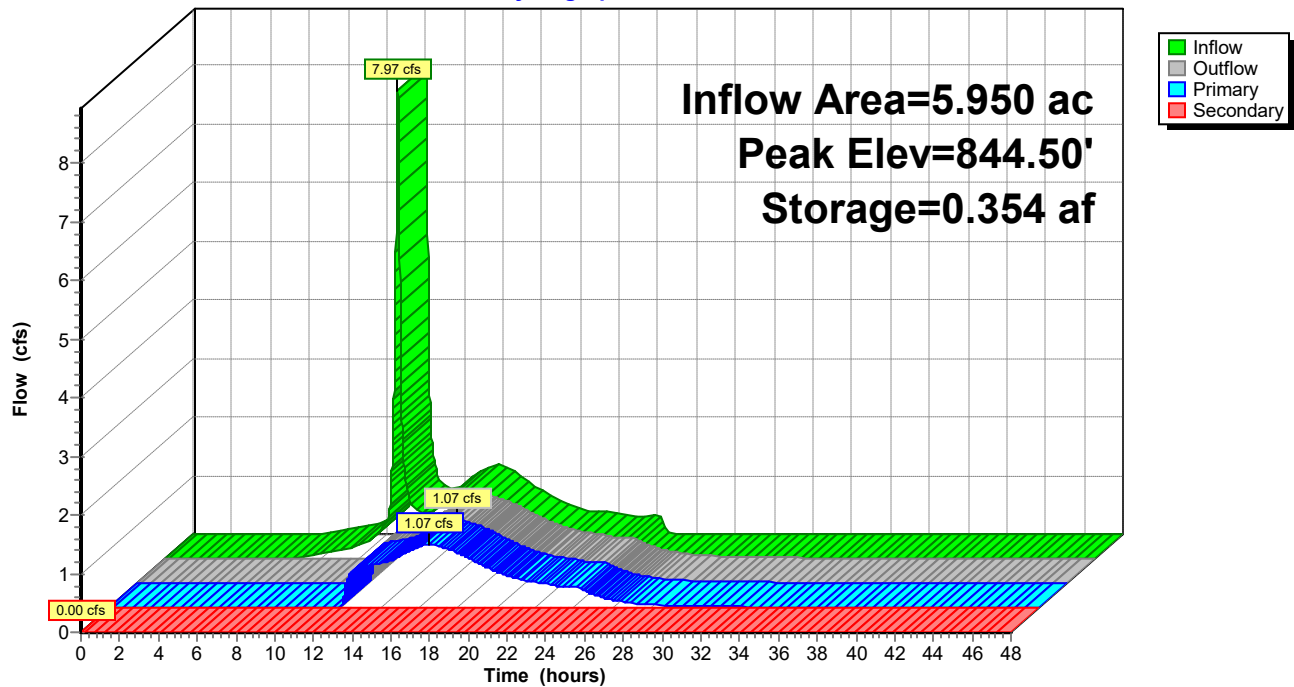
5=New Grate ODOT CB2-6 (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=841.00' (Free Discharge)

6=New Emergency Spillway (Controls 0.00 cfs)

Pond 28P: Riverside Woods Basin 1 Prop Rebuild

Hydrograph



Summary for Link 31L: Bulletin 71 Offsite 003

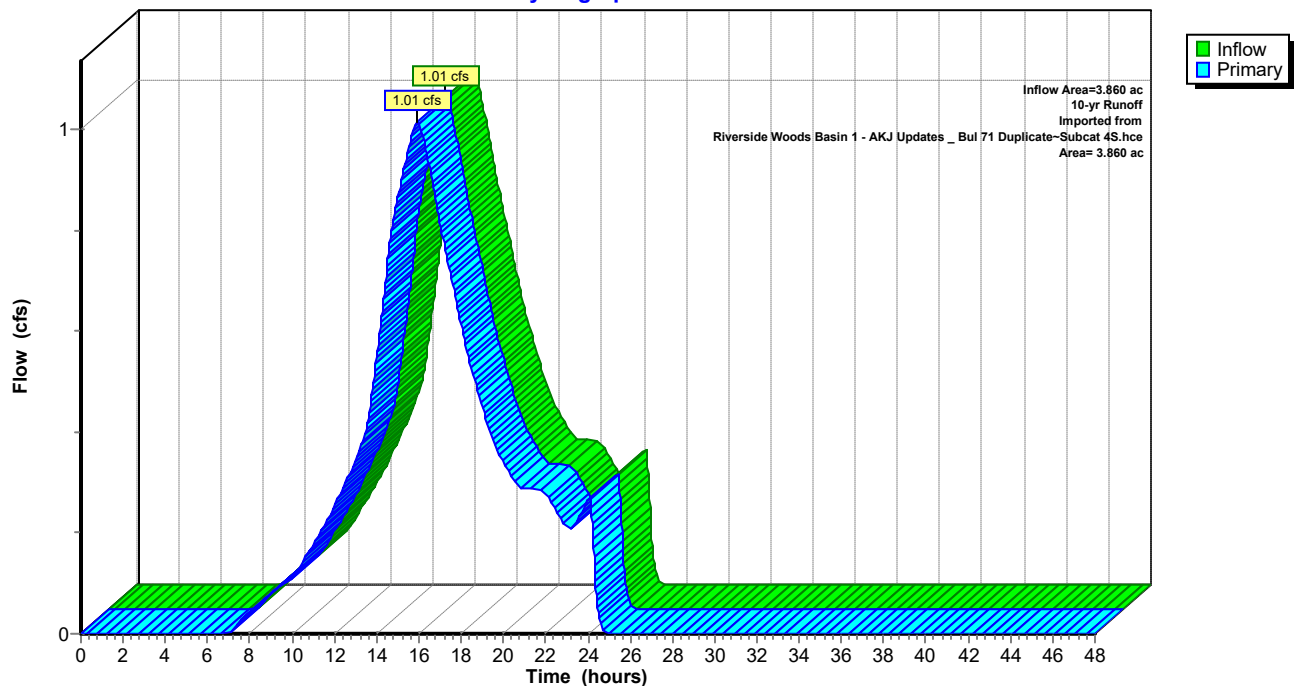
Inflow Area = 3.860 ac, 0.00% Impervious, Inflow Depth = 1.70" for 10-yr event
 Inflow = 1.01 cfs @ 15.89 hrs, Volume= 0.548 af
 Primary = 1.01 cfs @ 15.89 hrs, Volume= 0.548 af, Atten= 0%, Lag= 0.0 min
 Routed to Pond 28P : Riverside Woods Basin 1 Prop Rebuild

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

10-yr Runoff Imported from Riverside Woods Basin 1 - AKJ Updates _ Bul 71 Duplicate~Subcat 4S.hce

Link 31L: Bulletin 71 Offsite 003

Hydrograph



Riverside Woods Basin 1 - AKJ Updates 100

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Type II 24-hr 25-yr Rainfall=4.64"

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Summary for Subcatchment 26S: Per Plan Subarea 003

Runoff = 9.83 cfs @ 12.02 hrs, Volume= 0.562 af, Depth= 3.23"

Routed to Pond 28P : Riverside Woods Basin 1 Prop Rebuild

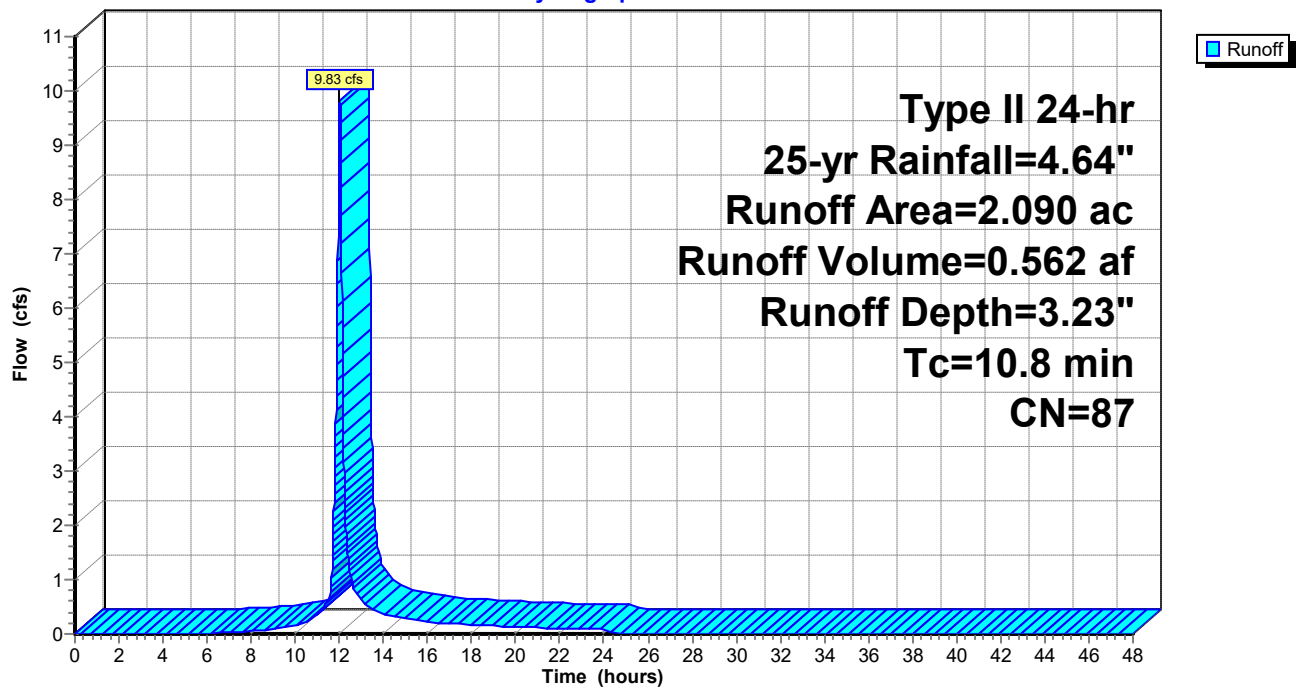
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=4.64"

Area (ac)	CN	Description
* 2.090	87	
2.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8					Direct Entry,

Subcatchment 26S: Per Plan Subarea 003

Hydrograph



Riverside Woods Basin 1 - AKJ Updates 100

Type II 24-hr 25-yr Rainfall=4.64"

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Summary for Pond 28P: Riverside Woods Basin 1 Prop Rebuild

Inflow Area = 5.950 ac, 0.00% Impervious, Inflow Depth = 2.64" for 25-yr event
 Inflow = 10.21 cfs @ 12.02 hrs, Volume= 1.310 af
 Outflow = 2.34 cfs @ 12.29 hrs, Volume= 1.107 af, Atten= 77%, Lag= 16.2 min
 Primary = 2.34 cfs @ 12.29 hrs, Volume= 1.107 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 844.60' @ 12.29 hrs Surf.Area= 0.214 ac Storage= 0.376 af

Plug-Flow detention time= 229.2 min calculated for 1.107 af (84% of inflow)
 Center-of-Mass det. time= 159.2 min (1,066.9 - 907.7)

Volume	Invert	Avail.Storage	Storage Description
#1	841.00'	1.084 af	Prop Storage (Prismatic) Listed below (Recalc) x 1.15

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
841.00	0.000	0.000	0.000
842.00	0.053	0.026	0.026
843.00	0.098	0.075	0.102
844.00	0.149	0.123	0.225
845.00	0.211	0.180	0.405
846.00	0.288	0.250	0.655
847.00	0.288	0.288	0.943

Device	Routing	Invert	Outlet Devices
#1	Primary	839.50'	18.00" Round Prop 18" Outlet Pipe L= 30.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 839.50' / 839.42' S= 0.0027 ' S= 0.0027 ' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	839.50'	0.50" Horiz. New WQ Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	843.75'	Weir Wall, Cv= 2.62 (C= 3.28) Elev. (feet) 843.75 844.50 844.50 845.00 Width (feet) 0.50 0.50 6.00 6.00
#4	Device 1	844.50'	24.00" W x 6.00" H Vert. Window X 2.00 C= 0.600 Limited to weir flow at low heads
#5	Device 1	845.50'	4.00" x 4.00" Horiz. New Grate ODOT CB2-6 X 14.00 columns X 14 rows C= 0.600 in 72.00" x 72.00" Grate (60% open area)
#6	Secondary	845.50'	18.0' long + 2.0 ' SideZ x 8.0' breadth New Emergency Spillway Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Riverside Woods Basin 1 - AKJ Updates 100

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Type II 24-hr 25-yr Rainfall=4.64"

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Primary OutFlow Max=2.33 cfs @ 12.29 hrs HW=844.60' (Free Discharge)

1=Prop 18" Outlet Pipe (Passes 2.33 cfs of 17.75 cfs potential flow)

2=New WQ Orifice (Orifice Controls 0.01 cfs @ 10.88 fps)

3=Weir Wall (Weir Controls 1.89 cfs @ 1.90 fps)

4=Window (Orifice Controls 0.43 cfs @ 1.03 fps)

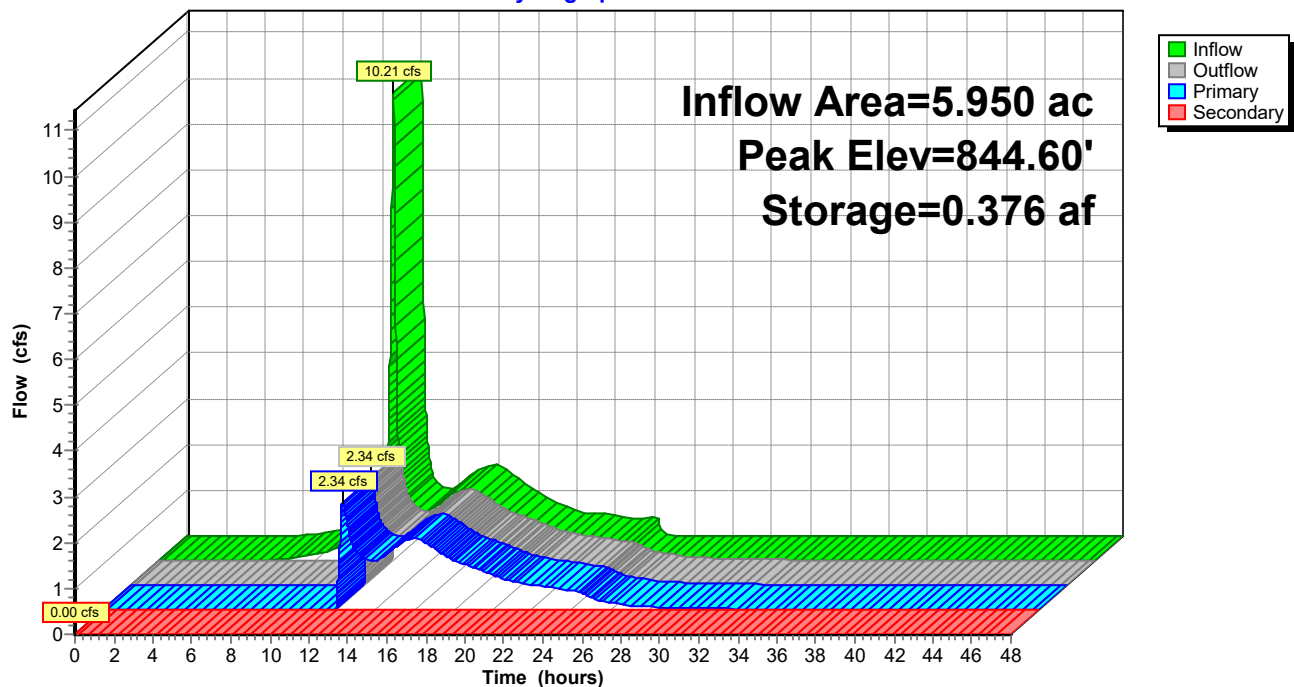
5=New Grate ODOT CB2-6 (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=841.00' (Free Discharge)

6=New Emergency Spillway (Controls 0.00 cfs)

Pond 28P: Riverside Woods Basin 1 Prop Rebuild

Hydrograph

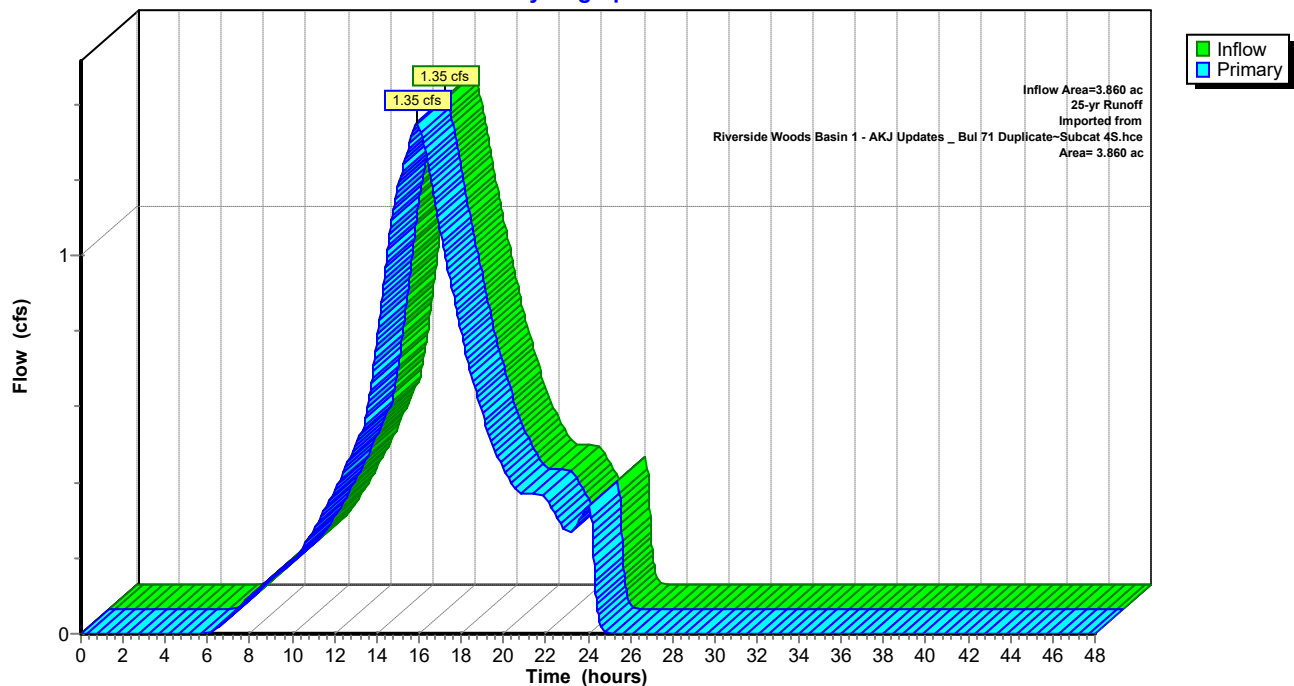


Summary for Link 31L: Bulletin 71 Offsite 003

Inflow Area = 3.860 ac, 0.00% Impervious, Inflow Depth = 2.32" for 25-yr event
Inflow = 1.35 cfs @ 15.89 hrs, Volume= 0.748 af
Primary = 1.35 cfs @ 15.89 hrs, Volume= 0.748 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 28P : Riverside Woods Basin 1 Prop Rebuild

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

25-yr Runoff Imported from Riverside Woods Basin 1 - AKJ Updates _ Bul 71 Duplicate~Subcat 4S.hce

Link 31L: Bulletin 71 Offsite 003**Hydrograph**

Riverside Woods Basin 1 - AKJ Updates 100

Prepared by EMH&T

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Type II 24-hr 50-yr Rainfall=5.33"

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Summary for Subcatchment 26S: Per Plan Subarea 003

Runoff = 11.70 cfs @ 12.02 hrs, Volume= 0.676 af, Depth= 3.88"

Routed to Pond 28P : Riverside Woods Basin 1 Prop Rebuild

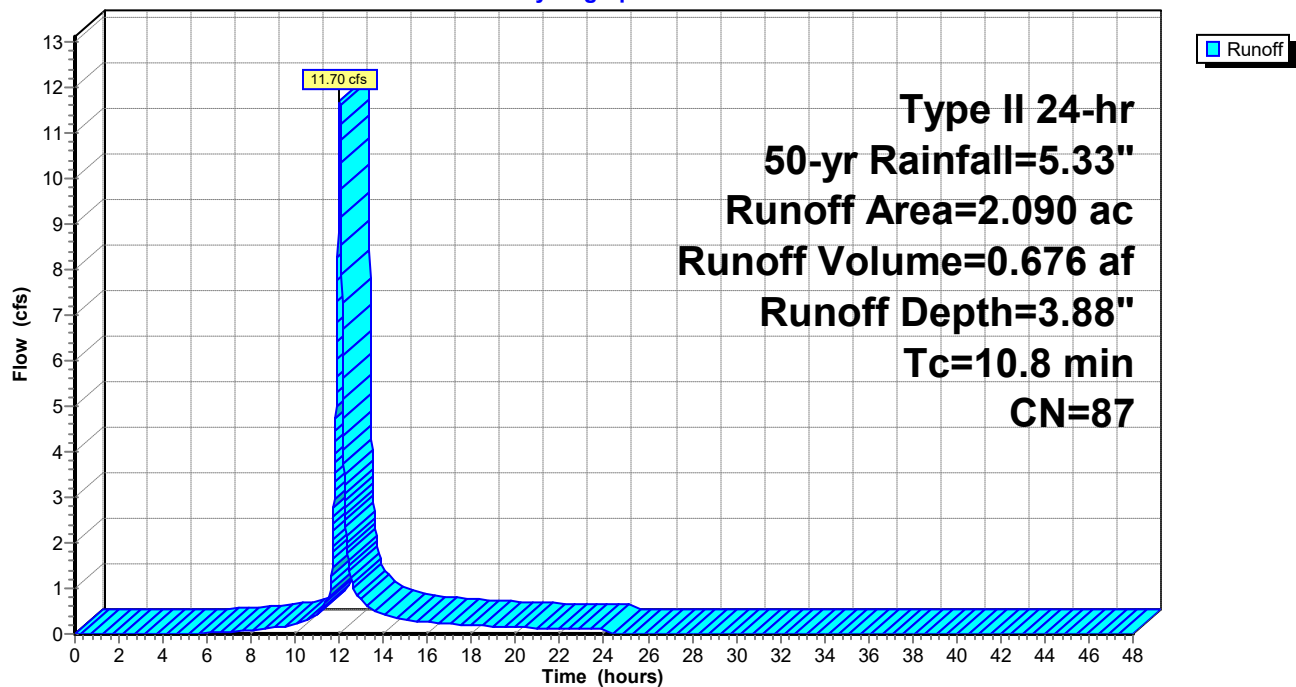
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=5.33"

Area (ac)	CN	Description
* 2.090	87	
2.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8					Direct Entry,

Subcatchment 26S: Per Plan Subarea 003

Hydrograph



Riverside Woods Basin 1 - AKJ Updates 100

Type II 24-hr 50-yr Rainfall=5.33"

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Summary for Pond 28P: Riverside Woods Basin 1 Prop Rebuild

Inflow Area = 5.950 ac, 0.00% Impervious, Inflow Depth = 3.24" for 50-yr event
 Inflow = 12.20 cfs @ 12.02 hrs, Volume= 1.609 af
 Outflow = 6.39 cfs @ 12.14 hrs, Volume= 1.405 af, Atten= 48%, Lag= 7.4 min
 Primary = 6.39 cfs @ 12.14 hrs, Volume= 1.405 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 844.78' @ 12.14 hrs Surf.Area= 0.227 ac Storage= 0.415 af

Plug-Flow detention time= 195.3 min calculated for 1.405 af (87% of inflow)
 Center-of-Mass det. time= 135.4 min (1,035.8 - 900.4)

Volume	Invert	Avail.Storage	Storage Description
#1	841.00'	1.084 af	Prop Storage (Prismatic) Listed below (Recalc) x 1.15

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
841.00	0.000	0.000	0.000
842.00	0.053	0.026	0.026
843.00	0.098	0.075	0.102
844.00	0.149	0.123	0.225
845.00	0.211	0.180	0.405
846.00	0.288	0.250	0.655
847.00	0.288	0.288	0.943

Device	Routing	Invert	Outlet Devices
#1	Primary	839.50'	18.00" Round Prop 18" Outlet Pipe L= 30.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 839.50' / 839.42' S= 0.0027 ' / Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	839.50'	0.50" Horiz. New WQ Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	843.75'	Weir Wall, Cv= 2.62 (C= 3.28) Elev. (feet) 843.75 844.50 844.50 845.00 Width (feet) 0.50 0.50 6.00 6.00
#4	Device 1	844.50'	24.00" W x 6.00" H Vert. Window X 2.00 C= 0.600 Limited to weir flow at low heads
#5	Device 1	845.50'	4.00" x 4.00" Horiz. New Grate ODOT CB2-6 X 14.00 columns X 14 rows C= 0.600 in 72.00" x 72.00" Grate (60% open area)
#6	Secondary	845.50'	18.0' long + 2.0 ' / SideZ x 8.0' breadth New Emergency Spillway Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Riverside Woods Basin 1 - AKJ Updates 100

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Type II 24-hr 50-yr Rainfall=5.33"

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Primary OutFlow Max=6.38 cfs @ 12.14 hrs HW=844.78' (Free Discharge)

1=Prop 18" Outlet Pipe (Passes 6.38 cfs of 18.12 cfs potential flow)

2=New WQ Orifice (Orifice Controls 0.02 cfs @ 11.07 fps)

3=Weir Wall (Weir Controls 4.43 cfs @ 2.14 fps)

4=Window (Orifice Controls 1.93 cfs @ 1.71 fps)

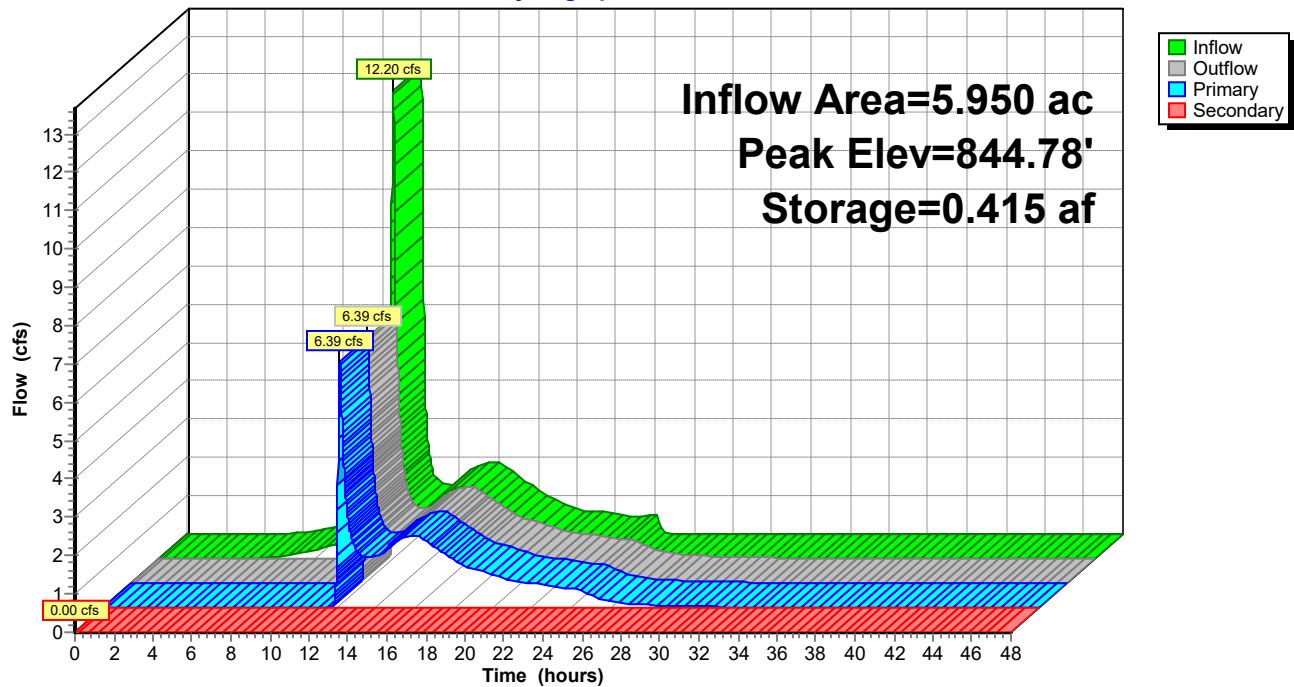
5=New Grate ODOT CB2-6 (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=841.00' (Free Discharge)

6=New Emergency Spillway (Controls 0.00 cfs)

Pond 28P: Riverside Woods Basin 1 Prop Rebuild

Hydrograph



Summary for Link 31L: Bulletin 71 Offsite 003

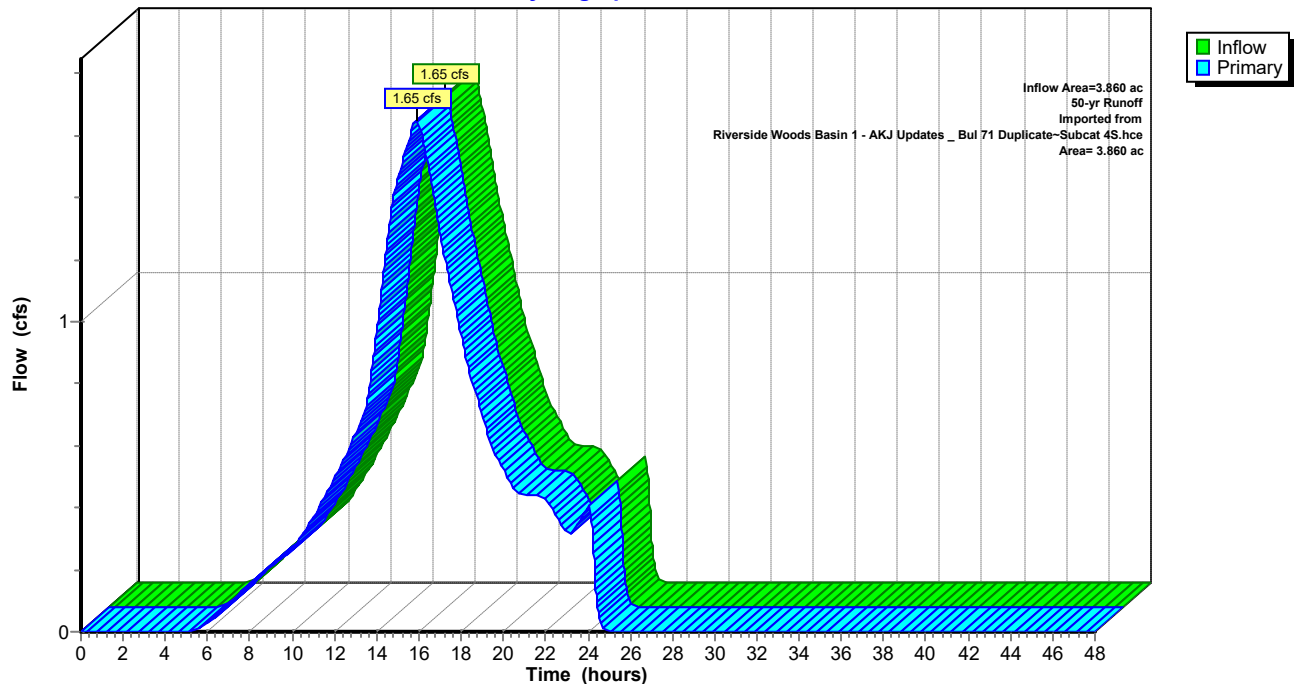
Inflow Area = 3.860 ac, 0.00% Impervious, Inflow Depth = 2.90" for 50-yr event
 Inflow = 1.65 cfs @ 15.89 hrs, Volume= 0.933 af
 Primary = 1.65 cfs @ 15.89 hrs, Volume= 0.933 af, Atten= 0%, Lag= 0.0 min
 Routed to Pond 28P : Riverside Woods Basin 1 Prop Rebuild

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

50-yr Runoff Imported from Riverside Woods Basin 1 - AKJ Updates _ Bul 71 Duplicate~Subcat 4S.hce

Link 31L: Bulletin 71 Offsite 003

Hydrograph



Riverside Woods Basin 1 - AKJ Updates 100

Prepared by EMH&T

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Type II 24-hr 100-yr Rainfall=6.06"

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Summary for Subcatchment 26S: Per Plan Subarea 003

Runoff = 13.68 cfs @ 12.02 hrs, Volume= 0.797 af, Depth= 4.57"

Routed to Pond 28P : Riverside Woods Basin 1 Prop Rebuild

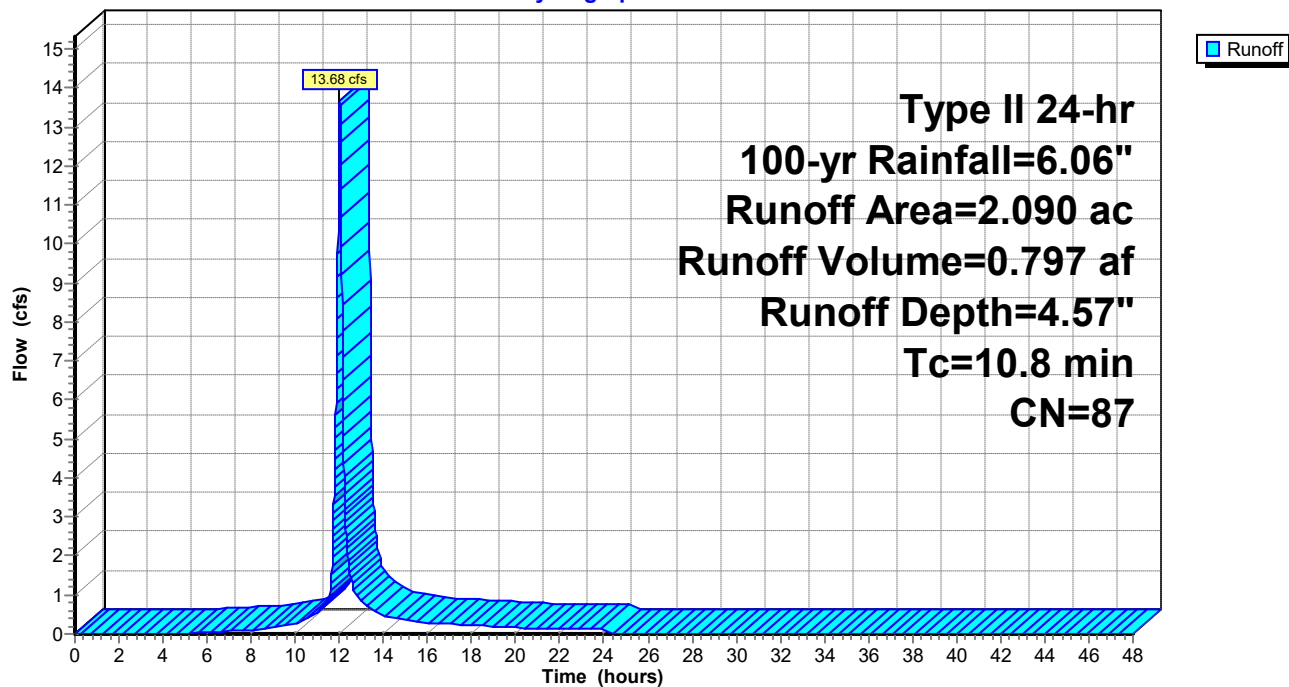
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=6.06"

Area (ac)	CN	Description
* 2.090	87	
2.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8					Direct Entry,

Subcatchment 26S: Per Plan Subarea 003

Hydrograph



Riverside Woods Basin 1 - AKJ Updates 100

Type II 24-hr 100-yr Rainfall=6.06"

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Summary for Pond 28P: Riverside Woods Basin 1 Prop Rebuild

Inflow Area = 5.950 ac, 0.00% Impervious, Inflow Depth = 3.90" for 100-yr event
 Inflow = 14.31 cfs @ 12.02 hrs, Volume= 1.933 af
 Outflow = 10.49 cfs @ 12.10 hrs, Volume= 1.729 af, Atten= 27%, Lag= 4.9 min
 Primary = 10.49 cfs @ 12.10 hrs, Volume= 1.729 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 844.92' @ 12.10 hrs Surf.Area= 0.237 ac Storage= 0.447 af

Plug-Flow detention time= 170.5 min calculated for 1.729 af (89% of inflow)
 Center-of-Mass det. time= 118.8 min (1,012.4 - 893.7)

Volume	Invert	Avail.Storage	Storage Description
#1	841.00'	1.084 af	Prop Storage (Prismatic) Listed below (Recalc) x 1.15

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
841.00	0.000	0.000	0.000
842.00	0.053	0.026	0.026
843.00	0.098	0.075	0.102
844.00	0.149	0.123	0.225
845.00	0.211	0.180	0.405
846.00	0.288	0.250	0.655
847.00	0.288	0.288	0.943

Device	Routing	Invert	Outlet Devices
#1	Primary	839.50'	18.00" Round Prop 18" Outlet Pipe L= 30.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 839.50' / 839.42' S= 0.0027 ' / Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	839.50'	0.50" Horiz. New WQ Orifice C= 0.600 Limited to weir flow at low heads
#3	Device 1	843.75'	Weir Wall, Cv= 2.62 (C= 3.28) Elev. (feet) 843.75 844.50 844.50 845.00 Width (feet) 0.50 0.50 6.00 6.00
#4	Device 1	844.50'	24.00" W x 6.00" H Vert. Window X 2.00 C= 0.600 Limited to weir flow at low heads
#5	Device 1	845.50'	4.00" x 4.00" Horiz. New Grate ODOT CB2-6 X 14.00 columns X 14 rows C= 0.600 in 72.00" x 72.00" Grate (60% open area)
#6	Secondary	845.50'	18.0' long + 2.0 ' / SideZ x 8.0' breadth New Emergency Spillway Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Riverside Woods Basin 1 - AKJ Updates 100

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Type II 24-hr 100-yr Rainfall=6.06"

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Primary OutFlow Max=10.47 cfs @ 12.10 hrs HW=844.92' (Free Discharge)

1=Prop 18" Outlet Pipe (Passes 10.47 cfs of 18.39 cfs potential flow)

2=New WQ Orifice (Orifice Controls 0.02 cfs @ 11.21 fps)

3=Weir Wall (Weir Controls 6.97 cfs @ 2.41 fps)

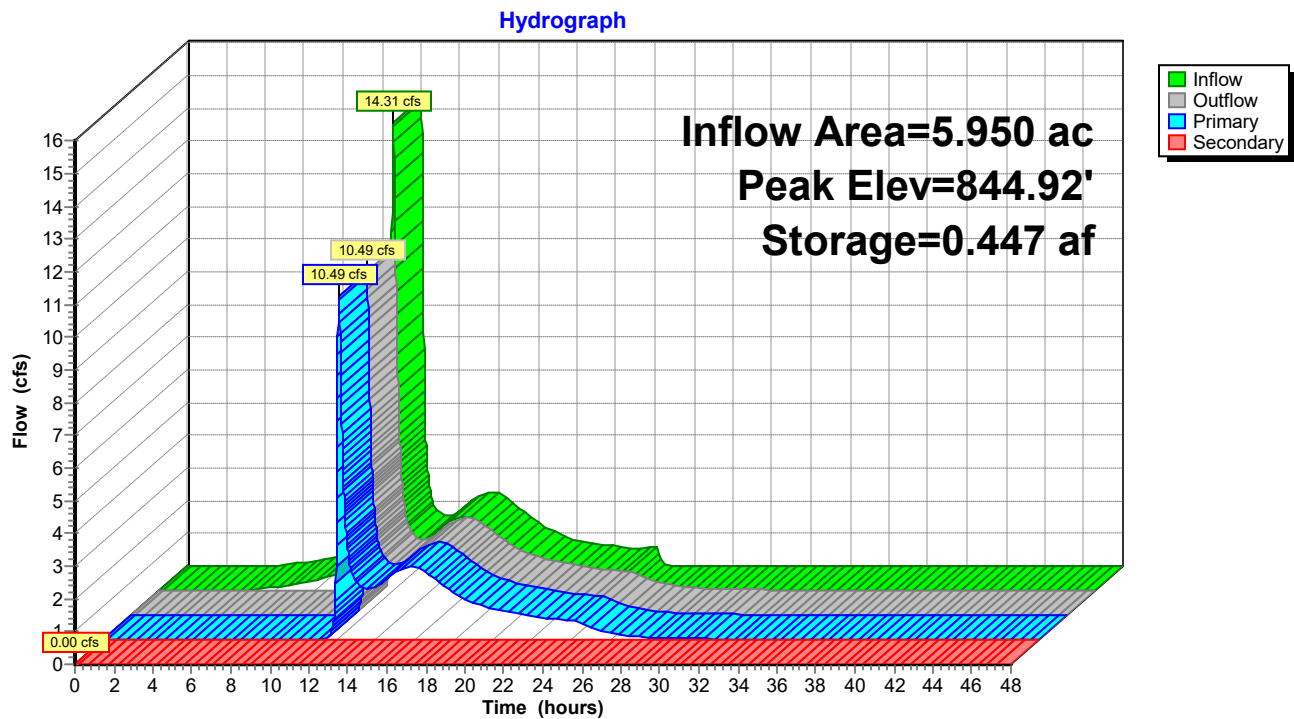
4=Window (Orifice Controls 3.49 cfs @ 2.08 fps)

5=New Grate ODOT CB2-6 (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=841.00' (Free Discharge)

6=New Emergency Spillway (Controls 0.00 cfs)

Pond 28P: Riverside Woods Basin 1 Prop Rebuild



Summary for Link 31L: Bulletin 71 Offsite 003

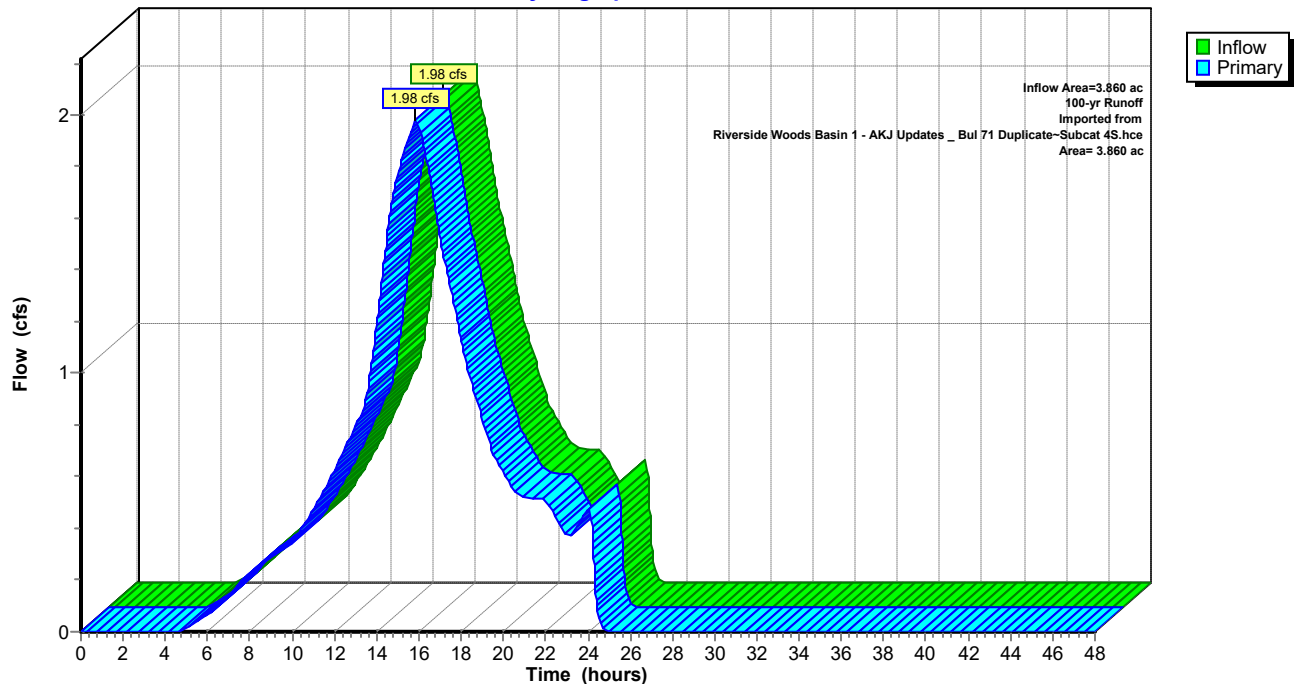
Inflow Area = 3.860 ac, 0.00% Impervious, Inflow Depth = 3.53" for 100-yr event
 Inflow = 1.98 cfs @ 15.84 hrs, Volume= 1.136 af
 Primary = 1.98 cfs @ 15.84 hrs, Volume= 1.136 af, Atten= 0%, Lag= 0.0 min
 Routed to Pond 28P : Riverside Woods Basin 1 Prop Rebuild

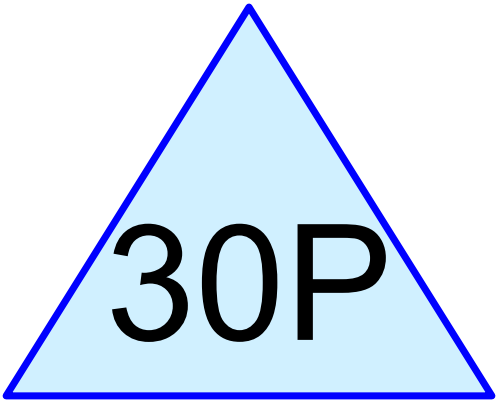
Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

100-yr Runoff Imported from Riverside Woods Basin 1 - AKJ Updates _ Bul 71 Duplicate~Subcat 4S.hce

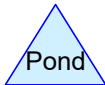
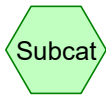
Link 31L: Bulletin 71 Offsite 003

Hydrograph





Riverside Woods Basin 1 Prop Rebuild WQ



Riverside Woods Basin 1 - AKJ Updates 100

Type II 24-hr 100-yr Rainfall=6.06"

Prepared by EMH&T

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Summary for Pond 30P: Riverside Woods Basin 1 Prop Rebuild WQ

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.01 cfs @ 0.00 hrs, Volume= 0.047 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.01 cfs @ 0.00 hrs, Volume= 0.047 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Starting Elev= 843.02' Surf.Area= 0.114 ac Storage= 0.120 af
 Peak Elev= 843.02' @ 0.00 hrs Surf.Area= 0.114 ac Storage= 0.120 af

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
 Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage Description
--------	--------	---------------	---------------------

#1	841.00'	1.084 af	Prop Storage (Prismatic) Listed below (Recalc) x 1.15
----	---------	----------	--

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
841.00	0.000	0.000	0.000
842.00	0.053	0.026	0.026
843.00	0.098	0.075	0.102
844.00	0.149	0.123	0.225
845.00	0.211	0.180	0.405
846.00	0.288	0.250	0.655
847.00	0.288	0.288	0.943

Device	Routing	Invert	Outlet Devices
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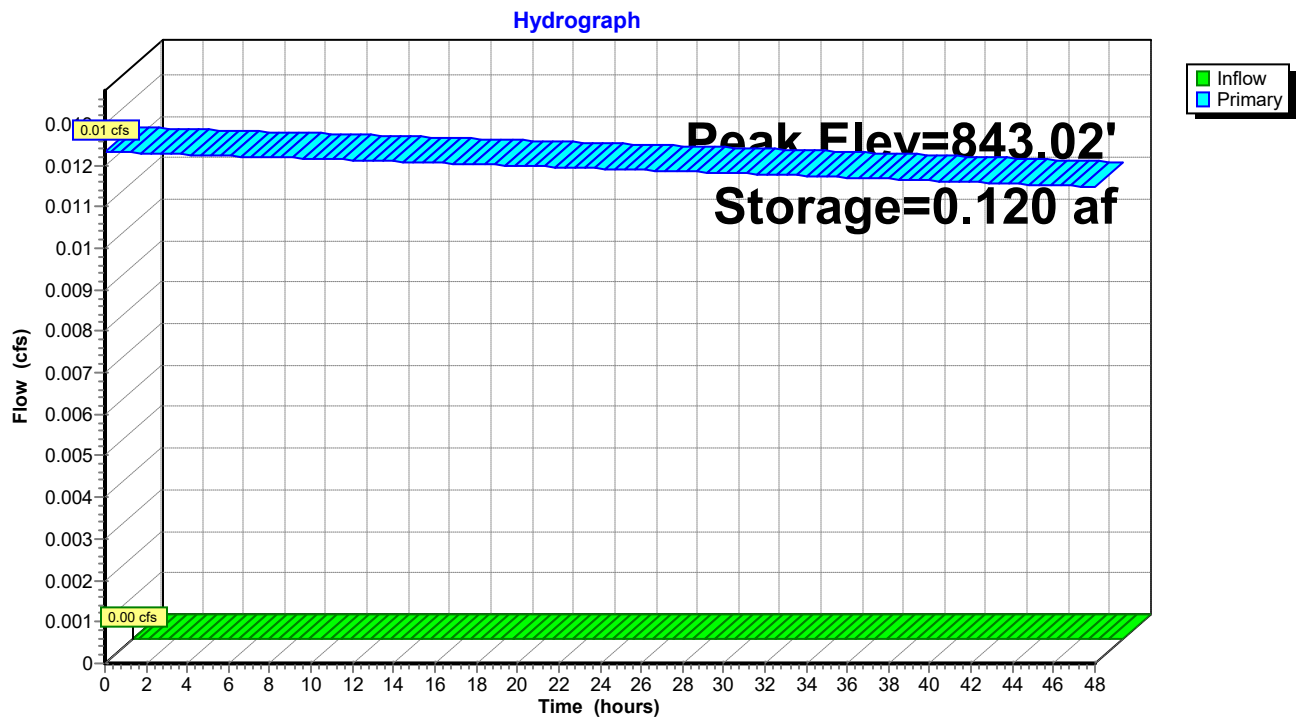
#1	Primary	839.50'	18.00" Round Prop 18" Outlet Pipe L= 30.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 839.50' / 839.42' S= 0.0027 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	839.50'	0.50" Horiz. New WQ Orifice C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.01 cfs @ 0.00 hrs HW=843.02' (Free Discharge)

↑ **1=Prop 18" Outlet Pipe** (Passes 0.01 cfs of 14.16 cfs potential flow)

↑ **2=New WQ Orifice** (Orifice Controls 0.01 cfs @ 9.03 fps)

Pond 30P: Riverside Woods Basin 1 Prop Rebuild WQ



Riverside Woods Basin 1 - AKJ Updates 100*Type II 24-hr 100-yr Rainfall=6.06"*

Prepared by EMH&T

Printed 8/6/2026

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Hydrograph for Pond 30P: Riverside Woods Basin 1 Prop Rebuild WQ

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.120	843.02	0.01
1.00	0.00	0.119	843.01	0.01
2.00	0.00	0.118	843.00	0.01
3.00	0.00	0.117	842.99	0.01
4.00	0.00	0.116	842.98	0.01
5.00	0.00	0.114	842.97	0.01
6.00	0.00	0.113	842.97	0.01
7.00	0.00	0.112	842.96	0.01
8.00	0.00	0.111	842.95	0.01
9.00	0.00	0.110	842.94	0.01
10.00	0.00	0.109	842.93	0.01
11.00	0.00	0.108	842.92	0.01
12.00	0.00	0.107	842.91	0.01
13.00	0.00	0.106	842.90	0.01
14.00	0.00	0.105	842.89	0.01
15.00	0.00	0.104	842.88	0.01
16.00	0.00	0.103	842.87	0.01
17.00	0.00	0.102	842.86	0.01
18.00	0.00	0.101	842.85	0.01
19.00	0.00	0.100	842.84	0.01
20.00	0.00	0.099	842.84	0.01
21.00	0.00	0.098	842.83	0.01
22.00	0.00	0.097	842.82	0.01
23.00	0.00	0.097	842.81	0.01
24.00	0.00	0.096	842.80	0.01
25.00	0.00	0.095	842.79	0.01
26.00	0.00	0.094	842.78	0.01
27.00	0.00	0.093	842.77	0.01
28.00	0.00	0.092	842.76	0.01
29.00	0.00	0.091	842.75	0.01
30.00	0.00	0.090	842.74	0.01
31.00	0.00	0.089	842.73	0.01
32.00	0.00	0.088	842.72	0.01
33.00	0.00	0.087	842.71	0.01
34.00	0.00	0.086	842.70	0.01
35.00	0.00	0.085	842.69	0.01
36.00	0.00	0.084	842.68	0.01
37.00	0.00	0.083	842.67	0.01
38.00	0.00	0.082	842.66	0.01
39.00	0.00	0.081	842.65	0.01
40.00	0.00	0.080	842.64	0.01
41.00	0.00	0.079	842.63	0.01
42.00	0.00	0.078	842.62	0.01
43.00	0.00	0.077	842.61	0.01
44.00	0.00	0.076	842.60	0.01
45.00	0.00	0.075	842.59	0.01
46.00	0.00	0.074	842.58	0.01
47.00	0.00	0.073	842.57	0.01
48.00	0.00	0.072	842.56	0.01



MEMO

Date: July 31, 2026

To: Michael Hendershot, PE (The City of Dublin)

From: Alex Jensen, PE, CFM (EMH&T)

Subject: Woodlands Basin 2 Proposed Improvements

Copies: James Akins, CPESC, Jaclyn Boscarello, EI (EMH&T)

The City of Dublin is proposing improvements to the existing Woodlands Basin 2, located west of May Apple Court, as illustrated in Attachment 1 – “Dubscovey Map”. Woodlands Basin 2 is a dry detention basin originally constructed in 1987 (Record Plan No. 86-014-RES), prior to water quality requirements. Due to this work being characterized as maintenance, no additional water quality work is proposed. The following existing conditions affect the basin’s hydrologic and hydraulic performance:

- A washout has occurred along the eastern embankment near the outlet structure, allowing uncontrolled overflow at elevation 831.00. For reference, the record plan specified an embankment elevation of 834.00, while the as-built elevation was 832.00.
- The Type B RCP at the outlet structure has failed due to washout.
- The basin footprint differs significantly from the 1986 design plans and is notably smaller than originally proposed.
- A concrete paved gutter is present through the center of the basin.
- Mature trees have become established throughout the basin footprint and embankment, which were intended to remain clear.

Two HydroCAD models were prepared to evaluate the basin’s as-built performance, one existing conditions model without embankment failure and one existing conditions model with embankment failure. The HydroCAD results for these models are attached to this memo as Attachment 2 – “Existing Performance (No Embankment Failure) HydroCAD Output” and Attachment 3 – “Existing Performance (Embankment Failure) HydroCAD Output”. Table 1 summarizes the as-built basin performance under both scenarios.

The original stormwater report files were missing some of the model parameterization data, which prevented EMH&T from directly duplicating the model in HydroCAD. To most readily compare existing and proposed conditions, a revised subcatchment boundary, land use, and longest flow path was delineated and used in the HydroCAD modeling to generate the basin inflow hydrograph. The analysis used rainfall depths from the Dublin Stormwater Design Manual. The hydrologic work map supporting this effort can be viewed in Exhibit 1 – “Hydrologic Work Map”.

Following coordination with the City regarding discrepancies between the record plans and current field conditions, as well as the City's desired basin enhancements, the following maintenance and improvement activities that would affect the basin's hydrologic and hydraulic performance are proposed:

- Remove all trees within the basin footprint.
- Remove the existing concrete paved gutter.
- Realign the existing 24-inch storm sewer to the south to prevent discharge at the toe of the embankment.
- Install 6-inch perforated underdrains along the basin bottom.
- Replace the outlet structure and maintain or improve existing release rates (assuming no embankment failure), while ensuring the 100-year water surface elevation remains below 832.91 (matching the invert of the 18-inch driveway culvert on property 4410 May Apple Court, PID 273-009014 located upstream to the east of the basin).
- Minimize, to the extent practicable, the amount of flow overtopping the existing embankment.

To maintain the existing release rates (based on the model without embankment failure), the outlet structure was modified to account for the new 6-inch perforated underdrain, which discharges directly into the structure. This also allows for the flow overtopping the embankment to be minimized to the extent practicable. The HydroCAD model results for the proposed conditions model is attached to this memo as Attachment 4 – "Proposed Performance HydroCAD Output". Table 1 summarizes the proposed basin performance, demonstrating that the total outflow matches the existing (no embankment failure) condition and that the 100-year water surface elevation remains below 832.91.

Attachments:

- Attachment 1 - Dubscovery Map
- Attachment 2 - Existing Performance (No Embankment Failure) HydroCAD Output
- Attachment 3 - Existing Performance (Embankment Failure) HydroCAD Output
- Attachment 4 - Proposed Performance HydroCAD Output

Exhibits:

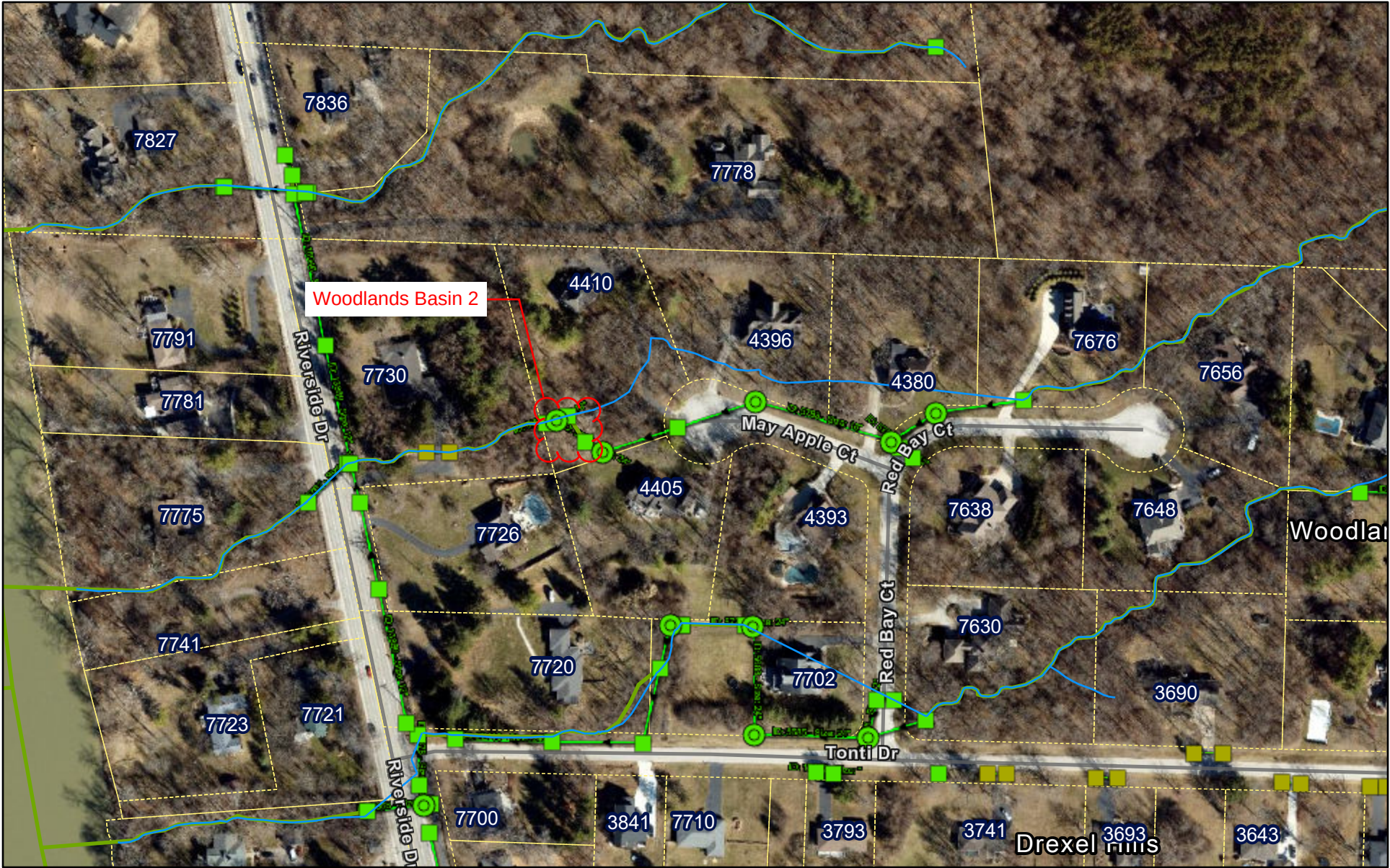
- Exhibit 1 – Hydrologic Work Map



Table 1: Basin Performance Summary

Design Storm (yr)	Inflow (cfs)	As-Built Performance without Embankment Failure				As-Built Performance with Embankment Failure				Proposed Performance			
		Outlet Structure (cfs)	Spillway (cfs)	Total Outflow (cfs)	Basin WSEL	Outlet Structure (cfs)	Spillway (cfs)	Total Outflow (cfs)	Basin WSEL	Outlet Structure (cfs)	Spillway (cfs)	Total Outflow (cfs)	Basin WSEL
1	11.60	6.24	0.00	6.24	830.84	6.24	0.00	6.24	830.84	6.12	0.00	6.12	830.68
2	18.58	7.50	2.74	10.24	832.05	7.01	6.62	13.63	831.56	10.10	0.00	10.10	831.82
5	29.73	7.65	20.87	28.52	832.21	7.49	19.53	27.02	832.05	26.37	0.00	26.37	832.27
10	39.64	7.71	31.73	39.44	832.28	7.59	31.58	39.17	832.15	38.22	0.00	38.22	832.43
25	54.30	7.78	46.37	54.14	832.35	7.67	46.45	54.12	832.23	52.17	1.83	54.00	832.57
50	66.96	7.83	58.98	66.81	832.41	7.73	59.06	66.79	832.30	61.60	5.14	66.73	832.64
100	80.59	7.88	72.60	80.48	832.46	7.78	72.68	80.46	832.36	71.27	9.14	80.41	832.70

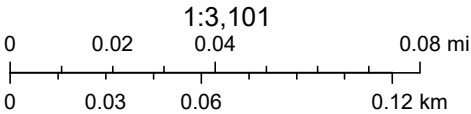
Dubscopy Map



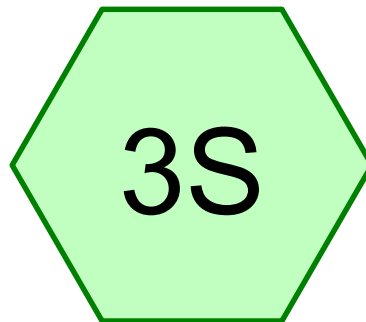
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- Streams
- Storm Manholes
- Storm Lift Station
- Storm Nodes
- City of Dublin
- Other Ownership
- Storm Open Conduit
- Parcels (Dublin, Ohio Merged)
- Addresses
- City Facilities Main Buildings
- Schools

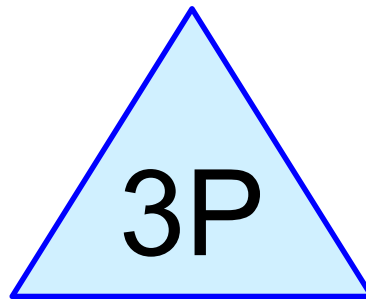
- Streets
- Sawmill Bright Road January 2026
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- Green: Band_2
- Blue: Band_3
- AveryRoadDetentionPond.tif
- Red: Band_1
- Green: Band_2
- Blue: Band_3
- BrandRdBrandonwayDr.tif
- Red: Band_1
- Green: Band_2
- Blue: Band_3
- CacchioliLane.tif
- Red: Band_1
- Green: Band_2
- Blue: Band_3
- MTCFeb25
- Red: mtcFeb25c1
- Green: mtcFeb25c2
- Blue: mtcFeb25c3
- FranklinSDec2023.tif
- Red: Band_1
- Green: Band_2
- Blue: Band_3



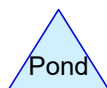
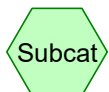
City of Dublin, Ohio, Microsoft, Vantor



Updated Watershed



Woodlands Basin 2 Ex
Conditions - No Failure



Routing Diagram for Woodlands Basin 2

Prepared by EMH&T, Printed 8/1/2026

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Woodlands Basin 2

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Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-yr	Type II 24-hr		Default	24.00	1	2.20	2
2	2-yr	Type II 24-hr		Default	24.00	1	2.63	2
3	5-yr	Type II 24-hr		Default	24.00	1	3.24	2
4	10-yr	Type II 24-hr		Default	24.00	1	3.74	2
5	25-yr	Type II 24-hr		Default	24.00	1	4.44	2
6	50-yr	Type II 24-hr		Default	24.00	1	5.02	2
7	100-yr	Type II 24-hr		Default	24.00	1	5.63	2

Woodlands Basin 2

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Type II 24-hr 1-yr Rainfall=2.20"

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Summary for Subcatchment 3S: Updated Watershed

Runoff = 11.60 cfs @ 12.26 hrs, Volume= 1.244 af, Depth> 0.51"

Routed to Pond 3P : Woodlands Basin 2 Ex Conditions - No Failure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-yr Rainfall=2.20"

Area (ac)	CN	Description
14.707	70	Woods, Good, HSG C
7.481	79	1 acre lots, 20% imp, HSG C
2.224	98	Paved roads w/curbs & sewers, HSG C
3.915	81	1/3 acre lots, 30% imp, HSG C
0.672	74	>75% Grass cover, Good, HSG C
28.999	76	Weighted Average
24.104		83.12% Pervious Area
4.895		16.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.0200	0.15		Sheet Flow, sheet flow Grass: Short n= 0.150 P2= 2.63"
1.3	171	0.0120	2.22		Shallow Concentrated Flow, curb and gutter Paved Kv= 20.3 fps
2.2	398		3.00		Direct Entry, Clayton Court Sewer
2.3	157	0.0268	1.15		Shallow Concentrated Flow, Clayton Court Basin Short Grass Pasture Kv= 7.0 fps
0.3	47		3.00		Direct Entry, Clayton Ct Basin Outlet
1.4	98	0.0520	1.14		Shallow Concentrated Flow, Woods to channel Woodland Kv= 5.0 fps
6.0	1,793		5.00		Direct Entry, Woods Channel Clayton to Red Bay Ct
3.7	672		3.00		Direct Entry, Woodlands Storm Sewer
28.0	3,436	Total			

Woodlands Basin 2

Prepared by EMH&T

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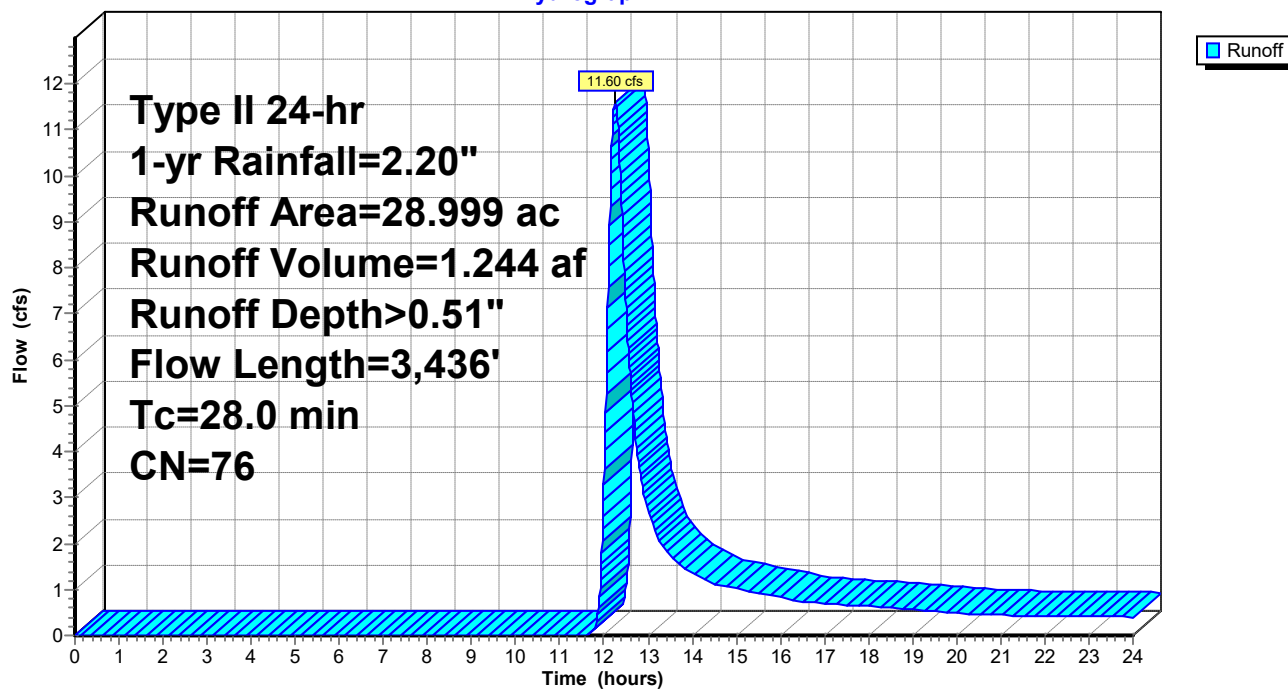
Type II 24-hr 1-yr Rainfall=2.20"

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Subcatchment 3S: Updated Watershed

Hydrograph



Woodlands Basin 2

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Type II 24-hr 1-yr Rainfall=2.20"

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Summary for Pond 3P: Woodlands Basin 2 Ex Conditions - No Failure

Inflow Area = 28.999 ac, 16.88% Impervious, Inflow Depth > 0.51" for 1-yr event
 Inflow = 11.60 cfs @ 12.26 hrs, Volume= 1.244 af
 Outflow = 6.24 cfs @ 12.55 hrs, Volume= 1.243 af, Atten= 46%, Lag= 17.7 min
 Primary = 6.24 cfs @ 12.55 hrs, Volume= 1.243 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 830.84' @ 12.55 hrs Surf.Area= 0.136 ac Storage= 0.169 af

Plug-Flow detention time= 7.1 min calculated for 1.243 af (100% of inflow)
 Center-of-Mass det. time= 6.9 min (899.2 - 892.3)

Volume	Invert	Avail.Storage	Storage Description
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#1	827.62'	0.672 af	Ex Survey (Prismatic) Listed below (Recalc)
----	---------	----------	--

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
827.62	0.000	0.000	0.000
828.00	0.002	0.000	0.000
829.00	0.014	0.008	0.009
830.00	0.104	0.059	0.068
831.00	0.142	0.123	0.191
832.00	0.176	0.159	0.350
833.05	0.236	0.216	0.566
833.50	0.236	0.106	0.672

Device	Routing	Invert	Outlet Devices
--------	---------	--------	----------------

#1	Primary	827.25'	18.0" Round RCP_Round 18" L= 15.4' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 827.25' / 826.91' S= 0.0221 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	827.62'	12.0" Round RCP_Round 12" L= 15.1' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 827.62' / 827.57' S= 0.0033 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#3	Device 1	833.05'	2.0" x 23.5" Horiz. Grate ODOT 2-2B per plan 1979 SCD X 7.00 C= 0.600 in 28.0" x 28.0" Grate (42% open area) Limited to weir flow at low heads
#4	Secondary	832.00'	90.0' long + 2.0 '/' SideZ x 5.0' breadth Est Embankment Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Woodlands Basin 2

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Type II 24-hr 1-yr Rainfall=2.20"

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Primary OutFlow Max=6.24 cfs @ 12.55 hrs HW=830.84' (Free Discharge)

↑ **1=RCP_Round 18"** (Passes 6.24 cfs of 14.34 cfs potential flow)

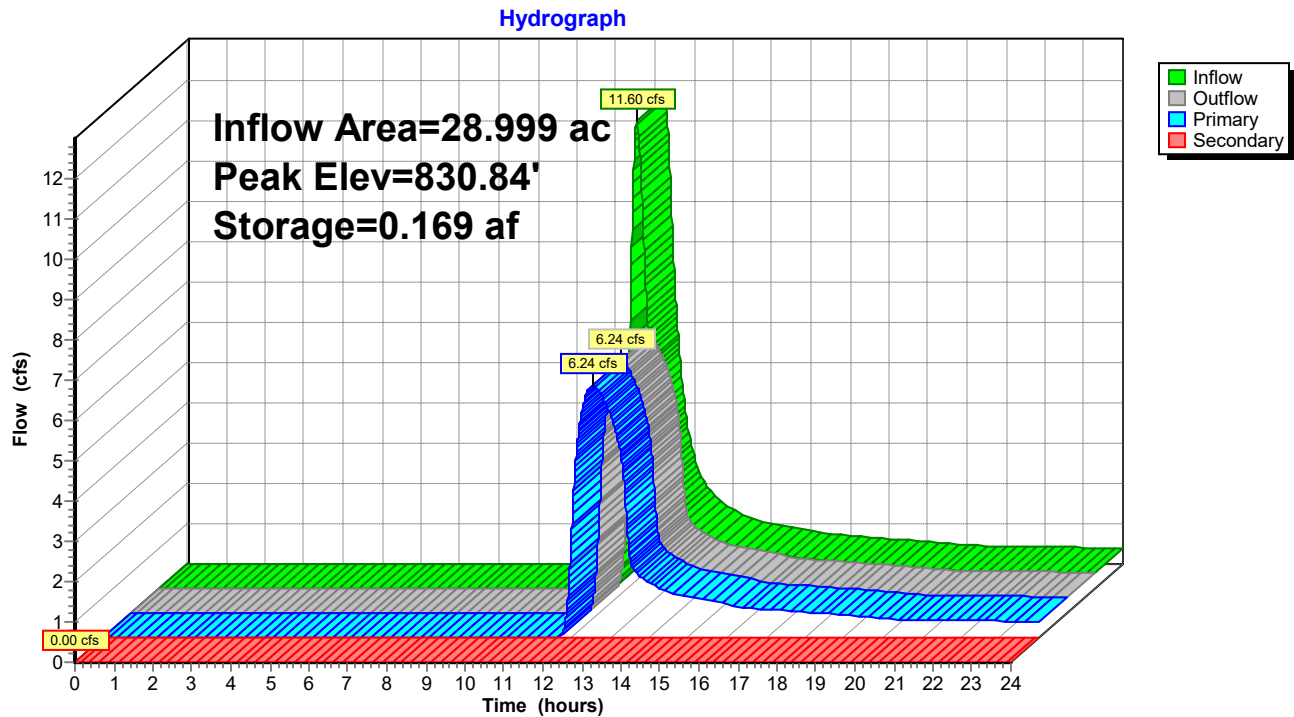
↑ **2=RCP_Round 12"** (Inlet Controls 6.24 cfs @ 7.94 fps)

↑ **3=Grate ODOT 2-2B per plan 1979 SCD** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=827.62' (Free Discharge)

↑ **4=Est Embankment** (Controls 0.00 cfs)

Pond 3P: Woodlands Basin 2 Ex Conditions - No Failure



Woodlands Basin 2

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Type II 24-hr 2-yr Rainfall=2.63"

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Summary for Subcatchment 3S: Updated Watershed

Runoff = 18.58 cfs @ 12.23 hrs, Volume= 1.853 af, Depth> 0.77"

Routed to Pond 3P : Woodlands Basin 2 Ex Conditions - No Failure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=2.63"

Area (ac)	CN	Description
14.707	70	Woods, Good, HSG C
7.481	79	1 acre lots, 20% imp, HSG C
2.224	98	Paved roads w/curbs & sewers, HSG C
3.915	81	1/3 acre lots, 30% imp, HSG C
0.672	74	>75% Grass cover, Good, HSG C
28.999	76	Weighted Average
24.104		83.12% Pervious Area
4.895		16.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.0200	0.15		Sheet Flow, sheet flow Grass: Short n= 0.150 P2= 2.63"
1.3	171	0.0120	2.22		Shallow Concentrated Flow, curb and gutter Paved Kv= 20.3 fps
2.2	398		3.00		Direct Entry, Clayton Court Sewer
2.3	157	0.0268	1.15		Shallow Concentrated Flow, Clayton Court Basin Short Grass Pasture Kv= 7.0 fps
0.3	47		3.00		Direct Entry, Clayton Ct Basin Outlet
1.4	98	0.0520	1.14		Shallow Concentrated Flow, Woods to channel Woodland Kv= 5.0 fps
6.0	1,793		5.00		Direct Entry, Woods Channel Clayton to Red Bay Ct
3.7	672		3.00		Direct Entry, Woodlands Storm Sewer
28.0	3,436	Total			

Woodlands Basin 2

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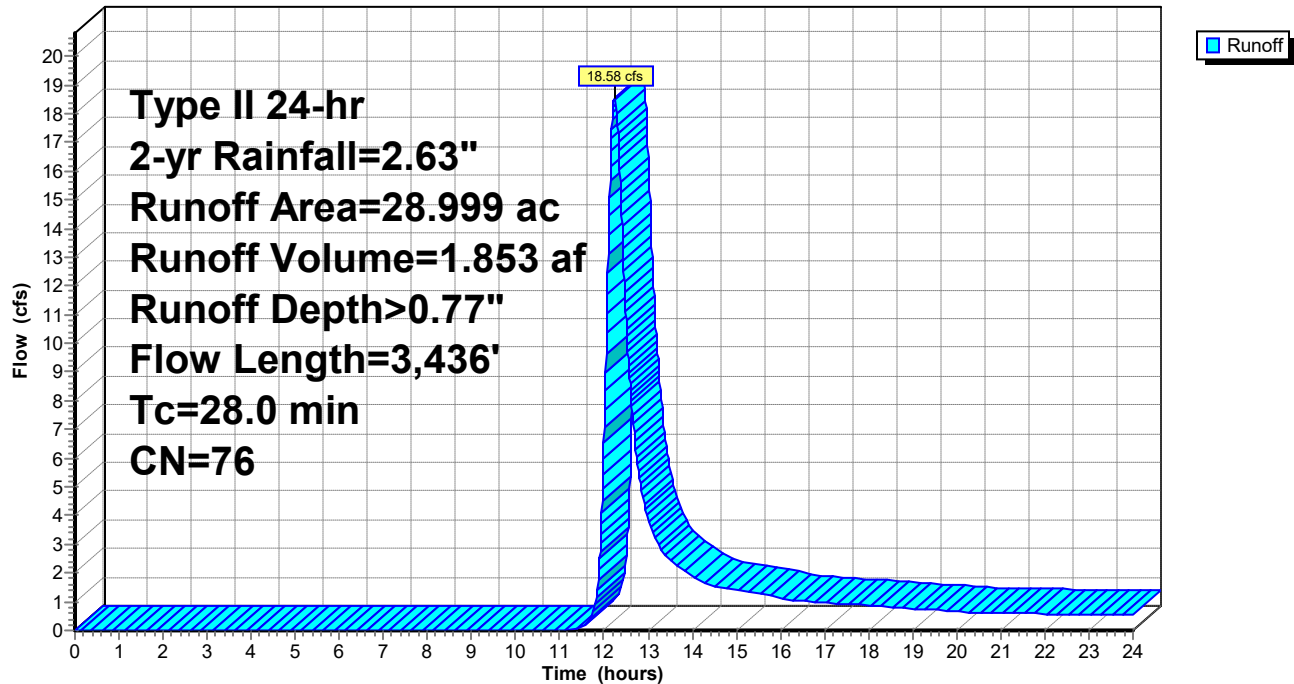
Type II 24-hr 2-yr Rainfall=2.63"

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Subcatchment 3S: Updated Watershed

Hydrograph



Woodlands Basin 2

Type II 24-hr 2-yr Rainfall=2.63"

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Summary for Pond 3P: Woodlands Basin 2 Ex Conditions - No Failure

Inflow Area = 28.999 ac, 16.88% Impervious, Inflow Depth > 0.77" for 2-yr event
 Inflow = 18.58 cfs @ 12.23 hrs, Volume= 1.853 af
 Outflow = 10.24 cfs @ 12.52 hrs, Volume= 1.852 af, Atten= 45%, Lag= 17.2 min
 Primary = 7.50 cfs @ 12.52 hrs, Volume= 1.823 af
 Secondary = 2.74 cfs @ 12.52 hrs, Volume= 0.029 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 832.05' @ 12.52 hrs Surf.Area= 0.179 ac Storage= 0.359 af

Plug-Flow detention time= 13.9 min calculated for 1.852 af (100% of inflow)
 Center-of-Mass det. time= 13.7 min (892.9 - 879.2)

Volume	Invert	Avail.Storage	Storage Description
#1	827.62'	0.672 af	Ex Survey (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
827.62	0.000	0.000	0.000
828.00	0.002	0.000	0.000
829.00	0.014	0.008	0.009
830.00	0.104	0.059	0.068
831.00	0.142	0.123	0.191
832.00	0.176	0.159	0.350
833.05	0.236	0.216	0.566
833.50	0.236	0.106	0.672

Device	Routing	Invert	Outlet Devices
#1	Primary	827.25'	18.0" Round RCP_Round 18" L= 15.4' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 827.25' / 826.91' S= 0.0221 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	827.62'	12.0" Round RCP_Round 12" L= 15.1' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 827.62' / 827.57' S= 0.0033 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#3	Device 1	833.05'	2.0" x 23.5" Horiz. Grate ODOT 2-2B per plan 1979 SCD X 7.00 C= 0.600 in 28.0" x 28.0" Grate (42% open area) Limited to weir flow at low heads
#4	Secondary	832.00'	90.0' long + 2.0 '/' SideZ x 5.0' breadth Est Embankment Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Woodlands Basin 2

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Type II 24-hr 2-yr Rainfall=2.63"

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Primary OutFlow Max=7.50 cfs @ 12.52 hrs HW=832.05' (Free Discharge)

1=RCP_Round 18" (Passes 7.50 cfs of 17.13 cfs potential flow)

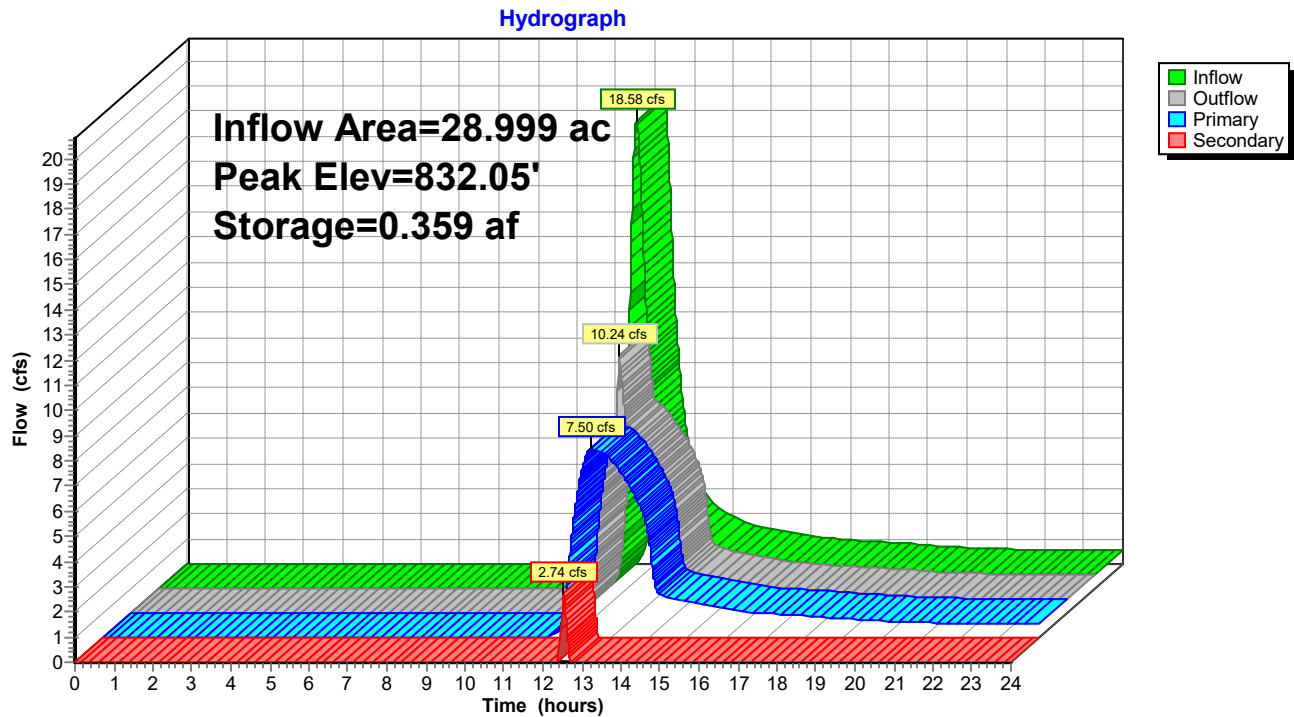
2=RCP_Round 12" (Inlet Controls 7.50 cfs @ 9.55 fps)

3=Grate ODOT 2-2B per plan 1979 SCD (Controls 0.00 cfs)

Secondary OutFlow Max=2.47 cfs @ 12.52 hrs HW=832.05' (Free Discharge)

4=Est Embankment (Weir Controls 2.47 cfs @ 0.53 fps)

Pond 3P: Woodlands Basin 2 Ex Conditions - No Failure



Woodlands Basin 2

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Type II 24-hr 5-yr Rainfall=3.24"

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Summary for Subcatchment 3S: Updated Watershed

Runoff = 29.73 cfs @ 12.23 hrs, Volume= 2.825 af, Depth> 1.17"

Routed to Pond 3P : Woodlands Basin 2 Ex Conditions - No Failure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=3.24"

Area (ac)	CN	Description
14.707	70	Woods, Good, HSG C
7.481	79	1 acre lots, 20% imp, HSG C
2.224	98	Paved roads w/curbs & sewers, HSG C
3.915	81	1/3 acre lots, 30% imp, HSG C
0.672	74	>75% Grass cover, Good, HSG C
28.999	76	Weighted Average
24.104		83.12% Pervious Area
4.895		16.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.0200	0.15		Sheet Flow, sheet flow Grass: Short n= 0.150 P2= 2.63"
1.3	171	0.0120	2.22		Shallow Concentrated Flow, curb and gutter Paved Kv= 20.3 fps
2.2	398		3.00		Direct Entry, Clayton Court Sewer
2.3	157	0.0268	1.15		Shallow Concentrated Flow, Clayton Court Basin Short Grass Pasture Kv= 7.0 fps
0.3	47		3.00		Direct Entry, Clayton Ct Basin Outlet
1.4	98	0.0520	1.14		Shallow Concentrated Flow, Woods to channel Woodland Kv= 5.0 fps
6.0	1,793		5.00		Direct Entry, Woods Channel Clayton to Red Bay Ct
3.7	672		3.00		Direct Entry, Woodlands Storm Sewer
28.0	3,436	Total			

Woodlands Basin 2

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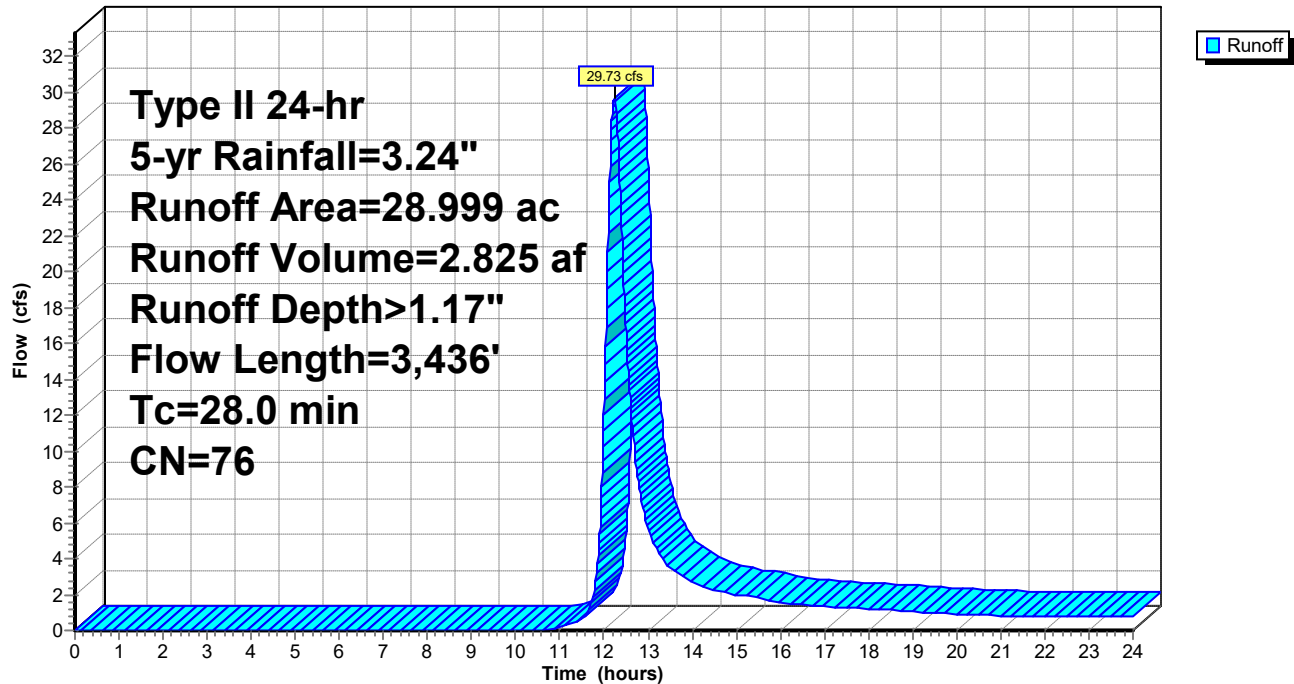
Type II 24-hr 5-yr Rainfall=3.24"

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Subcatchment 3S: Updated Watershed

Hydrograph



Woodlands Basin 2

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Type II 24-hr 5-yr Rainfall=3.24"

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Summary for Pond 3P: Woodlands Basin 2 Ex Conditions - No Failure

Inflow Area = 28.999 ac, 16.88% Impervious, Inflow Depth > 1.17" for 5-yr event
 Inflow = 29.73 cfs @ 12.23 hrs, Volume= 2.825 af
 Outflow = 28.52 cfs @ 12.29 hrs, Volume= 2.824 af, Atten= 4%, Lag= 3.8 min
 Primary = 7.65 cfs @ 12.29 hrs, Volume= 2.346 af
 Secondary = 20.87 cfs @ 12.29 hrs, Volume= 0.478 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 832.21' @ 12.29 hrs Surf.Area= 0.188 ac Storage= 0.388 af

Plug-Flow detention time= 12.6 min calculated for 2.823 af (100% of inflow)
 Center-of-Mass det. time= 12.4 min (878.9 - 866.5)

Volume	Invert	Avail.Storage	Storage Description
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#1	827.62'	0.672 af	Ex Survey (Prismatic) Listed below (Recalc)
----	---------	----------	--

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
827.62	0.000	0.000	0.000
828.00	0.002	0.000	0.000
829.00	0.014	0.008	0.009
830.00	0.104	0.059	0.068
831.00	0.142	0.123	0.191
832.00	0.176	0.159	0.350
833.05	0.236	0.216	0.566
833.50	0.236	0.106	0.672

Device	Routing	Invert	Outlet Devices
--------	---------	--------	----------------

#1	Primary	827.25'	18.0" Round RCP_Round 18" L= 15.4' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 827.25' / 826.91' S= 0.0221 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	827.62'	12.0" Round RCP_Round 12" L= 15.1' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 827.62' / 827.57' S= 0.0033 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#3	Device 1	833.05'	2.0" x 23.5" Horiz. Grate ODOT 2-2B per plan 1979 SCD X 7.00 C= 0.600 in 28.0" x 28.0" Grate (42% open area) Limited to weir flow at low heads
#4	Secondary	832.00'	90.0' long + 2.0 '/' SideZ x 5.0' breadth Est Embankment Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Woodlands Basin 2

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Type II 24-hr 5-yr Rainfall=3.24"

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Primary OutFlow Max=7.65 cfs @ 12.29 hrs HW=832.21' (Free Discharge)

1=RCP_Round 18" (Passes 7.65 cfs of 17.46 cfs potential flow)

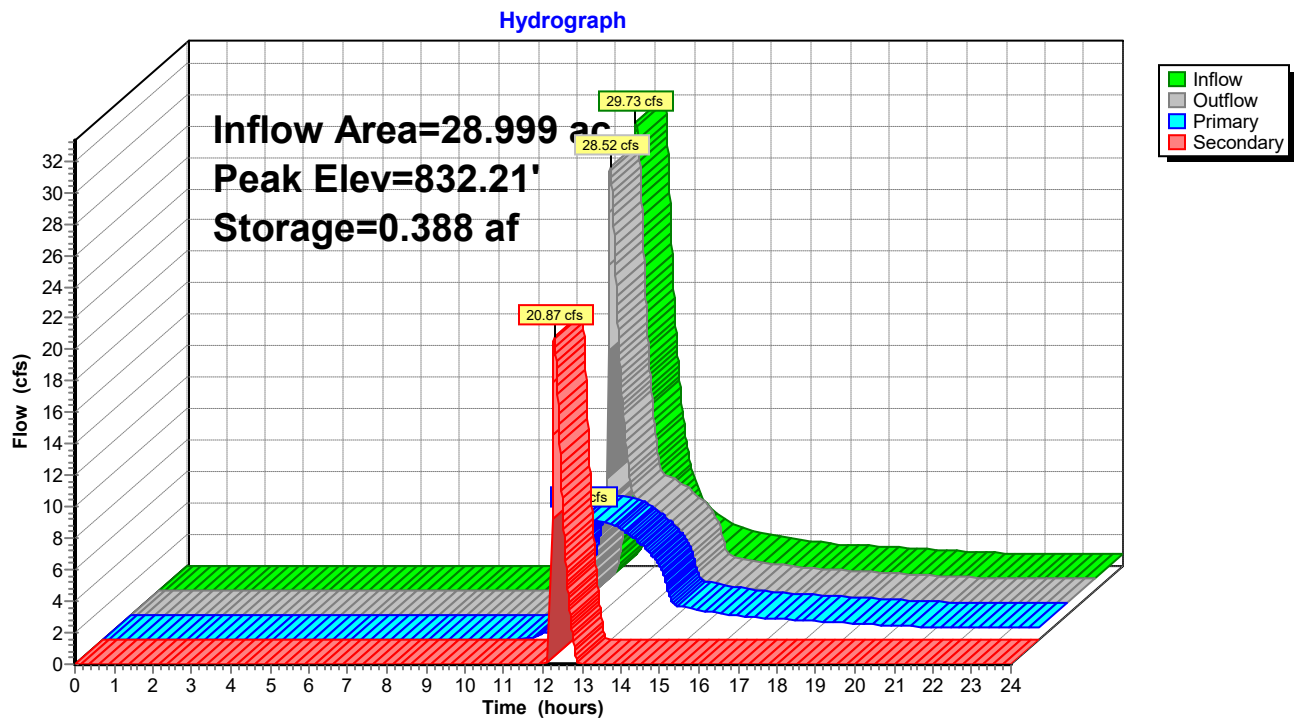
2=RCP_Round 12" (Inlet Controls 7.65 cfs @ 9.74 fps)

3=Grate ODOT 2-2B per plan 1979 SCD (Controls 0.00 cfs)

Secondary OutFlow Max=20.76 cfs @ 12.29 hrs HW=832.21' (Free Discharge)

4=Est Embankment (Weir Controls 20.76 cfs @ 1.08 fps)

Pond 3P: Woodlands Basin 2 Ex Conditions - No Failure



Woodlands Basin 2

Type II 24-hr 10-yr Rainfall=3.74"

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Summary for Subcatchment 3S: Updated Watershed

Runoff = 39.64 cfs @ 12.23 hrs, Volume= 3.694 af, Depth> 1.53"

Routed to Pond 3P : Woodlands Basin 2 Ex Conditions - No Failure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Type II 24-hr 10-yr Rainfall=3.74"

Area (ac)	CN	Description
14.707	70	Woods, Good, HSG C
7.481	79	1 acre lots, 20% imp, HSG C
2.224	98	Paved roads w/curbs & sewers, HSG C
3.915	81	1/3 acre lots, 30% imp, HSG C
0.672	74	>75% Grass cover, Good, HSG C
28.999	76	Weighted Average
24.104		83.12% Pervious Area
4.895		16.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.0200	0.15		Sheet Flow, sheet flow Grass: Short n= 0.150 P2= 2.63"
1.3	171	0.0120	2.22		Shallow Concentrated Flow, curb and gutter Paved Kv= 20.3 fps
2.2	398		3.00		Direct Entry, Clayton Court Sewer
2.3	157	0.0268	1.15		Shallow Concentrated Flow, Clayton Court Basin Short Grass Pasture Kv= 7.0 fps
0.3	47		3.00		Direct Entry, Clayton Ct Basin Outlet
1.4	98	0.0520	1.14		Shallow Concentrated Flow, Woods to channel Woodland Kv= 5.0 fps
6.0	1,793		5.00		Direct Entry, Woods Channel Clayton to Red Bay Ct
3.7	672		3.00		Direct Entry, Woodlands Storm Sewer
28.0	3,436	Total			

Woodlands Basin 2

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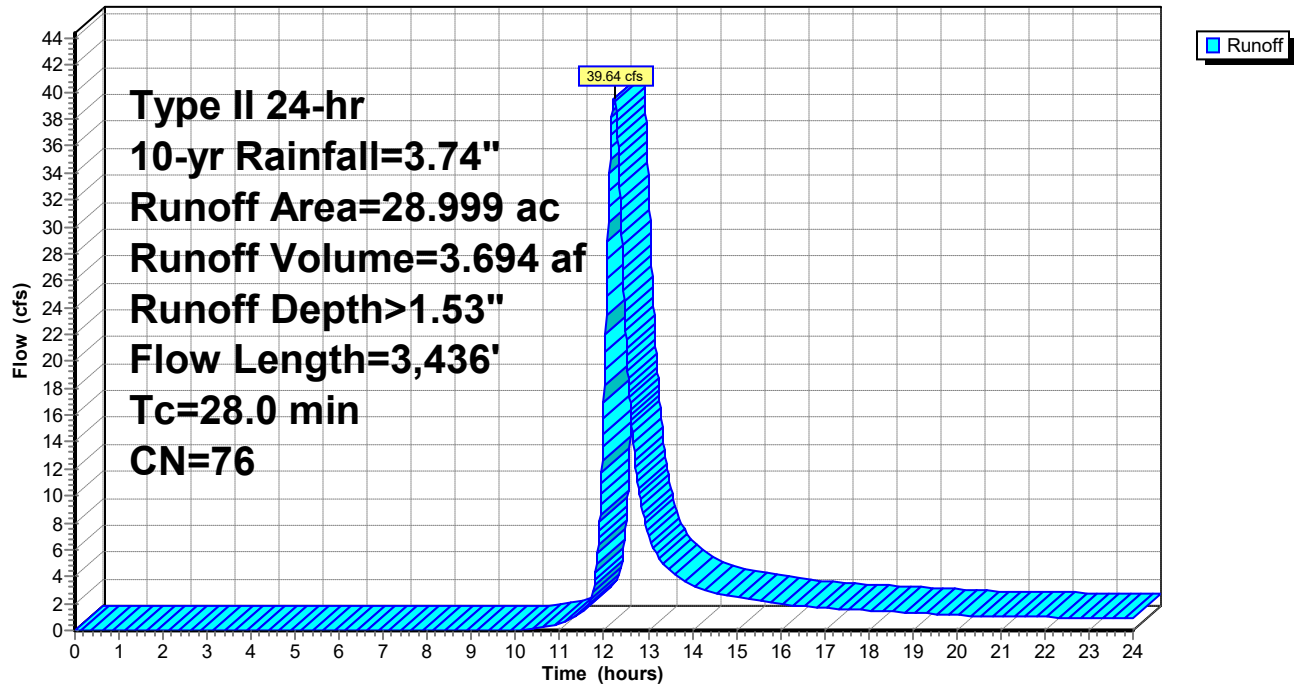
Type II 24-hr 10-yr Rainfall=3.74"

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Subcatchment 3S: Updated Watershed

Hydrograph



Woodlands Basin 2

Type II 24-hr 10-yr Rainfall=3.74"

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Summary for Pond 3P: Woodlands Basin 2 Ex Conditions - No Failure

Inflow Area = 28.999 ac, 16.88% Impervious, Inflow Depth > 1.53" for 10-yr event
 Inflow = 39.64 cfs @ 12.23 hrs, Volume= 3.694 af
 Outflow = 39.44 cfs @ 12.24 hrs, Volume= 3.693 af, Atten= 1%, Lag= 0.9 min
 Primary = 7.71 cfs @ 12.24 hrs, Volume= 2.762 af
 Secondary = 31.73 cfs @ 12.24 hrs, Volume= 0.930 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 832.28' @ 12.24 hrs Surf.Area= 0.192 ac Storage= 0.400 af

Plug-Flow detention time= 11.6 min calculated for 3.691 af (100% of inflow)
 Center-of-Mass det. time= 11.4 min (870.2 - 858.8)

Volume	Invert	Avail.Storage	Storage Description
#1	827.62'	0.672 af	Ex Survey (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
827.62	0.000	0.000	0.000
828.00	0.002	0.000	0.000
829.00	0.014	0.008	0.009
830.00	0.104	0.059	0.068
831.00	0.142	0.123	0.191
832.00	0.176	0.159	0.350
833.05	0.236	0.216	0.566
833.50	0.236	0.106	0.672

Device	Routing	Invert	Outlet Devices
#1	Primary	827.25'	18.0" Round RCP_Round 18" L= 15.4' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 827.25' / 826.91' S= 0.0221 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	827.62'	12.0" Round RCP_Round 12" L= 15.1' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 827.62' / 827.57' S= 0.0033 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#3	Device 1	833.05'	2.0" x 23.5" Horiz. Grate ODOT 2-2B per plan 1979 SCD X 7.00 C= 0.600 in 28.0" x 28.0" Grate (42% open area) Limited to weir flow at low heads
#4	Secondary	832.00'	90.0' long + 2.0 '/' SideZ x 5.0' breadth Est Embankment Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Woodlands Basin 2

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Type II 24-hr 10-yr Rainfall=3.74"

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Primary OutFlow Max=7.71 cfs @ 12.24 hrs HW=832.28' (Free Discharge)

↑ **1=RCP_Round 18"** (Passes 7.71 cfs of 17.60 cfs potential flow)

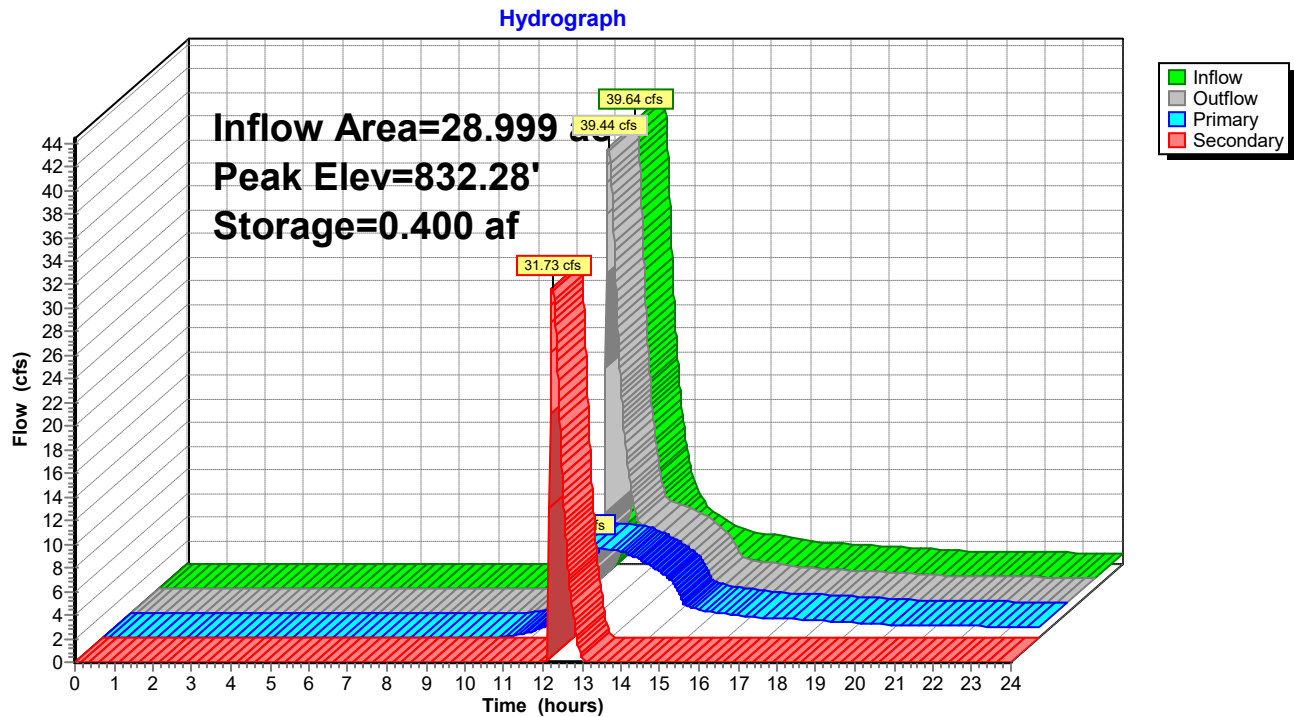
↑ **2=RCP_Round 12"** (Inlet Controls 7.71 cfs @ 9.82 fps)

↑ **3=Grate ODOT 2-2B per plan 1979 SCD** (Controls 0.00 cfs)

Secondary OutFlow Max=31.59 cfs @ 12.24 hrs HW=832.28' (Free Discharge)

↑ **4=Est Embankment** (Weir Controls 31.59 cfs @ 1.26 fps)

Pond 3P: Woodlands Basin 2 Ex Conditions - No Failure



Woodlands Basin 2

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Type II 24-hr 25-yr Rainfall=4.44"

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Summary for Subcatchment 3S: Updated Watershed

Runoff = 54.30 cfs @ 12.23 hrs, Volume= 4.991 af, Depth> 2.07"

Routed to Pond 3P : Woodlands Basin 2 Ex Conditions - No Failure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Type II 24-hr 25-yr Rainfall=4.44"

Area (ac)	CN	Description
14.707	70	Woods, Good, HSG C
7.481	79	1 acre lots, 20% imp, HSG C
2.224	98	Paved roads w/curbs & sewers, HSG C
3.915	81	1/3 acre lots, 30% imp, HSG C
0.672	74	>75% Grass cover, Good, HSG C
28.999	76	Weighted Average
24.104		83.12% Pervious Area
4.895		16.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.0200	0.15		Sheet Flow, sheet flow Grass: Short n= 0.150 P2= 2.63"
1.3	171	0.0120	2.22		Shallow Concentrated Flow, curb and gutter Paved Kv= 20.3 fps
2.2	398		3.00		Direct Entry, Clayton Court Sewer
2.3	157	0.0268	1.15		Shallow Concentrated Flow, Clayton Court Basin Short Grass Pasture Kv= 7.0 fps
0.3	47		3.00		Direct Entry, Clayton Ct Basin Outlet
1.4	98	0.0520	1.14		Shallow Concentrated Flow, Woods to channel Woodland Kv= 5.0 fps
6.0	1,793		5.00		Direct Entry, Woods Channel Clayton to Red Bay Ct
3.7	672		3.00		Direct Entry, Woodlands Storm Sewer
28.0	3,436	Total			

Woodlands Basin 2

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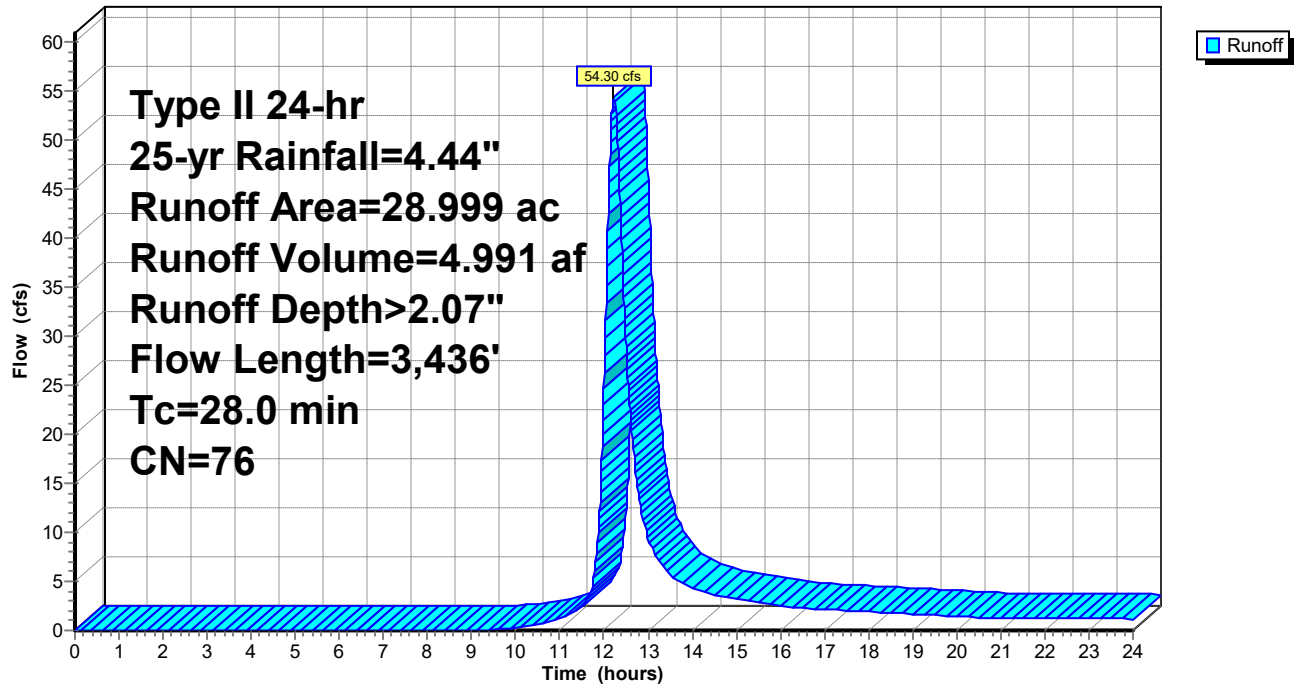
Type II 24-hr 25-yr Rainfall=4.44"

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Subcatchment 3S: Updated Watershed

Hydrograph



Woodlands Basin 2

Type II 24-hr 25-yr Rainfall=4.44"

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Summary for Pond 3P: Woodlands Basin 2 Ex Conditions - No Failure

Inflow Area = 28.999 ac, 16.88% Impervious, Inflow Depth > 2.07" for 25-yr event
 Inflow = 54.30 cfs @ 12.23 hrs, Volume= 4.991 af
 Outflow = 54.14 cfs @ 12.24 hrs, Volume= 4.989 af, Atten= 0%, Lag= 0.5 min
 Primary = 7.78 cfs @ 12.24 hrs, Volume= 3.336 af
 Secondary = 46.37 cfs @ 12.24 hrs, Volume= 1.653 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 832.35' @ 12.24 hrs Surf.Area= 0.196 ac Storage= 0.415 af

Plug-Flow detention time= 10.7 min calculated for 4.987 af (100% of inflow)
 Center-of-Mass det. time= 10.5 min (860.8 - 850.3)

Volume	Invert	Avail.Storage	Storage Description
#1	827.62'	0.672 af	Ex Survey (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
827.62	0.000	0.000	0.000
828.00	0.002	0.000	0.000
829.00	0.014	0.008	0.009
830.00	0.104	0.059	0.068
831.00	0.142	0.123	0.191
832.00	0.176	0.159	0.350
833.05	0.236	0.216	0.566
833.50	0.236	0.106	0.672

Device	Routing	Invert	Outlet Devices
#1	Primary	827.25'	18.0" Round RCP_Round 18" L= 15.4' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 827.25' / 826.91' S= 0.0221 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	827.62'	12.0" Round RCP_Round 12" L= 15.1' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 827.62' / 827.57' S= 0.0033 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#3	Device 1	833.05'	2.0" x 23.5" Horiz. Grate ODOT 2-2B per plan 1979 SCD X 7.00 C= 0.600 in 28.0" x 28.0" Grate (42% open area) Limited to weir flow at low heads
#4	Secondary	832.00'	90.0' long + 2.0 '/' SideZ x 5.0' breadth Est Embankment Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Woodlands Basin 2

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Type II 24-hr 25-yr Rainfall=4.44"

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Primary OutFlow Max=7.78 cfs @ 12.24 hrs HW=832.35' (Free Discharge)

↑ **1=RCP_Round 18"** (Passes 7.78 cfs of 17.75 cfs potential flow)

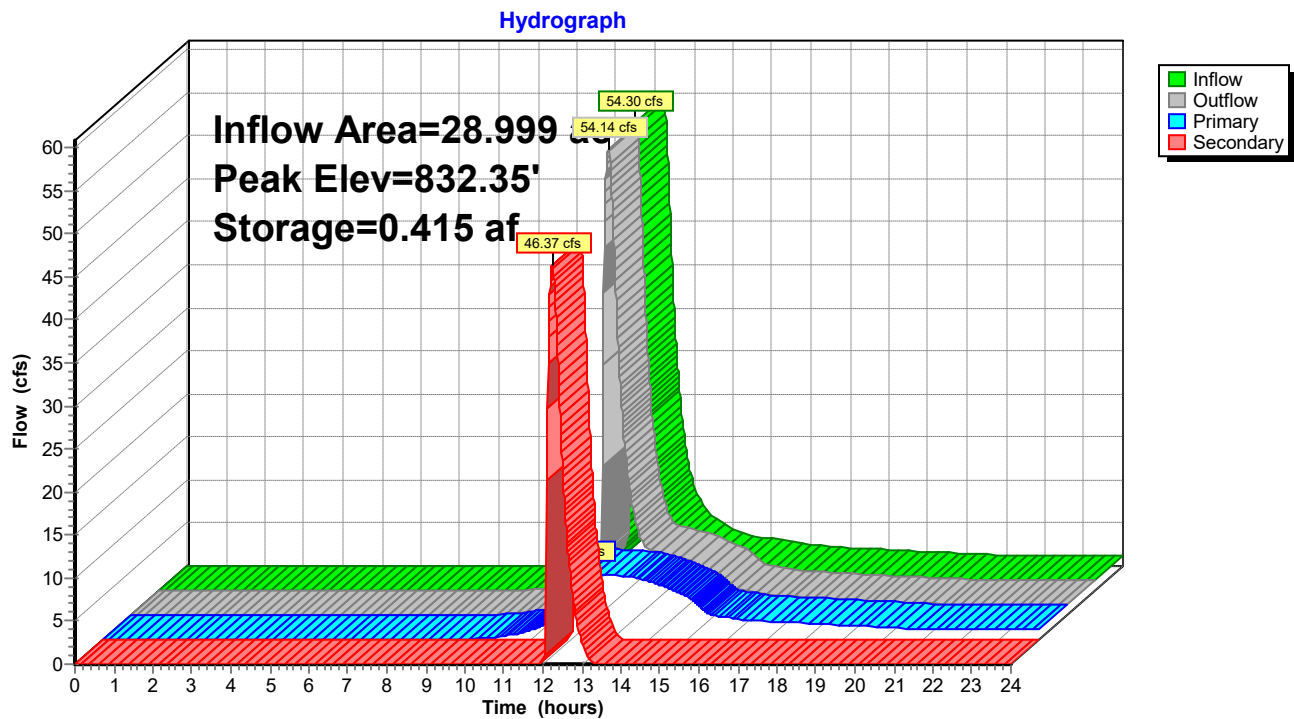
↑ **2=RCP_Round 12"** (Inlet Controls 7.78 cfs @ 9.90 fps)

↑ **3=Grate ODOT 2-2B per plan 1979 SCD** (Controls 0.00 cfs)

Secondary OutFlow Max=46.16 cfs @ 12.24 hrs HW=832.35' (Free Discharge)

↑ **4=Est Embankment** (Weir Controls 46.16 cfs @ 1.45 fps)

Pond 3P: Woodlands Basin 2 Ex Conditions - No Failure



Woodlands Basin 2

Type II 24-hr 50-yr Rainfall=5.02"

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Summary for Subcatchment 3S: Updated Watershed

Runoff = 66.96 cfs @ 12.23 hrs, Volume= 6.120 af, Depth> 2.53"

Routed to Pond 3P : Woodlands Basin 2 Ex Conditions - No Failure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=5.02"

Area (ac)	CN	Description
14.707	70	Woods, Good, HSG C
7.481	79	1 acre lots, 20% imp, HSG C
2.224	98	Paved roads w/curbs & sewers, HSG C
3.915	81	1/3 acre lots, 30% imp, HSG C
0.672	74	>75% Grass cover, Good, HSG C
28.999	76	Weighted Average
24.104		83.12% Pervious Area
4.895		16.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.0200	0.15		Sheet Flow, sheet flow Grass: Short n= 0.150 P2= 2.63"
1.3	171	0.0120	2.22		Shallow Concentrated Flow, curb and gutter Paved Kv= 20.3 fps
2.2	398		3.00		Direct Entry, Clayton Court Sewer
2.3	157	0.0268	1.15		Shallow Concentrated Flow, Clayton Court Basin Short Grass Pasture Kv= 7.0 fps
0.3	47		3.00		Direct Entry, Clayton Ct Basin Outlet
1.4	98	0.0520	1.14		Shallow Concentrated Flow, Woods to channel Woodland Kv= 5.0 fps
6.0	1,793		5.00		Direct Entry, Woods Channel Clayton to Red Bay Ct
3.7	672		3.00		Direct Entry, Woodlands Storm Sewer
28.0	3,436	Total			

Woodlands Basin 2

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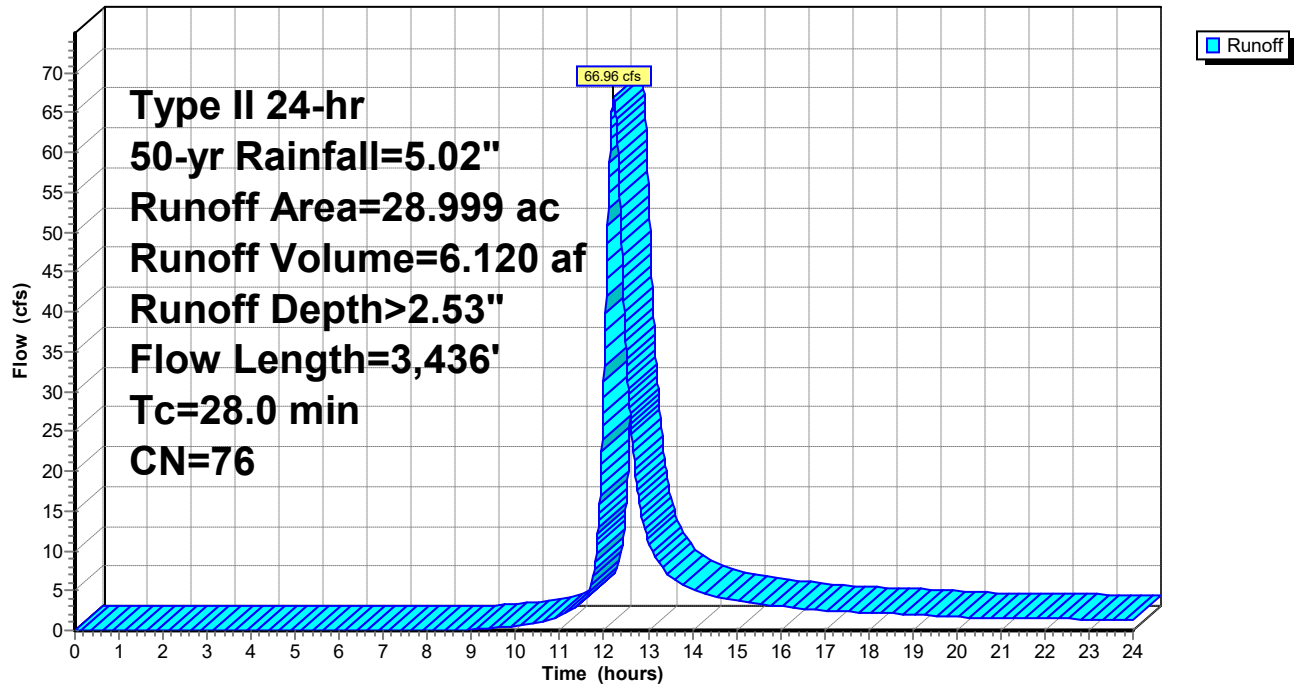
Type II 24-hr 50-yr Rainfall=5.02"

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Subcatchment 3S: Updated Watershed

Hydrograph



Woodlands Basin 2

Type II 24-hr 50-yr Rainfall=5.02"

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Summary for Pond 3P: Woodlands Basin 2 Ex Conditions - No Failure

Inflow Area = 28.999 ac, 16.88% Impervious, Inflow Depth > 2.53" for 50-yr event
 Inflow = 66.96 cfs @ 12.23 hrs, Volume= 6.120 af
 Outflow = 66.81 cfs @ 12.23 hrs, Volume= 6.117 af, Atten= 0%, Lag= 0.4 min
 Primary = 7.83 cfs @ 12.23 hrs, Volume= 3.801 af
 Secondary = 58.98 cfs @ 12.23 hrs, Volume= 2.316 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 832.41' @ 12.23 hrs Surf.Area= 0.199 ac Storage= 0.426 af

Plug-Flow detention time= 10.2 min calculated for 6.117 af (100% of inflow)
 Center-of-Mass det. time= 10.0 min (854.6 - 844.6)

Volume	Invert	Avail.Storage	Storage Description
#1	827.62'	0.672 af	Ex Survey (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
827.62	0.000	0.000	0.000
828.00	0.002	0.000	0.000
829.00	0.014	0.008	0.009
830.00	0.104	0.059	0.068
831.00	0.142	0.123	0.191
832.00	0.176	0.159	0.350
833.05	0.236	0.216	0.566
833.50	0.236	0.106	0.672

Device	Routing	Invert	Outlet Devices
#1	Primary	827.25'	18.0" Round RCP_Round 18" L= 15.4' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 827.25' / 826.91' S= 0.0221 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	827.62'	12.0" Round RCP_Round 12" L= 15.1' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 827.62' / 827.57' S= 0.0033 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#3	Device 1	833.05'	2.0" x 23.5" Horiz. Grate ODOT 2-2B per plan 1979 SCD X 7.00 C= 0.600 in 28.0" x 28.0" Grate (42% open area) Limited to weir flow at low heads
#4	Secondary	832.00'	90.0' long + 2.0 '/' SideZ x 5.0' breadth Est Embankment Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Woodlands Basin 2

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Type II 24-hr 50-yr Rainfall=5.02"

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Primary OutFlow Max=7.83 cfs @ 12.23 hrs HW=832.41' (Free Discharge)

1=RCP_Round 18" (Passes 7.83 cfs of 17.86 cfs potential flow)

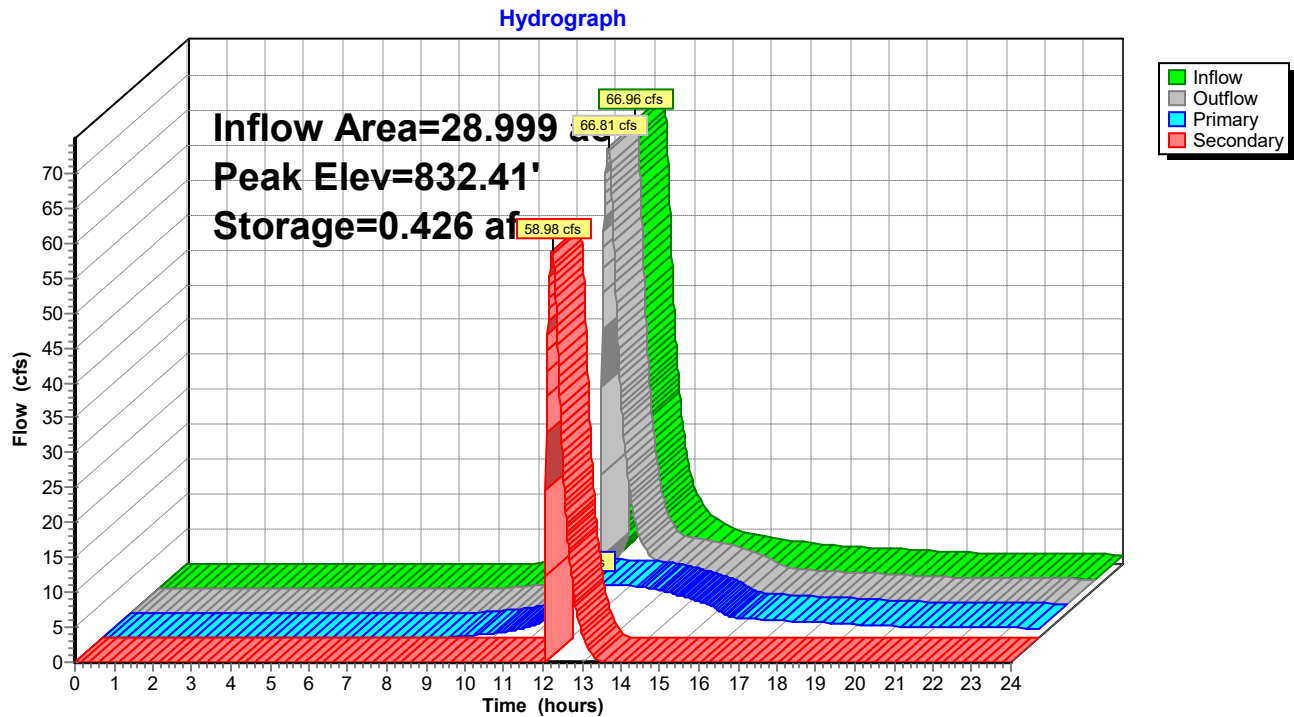
2=RCP_Round 12" (Inlet Controls 7.83 cfs @ 9.97 fps)

3=Grate ODOT 2-2B per plan 1979 SCD (Controls 0.00 cfs)

Secondary OutFlow Max=58.72 cfs @ 12.23 hrs HW=832.41' (Free Discharge)

4=Est Embankment (Weir Controls 58.72 cfs @ 1.59 fps)

Pond 3P: Woodlands Basin 2 Ex Conditions - No Failure



Woodlands Basin 2

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Type II 24-hr 100-yr Rainfall=5.63"

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Summary for Subcatchment 3S: Updated Watershed

Runoff = 80.59 cfs @ 12.22 hrs, Volume= 7.347 af, Depth> 3.04"

Routed to Pond 3P : Woodlands Basin 2 Ex Conditions - No Failure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Type II 24-hr 100-yr Rainfall=5.63"

Area (ac)	CN	Description
14.707	70	Woods, Good, HSG C
7.481	79	1 acre lots, 20% imp, HSG C
2.224	98	Paved roads w/curbs & sewers, HSG C
3.915	81	1/3 acre lots, 30% imp, HSG C
0.672	74	>75% Grass cover, Good, HSG C
28.999	76	Weighted Average
24.104		83.12% Pervious Area
4.895		16.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.0200	0.15		Sheet Flow, sheet flow
					Grass: Short n= 0.150 P2= 2.63"
1.3	171	0.0120	2.22		Shallow Concentrated Flow, curb and gutter
					Paved Kv= 20.3 fps
2.2	398		3.00		Direct Entry, Clayton Court Sewer
2.3	157	0.0268	1.15		Shallow Concentrated Flow, Clayton Court Basin
					Short Grass Pasture Kv= 7.0 fps
0.3	47		3.00		Direct Entry, Clayton Ct Basin Outlet
1.4	98	0.0520	1.14		Shallow Concentrated Flow, Woods to channel
					Woodland Kv= 5.0 fps
6.0	1,793		5.00		Direct Entry, Woods Channel Clayton to Red Bay Ct
3.7	672		3.00		Direct Entry, Woodlands Storm Sewer
28.0	3,436	Total			

Woodlands Basin 2

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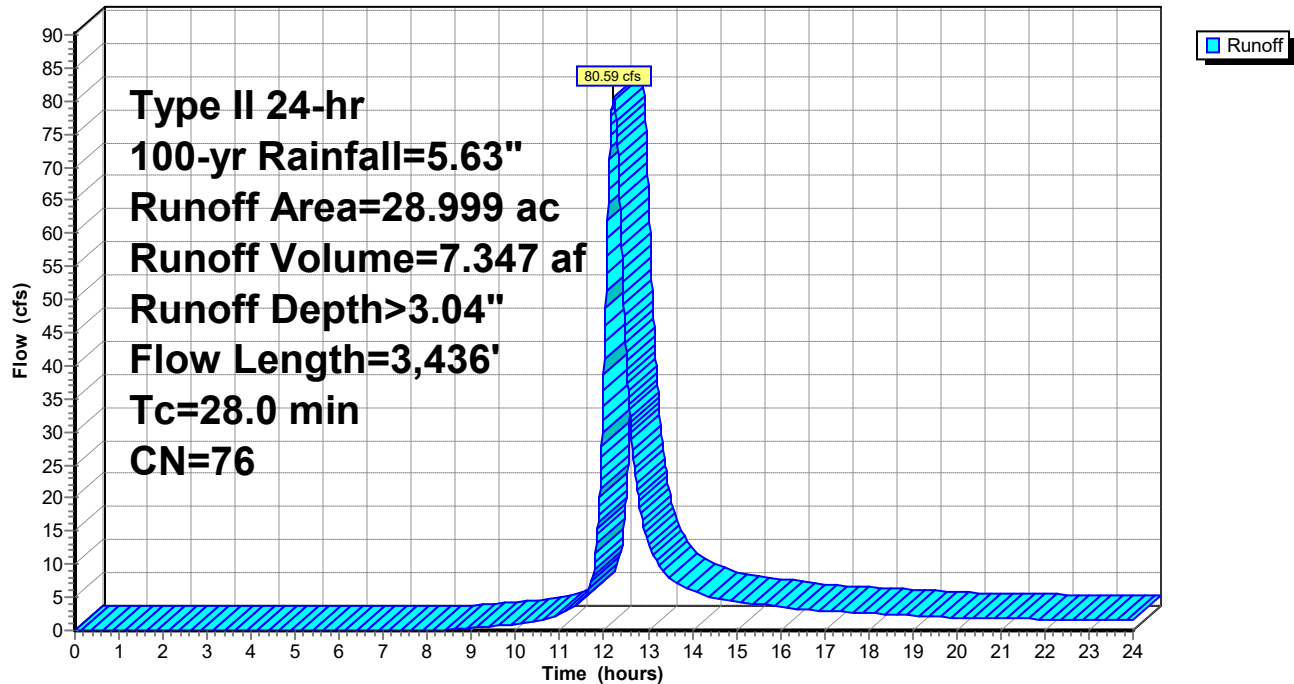
Type II 24-hr 100-yr Rainfall=5.63"

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Subcatchment 3S: Updated Watershed

Hydrograph



Woodlands Basin 2

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Type II 24-hr 100-yr Rainfall=5.63"

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Summary for Pond 3P: Woodlands Basin 2 Ex Conditions - No Failure

Inflow Area = 28.999 ac, 16.88% Impervious, Inflow Depth > 3.04" for 100-yr event
 Inflow = 80.59 cfs @ 12.22 hrs, Volume= 7.347 af
 Outflow = 80.48 cfs @ 12.23 hrs, Volume= 7.345 af, Atten= 0%, Lag= 0.4 min
 Primary = 7.88 cfs @ 12.23 hrs, Volume= 4.280 af
 Secondary = 72.60 cfs @ 12.23 hrs, Volume= 3.064 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 832.46' @ 12.23 hrs Surf.Area= 0.202 ac Storage= 0.436 af

Plug-Flow detention time= 9.9 min calculated for 7.341 af (100% of inflow)
 Center-of-Mass det. time= 9.7 min (849.2 - 839.6)

Volume	Invert	Avail.Storage	Storage Description
#1	827.62'	0.672 af	Ex Survey (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
827.62	0.000	0.000	0.000
828.00	0.002	0.000	0.000
829.00	0.014	0.008	0.009
830.00	0.104	0.059	0.068
831.00	0.142	0.123	0.191
832.00	0.176	0.159	0.350
833.05	0.236	0.216	0.566
833.50	0.236	0.106	0.672

Device	Routing	Invert	Outlet Devices
#1	Primary	827.25'	18.0" Round RCP_Round 18" L= 15.4' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 827.25' / 826.91' S= 0.0221 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	827.62'	12.0" Round RCP_Round 12" L= 15.1' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 827.62' / 827.57' S= 0.0033 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#3	Device 1	833.05'	2.0" x 23.5" Horiz. Grate ODOT 2-2B per plan 1979 SCD X 7.00 C= 0.600 in 28.0" x 28.0" Grate (42% open area) Limited to weir flow at low heads
#4	Secondary	832.00'	90.0' long + 2.0 '/' SideZ x 5.0' breadth Est Embankment Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Woodlands Basin 2

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Type II 24-hr 100-yr Rainfall=5.63"

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Primary OutFlow Max=7.88 cfs @ 12.23 hrs HW=832.46' (Free Discharge)

1=RCP_Round 18" (Passes 7.88 cfs of 17.97 cfs potential flow)

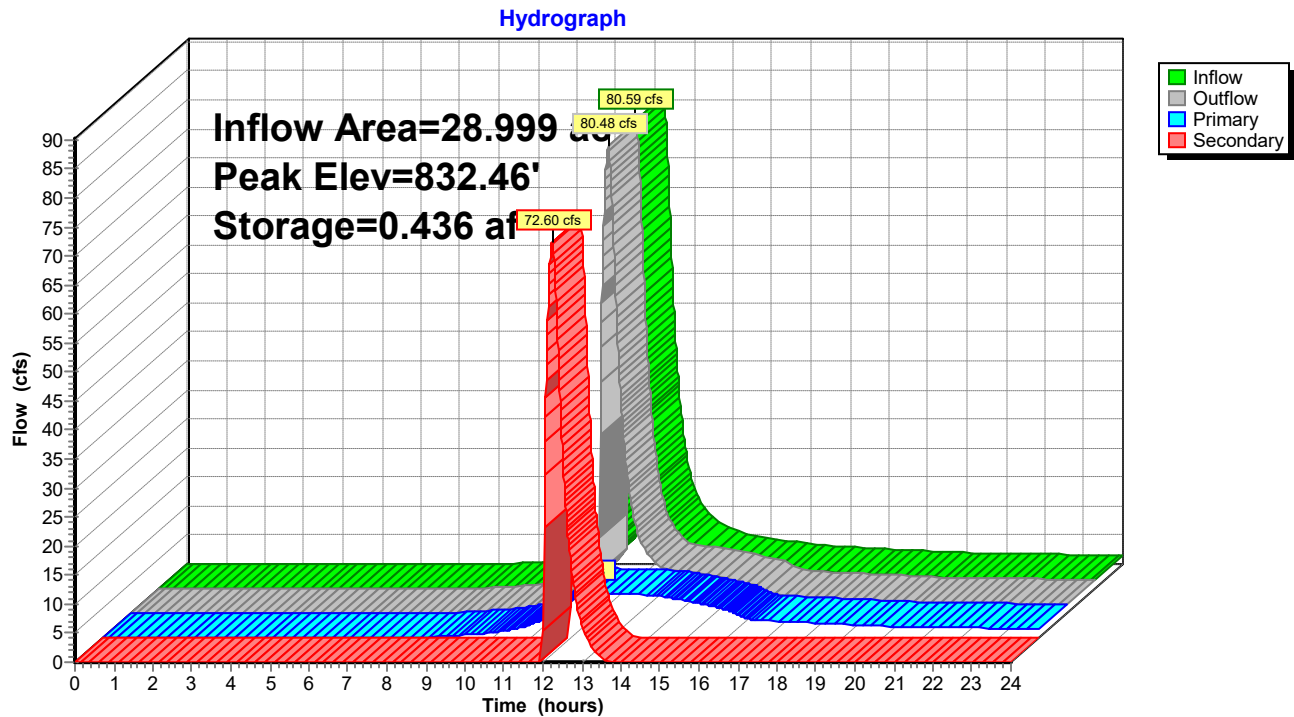
2=RCP_Round 12" (Inlet Controls 7.88 cfs @ 10.03 fps)

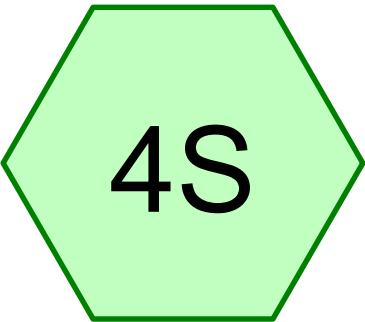
3=Grate ODOT 2-2B per plan 1979 SCD (Controls 0.00 cfs)

Secondary OutFlow Max=72.42 cfs @ 12.23 hrs HW=832.46' (Free Discharge)

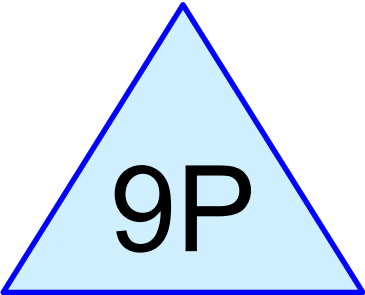
4=Est Embankment (Weir Controls 72.42 cfs @ 1.73 fps)

Pond 3P: Woodlands Basin 2 Ex Conditions - No Failure

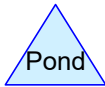
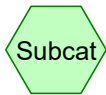




Updated Watershed



Woodlands Basin 2 Ex
Conditions - Failure



Woodlands Basin 2

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Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-yr	Type II 24-hr		Default	24.00	1	2.20	2
2	2-yr	Type II 24-hr		Default	24.00	1	2.63	2
3	5-yr	Type II 24-hr		Default	24.00	1	3.24	2
4	10-yr	Type II 24-hr		Default	24.00	1	3.74	2
5	25-yr	Type II 24-hr		Default	24.00	1	4.44	2
6	50-yr	Type II 24-hr		Default	24.00	1	5.02	2
7	100-yr	Type II 24-hr		Default	24.00	1	5.63	2

Woodlands Basin 2

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Type II 24-hr 1-yr Rainfall=2.20"

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Summary for Subcatchment 4S: Updated Watershed

Runoff = 11.60 cfs @ 12.26 hrs, Volume= 1.244 af, Depth> 0.51"

Routed to Pond 9P : Woodlands Basin 2 Ex Conditions - Failure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Type II 24-hr 1-yr Rainfall=2.20"

Area (ac)	CN	Description
14.707	70	Woods, Good, HSG C
7.481	79	1 acre lots, 20% imp, HSG C
2.224	98	Paved roads w/curbs & sewers, HSG C
3.915	81	1/3 acre lots, 30% imp, HSG C
0.672	74	>75% Grass cover, Good, HSG C
28.999	76	Weighted Average
24.104		83.12% Pervious Area
4.895		16.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.0200	0.15		Sheet Flow, sheet flow
					Grass: Short n= 0.150 P2= 2.63"
1.3	171	0.0120	2.22		Shallow Concentrated Flow, curb and gutter
					Paved Kv= 20.3 fps
2.2	398		3.00		Direct Entry, Clayton Court Sewer
2.3	157	0.0268	1.15		Shallow Concentrated Flow, Clayton Court Basin
					Short Grass Pasture Kv= 7.0 fps
0.3	47		3.00		Direct Entry, Clayton Ct Basin Outlet
1.4	98	0.0520	1.14		Shallow Concentrated Flow, Woods to channel
					Woodland Kv= 5.0 fps
6.0	1,793		5.00		Direct Entry, Woods Channel Clayton to Red Bay Ct
3.7	672		3.00		Direct Entry, Woodlands Storm Sewer
28.0	3,436	Total			

Woodlands Basin 2

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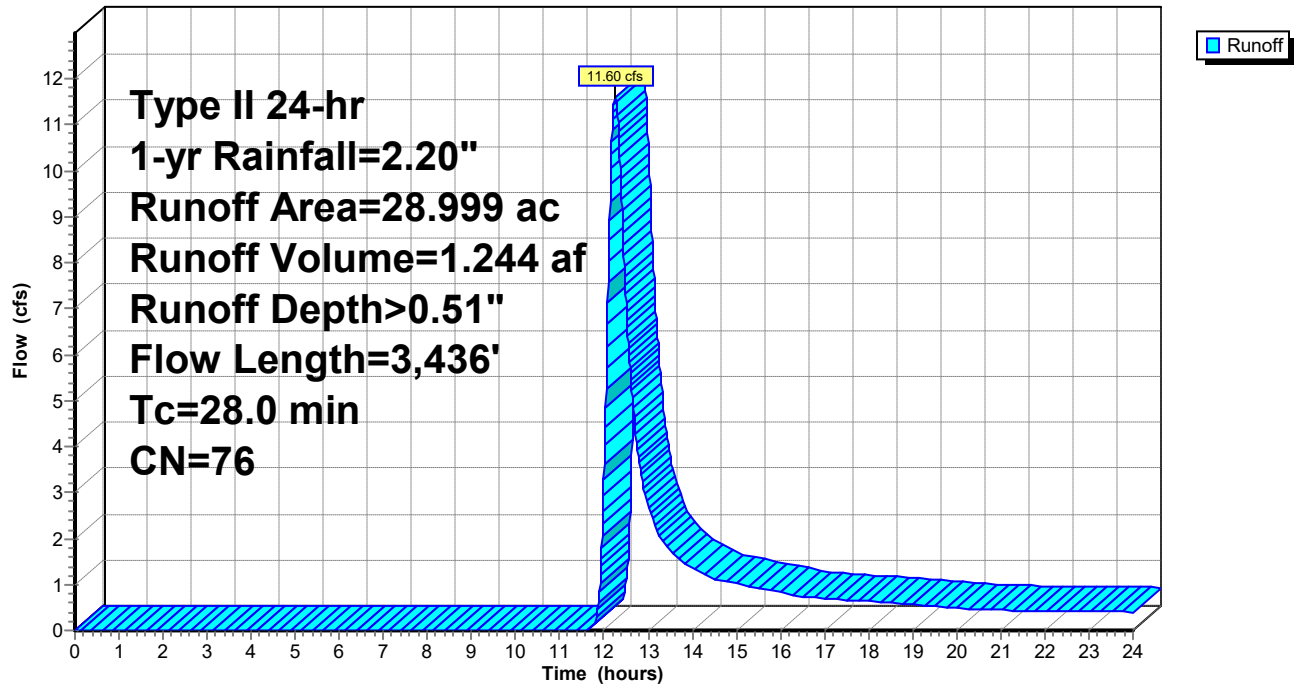
Type II 24-hr 1-yr Rainfall=2.20"

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Subcatchment 4S: Updated Watershed

Hydrograph



Woodlands Basin 2

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Type II 24-hr 1-yr Rainfall=2.20"

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Summary for Pond 9P: Woodlands Basin 2 Ex Conditions - Failure

Inflow Area = 28.999 ac, 16.88% Impervious, Inflow Depth > 0.51" for 1-yr event
 Inflow = 11.60 cfs @ 12.26 hrs, Volume= 1.244 af
 Outflow = 6.24 cfs @ 12.55 hrs, Volume= 1.243 af, Atten= 46%, Lag= 17.7 min
 Primary = 6.24 cfs @ 12.55 hrs, Volume= 1.243 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Link 48L : Spillway Out
 Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Link 48L : Spillway Out

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 830.84' @ 12.55 hrs Surf.Area= 5,909 sf Storage= 7,350 cf

Plug-Flow detention time= 7.1 min calculated for 1.243 af (100% of inflow)
 Center-of-Mass det. time= 6.9 min (899.2 - 892.3)

Volume	Invert	Avail.Storage	Storage Description
#1	827.62'	29,257 cf	Ex Survey (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
827.62	0	0	0
828.00	104	20	20
829.00	624	364	384
830.00	4,530	2,577	2,961
831.00	6,170	5,350	8,311
832.00	7,660	6,915	15,226
833.05	10,266	9,411	24,637
833.50	10,266	4,620	29,257

Device	Routing	Invert	Outlet Devices
#1	Primary	827.25'	18.0" Round RCP_Round 18" L= 15.4' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 827.25' / 826.91' S= 0.0221 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	827.62'	12.0" Round RCP_Round 12" L= 15.1' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 827.62' / 827.57' S= 0.0033 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#3	Device 1	833.05'	2.0" x 23.5" Horiz. Grate ODOT 2-2B per plan 1979 SCD X 7.00 C= 0.600 in 28.0" x 28.0" Grate (42% open area) Limited to weir flow at low heads
#4	Secondary	831.00'	6.0' long x 5.0' breadth Blown Out Embankment Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#5	Tertiary	832.00'	90.0' long + 2.0 '/' SideZ x 5.0' breadth Est Embankment Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50

Woodlands Basin 2

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Type II 24-hr 1-yr Rainfall=2.20"

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Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65
2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=6.24 cfs @ 12.55 hrs HW=830.84' (Free Discharge)

↑ **1=RCP_Round 18"** (Passes 6.24 cfs of 14.34 cfs potential flow)

↑ **2=RCP_Round 12"** (Inlet Controls 6.24 cfs @ 7.94 fps)

↑ **3=Grate ODOT 2-2B per plan 1979 SCD** (Controls 0.00 cfs)

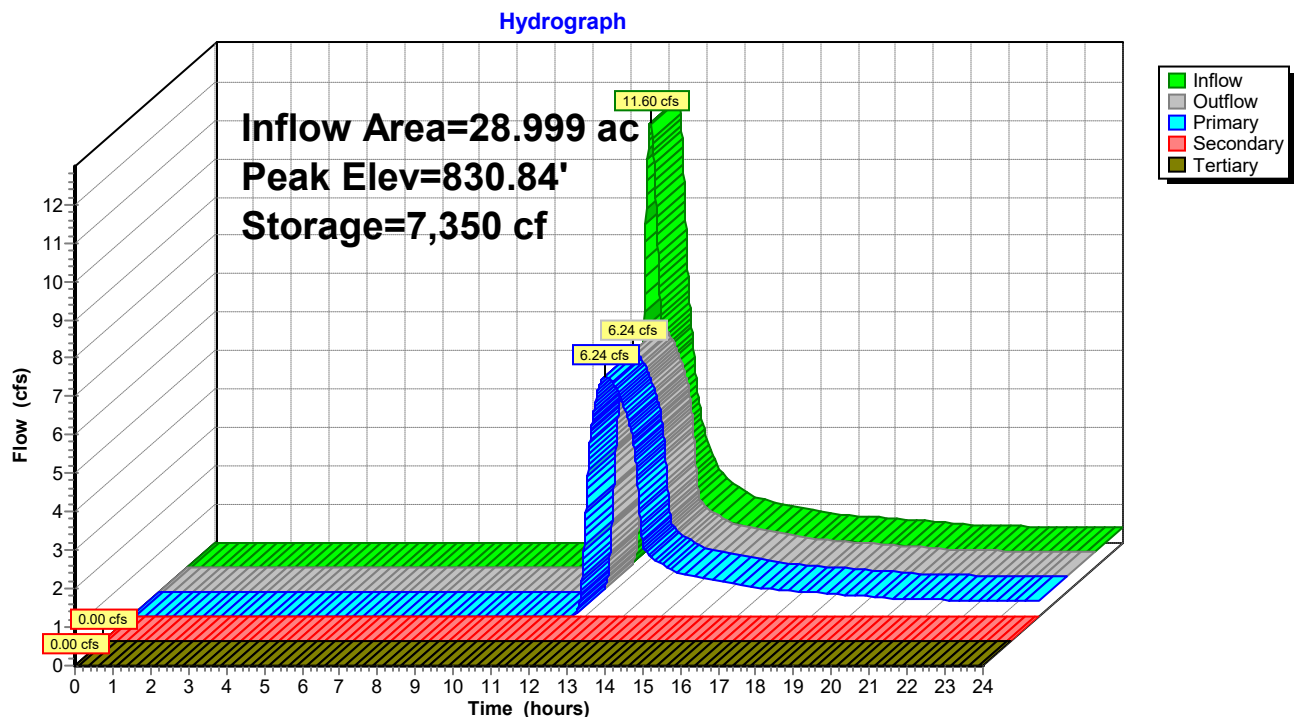
Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=827.62' (Free Discharge)

↑ **4=Blown Out Embankment** (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=827.62' (Free Discharge)

↑ **5=Est Embankment** (Controls 0.00 cfs)

Pond 9P: Woodlands Basin 2 Ex Conditions - Failure



Woodlands Basin 2

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Type II 24-hr 2-yr Rainfall=2.63"

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Summary for Subcatchment 4S: Updated Watershed

Runoff = 18.58 cfs @ 12.23 hrs, Volume= 1.853 af, Depth> 0.77"

Routed to Pond 9P : Woodlands Basin 2 Ex Conditions - Failure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Type II 24-hr 2-yr Rainfall=2.63"

Area (ac)	CN	Description
14.707	70	Woods, Good, HSG C
7.481	79	1 acre lots, 20% imp, HSG C
2.224	98	Paved roads w/curbs & sewers, HSG C
3.915	81	1/3 acre lots, 30% imp, HSG C
0.672	74	>75% Grass cover, Good, HSG C
28.999	76	Weighted Average
24.104		83.12% Pervious Area
4.895		16.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.0200	0.15		Sheet Flow, sheet flow Grass: Short n= 0.150 P2= 2.63"
1.3	171	0.0120	2.22		Shallow Concentrated Flow, curb and gutter Paved Kv= 20.3 fps
2.2	398		3.00		Direct Entry, Clayton Court Sewer
2.3	157	0.0268	1.15		Shallow Concentrated Flow, Clayton Court Basin Short Grass Pasture Kv= 7.0 fps
0.3	47		3.00		Direct Entry, Clayton Ct Basin Outlet
1.4	98	0.0520	1.14		Shallow Concentrated Flow, Woods to channel Woodland Kv= 5.0 fps
6.0	1,793		5.00		Direct Entry, Woods Channel Clayton to Red Bay Ct
3.7	672		3.00		Direct Entry, Woodlands Storm Sewer
28.0	3,436	Total			

Woodlands Basin 2

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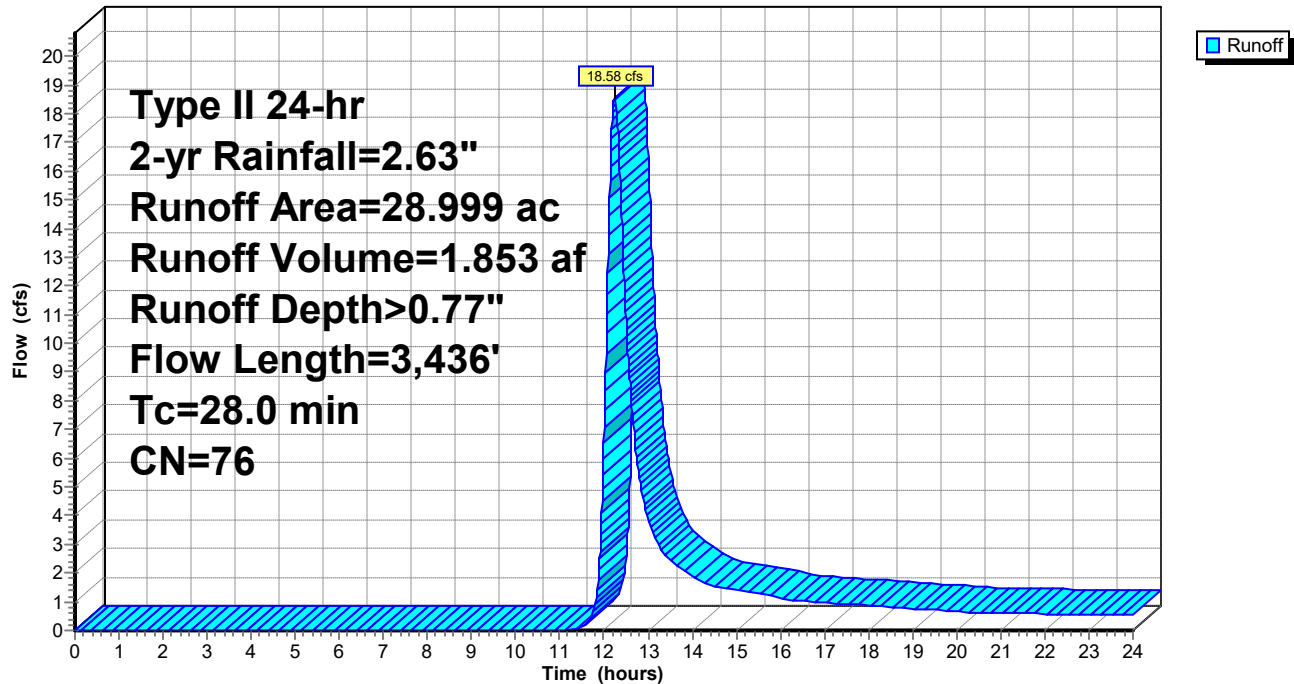
Type II 24-hr 2-yr Rainfall=2.63"

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Subcatchment 4S: Updated Watershed

Hydrograph



Woodlands Basin 2

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Type II 24-hr 2-yr Rainfall=2.63"

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Summary for Pond 9P: Woodlands Basin 2 Ex Conditions - Failure

Inflow Area = 28.999 ac, 16.88% Impervious, Inflow Depth > 0.77" for 2-yr event
 Inflow = 18.58 cfs @ 12.23 hrs, Volume= 1.853 af
 Outflow = 13.63 cfs @ 12.42 hrs, Volume= 1.852 af, Atten= 27%, Lag= 11.3 min
 Primary = 7.01 cfs @ 12.42 hrs, Volume= 1.673 af
 Secondary = 6.62 cfs @ 12.42 hrs, Volume= 0.179 af
 Routed to Link 48L : Spillway Out
 Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Link 48L : Spillway Out

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 831.56' @ 12.42 hrs Surf.Area= 6,999 sf Storage= 11,975 cf

Plug-Flow detention time= 9.2 min calculated for 1.852 af (100% of inflow)
 Center-of-Mass det. time= 9.0 min (888.2 - 879.2)

Volume	Invert	Avail.Storage	Storage Description
#1	827.62'	29,257 cf	Ex Survey (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
827.62	0	0	0
828.00	104	20	20
829.00	624	364	384
830.00	4,530	2,577	2,961
831.00	6,170	5,350	8,311
832.00	7,660	6,915	15,226
833.05	10,266	9,411	24,637
833.50	10,266	4,620	29,257

Device	Routing	Invert	Outlet Devices
#1	Primary	827.25'	18.0" Round RCP_Round 18" L= 15.4' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 827.25' / 826.91' S= 0.0221 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	827.62'	12.0" Round RCP_Round 12" L= 15.1' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 827.62' / 827.57' S= 0.0033 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#3	Device 1	833.05'	2.0" x 23.5" Horiz. Grate ODOT 2-2B per plan 1979 SCD X 7.00 C= 0.600 in 28.0" x 28.0" Grate (42% open area) Limited to weir flow at low heads
#4	Secondary	831.00'	6.0' long x 5.0' breadth Blown Out Embankment Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#5	Tertiary	832.00'	90.0' long + 2.0' SideZ x 5.0' breadth Est Embankment Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50

Woodlands Basin 2

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Type II 24-hr 2-yr Rainfall=2.63"

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Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65
2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=7.01 cfs @ 12.42 hrs HW=831.56' (Free Discharge)

↑ 1=RCP_Round 18" (Passes 7.01 cfs of 16.05 cfs potential flow)

↑ 2=RCP_Round 12" (Inlet Controls 7.01 cfs @ 8.93 fps)

↑ 3=Grate ODOT 2-2B per plan 1979 SCD (Controls 0.00 cfs)

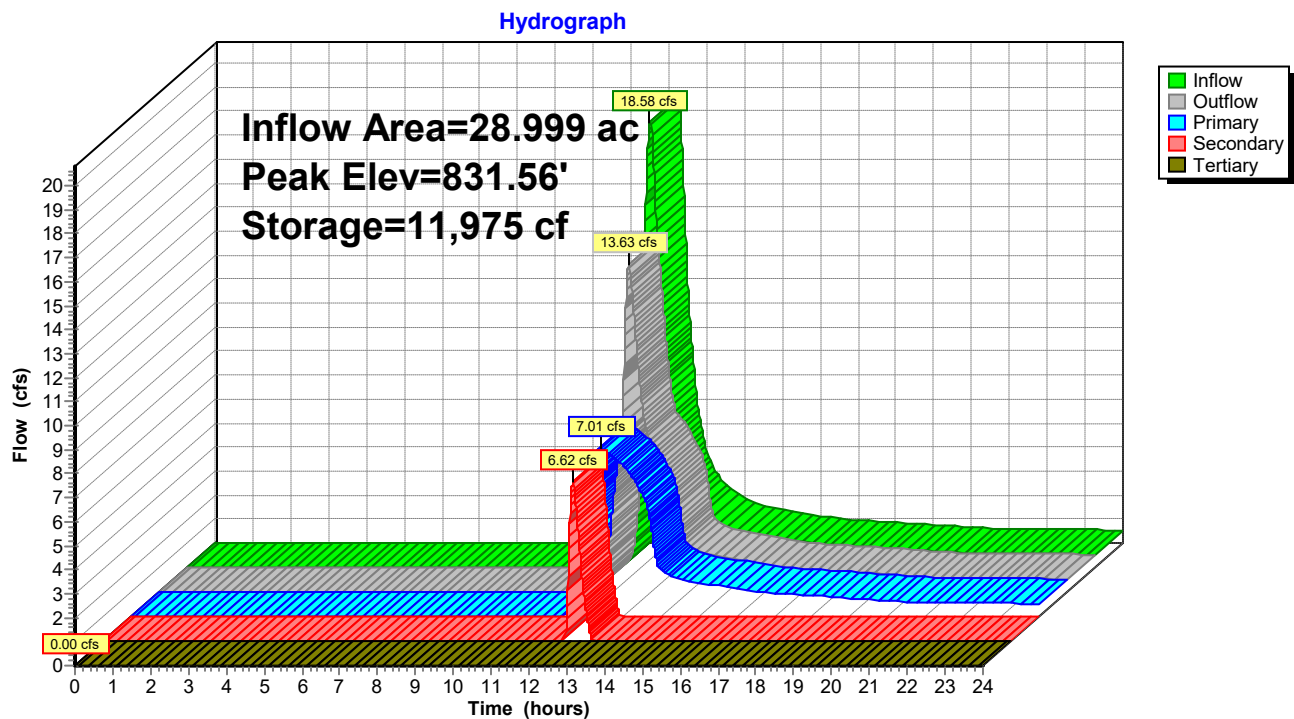
Secondary OutFlow Max=6.61 cfs @ 12.42 hrs HW=831.56' (Free Discharge)

↑ 4=Blown Out Embankment (Weir Controls 6.61 cfs @ 1.98 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=827.62' (Free Discharge)

↑ 5=Est Embankment (Controls 0.00 cfs)

Pond 9P: Woodlands Basin 2 Ex Conditions - Failure



Woodlands Basin 2

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Type II 24-hr 5-yr Rainfall=3.24"

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Summary for Subcatchment 4S: Updated Watershed

Runoff = 29.73 cfs @ 12.23 hrs, Volume= 2.825 af, Depth> 1.17"

Routed to Pond 9P : Woodlands Basin 2 Ex Conditions - Failure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Type II 24-hr 5-yr Rainfall=3.24"

Area (ac)	CN	Description
14.707	70	Woods, Good, HSG C
7.481	79	1 acre lots, 20% imp, HSG C
2.224	98	Paved roads w/curbs & sewers, HSG C
3.915	81	1/3 acre lots, 30% imp, HSG C
0.672	74	>75% Grass cover, Good, HSG C
28.999	76	Weighted Average
24.104		83.12% Pervious Area
4.895		16.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.0200	0.15		Sheet Flow, sheet flow Grass: Short n= 0.150 P2= 2.63"
1.3	171	0.0120	2.22		Shallow Concentrated Flow, curb and gutter Paved Kv= 20.3 fps
2.2	398		3.00		Direct Entry, Clayton Court Sewer
2.3	157	0.0268	1.15		Shallow Concentrated Flow, Clayton Court Basin Short Grass Pasture Kv= 7.0 fps
0.3	47		3.00		Direct Entry, Clayton Ct Basin Outlet
1.4	98	0.0520	1.14		Shallow Concentrated Flow, Woods to channel Woodland Kv= 5.0 fps
6.0	1,793		5.00		Direct Entry, Woods Channel Clayton to Red Bay Ct
3.7	672		3.00		Direct Entry, Woodlands Storm Sewer
28.0	3,436	Total			

Woodlands Basin 2

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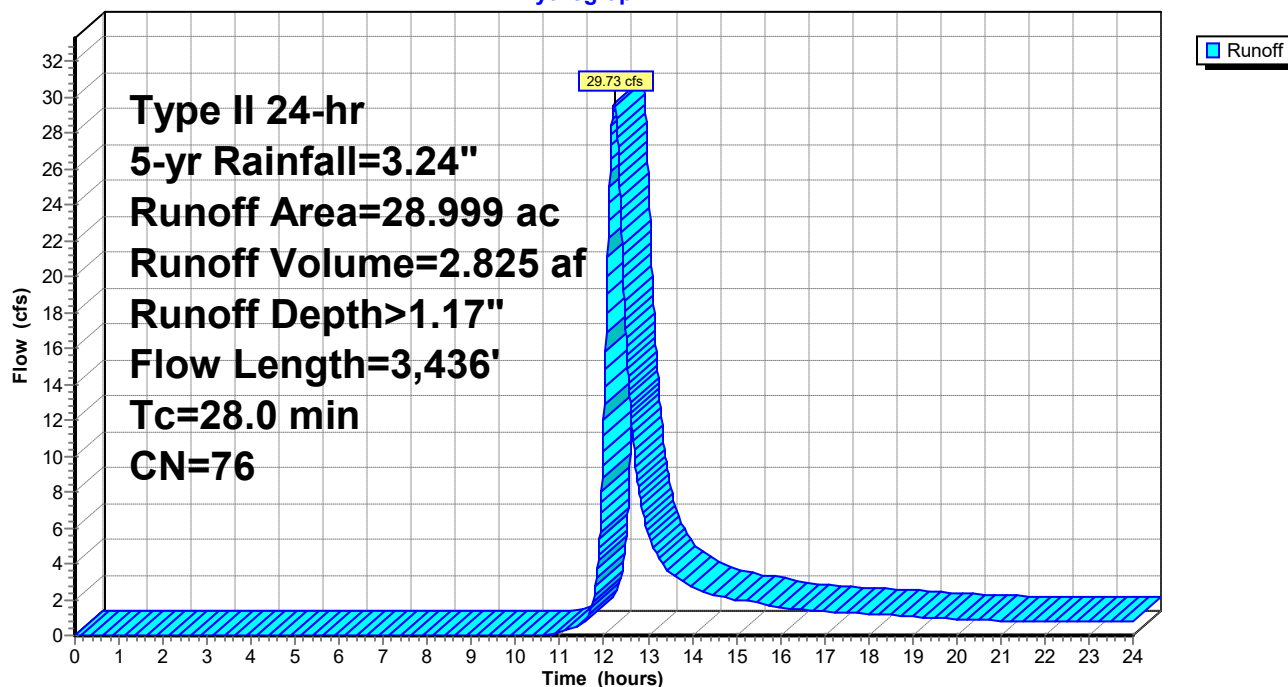
Type II 24-hr 5-yr Rainfall=3.24"

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Subcatchment 4S: Updated Watershed

Hydrograph



Woodlands Basin 2

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Type II 24-hr 5-yr Rainfall=3.24"

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Summary for Pond 9P: Woodlands Basin 2 Ex Conditions - Failure

Inflow Area = 28.999 ac, 16.88% Impervious, Inflow Depth > 1.17" for 5-yr event
 Inflow = 29.73 cfs @ 12.23 hrs, Volume= 2.825 af
 Outflow = 27.02 cfs @ 12.32 hrs, Volume= 2.824 af, Atten= 9%, Lag= 5.7 min
 Primary = 7.49 cfs @ 12.32 hrs, Volume= 2.189 af
 Secondary = 17.18 cfs @ 12.32 hrs, Volume= 0.621 af
 Routed to Link 48L : Spillway Out
 Tertiary = 2.34 cfs @ 12.32 hrs, Volume= 0.015 af
 Routed to Link 48L : Spillway Out

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 832.05' @ 12.32 hrs Surf.Area= 7,775 sf Storage= 15,583 cf

Plug-Flow detention time= 9.0 min calculated for 2.824 af (100% of inflow)
 Center-of-Mass det. time= 8.7 min (875.3 - 866.5)

Volume	Invert	Avail.Storage	Storage Description
#1	827.62'	29,257 cf	Ex Survey (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
827.62	0	0	0
828.00	104	20	20
829.00	624	364	384
830.00	4,530	2,577	2,961
831.00	6,170	5,350	8,311
832.00	7,660	6,915	15,226
833.05	10,266	9,411	24,637
833.50	10,266	4,620	29,257

Device	Routing	Invert	Outlet Devices
#1	Primary	827.25'	18.0" Round RCP_Round 18" L= 15.4' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 827.25' / 826.91' S= 0.0221 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	827.62'	12.0" Round RCP_Round 12" L= 15.1' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 827.62' / 827.57' S= 0.0033 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#3	Device 1	833.05'	2.0" x 23.5" Horiz. Grate ODOT 2-2B per plan 1979 SCD X 7.00 C= 0.600 in 28.0" x 28.0" Grate (42% open area) Limited to weir flow at low heads
#4	Secondary	831.00'	6.0' long x 5.0' breadth Blown Out Embankment Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#5	Tertiary	832.00'	90.0' long + 2.0 '/' SideZ x 5.0' breadth Est Embankment Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50

Woodlands Basin 2

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Type II 24-hr 5-yr Rainfall=3.24"

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Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65
2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=7.49 cfs @ 12.32 hrs HW=832.05' (Free Discharge)

↑ **1=RCP_Round 18"** (Passes 7.49 cfs of 17.12 cfs potential flow)

↑ **2=RCP_Round 12"** (Inlet Controls 7.49 cfs @ 9.54 fps)

↑ **3=Grate ODOT 2-2B per plan 1979 SCD** (Controls 0.00 cfs)

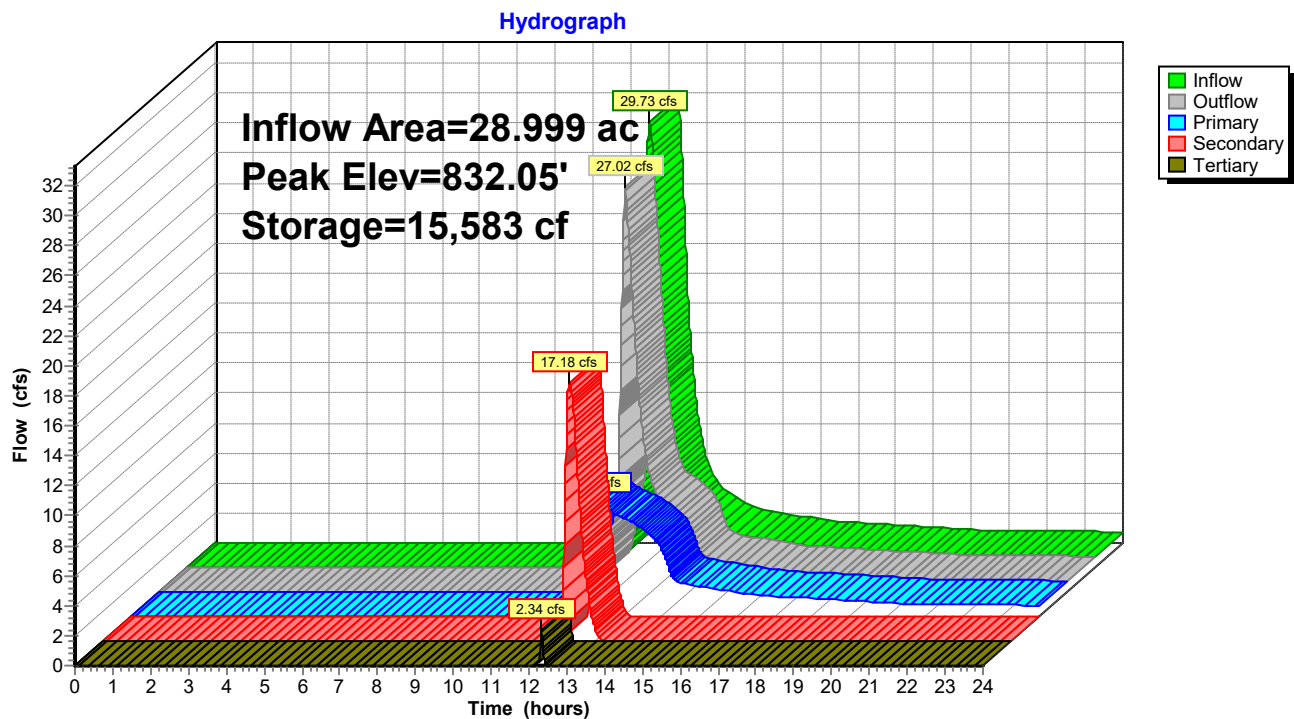
Secondary OutFlow Max=17.17 cfs @ 12.32 hrs HW=832.05' (Free Discharge)

↑ **4=Blown Out Embankment** (Weir Controls 17.17 cfs @ 2.74 fps)

Tertiary OutFlow Max=2.08 cfs @ 12.32 hrs HW=832.05' (Free Discharge)

↑ **5=Est Embankment** (Weir Controls 2.08 cfs @ 0.50 fps)

Pond 9P: Woodlands Basin 2 Ex Conditions - Failure



Woodlands Basin 2

Type II 24-hr 10-yr Rainfall=3.74"

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Summary for Subcatchment 4S: Updated Watershed

Runoff = 39.64 cfs @ 12.23 hrs, Volume= 3.694 af, Depth> 1.53"

Routed to Pond 9P : Woodlands Basin 2 Ex Conditions - Failure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Type II 24-hr 10-yr Rainfall=3.74"

Area (ac)	CN	Description
14.707	70	Woods, Good, HSG C
7.481	79	1 acre lots, 20% imp, HSG C
2.224	98	Paved roads w/curbs & sewers, HSG C
3.915	81	1/3 acre lots, 30% imp, HSG C
0.672	74	>75% Grass cover, Good, HSG C
28.999	76	Weighted Average
24.104		83.12% Pervious Area
4.895		16.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.0200	0.15		Sheet Flow, sheet flow
					Grass: Short n= 0.150 P2= 2.63"
1.3	171	0.0120	2.22		Shallow Concentrated Flow, curb and gutter
					Paved Kv= 20.3 fps
2.2	398		3.00		Direct Entry, Clayton Court Sewer
2.3	157	0.0268	1.15		Shallow Concentrated Flow, Clayton Court Basin
					Short Grass Pasture Kv= 7.0 fps
0.3	47		3.00		Direct Entry, Clayton Ct Basin Outlet
1.4	98	0.0520	1.14		Shallow Concentrated Flow, Woods to channel
					Woodland Kv= 5.0 fps
6.0	1,793		5.00		Direct Entry, Woods Channel Clayton to Red Bay Ct
3.7	672		3.00		Direct Entry, Woodlands Storm Sewer
28.0	3,436	Total			

Woodlands Basin 2

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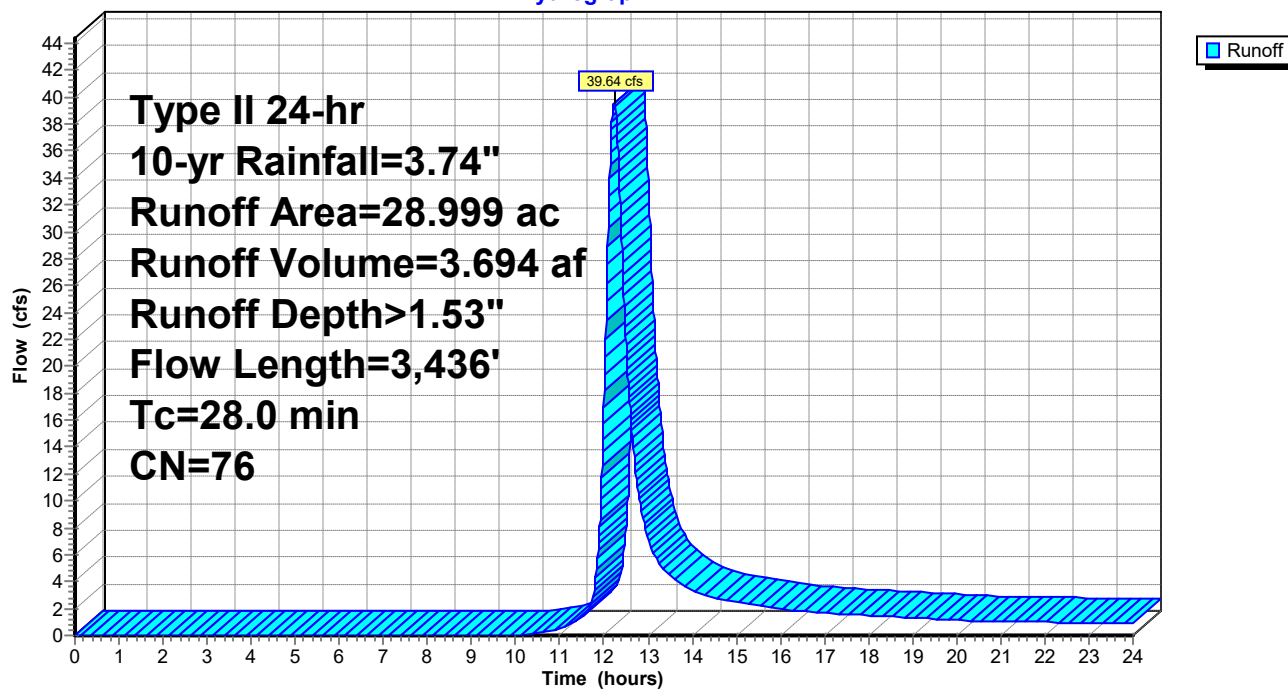
Type II 24-hr 10-yr Rainfall=3.74"

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Subcatchment 4S: Updated Watershed

Hydrograph



Woodlands Basin 2

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Type II 24-hr 10-yr Rainfall=3.74"

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Summary for Pond 9P: Woodlands Basin 2 Ex Conditions - Failure

Inflow Area = 28.999 ac, 16.88% Impervious, Inflow Depth > 1.53" for 10-yr event
 Inflow = 39.64 cfs @ 12.23 hrs, Volume= 3.694 af
 Outflow = 39.17 cfs @ 12.26 hrs, Volume= 3.693 af, Atten= 1%, Lag= 1.6 min
 Primary = 7.59 cfs @ 12.26 hrs, Volume= 2.598 af
 Secondary = 19.65 cfs @ 12.26 hrs, Volume= 0.908 af
 Routed to Link 48L : Spillway Out
 Tertiary = 11.93 cfs @ 12.26 hrs, Volume= 0.187 af
 Routed to Link 48L : Spillway Out

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 832.15' @ 12.26 hrs Surf.Area= 8,025 sf Storage= 16,380 cf

Plug-Flow detention time= 8.5 min calculated for 3.691 af (100% of inflow)
 Center-of-Mass det. time= 8.3 min (867.1 - 858.8)

Volume	Invert	Avail.Storage	Storage Description
#1	827.62'	29,257 cf	Ex Survey (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
827.62	0	0	0
828.00	104	20	20
829.00	624	364	384
830.00	4,530	2,577	2,961
831.00	6,170	5,350	8,311
832.00	7,660	6,915	15,226
833.05	10,266	9,411	24,637
833.50	10,266	4,620	29,257

Device	Routing	Invert	Outlet Devices
#1	Primary	827.25'	18.0" Round RCP_Round 18" L= 15.4' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 827.25' / 826.91' S= 0.0221 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	827.62'	12.0" Round RCP_Round 12" L= 15.1' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 827.62' / 827.57' S= 0.0033 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#3	Device 1	833.05'	2.0" x 23.5" Horiz. Grate ODOT 2-2B per plan 1979 SCD X 7.00 C= 0.600 in 28.0" x 28.0" Grate (42% open area) Limited to weir flow at low heads
#4	Secondary	831.00'	6.0' long x 5.0' breadth Blown Out Embankment Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#5	Tertiary	832.00'	90.0' long + 2.0 '/' SideZ x 5.0' breadth Est Embankment Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50

Woodlands Basin 2

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Type II 24-hr 10-yr Rainfall=3.74"

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Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65
2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=7.59 cfs @ 12.26 hrs HW=832.15' (Free Discharge)

↑ **1=RCP_Round 18"** (Passes 7.59 cfs of 17.33 cfs potential flow)

↑ **2=RCP_Round 12"** (Inlet Controls 7.59 cfs @ 9.66 fps)

↑ **3=Grate ODOT 2-2B per plan 1979 SCD** (Controls 0.00 cfs)

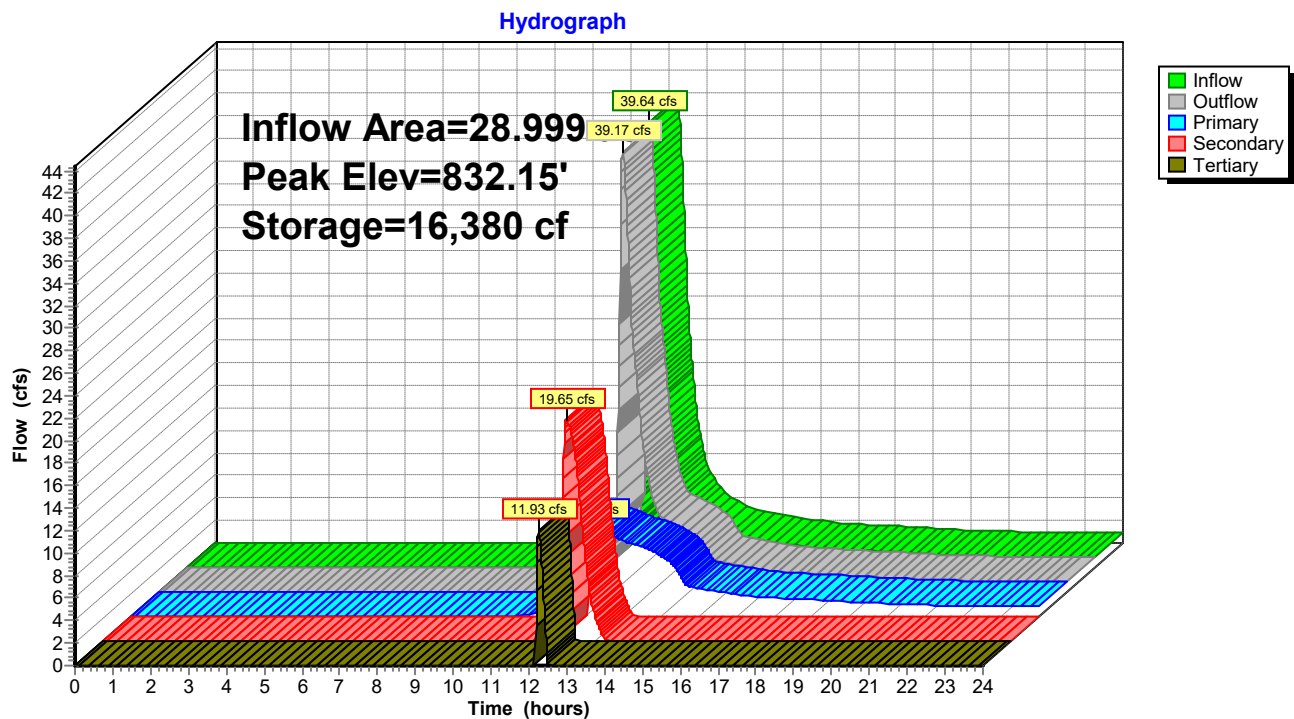
Secondary OutFlow Max=19.65 cfs @ 12.26 hrs HW=832.15' (Free Discharge)

↑ **4=Blown Out Embankment** (Weir Controls 19.65 cfs @ 2.85 fps)

Tertiary OutFlow Max=11.91 cfs @ 12.26 hrs HW=832.15' (Free Discharge)

↑ **5=Est Embankment** (Weir Controls 11.91 cfs @ 0.90 fps)

Pond 9P: Woodlands Basin 2 Ex Conditions - Failure



Woodlands Basin 2

Type II 24-hr 25-yr Rainfall=4.44"

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Summary for Subcatchment 4S: Updated Watershed

Runoff = 54.30 cfs @ 12.23 hrs, Volume= 4.991 af, Depth> 2.07"

Routed to Pond 9P : Woodlands Basin 2 Ex Conditions - Failure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Type II 24-hr 25-yr Rainfall=4.44"

Area (ac)	CN	Description
14.707	70	Woods, Good, HSG C
7.481	79	1 acre lots, 20% imp, HSG C
2.224	98	Paved roads w/curbs & sewers, HSG C
3.915	81	1/3 acre lots, 30% imp, HSG C
0.672	74	>75% Grass cover, Good, HSG C
28.999	76	Weighted Average
24.104		83.12% Pervious Area
4.895		16.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.0200	0.15		Sheet Flow, sheet flow Grass: Short n= 0.150 P2= 2.63"
1.3	171	0.0120	2.22		Shallow Concentrated Flow, curb and gutter Paved Kv= 20.3 fps
2.2	398		3.00		Direct Entry, Clayton Court Sewer
2.3	157	0.0268	1.15		Shallow Concentrated Flow, Clayton Court Basin Short Grass Pasture Kv= 7.0 fps
0.3	47		3.00		Direct Entry, Clayton Ct Basin Outlet
1.4	98	0.0520	1.14		Shallow Concentrated Flow, Woods to channel Woodland Kv= 5.0 fps
6.0	1,793		5.00		Direct Entry, Woods Channel Clayton to Red Bay Ct
3.7	672		3.00		Direct Entry, Woodlands Storm Sewer
28.0	3,436	Total			

Woodlands Basin 2

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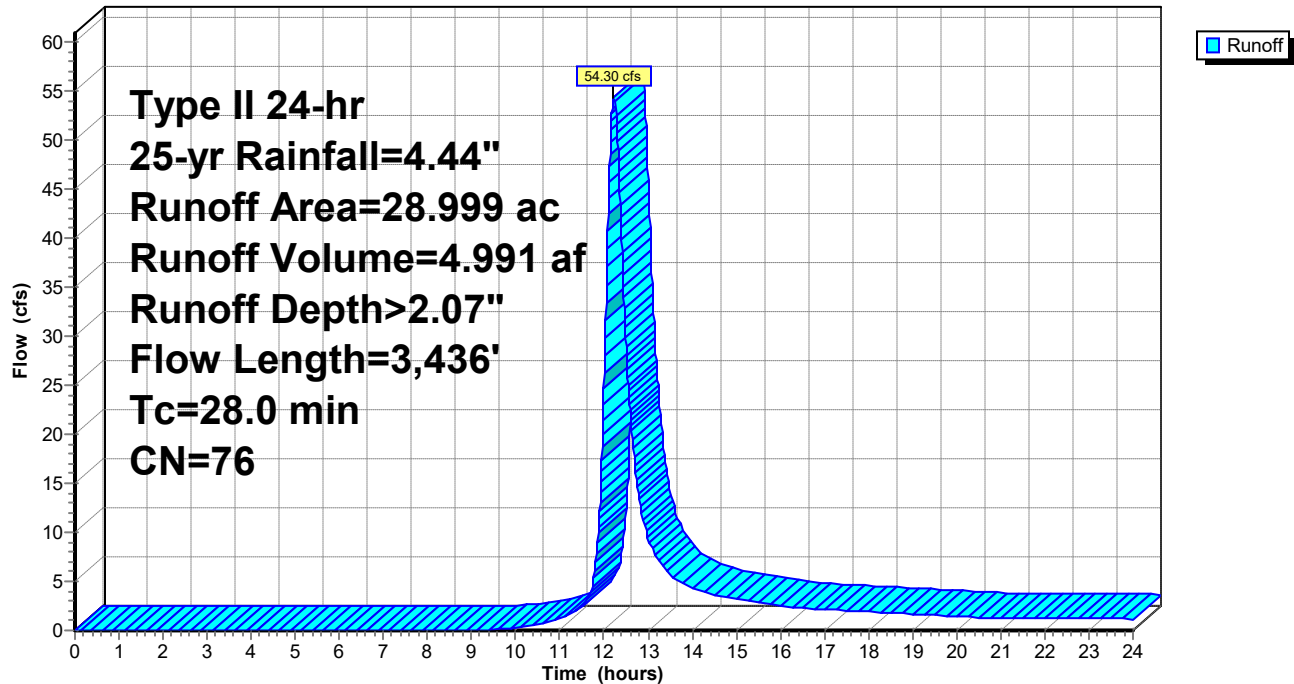
Type II 24-hr 25-yr Rainfall=4.44"

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Subcatchment 4S: Updated Watershed

Hydrograph



Woodlands Basin 2

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Type II 24-hr 25-yr Rainfall=4.44"

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Summary for Pond 9P: Woodlands Basin 2 Ex Conditions - Failure

Inflow Area = 28.999 ac, 16.88% Impervious, Inflow Depth > 2.07" for 25-yr event
 Inflow = 54.30 cfs @ 12.23 hrs, Volume= 4.991 af
 Outflow = 54.12 cfs @ 12.24 hrs, Volume= 4.989 af, Atten= 0%, Lag= 0.6 min
 Primary = 7.67 cfs @ 12.24 hrs, Volume= 3.159 af
 Secondary = 21.89 cfs @ 12.24 hrs, Volume= 1.260 af
 Routed to Link 48L : Spillway Out
 Tertiary = 24.56 cfs @ 12.24 hrs, Volume= 0.569 af
 Routed to Link 48L : Spillway Out

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 832.23' @ 12.24 hrs Surf.Area= 8,243 sf Storage= 17,094 cf

Plug-Flow detention time= 8.0 min calculated for 4.989 af (100% of inflow)
 Center-of-Mass det. time= 7.8 min (858.1 - 850.3)

Volume	Invert	Avail.Storage	Storage Description
#1	827.62'	29,257 cf	Ex Survey (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
827.62	0	0	0
828.00	104	20	20
829.00	624	364	384
830.00	4,530	2,577	2,961
831.00	6,170	5,350	8,311
832.00	7,660	6,915	15,226
833.05	10,266	9,411	24,637
833.50	10,266	4,620	29,257

Device	Routing	Invert	Outlet Devices
#1	Primary	827.25'	18.0" Round RCP_Round 18" L= 15.4' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 827.25' / 826.91' S= 0.0221 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	827.62'	12.0" Round RCP_Round 12" L= 15.1' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 827.62' / 827.57' S= 0.0033 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#3	Device 1	833.05'	2.0" x 23.5" Horiz. Grate ODOT 2-2B per plan 1979 SCD X 7.00 C= 0.600 in 28.0" x 28.0" Grate (42% open area) Limited to weir flow at low heads
#4	Secondary	831.00'	6.0' long x 5.0' breadth Blown Out Embankment Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#5	Tertiary	832.00'	90.0' long + 2.0 '/' SideZ x 5.0' breadth Est Embankment Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50

Woodlands Basin 2

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Type II 24-hr 25-yr Rainfall=4.44"

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Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65
2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=7.67 cfs @ 12.24 hrs HW=832.23' (Free Discharge)

↑ **1=RCP_Round 18"** (Passes 7.67 cfs of 17.51 cfs potential flow)

↑ **2=RCP_Round 12"** (Inlet Controls 7.67 cfs @ 9.77 fps)

↑ **3=Grate ODOT 2-2B per plan 1979 SCD** (Controls 0.00 cfs)

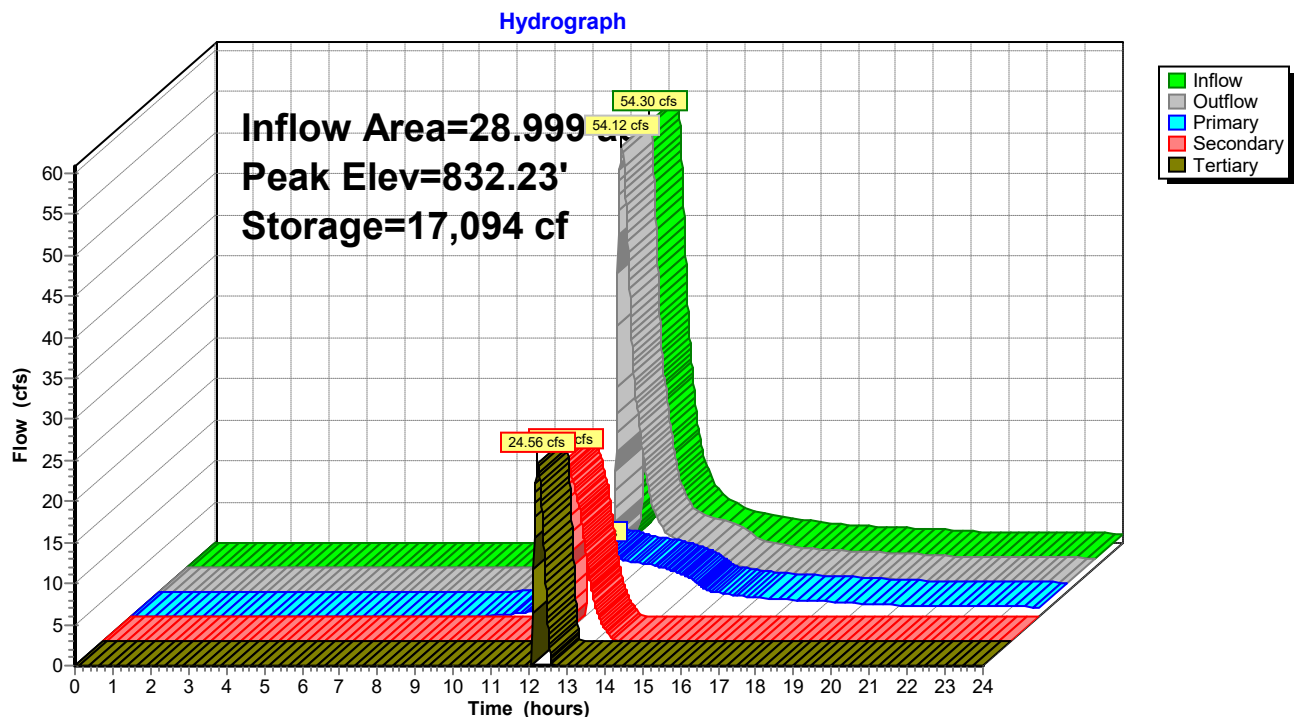
Secondary OutFlow Max=21.89 cfs @ 12.24 hrs HW=832.23' (Free Discharge)

↑ **4=Blown Out Embankment** (Weir Controls 21.89 cfs @ 2.95 fps)

Tertiary OutFlow Max=24.35 cfs @ 12.24 hrs HW=832.23' (Free Discharge)

↑ **5=Est Embankment** (Weir Controls 24.35 cfs @ 1.15 fps)

Pond 9P: Woodlands Basin 2 Ex Conditions - Failure



Woodlands Basin 2

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Type II 24-hr 50-yr Rainfall=5.02"

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Summary for Subcatchment 4S: Updated Watershed

Runoff = 66.96 cfs @ 12.23 hrs, Volume= 6.120 af, Depth> 2.53"

Routed to Pond 9P : Woodlands Basin 2 Ex Conditions - Failure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Type II 24-hr 50-yr Rainfall=5.02"

Area (ac)	CN	Description
14.707	70	Woods, Good, HSG C
7.481	79	1 acre lots, 20% imp, HSG C
2.224	98	Paved roads w/curbs & sewers, HSG C
3.915	81	1/3 acre lots, 30% imp, HSG C
0.672	74	>75% Grass cover, Good, HSG C
28.999	76	Weighted Average
24.104		83.12% Pervious Area
4.895		16.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.0200	0.15		Sheet Flow, sheet flow Grass: Short n= 0.150 P2= 2.63"
1.3	171	0.0120	2.22		Shallow Concentrated Flow, curb and gutter Paved Kv= 20.3 fps
2.2	398		3.00		Direct Entry, Clayton Court Sewer
2.3	157	0.0268	1.15		Shallow Concentrated Flow, Clayton Court Basin Short Grass Pasture Kv= 7.0 fps
0.3	47		3.00		Direct Entry, Clayton Ct Basin Outlet
1.4	98	0.0520	1.14		Shallow Concentrated Flow, Woods to channel Woodland Kv= 5.0 fps
6.0	1,793		5.00		Direct Entry, Woods Channel Clayton to Red Bay Ct
3.7	672		3.00		Direct Entry, Woodlands Storm Sewer
28.0	3,436	Total			

Woodlands Basin 2

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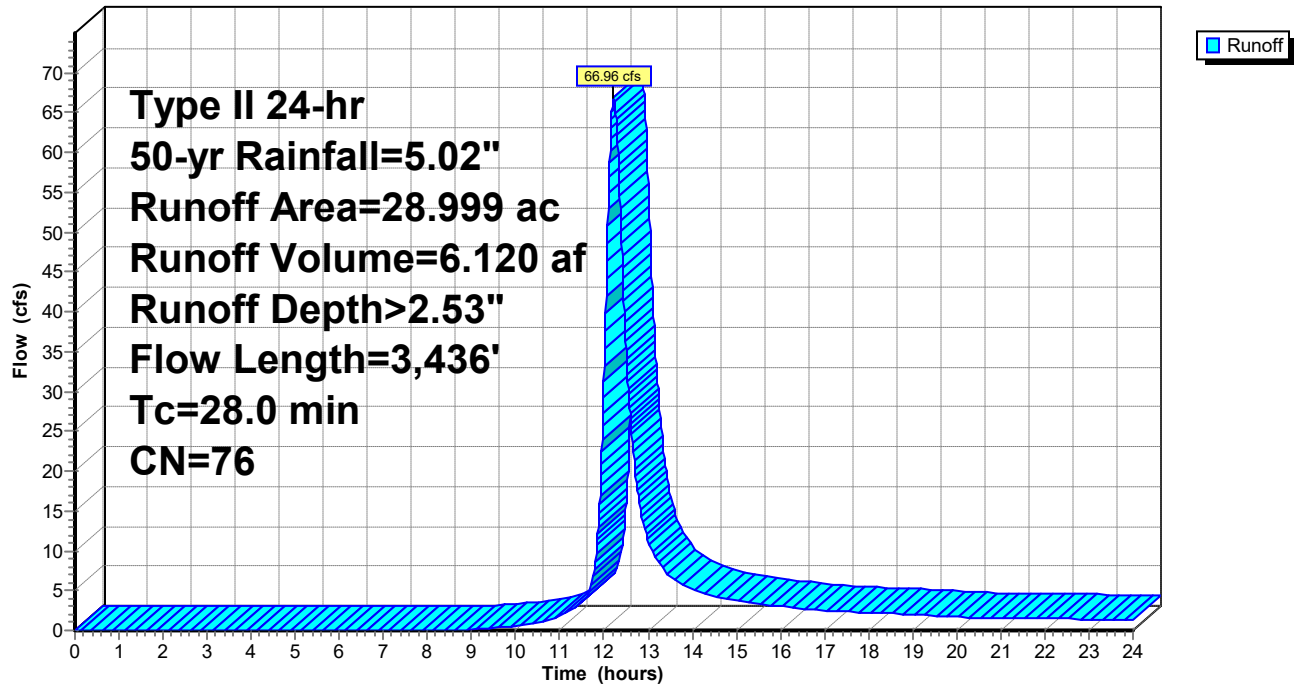
Type II 24-hr 50-yr Rainfall=5.02"

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Subcatchment 4S: Updated Watershed

Hydrograph



Woodlands Basin 2

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Type II 24-hr 50-yr Rainfall=5.02"

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Summary for Pond 9P: Woodlands Basin 2 Ex Conditions - Failure

Inflow Area = 28.999 ac, 16.88% Impervious, Inflow Depth > 2.53" for 50-yr event
 Inflow = 66.96 cfs @ 12.23 hrs, Volume= 6.120 af
 Outflow = 66.79 cfs @ 12.23 hrs, Volume= 6.117 af, Atten= 0%, Lag= 0.5 min
 Primary = 7.73 cfs @ 12.23 hrs, Volume= 3.614 af
 Secondary = 23.53 cfs @ 12.23 hrs, Volume= 1.535 af
 Routed to Link 48L : Spillway Out
 Tertiary = 35.53 cfs @ 12.23 hrs, Volume= 0.968 af
 Routed to Link 48L : Spillway Out

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 832.30' @ 12.23 hrs Surf.Area= 8,396 sf Storage= 17,608 cf

Plug-Flow detention time= 7.7 min calculated for 6.117 af (100% of inflow)
 Center-of-Mass det. time= 7.5 min (852.1 - 844.6)

Volume	Invert	Avail.Storage	Storage Description
#1	827.62'	29,257 cf	Ex Survey (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
827.62	0	0	0
828.00	104	20	20
829.00	624	364	384
830.00	4,530	2,577	2,961
831.00	6,170	5,350	8,311
832.00	7,660	6,915	15,226
833.05	10,266	9,411	24,637
833.50	10,266	4,620	29,257

Device	Routing	Invert	Outlet Devices
#1	Primary	827.25'	18.0" Round RCP_Round 18" L= 15.4' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 827.25' / 826.91' S= 0.0221 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	827.62'	12.0" Round RCP_Round 12" L= 15.1' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 827.62' / 827.57' S= 0.0033 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#3	Device 1	833.05'	2.0" x 23.5" Horiz. Grate ODOT 2-2B per plan 1979 SCD X 7.00 C= 0.600 in 28.0" x 28.0" Grate (42% open area) Limited to weir flow at low heads
#4	Secondary	831.00'	6.0' long x 5.0' breadth Blown Out Embankment Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#5	Tertiary	832.00'	90.0' long + 2.0 '/' SideZ x 5.0' breadth Est Embankment Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50

Woodlands Basin 2

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Type II 24-hr 50-yr Rainfall=5.02"

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Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65
2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=7.73 cfs @ 12.23 hrs HW=832.30' (Free Discharge)

↑ **1=RCP_Round 18"** (Passes 7.73 cfs of 17.64 cfs potential flow)

↑ **2=RCP_Round 12"** (Inlet Controls 7.73 cfs @ 9.84 fps)

↑ **3=Grate ODOT 2-2B per plan 1979 SCD** (Controls 0.00 cfs)

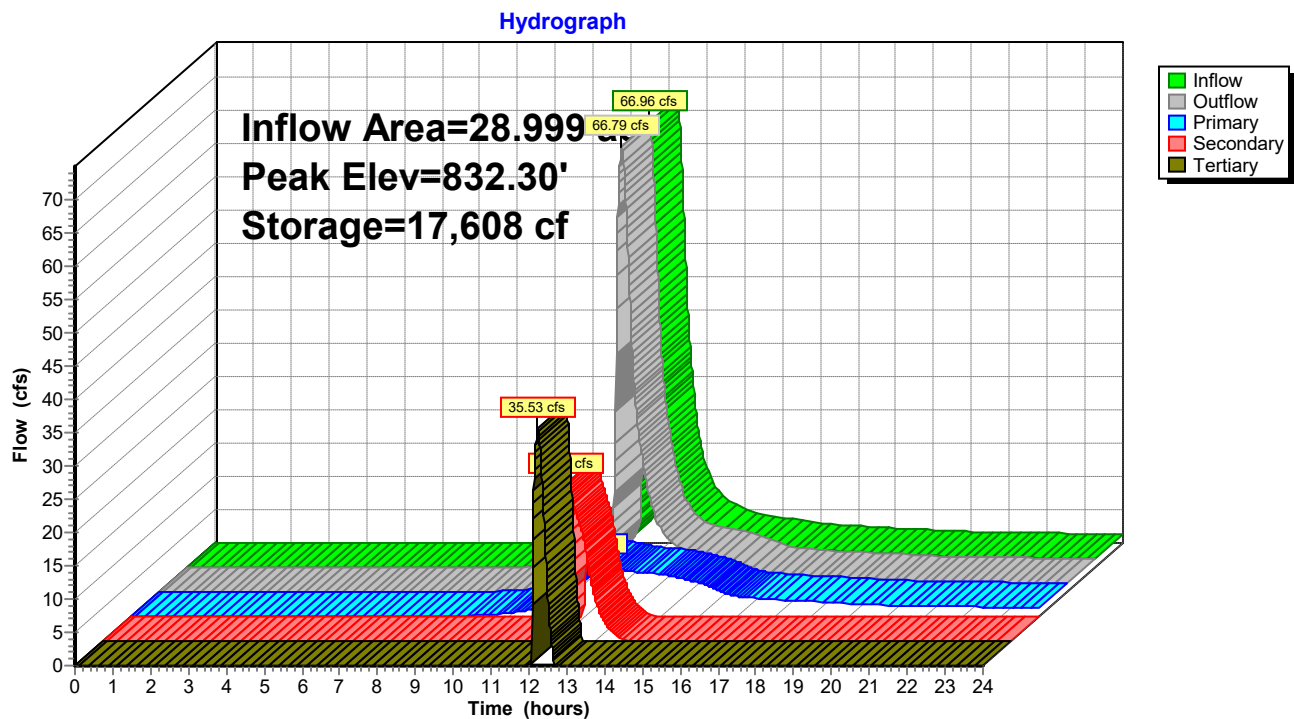
Secondary OutFlow Max=23.52 cfs @ 12.23 hrs HW=832.30' (Free Discharge)

↑ **4=Blown Out Embankment** (Weir Controls 23.52 cfs @ 3.02 fps)

Tertiary OutFlow Max=35.32 cfs @ 12.23 hrs HW=832.30' (Free Discharge)

↑ **5=Est Embankment** (Weir Controls 35.32 cfs @ 1.31 fps)

Pond 9P: Woodlands Basin 2 Ex Conditions - Failure



Woodlands Basin 2

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Type II 24-hr 100-yr Rainfall=5.63"

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Summary for Subcatchment 4S: Updated Watershed

Runoff = 80.59 cfs @ 12.22 hrs, Volume= 7.347 af, Depth> 3.04"

Routed to Pond 9P : Woodlands Basin 2 Ex Conditions - Failure

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Type II 24-hr 100-yr Rainfall=5.63"

Area (ac)	CN	Description
14.707	70	Woods, Good, HSG C
7.481	79	1 acre lots, 20% imp, HSG C
2.224	98	Paved roads w/curbs & sewers, HSG C
3.915	81	1/3 acre lots, 30% imp, HSG C
0.672	74	>75% Grass cover, Good, HSG C
28.999	76	Weighted Average
24.104		83.12% Pervious Area
4.895		16.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.0200	0.15		Sheet Flow, sheet flow Grass: Short n= 0.150 P2= 2.63"
1.3	171	0.0120	2.22		Shallow Concentrated Flow, curb and gutter Paved Kv= 20.3 fps
2.2	398		3.00		Direct Entry, Clayton Court Sewer
2.3	157	0.0268	1.15		Shallow Concentrated Flow, Clayton Court Basin Short Grass Pasture Kv= 7.0 fps
0.3	47		3.00		Direct Entry, Clayton Ct Basin Outlet
1.4	98	0.0520	1.14		Shallow Concentrated Flow, Woods to channel Woodland Kv= 5.0 fps
6.0	1,793		5.00		Direct Entry, Woods Channel Clayton to Red Bay Ct
3.7	672		3.00		Direct Entry, Woodlands Storm Sewer
28.0	3,436	Total			

Woodlands Basin 2

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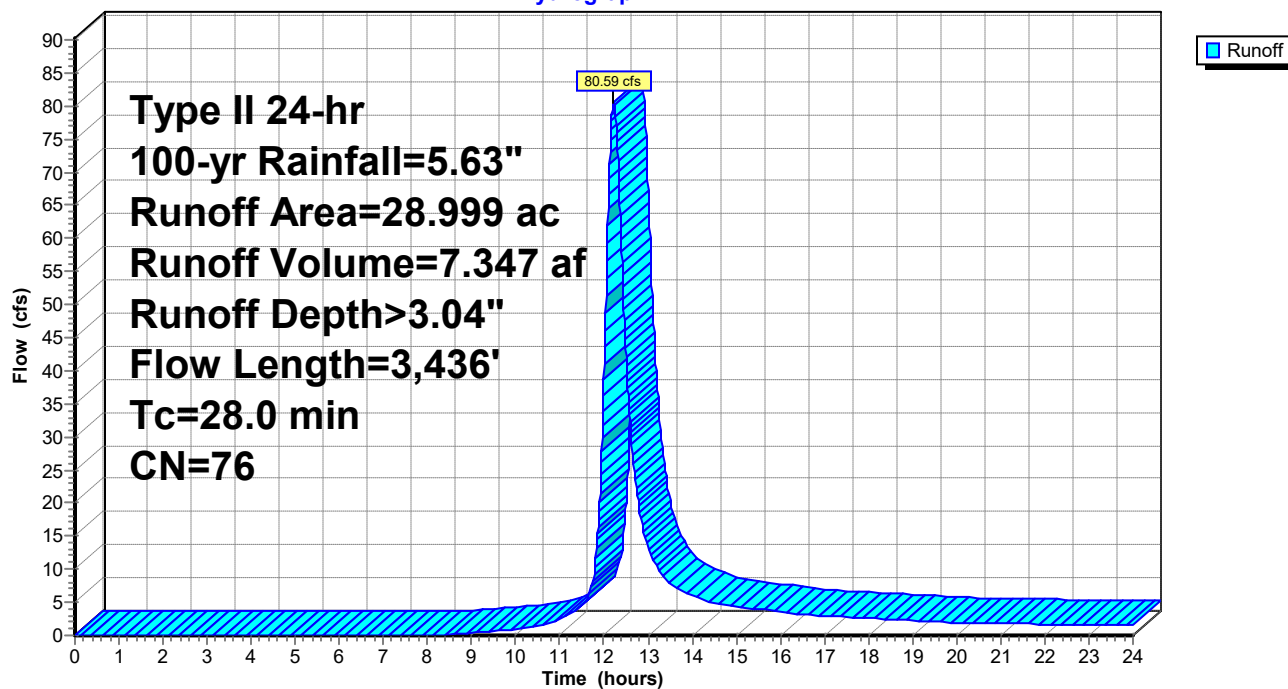
Type II 24-hr 100-yr Rainfall=5.63"

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Subcatchment 4S: Updated Watershed

Hydrograph



Woodlands Basin 2

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Type II 24-hr 100-yr Rainfall=5.63"

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Summary for Pond 9P: Woodlands Basin 2 Ex Conditions - Failure

Inflow Area = 28.999 ac, 16.88% Impervious, Inflow Depth > 3.04" for 100-yr event
 Inflow = 80.59 cfs @ 12.22 hrs, Volume= 7.347 af
 Outflow = 80.46 cfs @ 12.23 hrs, Volume= 7.345 af, Atten= 0%, Lag= 0.4 min
 Primary = 7.78 cfs @ 12.23 hrs, Volume= 4.080 af
 Secondary = 25.13 cfs @ 12.23 hrs, Volume= 1.820 af
 Routed to Link 48L : Spillway Out
 Tertiary = 47.55 cfs @ 12.23 hrs, Volume= 1.445 af
 Routed to Link 48L : Spillway Out

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 832.36' @ 12.23 hrs Surf.Area= 8,543 sf Storage= 18,108 cf

Plug-Flow detention time= 7.5 min calculated for 7.341 af (100% of inflow)
 Center-of-Mass det. time= 7.3 min (846.8 - 839.6)

Volume	Invert	Avail.Storage	Storage Description
#1	827.62'	29,257 cf	Ex Survey (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
827.62	0	0	0
828.00	104	20	20
829.00	624	364	384
830.00	4,530	2,577	2,961
831.00	6,170	5,350	8,311
832.00	7,660	6,915	15,226
833.05	10,266	9,411	24,637
833.50	10,266	4,620	29,257

Device	Routing	Invert	Outlet Devices
#1	Primary	827.25'	18.0" Round RCP_Round 18" L= 15.4' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 827.25' / 826.91' S= 0.0221 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	827.62'	12.0" Round RCP_Round 12" L= 15.1' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 827.62' / 827.57' S= 0.0033 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#3	Device 1	833.05'	2.0" x 23.5" Horiz. Grate ODOT 2-2B per plan 1979 SCD X 7.00 C= 0.600 in 28.0" x 28.0" Grate (42% open area) Limited to weir flow at low heads
#4	Secondary	831.00'	6.0' long x 5.0' breadth Blown Out Embankment Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#5	Tertiary	832.00'	90.0' long + 2.0 '/' SideZ x 5.0' breadth Est Embankment Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50

Woodlands Basin 2

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Type II 24-hr 100-yr Rainfall=5.63"

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Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65
2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=7.78 cfs @ 12.23 hrs HW=832.36' (Free Discharge)

↑ **1=RCP_Round 18"** (Passes 7.78 cfs of 17.76 cfs potential flow)

↑ **2=RCP_Round 12"** (Inlet Controls 7.78 cfs @ 9.91 fps)

↑ **3=Grate ODOT 2-2B per plan 1979 SCD** (Controls 0.00 cfs)

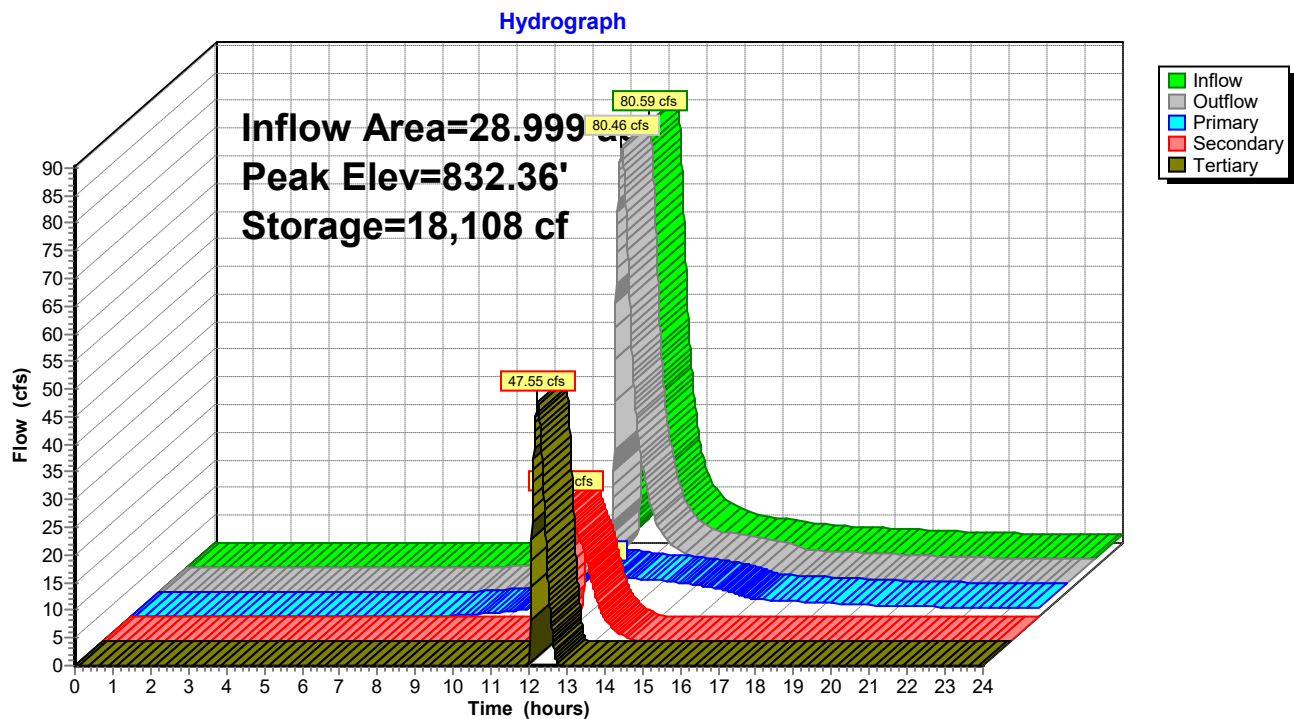
Secondary OutFlow Max=25.12 cfs @ 12.23 hrs HW=832.36' (Free Discharge)

↑ **4=Blown Out Embankment** (Weir Controls 25.12 cfs @ 3.09 fps)

Tertiary OutFlow Max=47.35 cfs @ 12.23 hrs HW=832.36' (Free Discharge)

↑ **5=Est Embankment** (Weir Controls 47.35 cfs @ 1.47 fps)

Pond 9P: Woodlands Basin 2 Ex Conditions - Failure

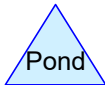
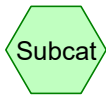




Updated Watershed



Woodlands Basin 2 Prop
Conditions Lowest



Woodlands Basin 2

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Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-yr	Type II 24-hr		Default	24.00	1	2.20	2
2	2-yr	Type II 24-hr		Default	24.00	1	2.63	2
3	5-yr	Type II 24-hr		Default	24.00	1	3.24	2
4	10-yr	Type II 24-hr		Default	24.00	1	3.74	2
5	25-yr	Type II 24-hr		Default	24.00	1	4.44	2
6	50-yr	Type II 24-hr		Default	24.00	1	5.02	2
7	100-yr	Type II 24-hr		Default	24.00	1	5.63	2

Woodlands Basin 2

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Type II 24-hr 1-yr Rainfall=2.20"

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Summary for Subcatchment 45S: Updated Watershed

Runoff = 11.60 cfs @ 12.26 hrs, Volume= 1.244 af, Depth> 0.51"

Routed to Pond 46P : Woodlands Basin 2 Prop Conditions Lowest

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Type II 24-hr 1-yr Rainfall=2.20"

Area (ac)	CN	Description
14.707	70	Woods, Good, HSG C
7.481	79	1 acre lots, 20% imp, HSG C
2.224	98	Paved roads w/curbs & sewers, HSG C
3.915	81	1/3 acre lots, 30% imp, HSG C
0.672	74	>75% Grass cover, Good, HSG C
28.999	76	Weighted Average
24.104		83.12% Pervious Area
4.895		16.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.0200	0.15		Sheet Flow, sheet flow Grass: Short n= 0.150 P2= 2.63"
1.3	171	0.0120	2.22		Shallow Concentrated Flow, curb and gutter Paved Kv= 20.3 fps
2.2	398		3.00		Direct Entry, Clayton Court Sewer
2.3	157	0.0268	1.15		Shallow Concentrated Flow, Clayton Court Basin Short Grass Pasture Kv= 7.0 fps
0.3	47		3.00		Direct Entry, Clayton Ct Basin Outlet
1.4	98	0.0520	1.14		Shallow Concentrated Flow, Woods to channel Woodland Kv= 5.0 fps
6.0	1,793		5.00		Direct Entry, Woods Channel Clayton to Red Bay Ct
3.7	672		3.00		Direct Entry, Woodlands Storm Sewer
28.0	3,436	Total			

Woodlands Basin 2

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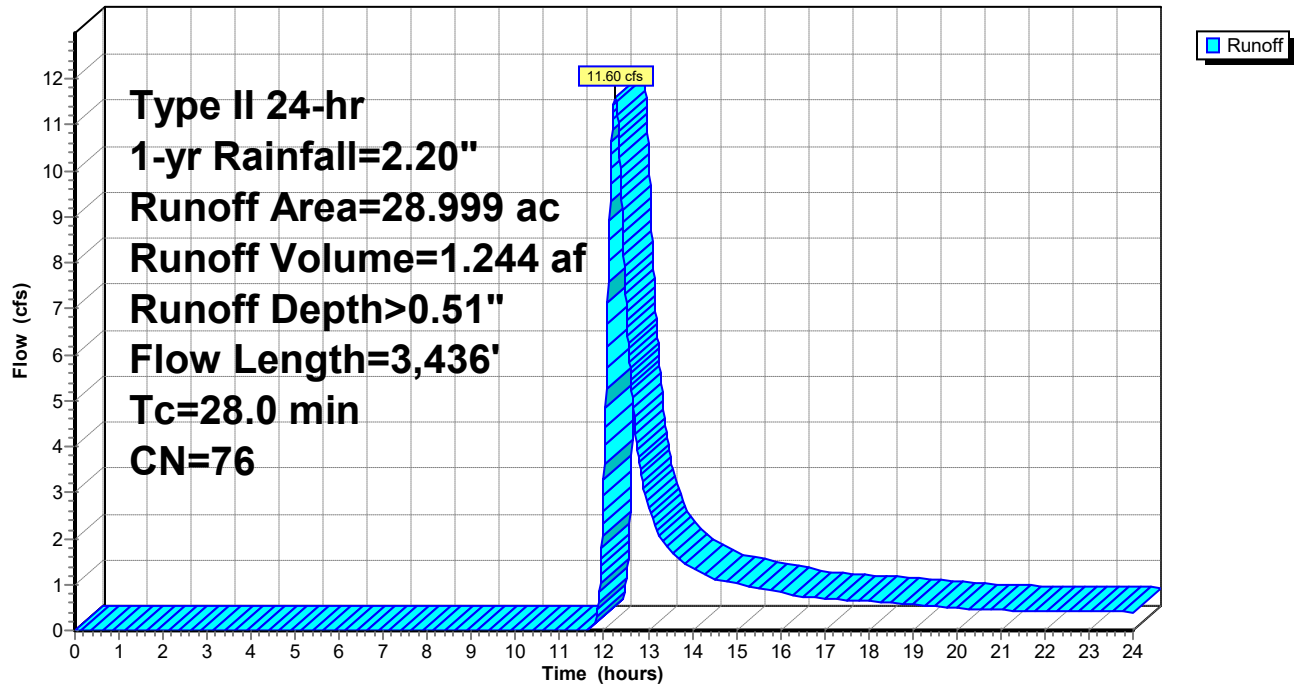
Type II 24-hr 1-yr Rainfall=2.20"

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Subcatchment 45S: Updated Watershed

Hydrograph



Woodlands Basin 2

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Type II 24-hr 1-yr Rainfall=2.20"

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Summary for Pond 46P: Woodlands Basin 2 Prop Conditions Lowest

Inflow Area = 28.999 ac, 16.88% Impervious, Inflow Depth > 0.51" for 1-yr event
 Inflow = 11.60 cfs @ 12.26 hrs, Volume= 1.244 af
 Outflow = 6.12 cfs @ 12.56 hrs, Volume= 1.243 af, Atten= 47%, Lag= 18.2 min
 Primary = 6.12 cfs @ 12.56 hrs, Volume= 1.243 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 830.68' @ 12.56 hrs Surf.Area= 0.136 ac Storage= 0.203 af

Plug-Flow detention time= 10.9 min calculated for 1.243 af (100% of inflow)
 Center-of-Mass det. time= 10.6 min (902.9 - 892.3)

Volume	Invert	Avail.Storage	Storage Description
#1	827.10'	0.002 af	Underdrain Trench Storage (Prismatic) Listed below (Recalc) 0.006 af Overall x 40.0% Voids
#2	828.60'	0.730 af	Graded storage opt 5 (Prismatic) Listed below (Recalc)
		0.732 af	Total Available Storage

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
827.10	0.004	0.000	0.000
828.59	0.004	0.006	0.006

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
828.60	0.002	0.000	0.000
829.00	0.083	0.017	0.017
830.00	0.116	0.099	0.116
831.00	0.140	0.128	0.244
832.00	0.172	0.156	0.401
833.00	0.233	0.202	0.603
833.50	0.275	0.127	0.730

Device	Routing	Invert	Outlet Devices
#1	Primary	827.11'	48.0" Round Culvert w/ 7.0" inside fill L= 14.3' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 826.53' / 826.52' S= 0.0007 '/' Cc= 0.900 n= 0.013, Flow Area= 11.43 sf
#2	Device 1	827.10'	6.0" Vert. Underdrain C= 0.600 Limited to weir flow at low heads
#3	Device 1	828.60'	11.5" Vert. 11.5" Orifice C= 0.600 Limited to weir flow at low heads
#4	Device 1	831.50'	48.0" W x 6.0" H Vert. 6" Windows C= 0.600 Limited to weir flow at low heads
#5	Device 1	832.50'	72.0" x 72.0" Horiz. OS Grate C= 0.600 Limited to weir flow at low heads
#6	Device 1	827.10'	30.0" Round RCP_Round 30" Connector L= 5.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 827.10' / 827.10' S= 0.0000 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf
#7	Device 6	832.00'	72.0" x 72.0" Horiz. Emer Spwy Grate C= 0.600

Woodlands Basin 2

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Type II 24-hr 1-yr Rainfall=2.20"

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#8 Secondary 832.50' Limited to weir flow at low heads
40.0' long + 3.0' SideZ x 10.0' breadth Overflow Spillway
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

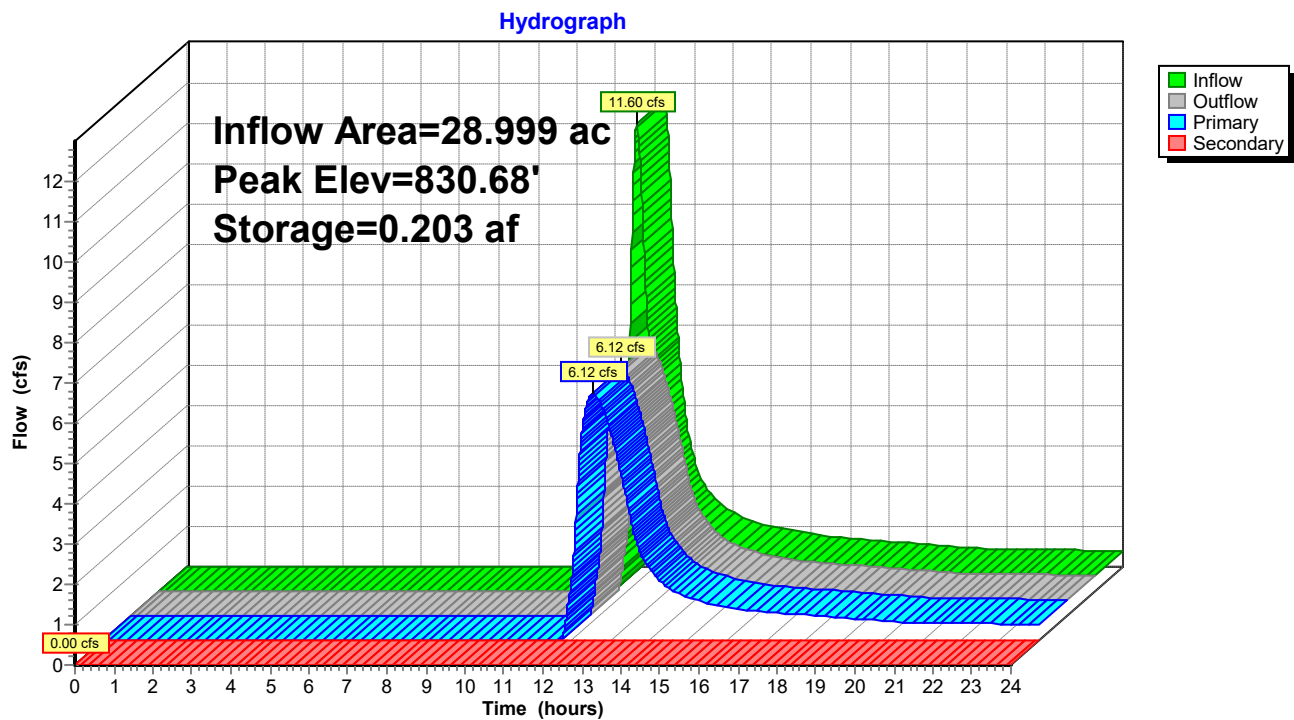
Primary OutFlow Max=6.12 cfs @ 12.56 hrs HW=830.68' (Free Discharge)

- 1=Culvert (Passes 6.12 cfs of 59.94 cfs potential flow)
- 2=Underdrain (Orifice Controls 1.73 cfs @ 8.79 fps)
- 3=11.5" Orifice (Orifice Controls 4.39 cfs @ 6.09 fps)
- 4=6" Windows (Controls 0.00 cfs)
- 5=OS Grate (Controls 0.00 cfs)
- 6=RCP_Round 30" Connector (Passes 0.00 cfs of 32.91 cfs potential flow)
- 7=Emer Spwy Grate (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=827.10' (Free Discharge)

- 8=Overflow Spillway (Controls 0.00 cfs)

Pond 46P: Woodlands Basin 2 Prop Conditions Lowest



Woodlands Basin 2

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Type II 24-hr 2-yr Rainfall=2.63"

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Summary for Subcatchment 45S: Updated Watershed

Runoff = 18.58 cfs @ 12.23 hrs, Volume= 1.853 af, Depth> 0.77"

Routed to Pond 46P : Woodlands Basin 2 Prop Conditions Lowest

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=2.63"

Area (ac)	CN	Description
14.707	70	Woods, Good, HSG C
7.481	79	1 acre lots, 20% imp, HSG C
2.224	98	Paved roads w/curbs & sewers, HSG C
3.915	81	1/3 acre lots, 30% imp, HSG C
0.672	74	>75% Grass cover, Good, HSG C
28.999	76	Weighted Average
24.104		83.12% Pervious Area
4.895		16.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.0200	0.15		Sheet Flow, sheet flow Grass: Short n= 0.150 P2= 2.63"
1.3	171	0.0120	2.22		Shallow Concentrated Flow, curb and gutter Paved Kv= 20.3 fps
2.2	398		3.00		Direct Entry, Clayton Court Sewer
2.3	157	0.0268	1.15		Shallow Concentrated Flow, Clayton Court Basin Short Grass Pasture Kv= 7.0 fps
0.3	47		3.00		Direct Entry, Clayton Ct Basin Outlet
1.4	98	0.0520	1.14		Shallow Concentrated Flow, Woods to channel Woodland Kv= 5.0 fps
6.0	1,793		5.00		Direct Entry, Woods Channel Clayton to Red Bay Ct
3.7	672		3.00		Direct Entry, Woodlands Storm Sewer
28.0	3,436	Total			

Woodlands Basin 2

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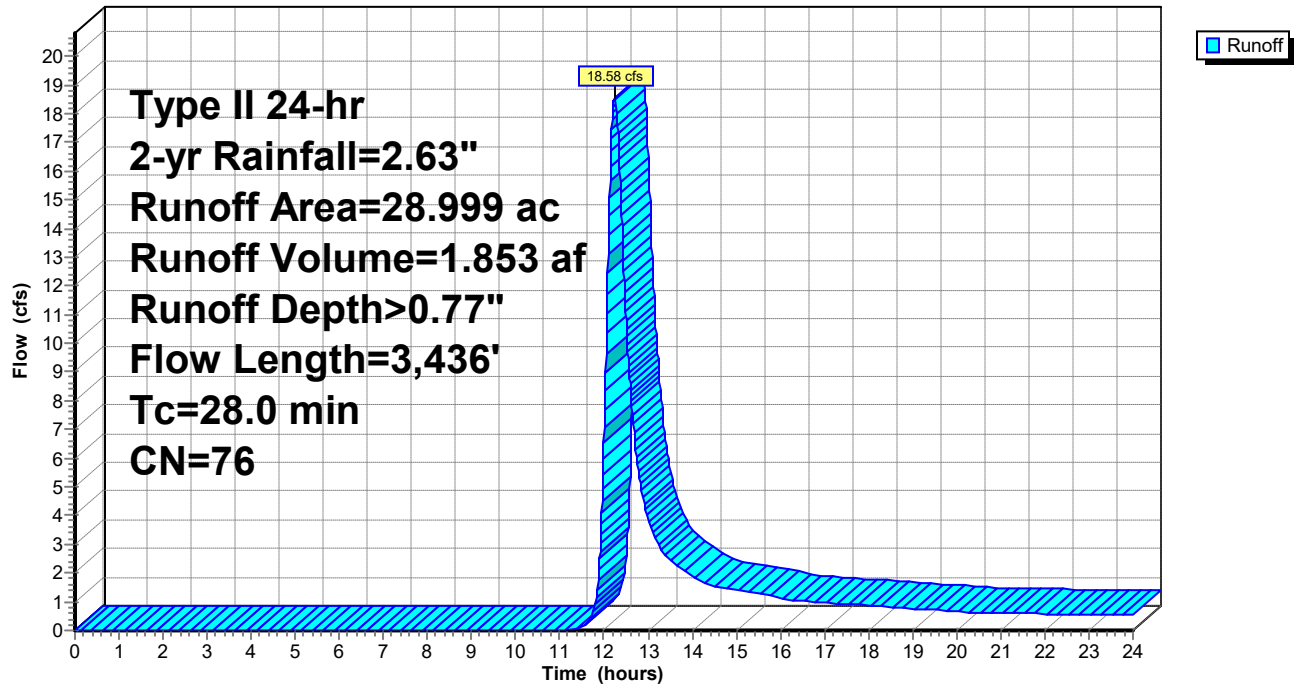
Type II 24-hr 2-yr Rainfall=2.63"

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Subcatchment 45S: Updated Watershed

Hydrograph



Woodlands Basin 2

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Type II 24-hr 2-yr Rainfall=2.63"

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Summary for Pond 46P: Woodlands Basin 2 Prop Conditions Lowest

Inflow Area = 28.999 ac, 16.88% Impervious, Inflow Depth > 0.77" for 2-yr event
 Inflow = 18.58 cfs @ 12.23 hrs, Volume= 1.853 af
 Outflow = 10.10 cfs @ 12.53 hrs, Volume= 1.852 af, Atten= 46%, Lag= 17.5 min
 Primary = 10.10 cfs @ 12.53 hrs, Volume= 1.852 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 831.82' @ 12.53 hrs Surf.Area= 0.170 ac Storage= 0.373 af

Plug-Flow detention time= 15.8 min calculated for 1.851 af (100% of inflow)
 Center-of-Mass det. time= 15.5 min (894.7 - 879.2)

Volume	Invert	Avail.Storage	Storage Description
#1	827.10'	0.002 af	Underdrain Trench Storage (Prismatic) Listed below (Recalc) 0.006 af Overall x 40.0% Voids
#2	828.60'	0.730 af	Graded storage opt 5 (Prismatic) Listed below (Recalc)
		0.732 af	Total Available Storage

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
827.10	0.004	0.000	0.000
828.59	0.004	0.006	0.006

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
828.60	0.002	0.000	0.000
829.00	0.083	0.017	0.017
830.00	0.116	0.099	0.116
831.00	0.140	0.128	0.244
832.00	0.172	0.156	0.401
833.00	0.233	0.202	0.603
833.50	0.275	0.127	0.730

Device	Routing	Invert	Outlet Devices
#1	Primary	827.11'	48.0" Round Culvert w/ 7.0" inside fill L= 14.3' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 826.53' / 826.52' S= 0.0007 ' / Cc= 0.900 n= 0.013, Flow Area= 11.43 sf
#2	Device 1	827.10'	6.0" Vert. Underdrain C= 0.600 Limited to weir flow at low heads
#3	Device 1	828.60'	11.5" Vert. 11.5" Orifice C= 0.600 Limited to weir flow at low heads
#4	Device 1	831.50'	48.0" W x 6.0" H Vert. 6" Windows C= 0.600 Limited to weir flow at low heads
#5	Device 1	832.50'	72.0" x 72.0" Horiz. OS Grate C= 0.600 Limited to weir flow at low heads
#6	Device 1	827.10'	30.0" Round RCP_Round 30" Connector L= 5.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 827.10' / 827.10' S= 0.0000 ' / Cc= 0.900 n= 0.013, Flow Area= 4.91 sf
#7	Device 6	832.00'	72.0" x 72.0" Horiz. Emer Spwy Grate C= 0.600

Woodlands Basin 2

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Type II 24-hr 2-yr Rainfall=2.63"

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#8 Secondary 832.50' Limited to weir flow at low heads
40.0' long + 3.0 ' SideZ x 10.0' breadth Overflow Spillway
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

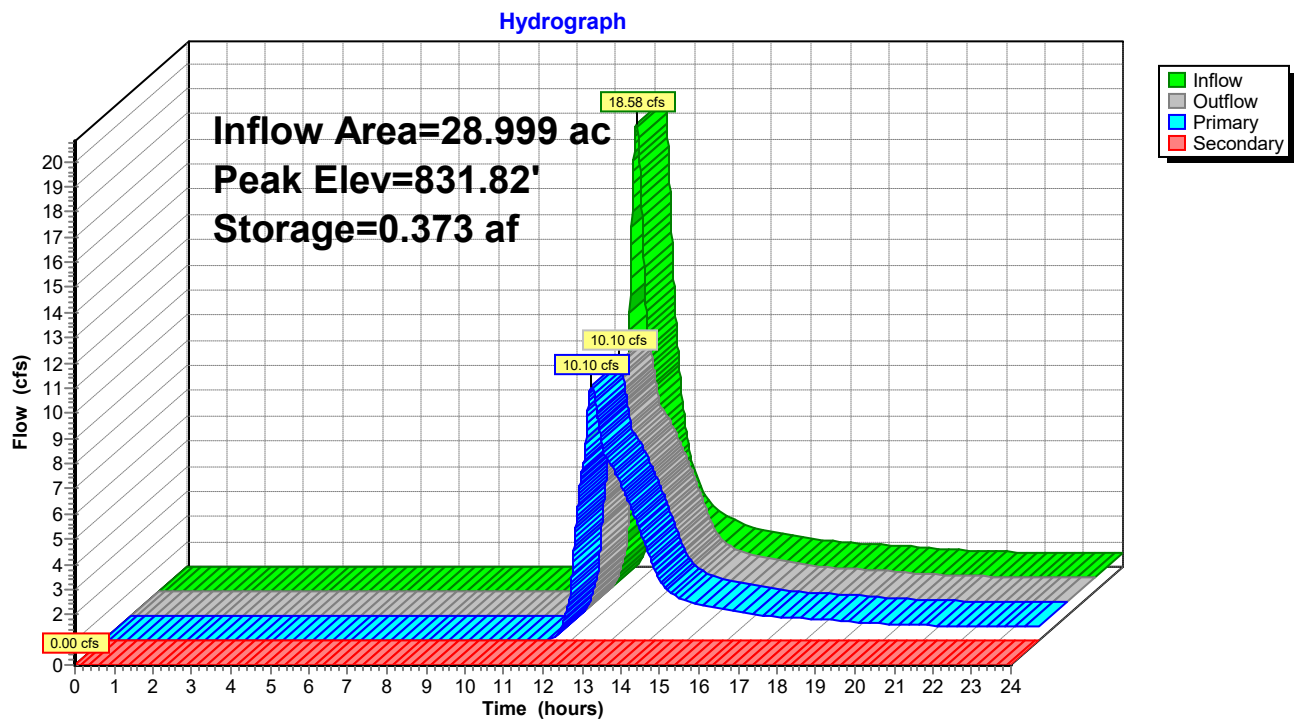
Primary OutFlow Max=10.09 cfs @ 12.53 hrs HW=831.82' (Free Discharge)

- 1=Culvert (Passes 10.09 cfs of 83.32 cfs potential flow)
- 2=Underdrain (Orifice Controls 2.00 cfs @ 10.18 fps)
- 3=11.5" Orifice (Orifice Controls 5.75 cfs @ 7.97 fps)
- 4=6" Windows (Orifice Controls 2.34 cfs @ 1.82 fps)
- 5=OS Grate (Controls 0.00 cfs)
- 6=RCP_Round 30" Connector (Passes 0.00 cfs of 44.04 cfs potential flow)
- 7=Emer Spwy Grate (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=827.10' (Free Discharge)

- 8=Overflow Spillway (Controls 0.00 cfs)

Pond 46P: Woodlands Basin 2 Prop Conditions Lowest



Woodlands Basin 2

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Type II 24-hr 5-yr Rainfall=3.24"

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Summary for Subcatchment 45S: Updated Watershed

Runoff = 29.73 cfs @ 12.23 hrs, Volume= 2.825 af, Depth> 1.17"

Routed to Pond 46P : Woodlands Basin 2 Prop Conditions Lowest

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Type II 24-hr 5-yr Rainfall=3.24"

Area (ac)	CN	Description
14.707	70	Woods, Good, HSG C
7.481	79	1 acre lots, 20% imp, HSG C
2.224	98	Paved roads w/curbs & sewers, HSG C
3.915	81	1/3 acre lots, 30% imp, HSG C
0.672	74	>75% Grass cover, Good, HSG C
28.999	76	Weighted Average
24.104		83.12% Pervious Area
4.895		16.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.0200	0.15		Sheet Flow, sheet flow Grass: Short n= 0.150 P2= 2.63"
1.3	171	0.0120	2.22		Shallow Concentrated Flow, curb and gutter Paved Kv= 20.3 fps
2.2	398		3.00		Direct Entry, Clayton Court Sewer
2.3	157	0.0268	1.15		Shallow Concentrated Flow, Clayton Court Basin Short Grass Pasture Kv= 7.0 fps
0.3	47		3.00		Direct Entry, Clayton Ct Basin Outlet
1.4	98	0.0520	1.14		Shallow Concentrated Flow, Woods to channel Woodland Kv= 5.0 fps
6.0	1,793		5.00		Direct Entry, Woods Channel Clayton to Red Bay Ct
3.7	672		3.00		Direct Entry, Woodlands Storm Sewer
28.0	3,436	Total			

Woodlands Basin 2

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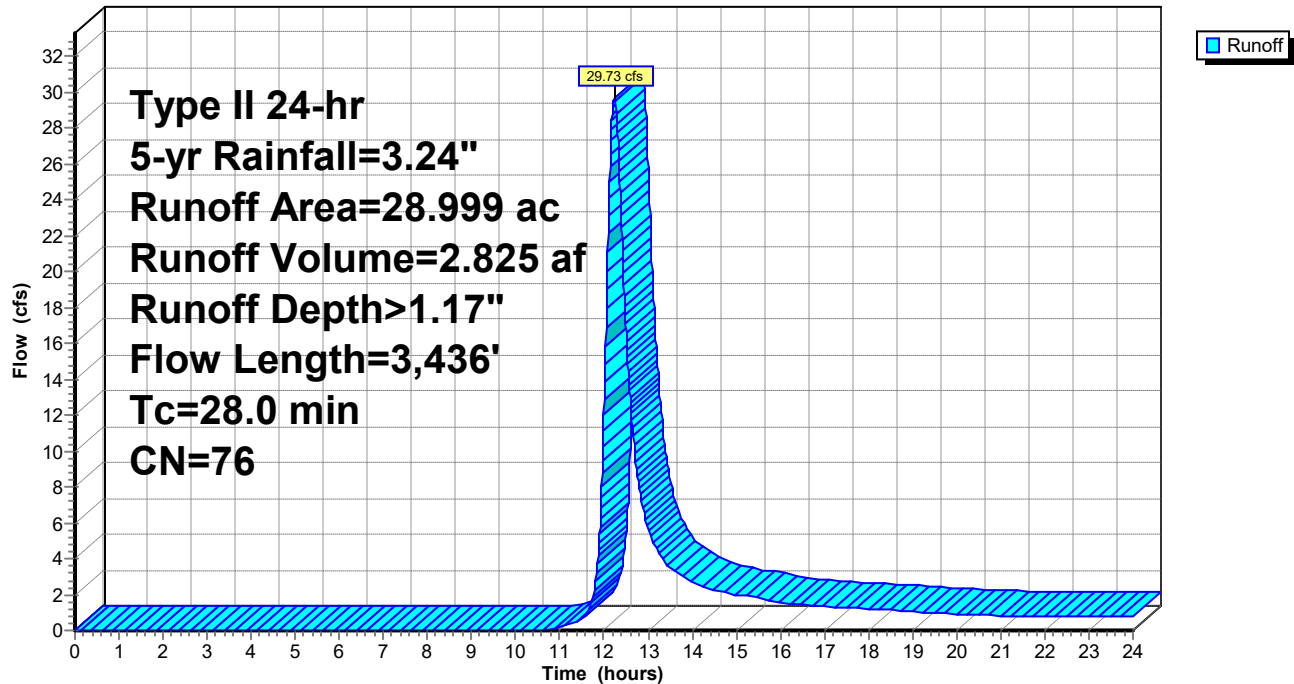
Type II 24-hr 5-yr Rainfall=3.24"

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Subcatchment 45S: Updated Watershed

Hydrograph



Woodlands Basin 2

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Type II 24-hr 5-yr Rainfall=3.24"

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Summary for Pond 46P: Woodlands Basin 2 Prop Conditions Lowest

Inflow Area = 28.999 ac, 16.88% Impervious, Inflow Depth > 1.17" for 5-yr event
 Inflow = 29.73 cfs @ 12.23 hrs, Volume= 2.825 af
 Outflow = 26.37 cfs @ 12.34 hrs, Volume= 2.824 af, Atten= 11%, Lag= 6.4 min
 Primary = 26.37 cfs @ 12.34 hrs, Volume= 2.824 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 832.27' @ 12.34 hrs Surf.Area= 0.193 ac Storage= 0.452 af

Plug-Flow detention time= 15.1 min calculated for 2.823 af (100% of inflow)
 Center-of-Mass det. time= 14.8 min (881.3 - 866.5)

Volume	Invert	Avail.Storage	Storage Description
#1	827.10'	0.002 af	Underdrain Trench Storage (Prismatic) Listed below (Recalc) 0.006 af Overall x 40.0% Voids
#2	828.60'	0.730 af	Graded storage opt 5 (Prismatic) Listed below (Recalc)
		0.732 af	Total Available Storage

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
827.10	0.004	0.000	0.000
828.59	0.004	0.006	0.006

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
828.60	0.002	0.000	0.000
829.00	0.083	0.017	0.017
830.00	0.116	0.099	0.116
831.00	0.140	0.128	0.244
832.00	0.172	0.156	0.401
833.00	0.233	0.202	0.603
833.50	0.275	0.127	0.730

Device	Routing	Invert	Outlet Devices
#1	Primary	827.11'	48.0" Round Culvert w/ 7.0" inside fill L= 14.3' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 826.53' / 826.52' S= 0.0007 '/' Cc= 0.900 n= 0.013, Flow Area= 11.43 sf
#2	Device 1	827.10'	6.0" Vert. Underdrain C= 0.600 Limited to weir flow at low heads
#3	Device 1	828.60'	11.5" Vert. 11.5" Orifice C= 0.600 Limited to weir flow at low heads
#4	Device 1	831.50'	48.0" W x 6.0" H Vert. 6" Windows C= 0.600 Limited to weir flow at low heads
#5	Device 1	832.50'	72.0" x 72.0" Horiz. OS Grate C= 0.600 Limited to weir flow at low heads
#6	Device 1	827.10'	30.0" Round RCP_Round 30" Connector L= 5.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 827.10' / 827.10' S= 0.0000 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf
#7	Device 6	832.00'	72.0" x 72.0" Horiz. Emer Spwy Grate C= 0.600

Woodlands Basin 2

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Type II 24-hr 5-yr Rainfall=3.24"

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#8 Secondary 832.50' Limited to weir flow at low heads
40.0' long + 3.0' SideZ x 10.0' breadth Overflow Spillway
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

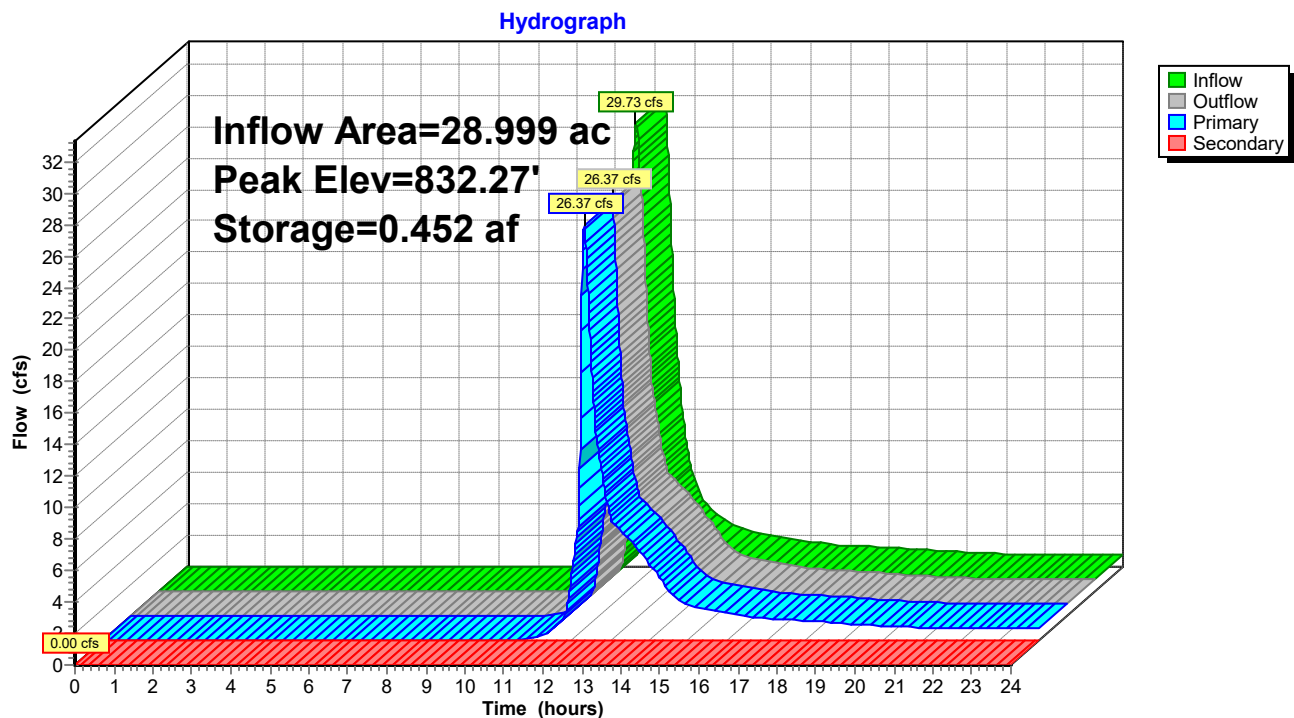
Primary OutFlow Max=26.32 cfs @ 12.34 hrs HW=832.27' (Free Discharge)

- 1=Culvert (Passes 26.32 cfs of 96.68 cfs potential flow)
- 2=Underdrain (Orifice Controls 2.10 cfs @ 10.68 fps)
- 3=11.5" Orifice (Orifice Controls 6.21 cfs @ 8.60 fps)
- 4=6" Windows (Orifice Controls 6.89 cfs @ 3.44 fps)
- 5=OS Grate (Controls 0.00 cfs)
- 6=RCP_Round 30" Connector (Passes 11.13 cfs of 46.81 cfs potential flow)
- 7=Emer Spwy Grate (Weir Controls 11.13 cfs @ 1.71 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=827.10' (Free Discharge)

- 8=Overflow Spillway (Controls 0.00 cfs)

Pond 46P: Woodlands Basin 2 Prop Conditions Lowest



Woodlands Basin 2

Type II 24-hr 10-yr Rainfall=3.74"

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Summary for Subcatchment 45S: Updated Watershed

Runoff = 39.64 cfs @ 12.23 hrs, Volume= 3.694 af, Depth> 1.53"

Routed to Pond 46P : Woodlands Basin 2 Prop Conditions Lowest

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Type II 24-hr 10-yr Rainfall=3.74"

Area (ac)	CN	Description
14.707	70	Woods, Good, HSG C
7.481	79	1 acre lots, 20% imp, HSG C
2.224	98	Paved roads w/curbs & sewers, HSG C
3.915	81	1/3 acre lots, 30% imp, HSG C
0.672	74	>75% Grass cover, Good, HSG C
28.999	76	Weighted Average
24.104		83.12% Pervious Area
4.895		16.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.0200	0.15		Sheet Flow, sheet flow Grass: Short n= 0.150 P2= 2.63"
1.3	171	0.0120	2.22		Shallow Concentrated Flow, curb and gutter Paved Kv= 20.3 fps
2.2	398		3.00		Direct Entry, Clayton Court Sewer
2.3	157	0.0268	1.15		Shallow Concentrated Flow, Clayton Court Basin Short Grass Pasture Kv= 7.0 fps
0.3	47		3.00		Direct Entry, Clayton Ct Basin Outlet
1.4	98	0.0520	1.14		Shallow Concentrated Flow, Woods to channel Woodland Kv= 5.0 fps
6.0	1,793		5.00		Direct Entry, Woods Channel Clayton to Red Bay Ct
3.7	672		3.00		Direct Entry, Woodlands Storm Sewer
28.0	3,436	Total			

Woodlands Basin 2

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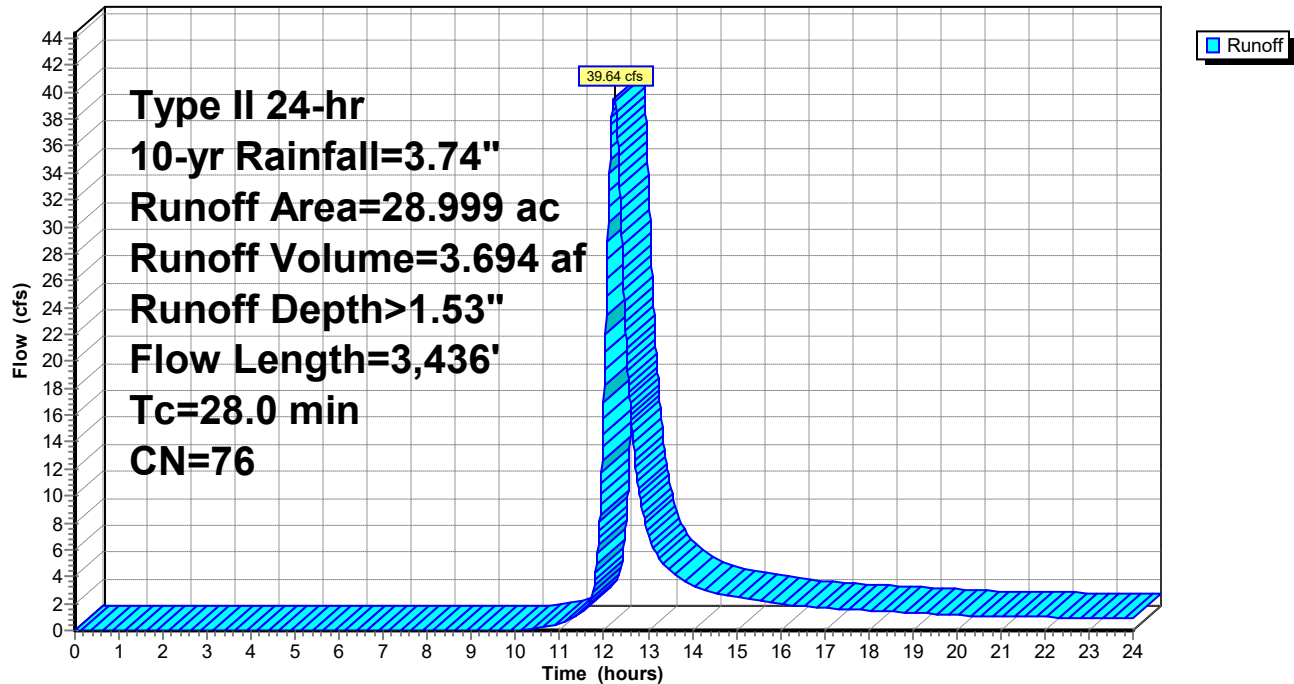
Type II 24-hr 10-yr Rainfall=3.74"

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Subcatchment 45S: Updated Watershed

Hydrograph



Woodlands Basin 2

Type II 24-hr 10-yr Rainfall=3.74"

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Summary for Pond 46P: Woodlands Basin 2 Prop Conditions Lowest

Inflow Area = 28.999 ac, 16.88% Impervious, Inflow Depth > 1.53" for 10-yr event
 Inflow = 39.64 cfs @ 12.23 hrs, Volume= 3.694 af
 Outflow = 38.22 cfs @ 12.28 hrs, Volume= 3.692 af, Atten= 4%, Lag= 3.3 min
 Primary = 38.22 cfs @ 12.28 hrs, Volume= 3.692 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 832.43' @ 12.28 hrs Surf.Area= 0.202 ac Storage= 0.482 af

Plug-Flow detention time= 14.3 min calculated for 3.692 af (100% of inflow)
 Center-of-Mass det. time= 14.0 min (872.8 - 858.8)

Volume	Invert	Avail.Storage	Storage Description
#1	827.10'	0.002 af	Underdrain Trench Storage (Prismatic) Listed below (Recalc) 0.006 af Overall x 40.0% Voids
#2	828.60'	0.730 af	Graded storage opt 5 (Prismatic) Listed below (Recalc)
		0.732 af	Total Available Storage

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
827.10	0.004	0.000	0.000
828.59	0.004	0.006	0.006

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
828.60	0.002	0.000	0.000
829.00	0.083	0.017	0.017
830.00	0.116	0.099	0.116
831.00	0.140	0.128	0.244
832.00	0.172	0.156	0.401
833.00	0.233	0.202	0.603
833.50	0.275	0.127	0.730

Device	Routing	Invert	Outlet Devices
#1	Primary	827.11'	48.0" Round Culvert w/ 7.0" inside fill L= 14.3' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 826.53' / 826.52' S= 0.0007 '/' Cc= 0.900 n= 0.013, Flow Area= 11.43 sf
#2	Device 1	827.10'	6.0" Vert. Underdrain C= 0.600 Limited to weir flow at low heads
#3	Device 1	828.60'	11.5" Vert. 11.5" Orifice C= 0.600 Limited to weir flow at low heads
#4	Device 1	831.50'	48.0" W x 6.0" H Vert. 6" Windows C= 0.600 Limited to weir flow at low heads
#5	Device 1	832.50'	72.0" x 72.0" Horiz. OS Grate C= 0.600 Limited to weir flow at low heads
#6	Device 1	827.10'	30.0" Round RCP_Round 30" Connector L= 5.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 827.10' / 827.10' S= 0.0000 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf
#7	Device 6	832.00'	72.0" x 72.0" Horiz. Emer Spwy Grate C= 0.600

Woodlands Basin 2

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Type II 24-hr 10-yr Rainfall=3.74"

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#8 Secondary 832.50' Limited to weir flow at low heads
40.0' long + 3.0' SideZ x 10.0' breadth Overflow Spillway
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

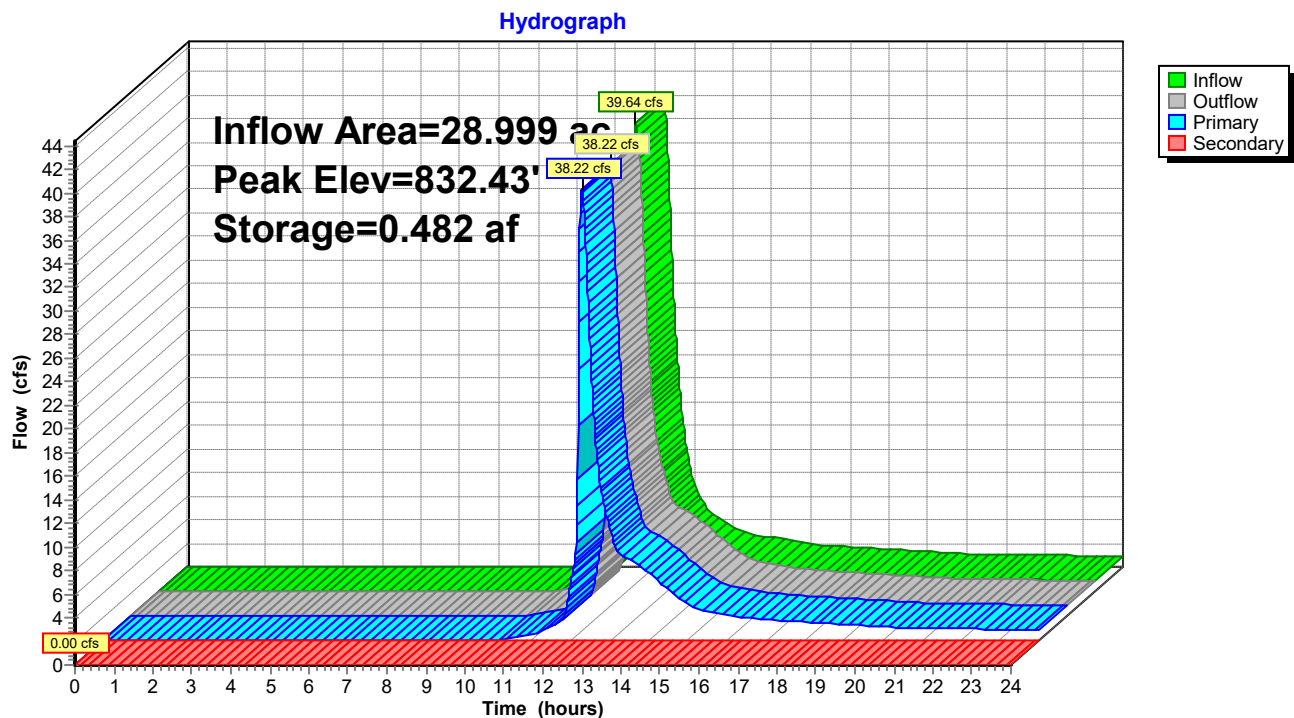
Primary OutFlow Max=38.17 cfs @ 12.28 hrs HW=832.43' (Free Discharge)

- 1=Culvert (Passes 38.17 cfs of 100.84 cfs potential flow)
- 2=Underdrain (Orifice Controls 2.13 cfs @ 10.85 fps)
- 3=11.5" Orifice (Orifice Controls 6.35 cfs @ 8.81 fps)
- 4=6" Windows (Orifice Controls 7.87 cfs @ 3.94 fps)
- 5=OS Grate (Controls 0.00 cfs)
- 6=RCP_Round 30" Connector (Passes 21.82 cfs of 47.72 cfs potential flow)
- 7=Emer Spwy Grate (Weir Controls 21.82 cfs @ 2.13 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=827.10' (Free Discharge)

- 8=Overflow Spillway (Controls 0.00 cfs)

Pond 46P: Woodlands Basin 2 Prop Conditions Lowest



Woodlands Basin 2

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Type II 24-hr 25-yr Rainfall=4.44"

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Summary for Subcatchment 45S: Updated Watershed

Runoff = 54.30 cfs @ 12.23 hrs, Volume= 4.991 af, Depth> 2.07"

Routed to Pond 46P : Woodlands Basin 2 Prop Conditions Lowest

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Type II 24-hr 25-yr Rainfall=4.44"

Area (ac)	CN	Description
14.707	70	Woods, Good, HSG C
7.481	79	1 acre lots, 20% imp, HSG C
2.224	98	Paved roads w/curbs & sewers, HSG C
3.915	81	1/3 acre lots, 30% imp, HSG C
0.672	74	>75% Grass cover, Good, HSG C
28.999	76	Weighted Average
24.104		83.12% Pervious Area
4.895		16.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.0200	0.15		Sheet Flow, sheet flow Grass: Short n= 0.150 P2= 2.63"
1.3	171	0.0120	2.22		Shallow Concentrated Flow, curb and gutter Paved Kv= 20.3 fps
2.2	398		3.00		Direct Entry, Clayton Court Sewer
2.3	157	0.0268	1.15		Shallow Concentrated Flow, Clayton Court Basin Short Grass Pasture Kv= 7.0 fps
0.3	47		3.00		Direct Entry, Clayton Ct Basin Outlet
1.4	98	0.0520	1.14		Shallow Concentrated Flow, Woods to channel Woodland Kv= 5.0 fps
6.0	1,793		5.00		Direct Entry, Woods Channel Clayton to Red Bay Ct
3.7	672		3.00		Direct Entry, Woodlands Storm Sewer
28.0	3,436	Total			

Woodlands Basin 2

Prepared by EMH&T

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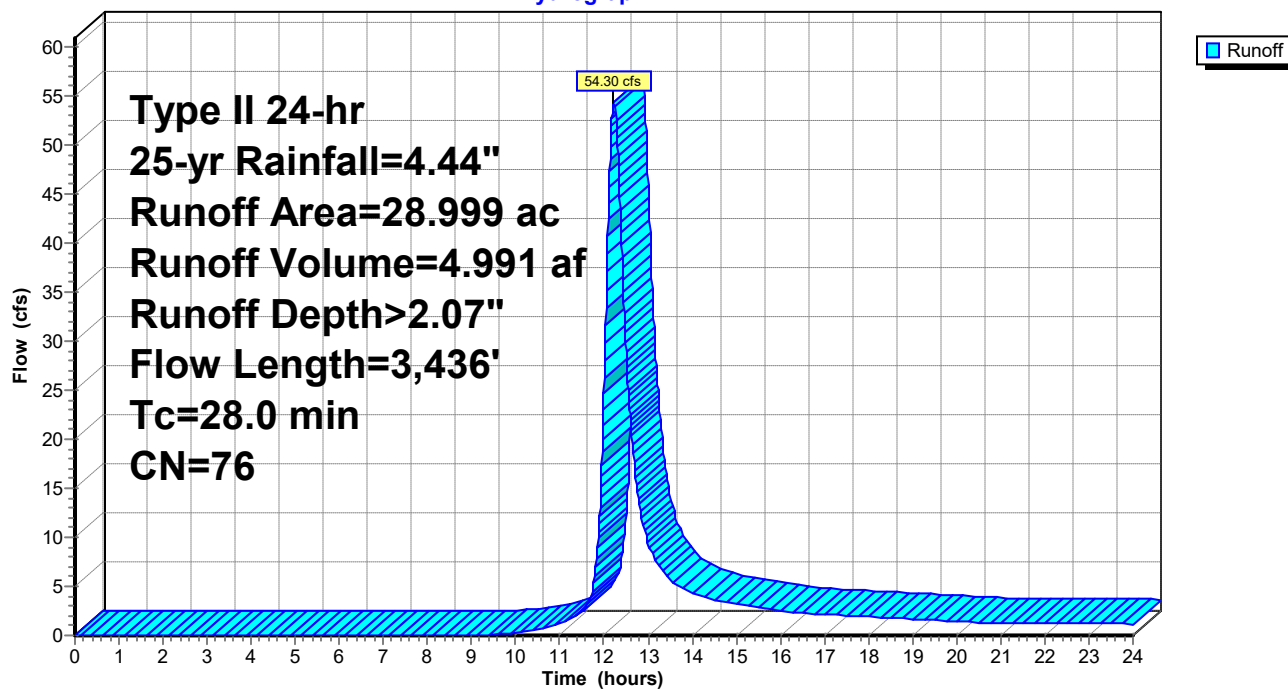
Type II 24-hr 25-yr Rainfall=4.44"

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Subcatchment 45S: Updated Watershed

Hydrograph



Woodlands Basin 2

Type II 24-hr 25-yr Rainfall=4.44"

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Summary for Pond 46P: Woodlands Basin 2 Prop Conditions Lowest

Inflow Area = 28.999 ac, 16.88% Impervious, Inflow Depth > 2.07" for 25-yr event
 Inflow = 54.30 cfs @ 12.23 hrs, Volume= 4.991 af
 Outflow = 54.00 cfs @ 12.24 hrs, Volume= 4.987 af, Atten= 1%, Lag= 0.9 min
 Primary = 52.17 cfs @ 12.24 hrs, Volume= 4.967 af
 Secondary = 1.83 cfs @ 12.24 hrs, Volume= 0.020 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 832.57' @ 12.24 hrs Surf.Area= 0.210 ac Storage= 0.510 af

Plug-Flow detention time= 13.6 min calculated for 4.987 af (100% of inflow)
 Center-of-Mass det. time= 13.1 min (863.4 - 850.3)

Volume	Invert	Avail.Storage	Storage Description
#1	827.10'	0.002 af	Underdrain Trench Storage (Prismatic) Listed below (Recalc) 0.006 af Overall x 40.0% Voids
#2	828.60'	0.730 af	Graded storage opt 5 (Prismatic) Listed below (Recalc)
		0.732 af	Total Available Storage

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
827.10	0.004	0.000	0.000
828.59	0.004	0.006	0.006

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
828.60	0.002	0.000	0.000
829.00	0.083	0.017	0.017
830.00	0.116	0.099	0.116
831.00	0.140	0.128	0.244
832.00	0.172	0.156	0.401
833.00	0.233	0.202	0.603
833.50	0.275	0.127	0.730

Device	Routing	Invert	Outlet Devices
#1	Primary	827.11'	48.0" Round Culvert w/ 7.0" inside fill L= 14.3' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 826.53' / 826.52' S= 0.0007 '/' Cc= 0.900 n= 0.013, Flow Area= 11.43 sf
#2	Device 1	827.10'	6.0" Vert. Underdrain C= 0.600 Limited to weir flow at low heads
#3	Device 1	828.60'	11.5" Vert. 11.5" Orifice C= 0.600 Limited to weir flow at low heads
#4	Device 1	831.50'	48.0" W x 6.0" H Vert. 6" Windows C= 0.600 Limited to weir flow at low heads
#5	Device 1	832.50'	72.0" x 72.0" Horiz. OS Grate C= 0.600 Limited to weir flow at low heads
#6	Device 1	827.10'	30.0" Round RCP_Round 30" Connector L= 5.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 827.10' / 827.10' S= 0.0000 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf
#7	Device 6	832.00'	72.0" x 72.0" Horiz. Emer Spwy Grate C= 0.600

Woodlands Basin 2

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Type II 24-hr 25-yr Rainfall=4.44"

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#8 Secondary 832.50' Limited to weir flow at low heads
40.0' long + 3.0' SideZ x 10.0' breadth Overflow Spillway
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

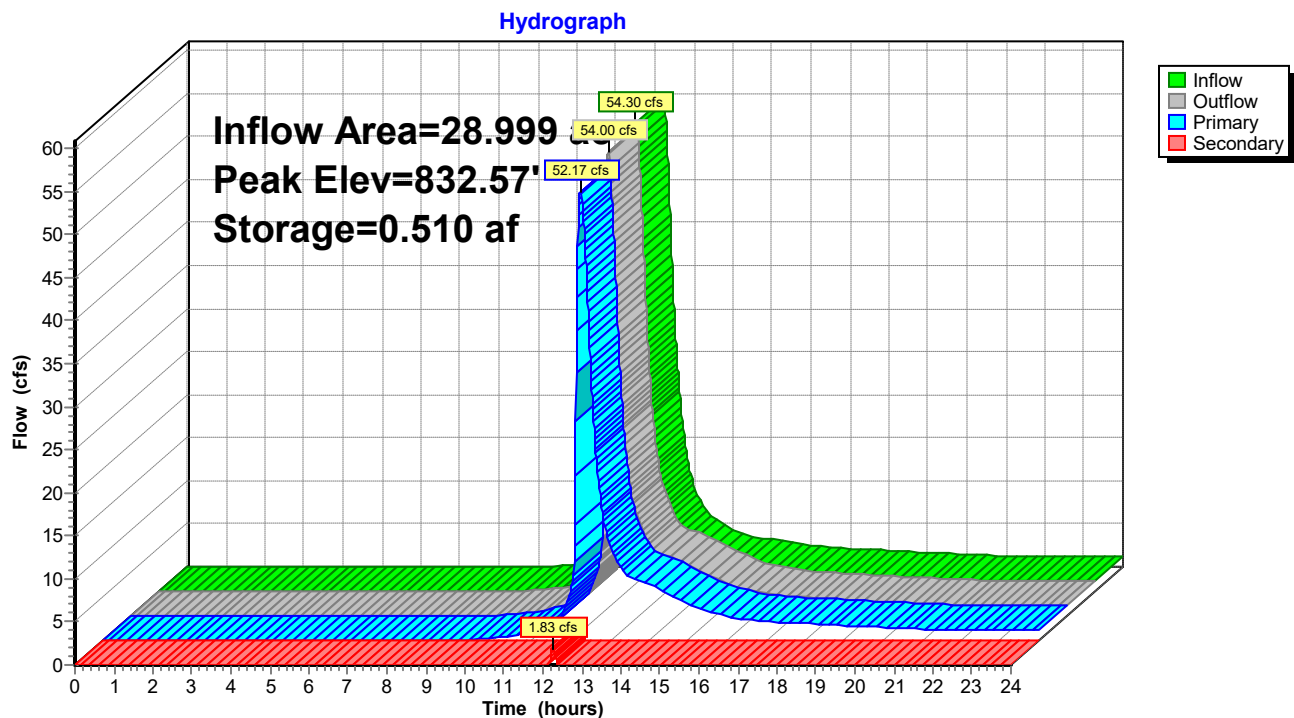
Primary OutFlow Max=52.02 cfs @ 12.24 hrs HW=832.57' (Free Discharge)

- 1=Culvert (Passes 52.02 cfs of 104.47 cfs potential flow)
- 2=Underdrain (Orifice Controls 2.16 cfs @ 11.00 fps)
- 3=11.5" Orifice (Orifice Controls 6.49 cfs @ 8.99 fps)
- 4=6" Windows (Orifice Controls 8.66 cfs @ 4.33 fps)
- 5=OS Grate (Weir Controls 1.32 cfs @ 0.84 fps)
- 6=RCP_Round 30" Connector (Passes 33.39 cfs of 48.53 cfs potential flow)
- 7=Emer Spwy Grate (Weir Controls 33.39 cfs @ 2.46 fps)

Secondary OutFlow Max=1.68 cfs @ 12.24 hrs HW=832.57' (Free Discharge)

- 8=Overflow Spillway (Weir Controls 1.68 cfs @ 0.64 fps)

Pond 46P: Woodlands Basin 2 Prop Conditions Lowest



Woodlands Basin 2

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Type II 24-hr 50-yr Rainfall=5.02"

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Summary for Subcatchment 45S: Updated Watershed

Runoff = 66.96 cfs @ 12.23 hrs, Volume= 6.120 af, Depth> 2.53"

Routed to Pond 46P : Woodlands Basin 2 Prop Conditions Lowest

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Type II 24-hr 50-yr Rainfall=5.02"

Area (ac)	CN	Description
14.707	70	Woods, Good, HSG C
7.481	79	1 acre lots, 20% imp, HSG C
2.224	98	Paved roads w/curbs & sewers, HSG C
3.915	81	1/3 acre lots, 30% imp, HSG C
0.672	74	>75% Grass cover, Good, HSG C
28.999	76	Weighted Average
24.104		83.12% Pervious Area
4.895		16.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.0200	0.15		Sheet Flow, sheet flow Grass: Short n= 0.150 P2= 2.63"
1.3	171	0.0120	2.22		Shallow Concentrated Flow, curb and gutter Paved Kv= 20.3 fps
2.2	398		3.00		Direct Entry, Clayton Court Sewer
2.3	157	0.0268	1.15		Shallow Concentrated Flow, Clayton Court Basin Short Grass Pasture Kv= 7.0 fps
0.3	47		3.00		Direct Entry, Clayton Ct Basin Outlet
1.4	98	0.0520	1.14		Shallow Concentrated Flow, Woods to channel Woodland Kv= 5.0 fps
6.0	1,793		5.00		Direct Entry, Woods Channel Clayton to Red Bay Ct
3.7	672		3.00		Direct Entry, Woodlands Storm Sewer
28.0	3,436	Total			

Woodlands Basin 2

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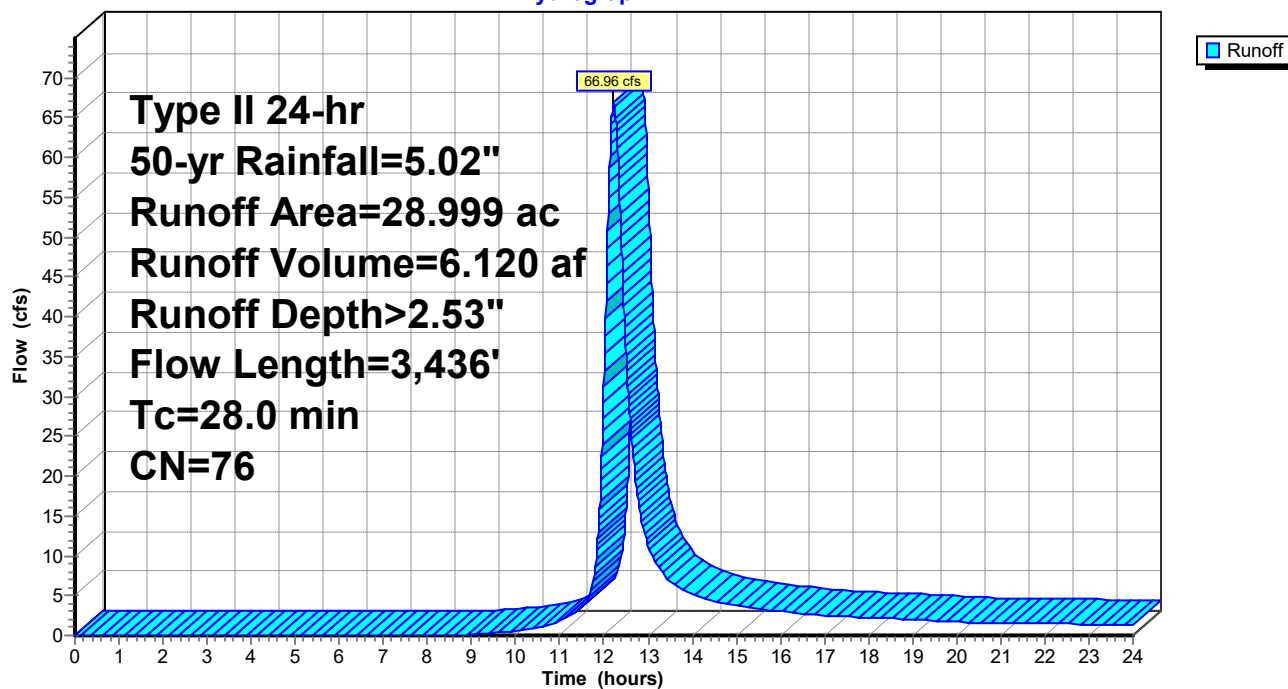
Type II 24-hr 50-yr Rainfall=5.02"

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Subcatchment 45S: Updated Watershed

Hydrograph



Woodlands Basin 2

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Type II 24-hr 50-yr Rainfall=5.02"

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Summary for Pond 46P: Woodlands Basin 2 Prop Conditions Lowest

Inflow Area = 28.999 ac, 16.88% Impervious, Inflow Depth > 2.53" for 50-yr event
 Inflow = 66.96 cfs @ 12.23 hrs, Volume= 6.120 af
 Outflow = 66.73 cfs @ 12.24 hrs, Volume= 6.111 af, Atten= 0%, Lag= 0.6 min
 Primary = 61.60 cfs @ 12.24 hrs, Volume= 6.025 af
 Secondary = 5.14 cfs @ 12.24 hrs, Volume= 0.086 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 832.64' @ 12.24 hrs Surf.Area= 0.215 ac Storage= 0.525 af

Plug-Flow detention time= 13.1 min calculated for 6.111 af (100% of inflow)
 Center-of-Mass det. time= 12.3 min (857.0 - 844.6)

Volume	Invert	Avail.Storage	Storage Description
#1	827.10'	0.002 af	Underdrain Trench Storage (Prismatic) Listed below (Recalc) 0.006 af Overall x 40.0% Voids
#2	828.60'	0.730 af	Graded storage opt 5 (Prismatic) Listed below (Recalc)
		0.732 af	Total Available Storage

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
827.10	0.004	0.000	0.000
828.59	0.004	0.006	0.006

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
828.60	0.002	0.000	0.000
829.00	0.083	0.017	0.017
830.00	0.116	0.099	0.116
831.00	0.140	0.128	0.244
832.00	0.172	0.156	0.401
833.00	0.233	0.202	0.603
833.50	0.275	0.127	0.730

Device	Routing	Invert	Outlet Devices
#1	Primary	827.11'	48.0" Round Culvert w/ 7.0" inside fill L= 14.3' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 826.53' / 826.52' S= 0.0007 '/' Cc= 0.900 n= 0.013, Flow Area= 11.43 sf
#2	Device 1	827.10'	6.0" Vert. Underdrain C= 0.600 Limited to weir flow at low heads
#3	Device 1	828.60'	11.5" Vert. 11.5" Orifice C= 0.600 Limited to weir flow at low heads
#4	Device 1	831.50'	48.0" W x 6.0" H Vert. 6" Windows C= 0.600 Limited to weir flow at low heads
#5	Device 1	832.50'	72.0" x 72.0" Horiz. OS Grate C= 0.600 Limited to weir flow at low heads
#6	Device 1	827.10'	30.0" Round RCP_Round 30" Connector L= 5.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 827.10' / 827.10' S= 0.0000 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf
#7	Device 6	832.00'	72.0" x 72.0" Horiz. Emer Spwy Grate C= 0.600

Woodlands Basin 2

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Type II 24-hr 50-yr Rainfall=5.02"

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#8 Secondary 832.50' Limited to weir flow at low heads
40.0' long + 3.0' SideZ x 10.0' breadth Overflow Spillway
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

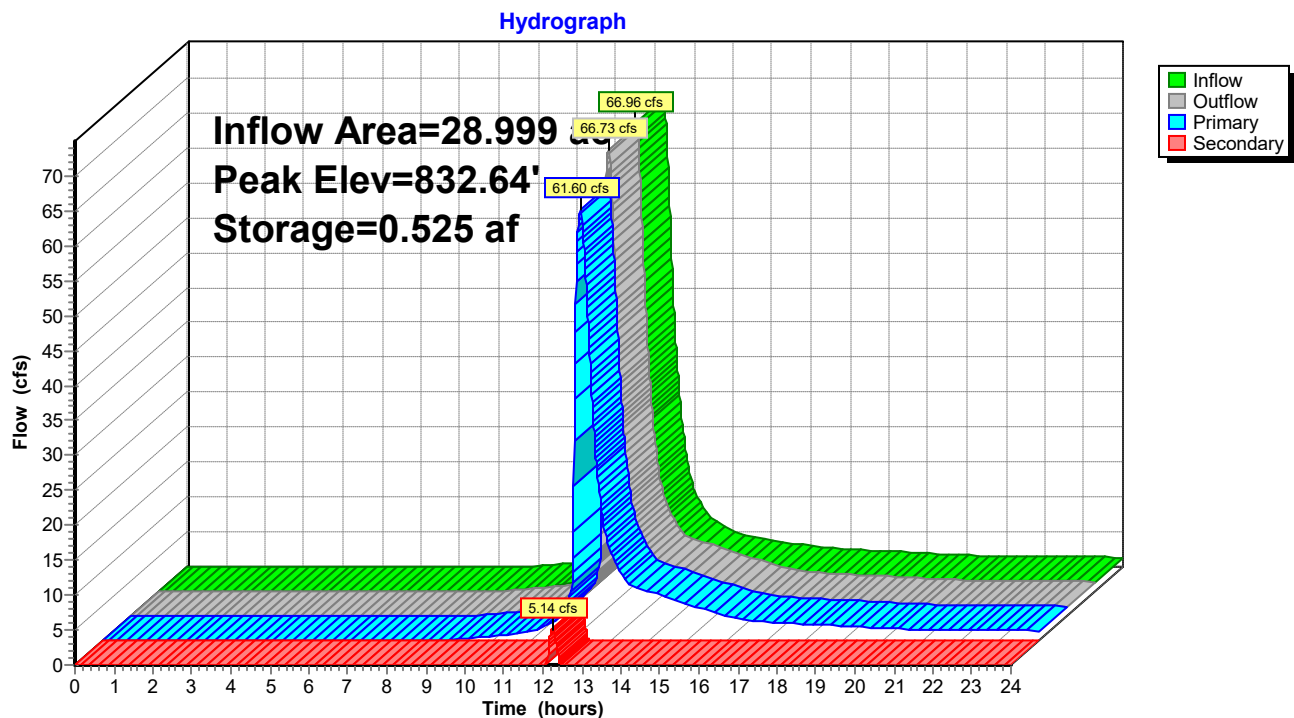
Primary OutFlow Max=61.46 cfs @ 12.24 hrs HW=832.64' (Free Discharge)

- 1=Culvert (Passes 61.46 cfs of 106.24 cfs potential flow)
- 2=Underdrain (Orifice Controls 2.17 cfs @ 11.07 fps)
- 3=11.5" Orifice (Orifice Controls 6.55 cfs @ 9.08 fps)
- 4=6" Windows (Orifice Controls 9.03 cfs @ 4.52 fps)
- 5=OS Grate (Weir Controls 3.92 cfs @ 1.20 fps)
- 6=RCP_Round 30" Connector (Passes 39.78 cfs of 48.93 cfs potential flow)
- 7=Emer Spwy Grate (Weir Controls 39.78 cfs @ 2.61 fps)

Secondary OutFlow Max=5.02 cfs @ 12.24 hrs HW=832.64' (Free Discharge)

- 8=Overflow Spillway (Weir Controls 5.02 cfs @ 0.92 fps)

Pond 46P: Woodlands Basin 2 Prop Conditions Lowest



Woodlands Basin 2

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Type II 24-hr 100-yr Rainfall=5.63"

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Summary for Subcatchment 45S: Updated Watershed

Runoff = 80.59 cfs @ 12.22 hrs, Volume= 7.347 af, Depth> 3.04"

Routed to Pond 46P : Woodlands Basin 2 Prop Conditions Lowest

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Type II 24-hr 100-yr Rainfall=5.63"

Area (ac)	CN	Description
14.707	70	Woods, Good, HSG C
7.481	79	1 acre lots, 20% imp, HSG C
2.224	98	Paved roads w/curbs & sewers, HSG C
3.915	81	1/3 acre lots, 30% imp, HSG C
0.672	74	>75% Grass cover, Good, HSG C
28.999	76	Weighted Average
24.104		83.12% Pervious Area
4.895		16.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.0200	0.15		Sheet Flow, sheet flow Grass: Short n= 0.150 P2= 2.63"
1.3	171	0.0120	2.22		Shallow Concentrated Flow, curb and gutter Paved Kv= 20.3 fps
2.2	398		3.00		Direct Entry, Clayton Court Sewer
2.3	157	0.0268	1.15		Shallow Concentrated Flow, Clayton Court Basin Short Grass Pasture Kv= 7.0 fps
0.3	47		3.00		Direct Entry, Clayton Ct Basin Outlet
1.4	98	0.0520	1.14		Shallow Concentrated Flow, Woods to channel Woodland Kv= 5.0 fps
6.0	1,793		5.00		Direct Entry, Woods Channel Clayton to Red Bay Ct
3.7	672		3.00		Direct Entry, Woodlands Storm Sewer
28.0	3,436	Total			

Woodlands Basin 2

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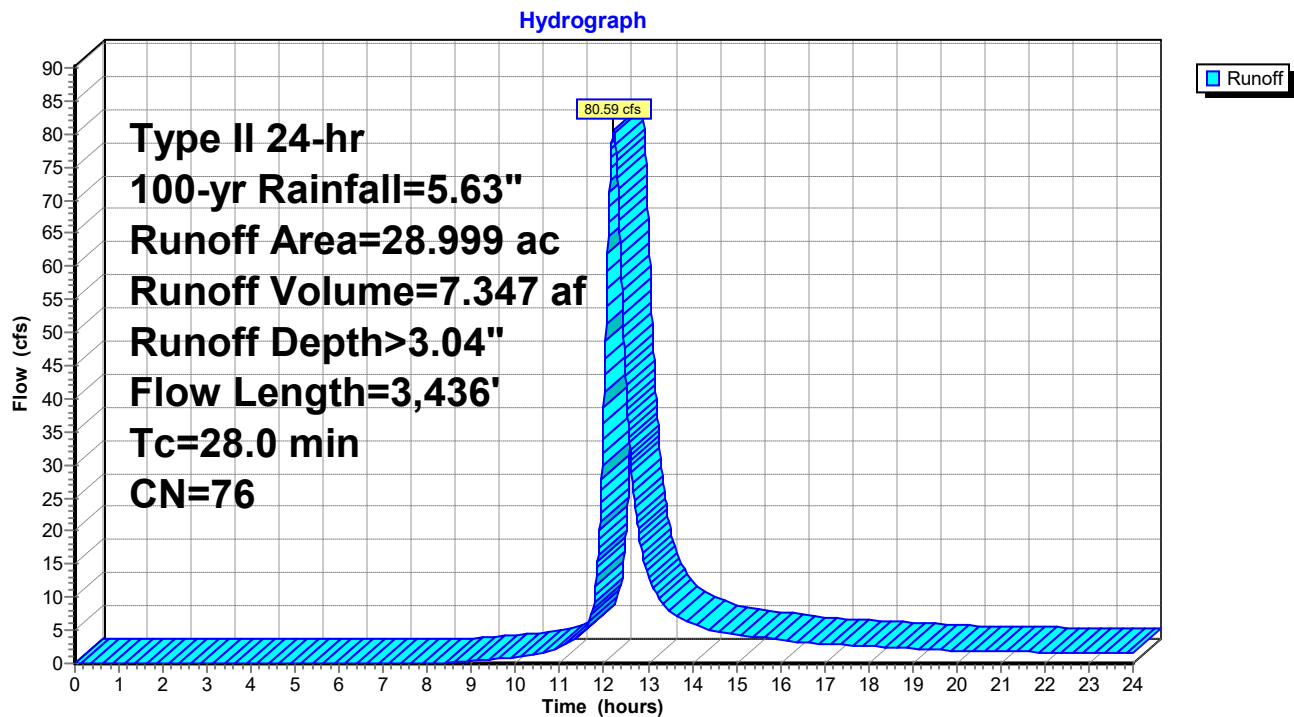
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Type II 24-hr 100-yr Rainfall=5.63"

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Subcatchment 45S: Updated Watershed



Woodlands Basin 2

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Type II 24-hr 100-yr Rainfall=5.63"

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Summary for Pond 46P: Woodlands Basin 2 Prop Conditions Lowest

Inflow Area = 28.999 ac, 16.88% Impervious, Inflow Depth > 3.04" for 100-yr event
 Inflow = 80.59 cfs @ 12.22 hrs, Volume= 7.347 af
 Outflow = 80.41 cfs @ 12.23 hrs, Volume= 7.334 af, Atten= 0%, Lag= 0.5 min
 Primary = 71.27 cfs @ 12.23 hrs, Volume= 7.145 af
 Secondary = 9.14 cfs @ 12.23 hrs, Volume= 0.189 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 832.70' @ 12.23 hrs Surf.Area= 0.218 ac Storage= 0.538 af

Plug-Flow detention time= 12.8 min calculated for 7.331 af (100% of inflow)
 Center-of-Mass det. time= 11.7 min (851.3 - 839.6)

Volume	Invert	Avail.Storage	Storage Description
#1	827.10'	0.002 af	Underdrain Trench Storage (Prismatic) Listed below (Recalc) 0.006 af Overall x 40.0% Voids
#2	828.60'	0.730 af	Graded storage opt 5 (Prismatic) Listed below (Recalc)
		0.732 af	Total Available Storage

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
827.10	0.004	0.000	0.000
828.59	0.004	0.006	0.006

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
828.60	0.002	0.000	0.000
829.00	0.083	0.017	0.017
830.00	0.116	0.099	0.116
831.00	0.140	0.128	0.244
832.00	0.172	0.156	0.401
833.00	0.233	0.202	0.603
833.50	0.275	0.127	0.730

Device	Routing	Invert	Outlet Devices
#1	Primary	827.11'	48.0" Round Culvert w/ 7.0" inside fill L= 14.3' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 826.53' / 826.52' S= 0.0007 '/' Cc= 0.900 n= 0.013, Flow Area= 11.43 sf
#2	Device 1	827.10'	6.0" Vert. Underdrain C= 0.600 Limited to weir flow at low heads
#3	Device 1	828.60'	11.5" Vert. 11.5" Orifice C= 0.600 Limited to weir flow at low heads
#4	Device 1	831.50'	48.0" W x 6.0" H Vert. 6" Windows C= 0.600 Limited to weir flow at low heads
#5	Device 1	832.50'	72.0" x 72.0" Horiz. OS Grate C= 0.600 Limited to weir flow at low heads
#6	Device 1	827.10'	30.0" Round RCP_Round 30" Connector L= 5.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 827.10' / 827.10' S= 0.0000 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf
#7	Device 6	832.00'	72.0" x 72.0" Horiz. Emer Spwy Grate C= 0.600

Woodlands Basin 2

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Type II 24-hr 100-yr Rainfall=5.63"

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#8 Secondary 832.50' Limited to weir flow at low heads
40.0' long + 3.0' SideZ x 10.0' breadth Overflow Spillway
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

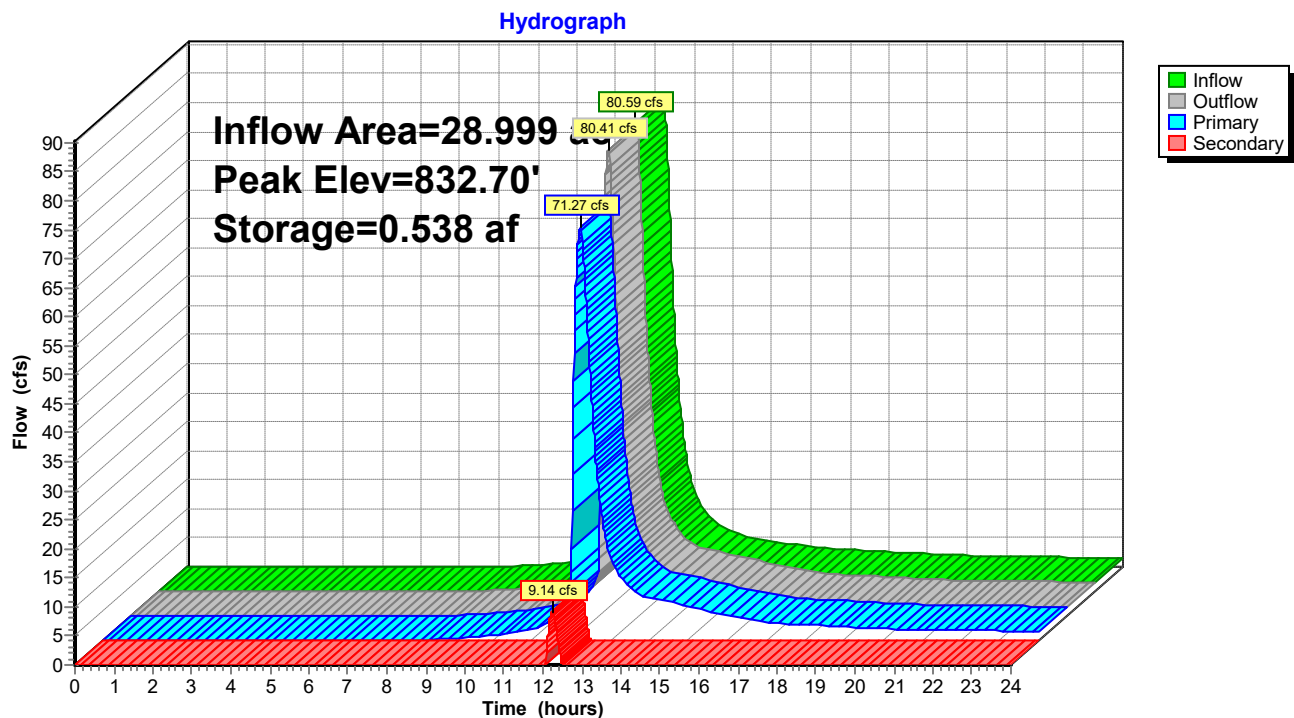
Primary OutFlow Max=71.14 cfs @ 12.23 hrs HW=832.70' (Free Discharge)

- 1=Culvert (Passes 71.14 cfs of 107.84 cfs potential flow)
- 2=Underdrain (Orifice Controls 2.19 cfs @ 11.14 fps)
- 3=11.5" Orifice (Orifice Controls 6.61 cfs @ 9.16 fps)
- 4=6" Windows (Orifice Controls 9.36 cfs @ 4.68 fps)
- 5=OS Grate (Weir Controls 7.02 cfs @ 1.46 fps)
- 6=RCP_Round 30" Connector (Passes 45.97 cfs of 49.30 cfs potential flow)
- 7=Emer Spwy Grate (Weir Controls 45.97 cfs @ 2.74 fps)

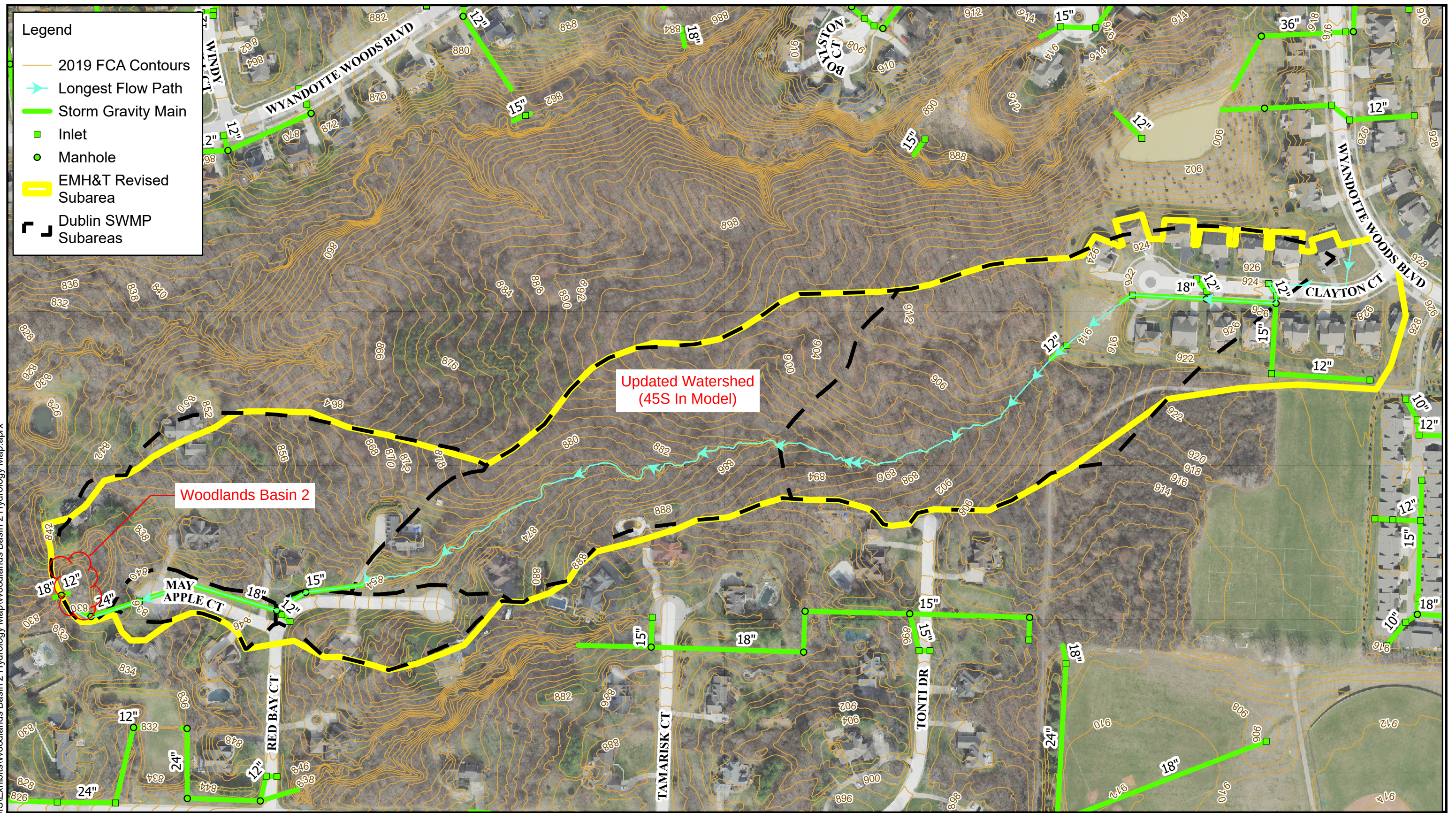
Secondary OutFlow Max=9.02 cfs @ 12.23 hrs HW=832.70' (Free Discharge)

- 8=Overflow Spillway (Weir Controls 9.02 cfs @ 1.11 fps)

Pond 46P: Woodlands Basin 2 Prop Conditions Lowest



- Legend
- 2019 FCA Contours
 - Longest Flow Path
 - Storm Gravity Main
 - Inlet
 - Manhole
 - EMH&T Revised Subarea
 - Dublin SWMP Subareas



Woodlands Basin 2

Updated Watershed
(45S In Model)

EMH&T
Engineers • Surveyors • Planners • Scientists
5500 New Albany Road, Columbus, OH 43054
Phone: 614.775.4500 Toll Free: 888.775.3648
emht.com



CITY OF DUBLIN, FRANKLIN COUNTY, OHIO

EXHIBIT 1
WOODLANDS BASIN 2
HYDROLOGIC WORK MAP



Path: J:\20250015\GIS\Exhibits\Woodlands Basin 2 Hydrology Map\Woodlands Basin 2 Hydrology Map.aprx

CITY OF DUBLIN GENERAL CONDITIONS DIVISION 100

ITEM 101 DEFINITIONS AND TERMS

101.01 General

101.02 Abbreviations

101.03 Definitions

101.04 Interpretations

101.01 General. These Construction and Material Specifications are written to the Bidder before award of the Contract and to the Contractor after award of the Contract. The sentences that direct the Contractor to perform Work are written as commands. For example, a requirement to provide cold-weather protection would be expressed as, "Provide cold-weather protection for concrete," rather than "The Contractor shall provide cold-weather protection for concrete." In the imperative mood, the subject "the Bidder" or "the Contractor" is understood.

All requirements to be performed by others have been written in the active voice. Sentences written in the active voice identify the party responsible for performing the action. For example, "The Engineer will determine the density of the compacted material." Certain requirements of the Contractor may also be written in the active voice, rather than the active voice and imperative mood, if the sentence includes requirements for others in addition to the Contractor. For example, "If the Contractor, at any time, fails to comply with the provisions of 105.14, the Engineer will immediately notify the Contractor of such non-compliance."

Sentences that define terms, describe a product or desired result, or describe a condition that may exist are written in indicative mood. These types of sentences use verbs requiring no action. For example, "The characteristics of the soils actually encountered in the subgrade may affect the quantity of the cement and depth of treatment necessary."

101.02 Abbreviations. The following abbreviations, when used in the Contract Documents, represent the full text shown below.

AAN American Association of Nurserymen

AASHTO American Association of State Highway and Transportation Officials

ACI American Concrete Institute

AISC American Institute of Steel Construction

AISI American Iron and Steel Institute

ANSI American National Standards Institute

AREA American Railway Engineering Association

ASA American Standards Association

ASCE American Society of Civil Engineers

ASME American Society of Mechanical Engineers

ASTM American Society for Testing and Materials

AWG American Wire Gage

AWPA American Wood Preservers' Association

AWS American Welding Society

AWWA American Water Works Association

BMP Best Management Practice (erosion)

BUSTR Bureau of Underground Storage Tank Regulations (Division of Fire Marshal)

CCC City of Dublin Codified Ordinances

CCRL Cement and Concrete Reference Laboratory

CFR Code of Federal Regulations

CMSC Construction and Material Specifications - City of Columbus (excluding Division 100)

CPESC Certified Professional in Erosion and Sediment Control

CRSI Concrete Reinforcing Steel Institute

EEI Edison Electric Institute

EIA Electronic Industries Alliance

EPA Environmental Protection Agency

FEMA Federal Emergency Management Agency

FHWA Federal Highway Administration, Department of Transportation

FSS Federal Specifications and Standards, General Services Administration

HMA Hot Mix Asphalt

ICEA Insulated Cable Engineers Association

IEEE Institute of Electrical and Electronic Engineers

IES Illuminating Engineering Society

IME Institute of Makers of Explosives

IMSA International Municipal Signal Association

IPCEA Insulated Power Cable Engineering Association

IPS International Pipe Standard

ISSA International Slurry Seal Association

ITE Institute of Transportation Engineers

JMF Job Mix Formula

MSDS Material Safety Data Sheets

NACE National Association of Corrosion Engineers

NCHRP National Cooperative Highway Research Program

NEMA National Electrical Manufacturers Association

NHI National Highway Institute

NIST National Institute of Standards and Technology

NOI Notice of Intent

NPDES National Pollutant Discharge Elimination System

OAC Ohio Administrative Code

ODNR Ohio Department of Natural Resources

ODOT Ohio Department of Transportation

ODOTCMS Ohio Department of Transportation, Construction and Material Specifications

OEPA Ohio Environmental Protection Agency

OMUTCD Ohio Manual of Uniform Traffic Control Devices

ORC Ohio Revised Code

ORDC Ohio Rail Development Commission

OSHA Occupation Safety & Health Act

OWPCA Ohio Water Pollution Control Act

PCA Portland Cement Association

PCC Portland Cement Concrete

PCI Precast/Prestressed Concrete Institute

QA Quality Assurance

QC Quality Control

QPL Qualified Products List

RACP Reclaimed Asphalt Concrete Pavement

RAP Recycled Asphalt Pavement

RH Relative Humidity

RPCC Recycled Portland Cement Concrete

SAE Society of Automotive Engineers

SI International System of Units (Metric)

SSPC Society for Protective Coatings

S-U-P Shared Use Path

SWPPP Storm Water Pollution Prevention Plan

UL Underwriters' Laboratories, Inc.

USACE United States Army Corps of Engineers

VECP Value Engineering Change Proposal

WMA Warm Mix Asphalt

101.03 Definitions. The following terms or pronouns, when used in the Contract Documents, are defined as follows:

Addendum or Addenda. Written instructions issued by the City prior to Bid opening for the purpose of varying, modifying, rescinding or adding to portions of the Contract Documents.

Advertisement (or Invitation for Bids). The public announcement, as required by law, inviting Proposals for Work to be performed or materials and equipment to be furnished. Such Proposal will indicate with

reasonable accuracy the type, quantity and location of the Work to be done or the character and quality of the materials to be furnished and the time and place of the opening of Proposals.

Award. The written acceptance by the Director of a Proposal.

Bid. Same as Proposal.

Bid Documents. The Bid Documents include the Advertisement for Bids, Instructions to Bidders, Addenda, Proposal, Electronic Bidding Software file(s), Contract, Contract forms and required bonds, Specifications, Supplemental Specifications, Special Provisions, Plans, Plan Notes, Standard Drawings, and any other document specifically designated by the Department as a Bid Document, all of which constitute one instrument. Any other documents provided with the bid are for informational purposes only and are not part of the Bid Documents. The City may request that the Bidder sign an acknowledgement that such informational documents are expressly excluded from the Contract.

Bidder. Any individual, firm, partnership, or corporation submitting a Proposal for the advertised work, acting directly or through a duly authorized representative.

Borrow Area. The term borrow area refers to locations outside the right-of-way from which natural materials are removed for use in the Work.

Bridge. A structure, including supports, erected over a depression or an obstruction, such as water, highway, or railway, and having a track or passageway for carrying traffic or other moving loads and having a length measured along the center of roadway of more than 10 feet (3.0 m) between the center line of bearing of abutments or extreme limits of openings for multiple boxes.

A. The length of a bridge structure is the over-all length measured between centerline of abutments.

B. The roadway width of a bridge structure is the clear width measured at right angles to the longitudinal centerline of the bridge between the bottom of curbs or guardrails or, in the case of multiple heights of curbs, between the bottoms of the lower risers. For curb widths of one foot (0.3 m) or less, the roadway width shall be measured between parapets or railings.

Calendar Day or Day. Every day shown on the calendar.

Certified Test Data. A test report from a manufacturer's laboratory or independent laboratory listing actual test data for the specified City requirements for the samples tested and a statement by a person having legal authority to act for the supplier and/or manufacturer of the material that the test report furnished represents the material delivered to the City of Dublin project. The certification shall include the Laboratory Report No. and the name of the project to which the material is delivered. Laboratory reports signed by a Registered Professional Engineer and those signed by other personnel and notarized will be accepted for this purpose.

Change Order. A written order issued by the Engineer to the Contractor covering changes to the terms and conditions, plans and/or quantities, within or beyond the scope of the Contract and establishing the basis of payment from existing funding and any time adjustments for the Work affected by the changes.

City. The City of Dublin, acting through its Director or properly authorized agents thereof, such agents acting severally within the scope of the particular duties entrusted to them.

Claim(s). A claim is a request, by the Contractor or the City, for adjustment in Contract Sum or Time, or both, when resolution is not reached using other provisions in the Contract.

Clean Hard Fill. Construction and demolition debris which consists only of reinforced or nonreinforced concrete, asphalt concrete, brick, block, tile, and/or stone which can be reutilized as construction material. Brick in clean hard fill includes but is not limited to refractory brick and mortar. Clean hard fill does not include materials contaminated with hazardous wastes, solid wastes, or infectious wastes. (OAC 3745-400-01(E))

Clean Soil. Clean soil consists of soil, rock, sand, and other unaltered nontoxic geological materials that are not contaminated with petroleum, PCB's, hazardous wastes (as defined in ORC 3734.01(J)), raw sewage, trash or other solid wastes (as defined in ORC 3734.01(E)), or mixed with vegetative debris, asphalt, concrete, scrap metal, bricks, pavement, or other man-made materials constituting construction and demolition debris.

Completion Date. The date on which the Work shall be completed.

Conduit. Any pipe or similar passageway for electricity, gas, water or other utility.

Construction Limits (Work Limits). The farthest boundary of the project where the Contractor shall not proceed and is restricted from working beyond the limits shown on the Drawings without approval by the City.

Construction and Demolition Debris consists of materials resulting from the alteration, construction, destruction, rehabilitation, or repair of any physical structure that is built by humans, including, without limitation, houses, buildings, industrial or commercial facilities, or roadways. "Construction and Demolition Debris" includes particles and dust created during demolition activities. "Materials resulting from the alteration, construction, destruction, rehabilitation, or repair of any manmade physical structure," are those structural and functional materials comprising the structure and surrounding site improvements, such as brick, concrete and other masonry materials, stone, glass, wall coverings, plaster, drywall, framing and finishing lumber, roofing materials, plumbing fixtures, heating equipment, electrical wiring and components containing no hazardous fluids or refrigerants, insulation, wall- to-wall carpeting, asphaltic substances, metals incidental to any of the above, and weathered railroad ties and utility poles. "Materials resulting from the alteration, construction, destruction, rehabilitation, or repair" do not include materials whose removal has been required prior to demolition, and materials which are otherwise contained within or exist outside the structure such as solid wastes, yard wastes, furniture, and

appliances. Also excluded in all cases are liquids including containerized or bulk liquids, fuel tanks, drums and other closed or filled containers, tires, and batteries. (ORC 3714.01(C))

Contract Documents. The Contract Documents include the Advertisement for Bids, Instructions to Bidders, Addenda, Proposal, Affidavits, Contract, Contract forms and required bonds, Specifications (CMSC), Supplemental Specifications, Special Provisions, Plans, Plan Notes, Standard Drawings, Notice to Proceed, Notice of Commencement, and Auditor's Purchase Order as the same are published or may be published and amended by the several Divisions of the City, Change Orders, Contract Modifications, and any other document included by reference by the City as a Contract Document, all of which constitute one instrument.

Contract Item (Pay Item/Reference Number). A specifically described unit of Work for which a price is provided in the Contract.

Contract Modification. A change to the terms and conditions of the executed Contract Documents beyond that approved at the time of Contract award. A Contract Modification must be authorized in accordance with Section 37.05 of the Codified Ordinance of the City of Dublin.

Contract Performance and Payment Bond(s). The approved form of security, executed by the Contractor and its surety or sureties, guaranteeing complete execution of the Work as required by the Contract Documents and the payment of all legal debts pertaining to the construction of the Project.

Contract Price. The amount of compensation bid by the Contractor for a Contract Item in the Proposal or the amount of compensation established for a Contract Item added or modified pursuant to the Contract Documents.

Contract Sum. The Contract Sum is stated in the Contract and, including authorized adjustments thereto, is the total amount payable by the City to the Contractor for the performance of the Work under the Contract Documents. The Contract Sum may include a contingency amount; however, the contingency amount is not due to the Contractor unless approved by Change Order.

Contract Time. The number of workdays or calendar days, including authorized adjustments, allowed for completion of the Project. When a specified Completion Date is shown in the Contract Documents instead of the number of workdays or calendar days, completion of the Project shall occur on or before that date. Specified Completion Date and Calendar Day Contracts shall be completed on or before the day indicated even when that date is a Saturday, Sunday, or holiday.

Contract. The written agreement between the City and the Contractor setting forth the obligations of the parties, including, but not limited to, legal terms and conditions, the performance of the Work, the furnishing of labor and materials, and the basis of payment.

Contractor. The individual, firm, partnership, corporation, or other entity contracting with the City for performance of prescribed Work, acting directly or through a duly authorized representative and qualified under the requirements of the Contract Documents.

County. The designated county in which the Work specified is to be done.

Culvert. Any structure not classified as a Bridge that provides an opening under the roadway.

Department. The department of the City of Dublin under which the Project is being performed.

Director. The Director of the City department under which the Project is being funded or the department that is holding the Contract.

Engineer. The Engineer, Architect, Planner, or other authorized representative of the City of Dublin working under the supervision of the Director of the Division under which the project is being performed. The Engineer, or the Engineer's authorized representative, is the duly authorized agent of the City acting within the scope of its authority for purposes of engineering and administration of the Contract.

Equipment. All machinery and equipment, together with the necessary supplies for upkeep and maintenance, and also tools and apparatus necessary for the proper construction and acceptable completion of the Work.

Estimate/Request (Partial Payments). Written monthly requests for partial payment submitted by the Contractor based on the value of Work completed and materials in place and/or delivered.

Extra Work. An item of Work not provided for in the Contract as awarded but found necessary to the satisfactory completion of the Contract within its intended scope.

Fabricator. The individual, firm, or corporation that fabricates structural metals or prestressed concrete members as an agent of the Contractor.

Field Order. A written order to the Contractor directing a minor change in the Work but that does not involve an adjustment in the Contract Sum or an extension of the Contract Time and is not inconsistent with the intent of the Contract Documents.

Inspector. The Engineer's authorized representative assigned to make detailed inspections of Contract performance.

Laboratory. The testing laboratories of the City or a reputable testing laboratory that is designated by or acceptable to the Director for rendering testing and inspection services.

Materials. Any materials or products specified for use in the construction of the Project and its appurtenances.

Metrication. Throughout these specifications, the English units are used as the primary unit with the metric equivalents shown in parentheses. The metric equivalents were arrived at using "soft conversion" where the metric equivalent to the standard English unit is a straight mathematical conversion. The conversions shown are for information and training purposes only, and should not be regarded as the standards. Industry standard metric values have not been used in these specifications.

National Holidays. New Year's Day, January 1; Martin Luther King's Birthday - the Third Monday in January; Presidents' Day, the Third Monday in February; Memorial Day, the last Monday in May; Independence Day, July 4; Labor Day, the First Monday in September; Thanksgiving Day, the fourth Thursday in November; Christmas Day, December 25. All dates are subject to change when observed by the City on a date other than the foregoing dates listed.

Notice of Award. Written notice by the City to the apparent successful bidder stating that upon compliance with the conditions enumerated therein, within the time specified, the City intends to enter into a Contract.

Notice of Commencement. Legal notice by the City indicating the beginning of construction on a public improvement.

Notice to Proceed. Written notice to the Contractor, by the Director or the Director's authorized representative, authorizing the beginning of Work and setting forth the Completion Date.

Owner. The Department or Division of the City of Dublin that invited Bids and is financially responsible for the Project.

Plans. The general and detailed plans, profiles, typical cross-sections, standard drawings, contract drawings and supplemental drawings, approved by the Director, or exact reproductions thereof, which show the location, character, dimensions and details of the Work. Plans do not include any electronic data provided as information to the Bidder and expressly identified as "for informational purposes only".

Prebid Question. A written inquiry submitted by a prospective Bidder.

Profile Grade. The trace of a vertical plane intersecting the top of curb, centerline of roadway, or as indicated on the plans. Profile grade means either elevation or gradient of such trace according to the context.

Project. The Work together with all appurtenances and construction to be performed thereon under the Contract.

Project Limits. Project limits are points on the mainline centerline of construction where the proposed improvement, as described in the project description on the Title Sheet (excluding incidental construction), begins and ends.

Proposal Form. The approved form on which the City requires Proposals to be prepared and submitted for the Work.

Proposal Guaranty. The approved form of security furnished with a Proposal to guarantee that the Bidder will enter into the Contract if its Proposal is accepted.

Proposal (or Bid). The offer of a Bidder, on the prescribed forms properly signed and guaranteed, to perform the Work and to furnish the labor and materials at the prices quoted. Throughout the Contract, the terms Proposal and Bid are used interchangeably.

Reasonably Close Conformity. Reasonably close conformity means compliance with reasonable and customary manufacturing and construction tolerances where working tolerances are not specified. Where working tolerances are specified, reasonably close conformity means compliance with such working tolerances and the completed Work or portion of Work functions or performs as intended.

Registered Professional Engineer. An engineer registered with the Ohio State Board of Registration for Professional Engineers and Surveyors to practice professional engineering in the State of Ohio.

Registered Surveyor. A surveyor registered with the Ohio State Board of Registration for Professional Engineers and Surveyors to practice professional surveying in the State of Ohio.

Request for Information (RFI). Request from Contractor seeking interpretation or clarification of the Contract Documents.

Right-of-Way. A general term denoting land, property, or interest therein, acquired for or devoted to Project purposes and extending to the limits under the control of the state or local authority.

Road. A general term denoting a public way for purposes of vehicular travel, including the entire area within the Right-of-Way.

Roadbed. The graded portion of a highway within top and side slopes, prepared as a foundation for the pavement structure and shoulder.

Roadside. The areas between the outside edges of the shoulders and the Right-of-Way boundaries. Unpaved median areas between inside shoulders of divided highways and infield areas of interchanges are included.

Roadway. The portion of a highway or street within limits of construction.

Sewer. Pipe or conduit intended for carrying storm or sanitary flow.

Shoulder. The portion of the roadway contiguous to the traveled way for accommodation of stopped vehicles, for emergency use, and for lateral support of base and surface courses.

Sidewalk. The facility within the public Right-of-Way primarily constructed for the use of pedestrians.

Special Provisions. Additions and revisions to the standard and Supplemental Specifications covering conditions applicable to an individual Project.

Specialty Items. Work specified by the Contract Documents that requires specialized knowledge and/or equipment and materials to perform.

Specifications (CMSC). The directions, provisions, and requirements contained herein as supplemented by the Supplemental Specifications and Special Provisions.

State. The State of Ohio acting through its authorized representative.

Street. A general term denoting a public way for purpose of vehicular travel, including the entire area within the Right-of-Way.

Structures. Bridges, culverts, catch basins, curb inlets, drop inlets, retaining walls, cribbing, manholes, endwalls, buildings, curbs, pavements, sewers, water mains, service pipes, underdrains, foundation drains, and other features that may be encountered in the Work and not otherwise classified herein.

Subcontractor. The individual, firm, partnership or corporation to which the Contractor sublets part of the Contract to be performed on the job site.

Subgrade. The surface upon which a structure or work and appurtenances are to be constructed.

Substructure. All of that part of the structure below the bearings of simple and continuous spans, skewbacks of arches, and tops of footings of rigid frames, together with backwalls and wings.

Superintendent. The Contractor's authorized representative in responsible charge of the Work.

Superstructure. The entire structure except the Substructure.

Supplement. A list of requirements for fabrication plants, methods of test, or other miscellaneous requirements that are maintained on file with either the City of Dublin (CS) or the Ohio Department of Transportation (OS).

Supplemental Specifications. Detailed specifications supplemental to or superseding the Specifications.

Surety. The corporation, partnership, or individual, other than the Contractor, executing a bond (or bonds) furnished by the Contractor.

Titles (or Headings). The titles or headings of the sections and subsections herein are intended for convenience of reference and shall not be considered as having any bearing on their interpretation.

Waste Area. The term waste area refers to locations outside the Right-of-Way upon which materials from the Work are to be deposited as waste.

Water Line. Conduit for carrying public water supply.

Work. The furnishing of all labor, services, materials, equipment, and other incidentals necessary or convenient to the successful completion of the Project and the carrying out of all duties and obligations imposed by the Contract Documents.

Work Days. Wherever indicated inside these specifications, workdays are defined as: Monday, Tuesday, Wednesday, Thursday, and Friday, excluding National Holidays and, if applicable, the day that a National Holiday is observed.

Working Drawings. Stress sheets, shop drawings, erection plans, falsework plans, installation plans, certified drawings, frame work plans, cofferdam plans, bending diagrams for reinforcing steel, or any

other supplementary plans or similar data that the Contractor is required to submit in order to describe any portion of the Work.

101.04 Interpretations. In order to avoid cumbersome and confusing repetition of expressions in these Specifications, it is provided that whenever anything is, or is to be, done, if, as, or, when, or where “contemplated, required, determined, directed, specified, authorized, ordered, given, designated, indicated, considered necessary, deemed necessary, permitted, reserved, suspended, established, approval, approved, disapproved, acceptable, unacceptable, suitable, accepted, satisfactory, unsatisfactory, sufficient, insufficient, rejected, or condemned,” unless expressly otherwise provided, it shall be understood as if the expression were followed by the words “by the Engineer” or “to the Engineer”.

ITEM 102 BIDDING REQUIREMENTS AND CONDITIONS

102.01 Intentionally Blank

102.02 Availability and Contents of Bid Documents

102.03 Preparation of Proposals

102.04 Interpretation of Quantities in Proposal

102.05 Examination of Contract Documents and Work Site

102.06 Duty to Notify of Errors in Bid Documents

102.07 Bid Award Determination

102.08 Non-Responsive Proposals

102.09 Rejection of Unbalanced Bid

102.10 Proposal Guaranty

102.11 Delivery of Proposal

102.12 Withdrawal of Proposals Prior to Bid Opening

102.13 Withdrawal of Proposals after Bid Opening (Mistake in Bid)

102.14 Public Opening of Proposals

102.15 Material Standards

102.01 Intentionally Blank.

102.02 Availability and Contents of Bid Documents. Bid Documents are available to prospective bidders at the location stated in the advertisement. The Bid Documents will state the location and description of the contemplated Work and will show the approximate estimate of the various quantities and kinds of work to be performed or materials to be furnished, and will have a schedule of items for which unit bid or lump sum prices are invited. The Bid Documents will state the Contract Time, the amount of the Proposal Guaranty, and the date, time and place of the opening of Proposals. The Plans, Specifications, Supplemental Specifications, Special Provisions, standard drawings or other documents designated in the Bid Documents, will be considered a part of the Proposal whether attached or not.

102.03 Preparation of Proposals. Prepare a Proposal according to this subsection and the requirements found in the Bid Documents.

A. General. Provide prices for each item listed in the Proposal.

When an item in the Proposal contains a choice to be designated by the Bidder, the Bidder shall indicate that choice in accordance with the Specifications for that particular item, and thereafter no further choice will be permitted.

The Proposal shall include all documents, duly executed as applicable, that are required to be submitted as directed in the Advertisement.

ENTITY SUBMITTING PROPOSAL

REQUIRED SIGNATURE

Individual	The individual or a duly authorized agent.
Partnership	A partner or a duly authorized agent.
Joint Venture	A member or a duly authorized agent of at least one of the joint venture firms.
Corporation	An authorized officer or duly authorized agent of the corporation. Also, show the name of the state chartering the corporation and affix the corporate seal.
Limited Liability Company	A manager, a member, or a duly authorized agent.

Anyone signing a Proposal in a representative capacity must provide evidence of his or her authority to bind the bidder by Affidavit.

Before a contract will be awarded to a foreign corporation or an individual or partnership non-resident of the State of Ohio, such foreign corporation, individual, or partnership non-resident shall file with the Secretary of State a power of attorney designating them or their agent or the Secretary of State, as agent, for the purpose of accepting service of summons, in any action in law or equity, or both, brought in the State of Ohio.

Submitting Bids Electronically. When submitting a Bid electronically, properly complete the electronic file and submit it using the software specified in the Bid Documents rather than completing it by handwriting, typing, or using unauthorized computer-generated forms. Properly execute the Proposal by completing all of the required fields and attaching the required signatures in the spaces provided in the electronic file.

Submitting Paper Bids. When submitting a paper Bid, submit the Proposal upon the forms furnished by the City or on an acceptable form generated by a computer.

Specify a unit price in figures for each proposal item for which a quantity is given in the "Unit Price" column. Calculate and place the products for the respective unit prices and quantities in the "Bid Amount" column. For a lump sum item, place the same price in the "Unit Price" column and in the "Bid Amount" column pertaining to that item. Indicate the total Proposal amount by adding the values entered in the "Bid Amount" column for the listed items. All the words shall be in ink or typed.

Computer Generated Bid Sheet: If permitted in the Bid Documents, the Bidder may submit an 8 1/2 x 11 inches (216 x 279 mm) computerized bid sheet or sheets attached to the Proposal. The computerized bid sheet or sheets must meet the following requirements:

- reference numbers, description, units and quantities included,
- a unit price per/item,
- an extension price per/item,
- project name, number, and date on each sheet,
- subtotals and totals clearly identified,
- blanks where appropriate,
- in the event of a deleted item - the word deleted inserted,
- lines between columns and items,
- each page numbered,
- a general summary of subtotals must be shown on the last sheet,
- the following statement must appear on the last sheet of the computerized bid:

"The Bidder's TOTAL is only for reference at the bid opening. The City will verify that the TOTAL price and the individual unit and/or lump sum prices correspond. If there is a discrepancy, the unit and/or lump sum prices shall govern."

Be advised further that the Bidder is solely responsible to prepare its computerized bid sheets in accordance with the above requirements and the remaining requirements of this Section. Failure to fully comply with the designated format may result in the rejection of the Bidder's bid.

102.04 Interpretation of Quantities in Proposal. The quantities appearing in the Proposal are approximate only and are prepared for the comparison of Bids. Payment to the Contractor will be made only for the actual quantities of Work performed and accepted or materials furnished and accepted in accordance with the Contract Documents. The scheduled quantities of Work to be done and materials to be furnished may each be increased, decreased, or omitted as hereinafter provided.

The description of unit price items in the Proposal that are identified as "increase or decrease" items are identified for the purpose of establishing a unit price for payment for increases or decreases in the particular item during performance of the Work. For the purpose of Proposal preparation and evaluation, all such "increase or decrease items" shall be computed as increases. Any amount noted as "increase or decrease" will not be used to determine the percentage of work provided by the Contractor and its subcontractors.

102.05 Examination of Contract Documents and Work Site. The Bidder is expected to conduct a reasonable Project site investigation of the proposed Work and examine carefully the Bid Documents, and all other documents furnished or referenced by the City in the Bid Documents, before submitting a Proposal. When available, the City may include in the Bid Documents or make available to Bidders for review at the designated City location one or more of the following: as-built drawings, subsurface investigations, borings, soundings, water levels, elevations or profiles and results of preliminary investigations. The Contractor's reasonable site investigation shall also include (1) review of these documents (but this is not substitute for Bidder's own investigation, interpretation, or judgment), and (2) investigation of the Project site, borrow sites, site access, hauling routes and all other locations related to the performance of the Work. The City reserves the right to direct that the Contractor perform a mandatory site inspection.

The Bidder shall as and to the extent necessary also make additional investigations of the Project site and existing and subsurface conditions as it deems necessary prior to submitting the Proposal. The Bidder must obtain approval of the City prior to conducting any boring or subsurface exploration testing that may disturb existing field conditions.

Submitting the Proposal is an affirmative statement that the Bidder has made a reasonable investigation of the proposed Work, the Project site, and the Contract Documents and is satisfied as to the character, quality, quantities and conditions to be encountered in performing all Work and as to the requirements of the Contract Documents.

The Bidder's investigation and examination shall be at the Bidder's expense and at no cost to the City. Any physical variance at the Project site from that indicated by the Contract Documents, discovered by the Bidder during any investigation or examination conducted by the Bidder shall be called to the attention of the City in writing prior to submitting a Proposal as provided in 102.06.

No claims of ignorance of any requirements of the Contract Documents or of any available data shall be accepted as a basis for any Claim for any extra compensation, extra work, or extension of time.

102.06 Duty to Notify of Errors in Bid Documents. The Bidder shall promptly notify the City of errors and omissions in the Bid Documents which the Bidder discovers in the exercise of ordinary and reasonable care. The Bidder's notification shall be made by submitting a question in writing and in accordance with the Bid Documents prior to submitting a Proposal. The Bidder's duty to disclose errors and omissions is not only a bidding requirement but is also a legal requirement that cannot be ignored.

Failure to provide the required notification prior to the opening of Proposals shall constitute a waiver by the Contractor and shall not obligate the City for any costs based upon any apparent or patent ambiguity arising from insufficient data or obvious errors in the Bid Documents. Knowingly withholding information regarding an error or omission in the Bid Documents, or intentionally misrepresenting an item of Work for financial or competitive gain, may result in civil or criminal penalties.

102.07 Bid Award Determination. Pursuant to Chapter 37 of the Dublin City Code, the City shall determine which Bidder to award the Contract.

102.08 Non-Responsive Proposals. The City reserves the right to disqualify or refuse to consider a Proposal for any of the following reasons:

- More than one Proposal for the same work from an individual, firm, or corporation under the same or different name, or corporation under the same name or corporations with one or more of the same persons as officers or directors of such corporations, or corporations which are holding companies, parent companies or holding companies that are subsidiaries of such corporations.
- Bid prices are materially unbalanced as defined by 102.09.
- Bidder failed to comply with pre-qualification requirements of 102.01.
- Proposal contains conditions or qualifications not provided in the Bid Documents.
- Either the Bidder fails to acknowledge addenda or the Proposal does not contain completed forms required to be included in the Proposal and the City determines that the Bidder's Proposal does not respond to the Bid Documents in all material respects and contains irregularities or deviations which affects the amount of the bid or otherwise gives the bidder a competitive advantage.
- Bidder adds any provision reserving the right to accept or reject an award.
- Bidder fails to submit a unit price for each Contract item listed.
- Bidder fails to submit lump sum price where required.
- Bidder fails to furnish Proposal Guaranty or Bid Bond for the amount required.
- Proposal contains other alteration, omission, or error that in the judgment of the City does not respond to the Bid Documents in all material respects and contains irregularities or deviations from the Bid Documents that affect the amount of the Bid or otherwise gives the Bidder a competitive advantage.

However, should the City accept a non-responsive Proposal, the Bidder must meet all remaining requirements set forth in the Bid Documents.

102.09 Rejection of Unbalanced Bid. The Bidder is required to bid each item as indicated in the Bid Documents. The City reserves the right to reject any materially unbalanced bid. A “materially unbalanced bid” is a Bid that contains lump sum or unit prices that do not reflect reasonable labor, equipment, and material costs plus a reasonable proportionate share of overhead and other indirect costs and anticipated profit, and the City determines that the Bid may not result in the lowest ultimate cost to the City.

102.10 Proposal Guaranty. No Proposal will be considered unless accompanied by Proposal Guaranty comprised of a Bid Bond or a certified check drawn on a solvent bank made payable to the City of Dublin, Ohio, in an amount not less than 10 percent of the Bidder's Proposal, conditioned upon execution of the Contract and the furnishing of a performance and payment bond in the event the Contract is awarded to the Bidder. The amount of the Bid Bond shall be expressed either as a percentage of the total bid (10%) or numerically in dollars and cents. The amount indicated in the Proposal Guaranty shall include the total amount of the Bid including all alternates submitted which increase the Bid. The Proposal Guaranty amount shall be equal to or exceed 10 percent of this total amount.

102.11 Delivery of Proposal. Unless otherwise indicated in the Bid Documents, all Proposals must be submitted in accordance with the Instructions to Bidders. The City will accept Proposals until the time and date designated in the Advertisement. If a paper bid is provided, the City will return Proposals received after the designated time to the Bidders unopened, at the Bidder’s expense.

102.12 Withdrawal of Proposals Prior to Bid Opening. Prior to the opening of Proposals, a Bidder may withdraw its Proposal. If a paper bid is provided, the Bidder must make a written request that is received by the Director prior to the time of Proposal opening. The Proposal will be returned to the Bidder unopened.

102.13 Withdrawal of Proposal after Bid Opening (Mistake in Bid). The Director may permit a Bidder to withdraw the Bid from consideration without forfeiture of the Proposal Guaranty or bid bond provided that the Bidder identifies the mistake and provides a written request to the Director within forty-eight hours of the Bid opening . The written request must also include a sworn notarized statement specifying the grounds for withdrawal together with the original bid work sheets.

The following conditions must be met for Bid withdrawal after Bid opening:

- The Bid was substantially lower than the other Bids;
- The Bid was made in good faith;
- The mistake was a non-judgmental, clerical or mathematical error or an unintentional omission of a substantial quantity of work, labor or material; and
- The amount of the error must have a significant monetary effect on contract performance.
- The City may require a meeting with the Bidder before a determination is reached. The City will notify the Bidder in writing of its determination.

- If the Director determines that the conditions for withdrawal have not been met, he may award the Contract to such Bidder. If such Bidder does not enter into the Contract or furnish the required performance and payment bond, the Director may, as applicable, declare the Proposal Guaranty forfeit and deposit to the City's account the Bidder's check or file a claim with the Surety for the amount of the Bid Bond. In addition, the Director may award the Contract to the next lowest responsive and responsible Bidder or reject the remaining Bids and re-advertise the Project.

If the Bidder is permitted to withdraw its Bid, it will not be permitted to participate in the Project for which the Bid is withdrawn.

102.14 Public Opening of Proposals. Proposals will be opened and read in accordance with Chapter 37 of the Dublin City Code at the time and place designated in the Bid Documents. Bidders, their authorized agents, and other interested parties are invited to be present.

102.15 Material Standards. The equipment, items, devices, materials, forms of construction, fixtures, etc., named specifically in the Contract Documents, including any approved materials lists provided by an individual Department or Division, have been selected by the City to establish a standard for the type and equality of article to be furnished. The Bid evaluation shall be based upon the Contractor furnishing these specified standards.

Before any Contract is awarded, the Bidder may be required to furnish a complete statement of the origin, composition, and manufacture of any or all materials to be used in the construction of the Work together with samples, which samples may be subjected to the tests provided for in these Specifications to determine their quality and fitness for the Work.

When a standard is specified accompanied by the words "or approved equal," the product of any source may be submitted for review and consideration during the course of construction provided that the product furnished is equal in all respects to the specified standard and the Contractor certifies that the item is equal in quality and all aspects of performance and appearance to that specified. The Engineer may request additional information and documents as deemed necessary to make the determination that the item is "equal".

The Engineer shall be the sole judge of the fitness of all items submitted for approval as "or approved equal." The Engineer alone shall determine the extent of any special features or modifications required to render an "or equal" item acceptable in all respects to be considered "an equal" to a specified standard, the "or equal" item must not detract from the quality of performance which would have been provided by the use of the specified standard. Determination of equality will consider materials of construction, design features, construction features, compatibility with adjacent items of work, performance parameters, maintainability, durability, operability, finish and workmanship, quality of service representation, maintenance and operation documentation, financial ability of the manufacturers, locations of successful installations, compliance with the Contract Documents and other qualities that may affect the determination.

Should special features or modifications be required upon the substitution or modifications to the adjacent features of the Work are required to accommodate the product, such features or modifications shall be made at no additional cost to the City. If the Engineer is not satisfied that the "or equal" item is an acceptable replacement to the specified standard, the specified standard shall be furnished by the Contractor at no additional cost to the City.

ITEM 103 AWARD AND EXECUTION OF CONTRACT

103.01 Consideration of Proposals

103.02 Award of Contract

103.03 Cancellation of Award

103.04 Return of Proposal Guaranty

103.05 Contract Performance and Payment Bond

103.06 Execution of Contract

103.07 Failure to Execute Contract and Furnish Performance and Payment Bond(s).

103.08 Responsibility to General Public

103.09 Contractor's Insurance

103.01 Consideration of Proposals. After the Proposals are opened and read, the City will compare the Bidders' proposed prices. The proposed price is the summation of the products of the estimated quantities shown in the Proposal and the unit prices and, if applicable, lump sum bid prices. In the event of a discrepancy between unit bid prices and extensions, the unit price shall govern.

The City reserves the right, without any liability, to reject any or all Proposals, to waive minor technicalities, or to advertise for new Proposals.

103.02 Award of Contract. The City will award the Contract to the Bidder as determined by Chapter 37 of the Dublin City Code.

103.03 Cancellation of Award. The City reserves the right to rescind the award of any Contract at any time before the execution of the Contract without any liability.

103.04 Return of Proposal Guaranty. Within five business days after the opening of the Proposals, the City will return all Proposal Guaranties, except those of the three lowest bidders. The City will return the retained Proposal Guaranties of the two unsuccessful bidders of the three lowest Bidders within ten business days following the award of Contract and that of the successful Bidder after satisfactory contract performance and payment bond(s) have been furnished and the Contract has been executed by all parties.

103.05 Contract Performance and Payment Bond. The successful Bidder must, before execution of the Contract by the City, furnish a Contract performance and payment bond(s) in the full amount of the Proposal. Said bond(s) shall cover the entire Contract including the guarantee period required under 109.13. The successful Bidder's failure to return the signed Contract and the Contract performance and payment bond(s) shall be deemed a failure by the Contractor to enter into the Contract and shall release the City from all obligations to the Bidder.

103.06 Execution of Contract. The successful Bidder shall sign and return the Contract, together with the contract performance and payment bond(s) and other required Contract Documents, within ten business days after receiving the Notice of Award and the Contract Documents for signature. No Proposal shall be considered binding upon the City until the Director executes the Contract and it is approved by all required City Agencies and City Council. If the Contract is not executed by the City within thirty days following the effective date of the authorizing legislation approved by City Council, the successful Bidder will have the right to withdraw its Bid without prejudice.

The Contractor must obtain one copy of the Specifications (CMSC) at its own cost and keep available one copy of the CMSC, and one set of the Contract Documents at the Project site at all times. The City will supply the Contractor with up to five sets of Plans. Any extra sets of Contract Documents required by the Contractor may be purchased from the appropriate Owner Division.

103.07 Failure to Execute Contract and Furnish Performance and Payment Bond(s). Failure of the Bidder to execute the Contract and file acceptable performance and payment bond(s) within ten business days after receiving the Contract Documents for signature shall be cause for the cancellation of the award. Thereafter, depending on the form of Proposal Guaranty, the City may either take as property of the City the Proposal Guaranty check or file a claim under the Bid Bond. Award may then be made to the next lowest, responsive, and responsible Bidder, the Project may be re-advertised, or any other action may be taken as the Director may decide.

103.08 Responsibility to General Public. The Contractor shall defend, indemnify and hold harmless the City of Dublin and any of its agents or representatives, employees, assigns and successors in interest, from and against any lawsuits and causes of action, claims, losses, demands and expenses, including but not limited to reasonable attorney fees and the cost of litigation, damages or liability of any nature whatsoever, for death or injury to any person, including employees or agents of the Contractor, or for damage to or destruction of property of either party hereto or any third party, which arise in any manner from the negligent acts, errors, omissions or willful misconduct of the Contractor and any of its agents, employees or representatives, including any of its subcontractors, in the performance of the Contract for the City of Dublin.

The Contractor shall procure and maintain during the term of the Contract and any applicable warranty period insurance for the liability of damages, which are imposed by law or assumed under Contract with the City of Dublin, in the kind and minimum amounts as specified hereinafter, from insurance companies which are authorized to transact business under the laws of the State of Ohio. The insurance shall protect the Contractor and any Subcontractor performing work under the Contract with the City of Dublin from claims for damages which may arise from operations under the Contract, whether such operation is performed by the Contractor or by any Subcontractor or by anyone directly or indirectly employed by either of them. The cost of such insurance shall be incidental to all contract items.

Prior to the execution of the Contract, the Contractor shall provide the City of Dublin with a 'Certificate of Insurance', in a satisfactory form, which demonstrates compliance with the requirements of this subsection. The 'Certificate of Insurance' will also reference the Contract and or Project Number for which

the work is being performed. The Contractor shall also be responsible for providing a 'Certificate of Insurance' within ten business days after the insurance is renewed. If the insurance is subject to cancellation, then the insurance company shall immediately notify the City of Dublin of such cancellation in accordance with the policy terms for affording such notice. Also, if the insurance is cancelled, then the Contractor will immediately cease all operations until the required kind and limits of insurance have been restored. Upon request, the Contractor shall furnish the City of Dublin with a certified complete copy of each policy of insurance.

103.09 Contractor's Insurance. For purposes of complying with 103.08, the Contractor shall furnish evidence of procuring the following types of insurance prior to the execution of the Contract:

A. Commercial General Liability Insurance. This policy shall provide coverage for bodily injury or property damage which may arise from the operations of the Contractor and any of its subcontractors. The policy shall include coverage for premises and operations; independent contractors; products and completed operations; broad form property damage; hazards of explosion, collapse, and underground damage; and contractual liability as applicable to any indemnification hold harmless agreements in the Contract. The minimum limits of liability shall be \$1,000,000 for each occurrence subject to an aggregate liability for products and completed operations of \$2,000,000 and a general aggregate liability of \$2,000,000. The City of Dublin shall be listed as an 'Additional Insured' on the Commercial General Liability and Comprehensive Automobile liability insurance policies.

B. Comprehensive Automobile Liability Insurance. This policy shall provide coverage for owned, non-owned, and hired automobiles for all damages arising from bodily injury and property damage with limits of liability of not less than \$1,000,000 per accident with respect to bodily injury, property damage, or death.

C. Worker's Compensation Insurance. The Contractor shall comply with all provisions set forth by the Ohio Bureau of Workers' Compensation during the term of the Contract for the benefit of all employees employed at the project site. If the Contractor shall engage the services of Subcontractors, then it shall require all such Subcontractors to also provide Worker's Compensation insurance for its employees who are employed at the project site. In order to comply with this requirement, the Contractor shall provide the City of Dublin with a copy of the Workers' Compensation Certificate as evidence that it's insurance premium and that of any Subcontractor has been paid. In the event any class of employees engaged in hazardous work under the Contract at the site of the project is not protected under the Worker's Compensation statute, the Contractor shall provide and cause each Subcontractor to provide suitable insurance for the protection of their employees not otherwise protected.

D. Employers Liability Insurance. This policy shall provide coverage for accident or disease which is incurred by an employee of the Contractor in an amount of not less than \$100,000 for bodily injury by Accident for each accident, \$100,000 for bodily injury by Disease for each employee, and a policy limit of \$500,000 for bodily injury by disease.

E. Builders Risk Insurance. When required, the Contractor shall procure and maintain during the term of the Contract Builders Risk insurance to protect the work being performed under the Contract from loss as

a result of fire, hail, lightning, theft, wind storm, and vandalism in the full amount of the Contract. The cost for this insurance shall be included in the unit price for 'Item Special – Builders Risk Insurance'.

F. Railroad Protective Liability Insurance. When required, the Contractor shall procure and maintain during the term of the Contract a Railroad Protective Liability insurance policy, for the benefit of the named railroad as respect the operations of the Contractor and its Subcontractors, with limits of liability as specified by the railroad, for damages arising from bodily injury, death, or property damages combined in any one occurrence. The cost for this insurance shall be included in the unit price for 'Item Special – Railroad Protective Insurance'.

G. Professional Liability Insurance. When required, the Contractor shall furnish evidence that it or any of its Sub-consultants maintain Professional Liability insurance, for liability which may arise from the negligent acts, errors, or omissions of operations performed under the Contract, in an amount not less than \$ 1,000,000 for each claim. If such policy is written on a 'claims- made' form, then it shall have a retroactive date of no later than the effective date of the Contract, and such policy shall be maintained for a period of not less than two years after the project has been accepted by the City of Dublin.

An excess liability insurance policy may be utilized to satisfy the requirements of insurance for Commercial General Liability and Comprehensive Automobile Liability insurance. If such a policy is utilized, then the City of Dublin shall be listed as an 'Additional Insured'. If the insurance required of this Section is not renewed or if the available insurance is less than the required minimum amounts specified herein as a result of a change or modification in coverage or if the limits of liability are impaired by claims so as to reduce the amount of available insurance, then the Contractor shall so notify the City of Dublin in which case the City of Dublin may at its sole discretion consider the Contractor in default of its Contract, refuse to make any further payment to the Contractor until such time the deficiency in insurance is satisfactorily resolved, or use any retained funds which are due the Contractor in order to remedy the deficiency. If any part of the Contract is let to a Subcontractor, then the Contractor is responsible for the part subcontracted work being adequately covered by insurance herein-above described.

ITEM 104 SCOPE OF WORK/CHANGES

104.01 Intent of Contract

104.02 Modifications of the Contract Documents

104.03 Contractor Notification, Continuation of Work, and Claims

104.04 Maintenance of Traffic and Accessibility to Utilities

104.05 Rights In and Use of Materials Found on the Work Site

104.06 Right of Property in Materials

104.07 Final Cleaning Up

104.08 Recordkeeping/Audit

104.01 Intent of Contract. The intent of the Contract is to provide for the construction, execution and completion of every detail and element of the Work in accordance with the Contract Documents. The Contractor shall perform all items of work covered and stipulated in the Proposal, perform altered and extra work, and furnish all labor, materials, equipment, tools, transportation and supplies required to complete the Work in accordance with the Contract Documents. Should any dispute or misunderstanding arise as to the intent or meaning of any of the Contract Documents, or any discrepancy therein, the decision of the Engineer shall be final and conclusive as to the requirements for performance of the Work; provided, however, if the Contractor disagrees with such decision, it may dispute the decision in accordance with 104.03.

The price for items of work or materials shown or provided for in the Contract Documents for which no separate line item unit price is given shall be distributed among the various Bid items. Submission of a Proposal shall be considered evidence and acknowledgement that the Bidder is satisfied with the Contract Documents and the conditions as shown therein. No additional compensation shall be paid or time given to the Contractor for compliance with the Contract Documents, except as and to the extent expressly provided in the Contract Documents.

104.02 Modifications of the Contract Documents.

A. General. The City may at any time, without invalidating the Contract and without notice to or release of the sureties, by written Change Order or Contract Modification, as applicable, make any change or modification in the Work or add to the Work within the general scope of the Contract, including, but not limited to, changes in the Contract Documents; in the sequence of the Work; or in the City-furnished facilities, equipment, materials, services, or site. The Contractor shall ensure that the amount of the surety bonds is modified as necessary from time to time to be consistent with any changed Contract scope, Sum or Time in accordance with any Change Order(s) or Contract Modification(s).

The Contractor shall have no right to compensation above the original Contract Sum until the extra work is included in a written Contract Modification approved by the City Council.

B. Differing Site Conditions. If subsurface or latent physical conditions are encountered at the Project site that (i) differ materially from those indicated in the Contract Documents or (ii) if unknown physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the Work provided for in the Contract Documents are encountered at the Project site, the Contractor shall notify the Engineer, in accordance with the process and timeline set forth in 104.03, before the conditions are disturbed or the affected Work is performed.

Upon notification, the Engineer will investigate the conditions to determine whether

(i) the conditions meet the requirements of a differing site condition as defined herein, and (ii) cause an increase or decrease in the cost and/or time required for the performance of any Work under the Contract.

If the Engineer determines that there is a differing site condition as defined herein, the Engineer will notify the Contractor in writing and the City will adjust the Contract as specified in 108.06 and 109.05.

If the Contractor disagrees with the Engineer's determination, the Contractor must provide notice and bring a Claim in accordance with the process and timeline set forth in 104.03.

C. Written Delay or Suspension of Work. The Engineer may direct the Contractor, in writing, to delay its start of operations or to suspend its operations for the length of time that the Engineer deems necessary.

If the performance of all or any portion of the Work is delayed or suspended by the Engineer, in writing, for an unreasonable period of time (i.e. a period of time not originally anticipated, customary, or inherent to the construction industry or the Work involved) and the Contractor believes that additional compensation or time is due as a result of such delay or suspension, the Contractor must provide notice and bring a Claim in accordance with the process and timeline set forth in 104.03.

The Engineer will evaluate the Contractor's request in accordance with 104.03. If the Engineer agrees that the cost and/or time required for the performance of the Work has increased as a result of an unreasonable delay or suspension and such delay or suspension was caused by conditions beyond the control of and not the fault of the Contractor, its subcontractors at any tier, or its suppliers, the Engineer will notify the Contractor in writing and the City will adjust the Contract as specified in 108.06 and 109.05; provided, however, the City will not make an adjustment under this Section in the event that the Contractor's performance is delayed or suspended by any other cause or for which a Contract adjustment is provided or excluded under any other term or condition of the Contract.

If the Contractor disagrees with the Engineer's determination, the Contractor must provide notice and bring a Claim in accordance with the process and timeline set forth in 104.03.

D. Significant Changes in Character of the Work. The City may alter the Work as necessary or desirable to complete the Project.

The Engineer will make appropriate adjustments to the Contract in accordance with 108.06, 109.04, and 109.05, if such alterations constitute a significant change in the character of the Work. A “significant change” as used in this Section is defined as:

- When the character of the Work as altered differs materially in kind or nature from that involved or included in the original Contract, or
- Where the quantity of a Unit Price pay item in the Contract is an estimated quantity and when the actual quantity of such pay item varies more than twenty-five percent above or below the estimated quantity stated in the Contract. An adjustment in the Contract Price for such a pay item may be made in accordance with 109.04 upon demand of either party.

If a quantity variation in excess of 125% of the estimated quantity also causes an increase in the Contract Time(s), the Contractor shall demonstrate the time impact, if any, by an analysis in accordance with 108.03 and in accordance with the requirements of 108.06. If the Engineer concludes that the Contract Time(s) should be adjusted as a result of such quantity overrun, the City will issue a Change Order to adjust the Contract Time(s) as the Engineer determines.

The Contractor shall give the Engineer prompt written notice when it is aware, or has reason to believe, that quantities will overrun or underrun by 25% or more of the estimated quantity so that the City will have the opportunity to mitigate the effect, if any, on the scope, cost or time of the Project. This notice obligation shall be in addition any notice of claim for additional compensation or time pursuant to 104.03.

If the Contractor believes that an alteration constitutes a significant change as defined by this Section, the Contractor must provide notice and bring a claim in accordance with the process and timeline set forth in 104.03. If the City believes that there has been a significant change as defined by this Section, the City shall provide written notice to the Contractor that it is seeking an adjustment of the Contract Sum or Time, which shall be determined in accordance with 109.04.

E. Eliminated Items. Should any items contained in the Contract be found unnecessary for the proper completion of the Work, the Engineer may, upon written deductive Change Order to the Contractor, eliminate such items from the Contract, and such action shall in no way invalidate the Contract.

The pricing adjustment for any eliminated items of Work shall be determined according to 109.04.

If the Contractor disagrees with the Engineer’s determination, the Contractor must provide notice and bring a Claim in accordance with the process and timeline set forth in 104.03.

F. Extra Work. The Engineer may direct the Contractor to perform Extra Work.

If the Extra Work will result in an increase in the Contract Sum or Time, the City shall have the right to require the performance thereof on a lump sum basis.

If the City elects to have the Extra Work performed on a lump sum basis, the Contractor shall submit to the Engineer a proposal for such change within ten days of the Contractor’s receipt of a Request for

Proposal (RFP) . The Contractor's response to the City's RFP shall be itemized and segregated by labor, materials, equipment, subcontractors, supplies and appurtenances for various components of the change in the Work and shall be accompanied by signed proposals of any subcontractors that will perform any portion of the change in the Work and of any suppliers that will furnish materials or equipment for incorporation therein. Pricing of the Extra Work shall be done in accordance with 109.05.C. The proposal shall also include the Contractor's estimate of any impact to the Project's critical path as shown on the last accepted progress schedule at the time of the proposal or any non-critical path changes to the accepted progress schedule that may be required to perform the proposed change.

The Contractor, subcontractors and suppliers shall assure that the costs, pricing and schedule data submitted for evaluation with the Contractor's proposal are based on current, accurate and complete data supported by their books and records. If the City later determines that any cost or time negotiated in connection with the Extra Work decreased by any material amount because the data provided was incomplete, inaccurate or not current at the time of submission, then such price or time shall be reduced accordingly and the Engineer shall issue a written Change Order to reflect such action. Failure to agree on a reduction shall be subject to the Unilateral Change Order provisions of this Contract.

In the event that the Contractor fails to submit its proposal in response to the City's RFP within the designated ten day period, or in the event that the parties are unable to agree as to the reasonable cost and time to perform the change, the Engineer shall either direct the Contractor to perform the Extra Work on a Force Account Basis in accordance with 109.05.C, or shall make a determination of the reasonable cost and time to perform the Extra Work, based upon its own estimate, the Contractor's submission (if any), or a combination thereof.

Failure of the parties to reach agreement regarding the cost and time of performing the Change Order or any pending Claim shall not relieve the Contractor from performing the Extra Work promptly and expeditiously as directed by the Engineer.

The City will determine whether a time extension related to Extra Work is warranted in accordance with 108.06.

If the Contractor believes that any Work it is performing is Extra Work as defined by the Contract, the Contractor must provide notice and bring a Claim in accordance with the process and timeline set forth in 104.03.

G. Unilateral Change Orders. In the event that the City and Contractor are unable to agree as to the reasonable cost and time to perform Extra Work, the City has the authority to direct the Contractor to perform the Extra Work. The City will issue a Unilateral Change Order to the Contractor for any cost or time it determines to be due to Contractor in connection with the Extra Work performed on the Project.

The issuing of a Unilateral Change Order by the City will not preclude or limit the rights of City and Contractor to negotiate and agree to the amounts to be paid or time extension given to the Contractor.

If the Engineer issues a Unilateral Change Order directing a change for the amounts of cost and time determined by the Engineer, it shall become binding upon the Contractor unless the Contractor submits a Claim in accordance with the process and timeline set forth in 104.03. If the Contractor does not submit a timely Notice of Claim, the Contractor shall be deemed to be in agreement with the Unilateral Change Order as issued and the Contractor expressly waives its right to contest such Change Order, including the amount of cost and time provided therein.

H. Minor Changes/Clarifications to the Work. The Engineer shall have authority to issue Field Orders for minor changes or clarifications to the Work. The Contractor shall carry out such Field Orders promptly and as directed by the Engineer. Such Field Orders shall be considered incidental to the Work.

104.03 Contractor Notification, Continuation of Work, and Claims.

A. General. The Contractor shall provide timely notice and complete the Claim resolution process as provided in this Section as a condition precedent to filing an action in the Franklin County Court of Common Pleas seeking additional compensation or time. The Contractor's failure to provide timely notice or meet any of the timeframes set forth below, or to request and receive written agreement from the City for an extension of such timeframes, shall terminate further review of the Claim and shall be deemed to be a waiver and release of the Contractor's right to pursue the Claim. Without limiting the generality of the foregoing, the City will not make the adjustments allowed by 104.02.B through 104.02.F if the Contractor did not give notice as specified in this Section; provided, further, no Claim may be made after final payment under this Contract.

In addition to any specific notice requirements set forth elsewhere in the Contract, if the Contractor believes that any event or circumstance or action or inaction of the City gives the Contractor the right to additional compensation or time, it shall provide timely notice and complete the Claim resolution process as provided in this Section.

B. Notice

1. Initial Oral Notification. The Contractor shall provide immediate oral notification to the Engineer upon discovering an event or circumstance that may require a modification to the Contract Documents or may result in a claim for additional compensation and/or time. Upon such notification, the Engineer will attempt to resolve the identified issue as quickly as possible. The Contractor is advised that oral notice must be followed up by a written notice as provided in 104.03.B.2 in order for the Contractor to preserve its right to make and pursue a Claim; if the Contractor fails to do so, it shall be a waiver and release of the Claim.

2. Written Notice. If the issue has not been resolved, the Contractor must submit Written Notice no later than twenty-four (24) hours after the Initial Oral Notification stating that the event or circumstances may require a modification to the Contract Documents or may result in a Claim for additional compensation and/or time. The written notice shall state in all capital letters in at least 12-point font "NOTICE OF CLAIM" and shall contain:

- A description of the circumstance giving rise to the Claim or the potential Claim, including the time, date and location the event or circumstance was first identified.
- An explanation why the event or circumstance represents a change to the Contract, with reference to the pertinent sections or parts of the Contract Documents.
- An estimate of the revisions considered necessary to the Contract Sum or Time.
- An estimate of the time within which the City needs to respond to the notice in order to minimize or mitigate additional cost or delay to the Project.

As to any Claim on which the Contractor has provided written notice, it shall from the date of the written notice keep books and records of labor, equipment and materials detailing any costs or delays associated with such claim or the circumstances giving rise to the claim or potential claim. The keeping of such books and records shall be done in accordance with 109.05.C.7 and the Contractor acknowledges and agrees that the City's participation in this recordkeeping process and acceptance of those records is solely for recording costs incurred and not an acknowledgment of the merit, if any, of a Claim for additional compensation or time, which shall be determined in accordance with the process set forth in this Section. Because of its preliminary nature, the City will require only the Contractor's best estimate based on available information at the time of first written notice; provided, however, the Contractor shall keep the Engineer regularly informed in writing of any on-going cost or time issues and shall, within thirty days after the end of the Claim event or circumstances, supplement its prior submissions identified as its final cost and time information, as applicable.

C. Continuation of Work. The Contractor shall continue with all Work, including the Work that is the subject of a Claim or potential Claim, unless specifically directed otherwise by the Engineer. The City shall continue to pay Contractor for all non-disputed work performed during the pendency of any Claim.

D. Claims. Claims by subcontractors and suppliers may be pursued by the Contractor on behalf of subcontractors or suppliers if and to the extent the Contractor is entitled to relief under the Contract. Any Claims brought by the Contractor, on behalf of itself or any subcontractor or supplier, shall be subject to all requirements of this Section.

The Contractor shall provide with each Claim a notarized Certification of Claim that:

- The Claim is made in good faith and is fully documented and supported in accordance with the terms of the Contract.
- The supporting data is accurate and complete to the best of the Contractor's knowledge and belief after appropriate inquiry and review.
- The Claim amount or time requested accurately reflects the Contractor's actual incurred costs or additional time, or its best estimate of costs or additional time to be incurred if it is not known at the time the Claim is made. (In the event an estimate is provided initially, the Contractor will be

required to re-certify, as provided herein, the accuracy of the Claim when the final costs and time are presented to the City.)

- Acknowledgement by the signatory that the Certification is signed under penalty of law for perjury or falsification with specific reference to the relevant provisions of the Ohio Revised Code and applicable City Code.

E. Dispute Resolution Process

1. Step 1 (On-Site Determination). Within five calendar days of receipt of the Contractor's Written Notice, the Engineer will meet with the Contractor's representative(s) to review all pertinent information and contract provisions and negotiate in an effort to reach a resolution in accordance with the Contract Documents. Within fourteen calendar days of the Step 1 meeting, the Engineer will issue a written Step 1 decision describing the decision and reasoning for it. If the dispute is not resolved at Step 1, the Contractor must either abandon the Claim or continue pursuing the Claim by proceeding to Step 2 within the required timeframe.

These time frames may be extended by the Engineer, in writing, as needed for the Contractor to provide merit, cost and time information regarding the dispute, as requested by the Engineer.

2. Step 2 (Claim Resolution Committee). Within seven calendar days of receipt of the Step 1 decision, the Contractor must submit a written request for a Step 2 meeting to the Director. The Director will promptly establish within the applicable City Department, and Division if applicable, a Claim Resolution Committee (CRC). Within fourteen calendar days after the Director's receipt of the Contractor's request for a Step 2 meeting, the Contractor shall submit (or supplement) documentation that describes the Claim, the monetary amount or time extension sought, the basis for Contractor's Claim under the Contract Documents, and copies of any applicable parts of the Contract Documents and project records, all in accordance with 104.03.B.2.

Within fourteen calendar days after receipt of the Contractor's documentation, the Engineer will send to the Contractor and the CRC his/her written response. Within fourteen calendar days after receipt of all documentation, the CRC will meet with Contractor and the Engineer (or designee) to discuss the Claim.

If the Claim is not resolved at the meeting, within fourteen calendar days after the meeting, the Director will issue to Contractor a written decision.

The time periods under this Section may be revised by written approval of the Director.

3. Alternative Dispute Resolution (ADR). If the Contractor does not accept the Director's Step 2 decision, within fourteen calendar days of its receipt of the Step 2 decision, the Contractor may submit to the Director a written Notice of Intent to Pursue a Claim.

The Claim shall be subject to mediation as a condition precedent to litigation or arbitration. Such mediation shall be conducted pursuant to the Construction Industry Rules of the American Arbitration

Association. The parties shall equally share the cost of such mediation and shall bear their own attorney's fees associated with the same.

If the Claim is not resolved after mediation, Contractor may propose in writing to resolve the Claim through arbitration no later than 30 days after the conclusion of the mediation. This request shall be subject to approval of the City Council or such other conditions that are necessary to comply with City Code. Within thirty calendar days after either the City Council acts on the matter or the Contractor advises the Director that it will accept any conditions that are necessary to comply with City Code, the Director shall advise the Contractor in writing whether the City accepts the Contractor's proposal to arbitrate. Should the parties arbitrate, the arbitration shall be held pursuant to the Construction Industry Rules of the American Arbitration Association. The parties shall equally share the costs of the arbitration and, unless otherwise provided in the Contract Documents, bear their own attorney's fees associated with the same.

4. Filing of Lawsuit in Franklin County Court of Common Pleas. If, after mediation, the Claim is not resolved at or the City declines the Contractor's request for arbitration process pursuant to 104.03.E.3, the Contractor must either abandon the Claim or file a lawsuit in the Franklin County Court of Common Pleas within one hundred twenty calendar days after the conclusion of the mediation. The Contractor's failure to file a lawsuit within that time period shall be deemed a waiver and release of the Claim against City. The time period to file a lawsuit may be extended by mutual written agreement of the City and the Contractor.

104.04 Maintenance of Traffic and Accessibility to Utilities. The Contractor shall at all times provide and maintain access to fire hydrants, water valves, water service boxes, gas valves, gas service boxes, manholes and other similar appurtenances.

When so stated in the Contract Documents, maintain public traffic during construction, including cross traffic at intersections. Maintenance of traffic may be required only at certain stages of construction or at all times, if so noted.

At locations on the Project where sewer or water line construction only is called for and a part of the existing pavement will remain in place, maintain traffic and provide ingress and egress to all public and private entrances.

In the event of the complete closure of any street, alley or private drive, the Contractor shall give written notification to the occupants of all premises affected by such closure as per 614.05.

Whenever the Contractor, for any reason, ceases operations on this Contract for a period of fourteen or more calendar days, the Contractor, if so directed by the Engineer, shall construct a temporary roadway to provide access to any premises affected by Project operations. The temporary roadway shall be constructed of cinders, gravel, crushed stone or other acceptable materials and of suitable width and thickness to carry anticipated vehicles, as directed by the Engineer. The Contractor shall maintain the temporary road in serviceable condition until such time that the Work is resumed. The Contractor shall bear the cost of constructing and maintaining any temporary roadway.

Failure of the Contractor to perform the operations stated in this Section when directed by the Engineer, within the timeframe provided by the Engineer, will give the City authority to perform the work and back charge such cost to the Contractor.

The Contractor shall furnish, erect, maintain and remove all traffic control devices in accordance with the OMUTCD. All traffic control devices shall be paid for in accordance with the provisions of Section 614 - Maintaining Traffic. When the Contract Documents do not include Section 614, the cost of this work shall be included in the price bid for various items in the Proposal. The provision of these items and this Section shall not in any way relieve the Contractor of any of its legal responsibilities or liabilities for the safety of the public. The attention of the Contractor is also directed to the provisions of 107.02 and 107.07 of the Specifications.

104.05 Right In and Use of Materials Found on the Work Site. If the Contractor proposes that existing raw or recycled Materials Found on the Work Site are compliant with the specifications for the Work, Contractor may submit an add/deduct cost proposal to the Engineer for consideration. Contractor shall also indicate if there are also add/deduct time adjustments to the contract completion time associated with the use of these materials. All portions of suitable or unsuitable excavation material removed, which was needed for use in the embankments, backfills, approaches, or otherwise, shall be replaced with other acceptable material, at the expense of the Contractor. Excavate or remove material only from within the grading limits, as indicated by the slope and grade lines.

104.06 Right of Property in Materials. All materials attached, fixed or incorporated into the Work or the soil shall thereupon become property of the City and the Contractor shall have no property rights thereto.

104.07 Final Cleaning Up. Before Final Acceptance, remove all rubbish, layout stakes, monitoring wells, settlement instrumentation devices, sediment control devices as directed by the Engineer, excess material, temporary structures, and equipment, including stream channels and banks within the Right-of-Way at drainage structures, and all borrow and waste areas, storage sites, temporary plant sites, haul roads, and other property occupied by the Contractor in connection with the Work. Establish suitable vegetative cover in these areas by seeding and mulching or sodding according to Items or 660, except for cultivated fields. Leave the Project site in an acceptable condition as determined by the Engineer. Unless a separate bid item is provided in the Proposal, the cost of cleanup is incidental to all Contract Items.

104.08 Recordkeeping/Audit. The Contractor, subcontractor(s) and supplier(s) shall cooperate with the City and shall produce, compile, maintain and keep all cost, time and schedule records sufficient to substantiate all requests for payment, Claims for additional compensation, and requests for time extensions. The Contractor shall keep the following records, including, but not limited to, daily time sheets and foreperson's daily reports, union agreements if any, payroll register, earnings records, payroll tax returns, material invoices, purchase orders, cancelled checks, equipment records, vendor rental agreements, subcontractor payment certificates, job cost report, general ledgers and subsidiary ledgers, cash disbursement journals, complete bid estimate and worksheets, financial statements, worksheets used to prepare the Claim and establish cost components for Claim items, and schedule information and updates.

Upon reasonable written notice to the Contractor, the City or its designated agents shall be provided access to, and the right to inspect and audit, all of the Contractor's and its subcontractors' and suppliers' records pertaining to the Project. If and to the extent that the Contractor fails to maintain and keep proper Project records, fails to provide the City or its designated agents access to such Project records, or fails to provide the documentation required by 108 or 109, the City may deny any requests for payment, additional compensation, and/or requests for time extensions if and to the extent they have not been or cannot be substantiated by the Contractor or by inspection/audit of the City.

ITEM 105 CONTROL OF WORK

- 105.01 Authorities and Duties**
- 105.02 Plans and Working Drawings**
- 105.03 Conformity with Contract Documents**
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- 105.18 Moving of Equipment**
- 105.19 Construction and Demolition Debris, Vegetative Debris,
and Clean Soil**

105.01 Authorities and Duties

A. Authority of the Director. The Director has the authority to enter into a Contract or execute a Contract Modification subject to the applicable provisions of the Dublin City Code and City Charter. The Director has the authority, on behalf of the City, to delay or terminate the Contract, and to suspend Work wholly

or in part. The Director has the ultimate decision making authority over all items included under the authority and duties of the Engineer.

Any action or inaction of the Director does not constitute a waiver of the City's right to pursue any and all remedies under the Contract or otherwise, including, but not limited to, defective work or Work performed by the Contractor in an unworkmanlike manner.

B. Authority and Duties of the Engineer. The Engineer has immediate charge of the engineering details of the Project and is responsible to ensure that the Contractor satisfactorily administers and completes the Work. The Engineer will decide all questions that may arise as to: the quantity, quality and acceptability of materials furnished; work performed and rate of progress; conformity with Plans, Specifications and other Contract Documents; acceptable fulfillment of the Contract on the part of the Contractor; interpretation of the Plans, Specifications and other Contract Documents; and Contractor compensation or time extensions.

The Engineer may suspend all or part of the Work pursuant to 104.02.C. In addition, the Engineer may also suspend all or part of the Work when the Contractor fails to correct conditions that are unsafe for the workers or the general public, fails to comply with the Contract Documents, or fails to comply with the Engineer's orders. The Engineer may suspend the Work due to adverse weather conditions, conditions considered adverse to the prosecution of the Work, or other conditions or reasons in the public interest. The suspension of the Work for the reasons specified in this paragraph shall not relieve the Contractor of the responsibility to take appropriate actions to protect the Project site, adjacent property owners, and general public. In the event the Engineer orders the Work suspended for conditions under this paragraph, the expense and time, whether direct or indirect, for such suspension shall be borne solely by the Contractor and shall not be considered a suspension of work under 104.02.C.

Any action or inaction of the Engineer shall not constitute a waiver of the City's right to pursue any and all legal remedies under the Contract or otherwise, including, but not limited to, defective or non-conforming work or work performed by the Contractor in an unworkmanlike manner.

C. Authority and Duties of the Inspector. Inspectors employed by the City are authorized to judge the acceptability of the Work. Such activities may extend to all or any part of the Work and to the preparation, fabrication or manufacture of the materials to be used. The Inspector is not authorized to alter or waive the provisions of the Contract, but shall have the authority to notify the Contractor of Work that does not conform to the Contract or reject materials that do not conform to the Specification requirements. The Inspector is not authorized to issue instructions contrary to the Plans and Specifications, or to act for the Contractor. The presence of or actions by the Inspector shall not relieve the Contractor of the responsibility to complete the Work under the terms and conditions of the Contract Documents.

Any action or inaction of the Inspector does not constitute a waiver of the City's right to pursue any and all legal remedies under the Contract or otherwise, including, but not limited to, defective or non-conforming work or work performed by the Contractor in an unworkmanlike manner.

105.02 Plans and Working Drawings. The Contractor shall be responsible for the furnishing of copies of Plans, Specifications, Supplemental Specifications, and Special Provisions, or the necessary portions thereof, to subcontractors and parties furnishing labor, materials and equipment for the Project.

The Contractor shall prepare Working Drawings and submittals when required by the Contract Documents and after verifying applicable field and plan elevations, dimensions, geometries, and conditions. Working Drawings shall be detailed as required to adequately control and complete the Work. When specified, Working Drawings must be stamped by a Registered Professional Engineer in the State of Ohio. Where Work consists of repairs, extension, or alteration of existing structures, the Contractor shall take measurements of existing structures to accurately join old and new Work. Any measurements that may appear upon the Plans to indicate the extent and nature of such repair or extension shall not relieve the Contractor of this responsibility.

Unless otherwise indicated, the Engineer will review submittals for the limited purpose of checking conformance with the Contract Documents and to provide the Contractor a written response to document the results of its review.

The Engineer's disposition shall not relieve the Contractor of responsibility to complete the Work according to the Contract Documents, including but not limited to, the accuracy and reliability of Working Drawings furnished by the Contractor. The Contractor shall include the cost of furnishing Working Drawings in the cost of the Work they cover.

105.03 Conformity with Contract Documents. All Work performed and all materials furnished shall be in conformity with the lines, grades, cross sections, dimensions and material requirements, including tolerances, shown on the Plans or indicated in the Specifications.

Unless otherwise stated in Special Provisions or in a Plan note, the latest revision of any applicable Federal, State, City, or industry code, regulation, or standard at the time of bid opening shall apply. Codes and regulations shall take precedence over industry standards.

Without detracting from the complete and absolute discretion of the Engineer to insist upon such tolerances as establishing reasonably close conformity, the Engineer may accept variations beyond such tolerances as reasonably close conformity where they will not materially affect the value or utility of the Work and the interests of the City. In the event the Engineer finds the materials or the finished product in which the materials are used not within reasonably close conformity with the Plans and Specifications but that reasonably acceptable work has been produced, the Engineer shall then make a determination if the Work shall be accepted and remain in place. In this event, the Engineer will document the basis of acceptance by deductive Change Order which will provide for an appropriate adjustment in the Contract Sum for such work or materials as is deemed necessary to conform to the determination based on the Engineer's judgment.

In the event the Engineer finds the materials of the finished product in which the materials are used or the Work performed are not in reasonably close conformity with the Plans and Specifications and has resulted in an inferior or unsatisfactory product, the work or materials shall be removed and replaced or

otherwise corrected by and at the expense of the Contractor. Failure of the Contractor to follow such order of the Engineer, shall give the City the unqualified right to remove and replace the unsatisfactory Work, supply the materials for the finished Work, and perform the Work or cause it to be performed, and any and all expense chargeable thereto, directly or indirectly, shall be deducted or billed to the Contractor at the option of the Engineer pursuant to 109.14.

105.04 Coordination of the Contract Documents. The Contract, Specifications, Supplemental Specifications, Plans, Special Provisions, Proposal, Standard Drawings and all supplementary documents are essential parts of the Contract Documents, and a requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete Work.

In case of discrepancy, the Engineer will resolve any discrepancies using the following descending order of precedence:

- Contract Form
- Addenda
- Proposal
- General Conditions (Division 100)
- Special Conditions
- Plan Notes
- Plans (calculated dimensions will govern over scaled dimensions)
- Supplemental Specifications
- Standard Drawings
- Standard Specifications (Sections 200 through 1000)
- Geotechnical Specifications

The Contractor shall take no advantage of any apparent error or omission in the Contract Documents. In the event the Contractor discovers such an error or omission, it shall immediately be made known to the Engineer in writing. The Engineer will then make such corrections and interpretations as may be deemed necessary for fulfilling the intent of the Contract Documents.

105.05 Cooperation by Contractor. The Contractor shall give the Work the constant attention necessary to facilitate the progress thereof, and shall cooperate in every possible way with the Engineer, Inspectors, all other Contractors on or adjacent to the Project, and all utility companies and railroads. The Contractor shall attend progress meetings when requested by the Engineer. The Contractor shall keep at least one set of Contract Documents at the Project at all times. **The Contractor shall have a supervisor present on site whenever subcontractors are present to oversee all Work of subcontractors.**

Where the Work extends across private property, the Contractor shall conduct operations in strict conformity with the terms and conditions of the easements and agreements obtained from the owners of the property. The City will not provide any points of access to any of these easements other than at points shown or described in the easement or agreement with the property owner. Arrangements for the use of any additional points of access shall be made with the property owners by the Contractor at no additional cost, or obligation, to the City.

The Contractor agrees to confine the work under the Contract to the strict dimensions of Construction Limits. Any failure of the Contractor, or the Contractor's agents, servants, employees and subcontractors to restrict the Work within the Construction Limits shall be the sole liability and responsibility of the Contractor, and the Contractor shall defend, indemnify and hold harmless the City as provided in 107.24 relating to any activity of the Contractor's agents, servants, employees and subcontractors where such activity concerning Work under this Contract extends beyond the Construction Limits. The Contractor also agrees that where its operations extend outside the Construction Limits, the Engineer has the absolute right to suspend the applicable Work, unless the Contractor provides written evidence that indicates permission from the property owner.

In the event the Engineer orders the Work suspended for conditions under this Section, the expense and time, whether direct or indirect, for such suspension shall be borne solely by the Contractor and shall not be considered a suspension of work under 104.02.C.

If the Contractor disperses any or all of its equipment to an area outside the Construction Limits of the Project, the re-mobilization of the equipment back to the work area shall be at the Contractor's expense.

105.06 Superintendent. Provide a competent Superintendent for the Project that is available and responsive at all times and is responsible for all aspects of the Work. The Superintendent must be capable of reading and understanding the Contract Documents and experienced in the type of Work being performed. The Superintendent shall receive instructions from the Engineer or the Engineer's authorized representatives. **Unless otherwise directed by the Engineer or the Engineer's authorized representative, the Superintendent shall be present on site whenever the Contractor, its employees, or any subcontractors are present to oversee all Work.** The Superintendent shall have the full authority to execute orders or directions of the Engineer without delay and to promptly supply such materials, equipment, tools, labor and incidentals as may be required. Such superintendence shall be furnished irrespective of the amount of Work sublet.

105.07 Cooperation with Utilities.

A. General. During the course of design, the City shall notify all utility companies, all pipeline owners or other parties affected and endeavor to have all necessary adjustments of the public or private utility fixtures, pipe lines and other appurtenances within or adjacent to the Construction Limits made as soon as possible so as not to interfere with the progress of the Work or in accordance with the time provisions set forth in the Contract Documents.

The Contractor shall comply with all laws, regulations and codes concerning the identification and locations of all underground utilities. During the course of the Work, the Contractor shall be solely responsible to notify any utility or other service when such utility or service is encountered.

Water lines, gas lines, wire lines, service connections, water and gas meter boxes, water and gas valve boxes, light standards, cable-ways, signals, and all other utility appurtenances within the limits of the proposed Construction Limits which are to be relocated or adjusted are to be moved by the utility owners at their expense, except as otherwise provided for in the Special Provisions or as noted on the Plans.

B. Protection and/or Replacement of Utilities. The Contractor shall protect all utilities encountered while performing the Work, whether indicated on the Plans or not. The Contractor shall exercise due care when excavating around utilities and shall restore any damaged utilities to the same condition or better as existed prior to starting the Work, at no cost to the City.

C. Surface or Overhead Utilities. Existing surface or overhead structures or utility lines are not necessarily shown on the Plans and those shown are only approximately correct. The Contractor shall make such investigations as are necessary to determine the extent to which existing surface or overhead structures may interfere with the prosecution of the Work contemplated under the Contract Documents.

D. Subsurface Utilities. The information and data shown or indicated in the Contract Documents with respect to existing subsurface utilities at or contiguous to the Construction Limits is based on information and data furnished to the City by the owners of such subsurface utilities, including the City, or by others.

The City shall not be responsible for the accuracy or completeness of any such information or data provided by others.

The cost of all of the following shall be included in the Contract Sum, and Contractor shall have full responsibility for:

1. reviewing and checking all such information and data;
2. determining the exact location all subsurface structures and utilities (including sewer service connections) shown or indicated in the Contract Documents;
3. coordination of the Work with the owners of such subsurface utilities, including the City, during construction; and the safety and protection of all such subsurface utilities and repairing any damage thereto resulting from the Work.

In accordance with Section 153.64 of the Ohio Revised Code, at least two Working Days, excluding Saturdays, Sundays, and legal holidays, prior to commencing construction operations in the construction area which may involve underground utility facilities, the Contractor or its subcontractor(s) shall notify the registered utility protection service and the owners of each underground and overhead utility facility not members of the registered utility protection service.

If a subsurface utility is uncovered or revealed which was not shown or indicated, or not shown or indicated with reasonable accuracy, in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith, identify the owner of such subsurface utility and give written notice to that owner and to the City. The Engineer will promptly review the subsurface utility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the subsurface utility. During such time, Contractor shall be responsible for the safety and protection of such subsurface utility.

E. Delay. In the event that the Contractor has used reasonable efforts to coordinate with a utility company to relocate or adjust its lines and, through no fault of the Contractor, the progress of the Work is delayed for an unreasonable length of time from that shown in the accepted progress schedule due to the failure of a utility company to relocate or adjust its lines, the Contractor shall immediately file with the City a detailed statement describing the nature of the delay and its effect upon progress of the Work and shall be entitled to request a Contract adjustment in accordance with 104.03 and 108.06.

F. Utility Shut-off. In the event that the Work requires a shut-off of any public or private utilities, the Contractor shall notify the affected subscribers of the time of such shut-off and the probable time that service will be restored. The Contractor shall make such notification at least forty eight hours prior to such shut-off unless otherwise directed by the Engineer. If a shut-off is cancelled or postponed, the Contractor shall notify the affected subscribers of the new time of shut-off and the probable time that service will be restored.

All shut-offs and turn-ons shall be made under the direction and supervision of personnel of any affected utilities and the Contractor shall furnish all assistance required including tools and equipment. The time and place of such shut-offs shall be designated by the Engineer.

G. Basis of Payment. It is understood and agreed that the Contractor has considered in the Proposal all permanent and temporary utility appurtenances in their present or relocated positions and included the cost thereof in the price bid for the various items in the Contract. No additional compensation shall be allowed for any delays, inconvenience, or damage sustained by the Contractor due to any interference from such utility appurtenances or the operation of moving them, except as provided for in 104.02.B, if applicable.

H. Indemnification. The Contractor shall defend, indemnify and hold harmless the City as provided in 107.24 relating to any damage caused by the Contractor or its agents, assigns or employees, or by the Contractors' subcontractor(s), done directly or indirectly to the above mentioned items, whether such damage results from negligence or otherwise and whether the damage is to private or public property or real or personal property. The Contractor hereby agrees that it bears the sole responsibility to pay the entire cost thereof.

Failure of the Contractor to pay the entire cost as stated above within thirty days shall give the Director the unqualified right to deduct and withhold the entire amount of damages from the cost of this Contract.

The Contractor further covenants not to sue the City, either in law or equity, where such deduction and withholding is made by the City.

The City shall return, within a reasonable time thereafter not to exceed thirty days, any excess amount over the amount of damages paid by the City or judgments and costs of litigation the City is required to pay.

The Contractor further waives any and all rights, title or interest in any and all amounts so liquidated and any and all amounts of judgments and costs of litigation found against the City.

105.08 Cooperation between Contractors. The City reserves the right at any time to contract for and perform other work on or near the Work covered by the Contract.

When separate contracts are awarded within the work limits of any one project, each Contractor shall conduct its work so as not to interfere with or hinder the progress or completion of the work being performed by other Contractors. Contractors working on the same project shall cooperate with each other as directed by the Engineer.

Each Contractor involved shall assume all liability, financial or otherwise, in connection with its Contract and shall defend, indemnify and hold harmless the City as provided in 107.24 relating to any inconvenience, delay, or loss relating to the presence and operations of other Contractors working within the limits of the same project.

The Contractor shall arrange its work and shall place and dispose of the materials being used so as not to interfere with the operations of the other Contractors within the limits of the same project. Each Contractor shall join their work with that of the others in an acceptable manner and shall perform it in proper sequence to that of the others.

105.09 Construction Stakes, Lines and Grades. Unless the Proposal contains a Lump Sum bid Item 623 Construction Layout Stakes, the Contractor shall execute all Work in conformity to the lines and grade furnished by the City and shall preserve all points of reference until authorized to remove them. The Contractor shall notify the City at least two working days prior to the time that stakes or other points for line and grade will be needed. There shall be no compensation to the Contractor for the cost occasioned by delay in establishing lines, grades and elevations or making other necessary measurements or by inspection; but such costs shall be considered as having been included in the Contract Price.

Perform all construction staking, including privately funded projects under the direct supervision of a Registered Professional Engineer or Land Surveyor. Submit all field notes, cut sheets, etc., to the City upon request.

105.10 Photographs and Videos. The Engineer, Inspectors or other duly authorized City personnel or agents, from time to time during the progress of the Work, may take photographs or videos of the Work. The Contractor shall furnish access to the Work at all times for this purpose and shall furnish such assistance as may be required. The photographs or videos thus taken shall be the property of the City.

Nothing herein contained shall be construed as prohibiting the taking of photographs or videos by the Contractor or its agents, provided, however, that it is done at no cost or expense to the City.

105.11 Inspection of Work. All materials and each part or detail of the Work shall be subject to inspection by the Engineer, Inspector or duly authorized City representative. The Engineer, Inspector or duly authorized City representative shall be allowed access to all parts of the Work and shall be furnished with such information and assistance by the Contractor as is required to make a complete and detailed inspection. Notify the Engineer at least twenty four hours prior to all required special inspections and testing as specified in the Contract Documents or as required by the Engineer.

If the Engineer requests it, the Contractor, at any time before acceptance of the Work or any portion thereof, shall remove or uncover such portions of the finished Work as may be directed. After examination, the Contractor shall restore said portions of the Work to the standard required by the Contract Documents. Should the Work thus exposed or examined prove acceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be paid for as Extra Work; but should the Work so exposed or examined prove unacceptable, the uncovering or removing and the replacing of the covering or making good of the parts removed, shall be at the Contractor's expense.

The Contractor shall notify the Engineer at least forty eight hours in advance of any changes in the work schedule. This notification is required to accommodate construction inspection scheduling. The notification shall include the beginning date and time of the work, and the duration of the work. The notification shall be submitted to the Engineer in writing. In the absence of such notification, and if the work is performed without inspection, the Engineer may require the work to be removed and redone.

Any Work done or materials used without supervision or inspection by an authorized City representative may be ordered removed and replaced at the Contractor's expense. Failure to reject any defective Work or materials shall not in any way prevent later rejection when such defects are discovered, or obligate the City to final acceptance of the Work.

When any unit of government or political subdivision or railroad or any corporation is to pay a portion of the cost of the Work covered by this Contract, its respective representatives shall have the right to inspect the Work. Such inspection shall not make any unit of government or political subdivision or railroad or any corporation a party to this Contract, and shall in no way interfere with the rights of the Contractor or City hereunder.

105.12 Removal of Unacceptable and Unauthorized Work. All Work that does not conform to the requirements of the Contract Documents may be considered unacceptable Work.

Unacceptable Work, whether the result of poor workmanship, use of defective materials, damage through carelessness, or any other cause, found to exist prior to the expiration of the guaranty period, shall be removed immediately and replaced in a manner acceptable to the Engineer at no expense to the City.

Work done contrary to the instructions of the Engineer, Work done beyond what is shown in the Contract Documents, or any Extra Work done without authority, will be considered as unauthorized and shall not

be paid for under the provisions of the Contract. Work so done may be ordered removed or replaced at the Contractor's expense.

Upon failure of the Contractor to comply with any order of the Engineer under the provisions of this Section, the Engineer shall have authority to cause unacceptable Work to be remedied or removed and replaced and unauthorized Work to be removed, and to deduct the costs from any monies due or to become due to the Contractor pursuant to 109.14.

105.13 Load Restrictions. The Contractor shall comply with all legal load restrictions in the hauling of materials on public roads. A special permit shall not relieve the Contractor from its sole liability for damage that may result from the moving of equipment or materials, whether caused by the Contractor's or its subcontractors' equipment.

The operation of equipment of such weight or so loaded as to cause damage to structures, utilities, or the roadway or to any other type of construction shall not be permitted. Hauling of materials over the base course or surface course of a roadway under construction shall be limited as directed by the Engineer. No loads will be permitted on a concrete pavement, base or structure before the expiration of the curing period. In no case shall legal load limits be exceeded unless permitted in writing by the Engineer. The Contractor shall be responsible for all damage done by its equipment or its subcontractors' equipment and the Contractor shall defend, indemnify and hold harmless the City as provided in 107.24 relating to any damage done by its equipment or its subcontractors' equipment.

105.14 Maintenance during Construction. The Contractor shall maintain the Work in a presentable and safe condition during construction and until the Project is accepted. Maintenance of the Work shall include continuous and effective work prosecuted day by day, with adequate equipment and forces so that the roadway, conduits or structures are kept in satisfactory condition at all times. The Contractor shall be responsible for damage done by its equipment and the Contractor shall defend, indemnify, and hold harmless the City as provided in 107.24 relating to damage caused by the Contractor's or its subcontractors' or suppliers' equipment.

The Contractor shall maintain the previous courses or subgrade during all construction operations, when placing a course upon other courses of embankment, base, subgrade, concrete or asphalt pavement, or other similar items previously constructed. This maintenance includes, but is not limited to draining, re-compacting, re-grading, or if destroyed, the removal of Work previously accepted by the City.

Maintain Stormwater Best Management Practice (BMP) features. Prevent sediment laden surface water from coming in contact with BMP features during construction.

Temporary restoration of street surfaces shall be made on installation of underground lines and structures, surplus excavation shall be removed, and the street graded and put in a safe and passable condition. Settlements occurring in or adjacent to trenches shall be immediately refilled to a proper grade. Failure on the part of the Contractor to restore the street surface to the satisfaction of the Engineer may be considered a cause sufficient for suspending the applicable work until such restoration. In the event the Engineer orders the Work suspended for conditions under this Section, the expense and time, whether

direct or indirect, for such suspension shall be borne solely by the Contractor and shall not be considered a suspension of work under 104.02.C.

The Contractor shall repair, restore and clean streets and other public facilities outside the Construction Limits that are affected by its operations, including hauling and delivery of materials.

If the Contract does not contain an Item 616 – Dust Control, all costs of maintenance work and dust control during construction and before the Project is accepted shall be included in the unit prices bid of the various pay items.

All costs of maintenance work during construction and before the Project is accepted shall be included in the unit prices bid of the various pay items and the Contractor shall not be paid an additional amount for such work.

105.15 Failure to Maintain Roadway or Structures, Traffic Control Facilities and Other Appurtenance. If the Contractor, at any time, fails to comply with the provisions of 105.14, the Engineer will immediately notify the Contractor of such non-compliance. If the Contractor fails to remedy unsatisfactory maintenance within twenty four hours after receipt of such notice, the Engineer may immediately proceed to maintain the Project site and the entire cost of this maintenance will be deducted from monies due or to become due the Contractor on the Contract pursuant to 109.14.

105.16 Borrow and Waste Areas. Before any borrow or waste disposal operations are to begin, the Contractor shall submit its plan for operation, control of drainage water, cleanup, shaping, and restoration of the disturbed areas and obtain the Engineer's written approval. The plan of operations shall include the following:

- Control of drainage water.
- Cleanup, shaping, and restoration of disturbed areas.
- Disposal of regulated materials.
- Avoidance of regulated areas.
- Excavation and filling of waste and borrow areas.
- Saving of topsoil.

Temporary Sediment and Erosion Control BMPs required for compliance under the Clean Water Act, Ohio Water Pollution Control Act, (OWPCA) (ORC Chapter 6111), any applicable individual and/or general NPDES permit, any applicable provisions of the City of Dublin Stormwater Drainage Manual, and the provisions of any applicable Stormwater Pollution Prevention Plan.

When it becomes necessary to locate such areas in or near streams, special precautions shall be taken.

The stability of borrow and waste areas and any damage to surrounding property resulting from movement of the area shall be the sole responsibility of the Contractor. Perform all engineering necessary to ensure long term stability of all side slopes and foundations of all borrow and waste areas. If requested by the Engineer, furnish a certification by a Registered Engineer attesting to the stability of all borrow and waste areas. Contractor shall defend, indemnify and hold harmless the City as provided in 107.24 for all damage resulting from the instability of borrow and waste areas, the removal of borrow materials, the placement of waste materials, or the hauling of material to and from these areas is the sole responsibility of the Contractor. Repairs to approved haul roads shall be made in accordance with 105.13.

Restoration of all borrow or waste areas shall include cleanup, shaping, replacement of topsoil and establishment of vegetation cover by seeding and mulching in accordance with the requirements of Item 659 at no additional cost to the City. The restored area shall be well drained unless approval is given by the Engineer to convert a pit area into a pond or lake, in which case restoration measures shall be confined to the disturbed areas above the anticipated normal water level.

If burning is permitted under the OAC-3745-19 and ORC 1503.18, submit a copy of the Ohio EPA permit and the Ohio DNR permit to the Engineer and copies of all information used to obtain the permit.

Prior to the disposal of waste materials, submit to the City an executed copy of the contract or permission statement from the property owner. The contract or permission statement must indicate that the waste materials are not the property of the City. Further, it must expressly state that the City is not a party to the contract or permission statement and that the Contractor and property owner will defend, indemnify and hold harmless the City as provided in 107.24 relating to their contract or permission statement. The disposal of waste materials shall be in compliance with the hazardous and solid waste laws and regulations of the state of Ohio, Franklin County, Ohio, and the City of Dublin.

The cost of work described herein necessary to secure these results shall be included in the Contract Price bid for these items to which they apply.

105.17 Use of Fire Hydrants. In accordance with the Codified Ordinances of the City of Dublin and the Columbus City Code and Division of Power and Water rules and regulations, the Contractor shall obtain the proper hydrant permits(s), and pay any applicable fees, for the use of hydrants(s) deemed necessary for work performed under this Contract. Permit(s) must be obtained from the jurisdiction owning and maintaining the hydrant (for areas outside Dublin corporation limit) and from the Columbus Division of Power & Water (Water) Permit Office. The Contractor shall adhere to all rules and regulations governing said permit and must have the original permit on site anytime in which the hydrant is in use.

Cost of the permit and application fees shall be included in the various bid items.

105.18 Moving of Equipment. Non-rubber tired vehicles or equipment shall not be moved on City streets. Permits to do so must be obtained from the City of Dublin.

105.19 Construction and Demolition Debris, Vegetative Debris, and Clean Soil.

A. Construction Demolition and Debris. The Contractor shall manage Construction and Demolition Debris generated in carrying out the Work in compliance with the requirements of ORC Chapter 3714, OAC Chapter 3745-400, the regulations of the Franklin, Delaware, and Union County Boards of Health. The Contractor shall dispose of Construction and Demolition Debris at a licensed Construction and Demolition Debris facility or as otherwise authorized in OAC 3745-400-04.

The Contractor shall maintain records establishing compliance with ORC Chapter 3714, OAC Chapter 3745-400, the regulations of the Franklin, Delaware, and Union County Boards of Health in the management and disposal of Construction and Demolition Debris generated in carrying out the Work.

B. Clean Hard Fill. The Contractor shall manage and/or dispose of Clean Hard Fill generated in carrying out the Work in compliance with the requirements of OAC 3745-400-05 and as follows:

- Recycle the Clean Hard Fill into a usable construction material if allowed by the Contract Documents;
- Dispose of the Clean Hard Fill in licensed construction and demolition debris or other waste facilities;
- Use the Clean Hard Fill in legitimate fill operations for construction purposes or to bring the site up to a consistent grade, on the site of generation if allowed by the Contract Documents; or
- Use the Clean Hard Fill in legitimate fill operations for construction purposes or to bring the site up to a consistent grade, on a site other than the site of generation, if allowed by the Contract Documents provided that:
 - The Contractor shall provide a written “Notice of Intent to Fill” to each licensing authority where the clean hard fill is to be placed. The notification shall be received by each local licensing authority with sites to be filled, at least seven days prior to filling as required by division (F) of Section 3714.13 of the Revised Code. The Contractor shall provide a new Notice of Intent to Fill if there are any changes in the information required for notification under OAC 3745-400-05.

The Notice of Intent to Fill shall state:

- The nature of the fill material, the site(s) to be filled;
- When filling will begin and end; and
- The telephone number of the Contractor.

Clean Hard Fill generated in Franklin, Delaware, or Union County, Ohio and that is hauled off the site at which the fill was generated must be hauled by a waste hauler registered with the applicable County Board of Health in a vehicle permitted by said County Board of Health.

The Contractor shall maintain records establishing compliance with OAC 3745-400-05, the regulations of the applicable County Board of Health, and the Codified Ordinances of the City of Dublin in the management and disposal of Clean Hard Fill generated in carrying out the Work.

C. Vegetative Debris. Trees, brush, stumps, tree trimmings, branches, weeds, leaves, grass, shrubbery, yard trimmings, crop residue, and other vegetative debris generated in the clearing and grubbing of a construction site in the course of performing the work shall be managed and disposed of as follows:

1. If specifically allowed by the Contract Documents, vegetative debris generated in the clearing and grubbing of a construction site in the course of performing the Work may be used as fill material at the site on which such debris was generated, either alone or in conjunction with clean soil, sand, gravel, or other clean aggregates, in legitimate fill operations for construction purposes or to bring the site up to a consistent grade;
2. Vegetative debris not used in legitimate fill operations at the site of generation shall be disposed of at a licensed yard waste composting facility in compliance with the requirements of OAC 3745-27- 45; or

Vegetative debris not used in legitimate fill operation at the site of generation shall be disposed of at a licensed solid waste disposal facility if a yard waste compost facility has refused to accept the vegetative debris and the Contractor obtains a Refusal of Acceptance form.

The Contractor shall maintain records establishing compliance with OAC Chapter 3745-27 in the management and disposal of vegetative debris generated in carrying out the Work.

D. Clean Soil. Clean Soil generated in the City of Dublin or Franklin, Delaware, or Union County, Ohio shall be managed and disposed of in compliance with the provisions and regulations of the County Board of Health in which the Clean Soil is generated and as follows:

- If allowed by the Contract Documents, use the Clean Soil in legitimate fill operations for construction purposes or to bring the site up to a consistent grade, on the site of generation if allowed by the Contract Documents; or
- If allowed by the Contract Documents, use the Clean Soil in legitimate fill operations for construction purposes or to bring the site up to a consistent grade, on a site other than the site of generation, if allowed by the Contract Document; or
- Dispose of the Clean Soil at a registered clean fill disposal site.

Clean Soil generated in Franklin, Delaware, or Union County, Ohio and that is hauled off the site at which the fill was generated must be hauled by a waste hauler registered with the applicable County Board of Health in a vehicle permitted by said County Board of Health.

The Contractor shall maintain records establishing compliance with OAC Chapter 3745-27, the regulations of the applicable County Board of Health, and the Codified Ordinance of the City of Dublin in the management and disposal of Clean Soil generated in carrying out the Work.

If the Project contains garbage or solid and hazardous waste, the Contract Documents will detail the removal of these items in compliance with Ohio's solid and hazardous waste laws and regulations, and the regulations of the County Board of Health in which the Project is located.

When wasting PCC, mix the PCC with at least 30 percent natural soil to construct an inner core in the waste area. Cover this inner core with 3 feet (1.0 m) of natural soil on the top and 8 feet (2.4 m) on the side slopes. Place and compact the material according to Section 203.06.D of the CMSC to prevent future settlement and sliding.

When the wasting of clean hard fill is allowed, comply with all the requirements of this Section and 105.16.

ITEM 106 CONTROL OF MATERIAL

106.01 Source of Supply and Quality Requirements

106.02 Samples, Tests, Cited Specifications

106.03 Small Quantities and Materials for Temporary Application

106.04 Plant Sampling and Testing Plan

106.05 Storage of Materials

106.06 Handling of Materials

106.07 Unacceptable Materials

106.08 City-Furnished Materials

106.01 Source of Supply and Quality Requirements. The materials used on the Work shall meet all requirements of the Contract. In order to expedite the inspection and testing of materials, the Contractor shall notify the Engineer of the proposed sources of materials prior to delivery. At the option of the Engineer, materials may be inspected at the source of supply before delivery is started. If it is determined by the Engineer that sources of supply for previously approved materials do not produce specified products, the Contractor shall furnish materials from other sources without adjustment to the Contract Sum or Time.

The Contractor shall furnish or cause to be furnished to the Engineer delivery tickets or documents for all materials to be incorporated in the Work, which tickets or documents shall describe in detail the type, size, specification or data, fully denoting the materials being delivered.

106.02 Samples, Tests, Cited Specifications. All materials will be inspected, tested and compliance determined by the Engineer before incorporation into the Work. The City may sample and test materials or require certifications. Unless otherwise designated, tests in accordance with AASHTO, ASTM or other methods on file at the Laboratory will be made by and at the expense of the City. Samples will be taken by a qualified representative of the City.

All materials being used are subject to inspection, test or rejection at any time prior to incorporation into the Work. Copies of all tests will be furnished to the Contractor's representative. The Contractor, in all cases, shall furnish the required samples and specified material certifications at no expense to the City.

Transports and distributors hauling bituminous material shall be equipped with an approved submerged bituminous material sampling device.

If, in the judgment of the Engineer, the quantity used of any one material is so inconsequential as to not warrant testing in accordance with the minimum requirements for sampling materials in Section 700,

verification of the quality of the material may be covered by a Field Inspection Report of Materials, prepared by the Engineer.

106.03 Small Quantities and Materials for Temporary Application. The Engineer may accept small quantities and materials for temporary application that are not intended for permanent incorporation into the Work. The Engineer may accept these small quantities and materials for temporary application in either of the following cases:

- A. Where similar materials from the same source have recently been approved.
- B. Where the materials, in the judgment of the Engineer, will serve the intended purpose.

106.04 Plant Sampling and Testing Plan. The Engineer or an authorized representative may undertake the inspection of materials at the source.

In the event plant sampling and testing is undertaken, the Contractor and its material provider shall meet the following conditions:

- The Engineer shall have the cooperation and assistance of the Contractor and the producer with whom the Contractor has contracted for materials.
- The Engineer or an authorized representative shall have full entry at all times to such parts of the plant as may concern the manufacture or production of the materials being furnished.
- If required by the Engineer, the Contractor shall arrange for an approved building for the use of the Inspector. The building should be located conveniently near the plant and independent of any building used by the material producer.
- Adequate safety measures at the plant shall be provided and maintained.

The City reserves the right to retest all materials that have been tested and accepted at the source of supply before their incorporation into the Work. After the approved materials have been delivered to the site, the City may reject all materials that, when retested, do not meet the requirements of the Contract Documents or those established for the specific project.

106.05 Storage of Materials. Materials shall be so stored as to assure the preservation of their quality and fitness for the Work. Stored materials, even though approved before storage, may again be inspected prior to their use in the Work. Stored materials shall be located so as to facilitate their prompt inspection. Approved portions of the right-of-way may be used for storage purposes and for the placing of the Contractor's plant and equipment, but any additional space required therefore must be provided by the Contractor at no expense to the City. Private property shall not be used for storage purposes without written permission of the owner or lessee, and if requested by the Engineer copies of such written permission shall be furnished. All storage sites shall be restored to their original condition by the Contractor at no expense to the City and the Contractor shall defend, indemnify and hold harmless the City as provided in relating to their contract or permission statement.

106.06 Handling of Materials. All materials shall be handled in such manner as to preserve their quality and fitness for the Work. Aggregate shall be transported from the storage site to the project in tight vehicles so constructed as to prevent loss or segregation of materials after loading and measuring in order that there may be no inconsistencies in the quantities of materials intended for incorporation in the Work as loaded, and the quantities as actually received at the place of operations.

106.07 Unacceptable Materials. All materials not conforming to the requirements of the Contract Documents at the time they are used shall be considered unacceptable and shall be removed immediately from the site of the Work unless otherwise instructed by the Engineer. No previously identified unacceptable materials, the defects of which have been corrected, shall be used until approval has been given. Upon failure on the part of the Contractor to comply immediately with any order of the Engineer made under the provisions of this Section, the Engineer shall have authority to remove and replace defective materials and to deduct the cost of removal and replacement from any monies due or to become due to the Contractor pursuant to 109.14.

106.08 City-Furnished Materials. The Contractor shall furnish all materials required to complete the Work, except when otherwise provided in the Contract Documents.

Materials furnished by the City will be delivered or made available to the Contractor at the points specified in the Contract Documents.

The cost of handling and placing all materials after they are delivered to the Contractor shall be considered as included in the Contract Price for the item in connection with which they are used.

The Contractor shall be responsible for all delivered materials, and deductions will be made from any monies due the Contractor to make good any shortages and deficiencies, from any cause whatsoever, and for any damage which may occur after such delivery, and for any demurrage charges.

106.09 Steel and Iron Products Made in the United States. Furnish steel and iron products that are made in the United States according to the applicable provisions of Federal regulations stated in 23 CFR 635.410 and State of Ohio laws, and ORC 153.011. "United States" means the United States of America and includes all territory, continental or insular, subject to the jurisdiction of the United States.

Federal Requirements. All steel or iron products incorporated permanently into the Work must be made of steel or iron produced in the United States and all subsequent manufacturing must be performed in the United States. Manufacturing is any process that modifies the chemical content; physical shape or size; or final finish of a product. Manufacturing begins with the initial melting and mixing, and continues through the bending and coating stages. If a domestic product is taken out of the United States for any process, it becomes a foreign source material.

State Requirements. All steel products used in the Work for load-bearing structural purposes must be made from steel produced in the United States. State requirements do not apply to iron.

Applications. When the Work is Federally funded both the Federal and State requirements apply. This includes all portions of the Work, including portions that are not Federally funded. When the Work has no Federal funds, only the State requirements apply.

Exceptions. The Engineer may grant specific written permission to use foreign steel or iron products in bridge construction and foreign iron products in any type of construction. The Engineer may grant such exceptions under either of the following conditions:

- a. The cost of products to be used does not exceed 0.1 percent of the total Contract cost, or \$2,500, whichever is greater. The cost is the value of the product as delivered to the project.
- b. The specified products are not produced in the United States in sufficient quantity or otherwise are not reasonably available to meet the requirements of the Contract Documents. The Director may require the Contractor to obtain letters from three different suppliers documenting the unavailability of a product from a domestic source, if the shortage is not previously established.

Proof of Domestic Origin. Furnish documentation to the Engineer showing the domestic origin of all steel and iron products covered by this section, before they are incorporated into the Work. Products without a traceable domestic origin will be treated as a non-domestic product.

ITEM 107 LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

107.01 Laws to be Observed

107.02 Permits, Licenses and Taxes

107.03 Patented Devices, Materials and Processes

107.04 Restoration of Surfaces Opened by Permit

107.05 Federal-Aid Provisions

107.06 Sanitary Provisions

107.07 Public Convenience and Safety

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107.11 Protection and Restoration of Property

107.12 Contractor's Use of the Project Right-of-Way or Other City-Owned Property

107.13 Responsibility for Damage Claims

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107.15 Opening Sections of Project to Traffic

107.16 Contractor's Responsibility for Work

107.17 Contractor's Responsibility for Utility Property and Services

107.18 Furnishing Right-of-Way

107.19 Personal Liability of Public Officials

107.20 No Waiver of Legal Rights

107.21 OSHA

107.22 Litigation

107.23 Environmental and Natural Resources Protection

107.24 Indemnification

107.01 Laws to be Observed. The Contractor shall keep fully informed of all Federal, State and local laws, ordinances, codes and regulations and all orders and decrees of authorities having any jurisdiction or authority, which in any manner affect those engaged or employed on the Work, or which in any way affect the conduct of the Work. The Contractor shall at all times observe and comply with all such laws, ordinances, codes, regulations, orders, and decrees; and shall protect and defend, indemnify and hold harmless the City as provided in 107.24 relating to violation of any such law, ordinance, code, regulation, order, or decree, whether by the Contractor or its employees or agents, or the Contractor's subcontractors or suppliers.

The Contractor agrees that in the hiring of employees for the performance of work under this Contract or any subcontract hereunder, no Contractor or subcontractor, nor any person acting on behalf of such Contractor or subcontractor, shall, by reason of race, sex, creed or color, discriminate against any citizen of the United States in the employment of labor or workers, who is qualified and available to perform the work to which the employment relates. That no Contractor, subcontractor, nor any of their employees or agents shall, in any manner, discriminate against or intimidate any employee hired for the performance of work under this Contract on account of race, sex, creed or color.

107.02 Permits, Licenses and Taxes. The Contractor shall procure all permits and licenses, pay all charges, fees, and taxes, and give all notices necessary and incidental to the due and lawful prosecution of the Work, unless stated otherwise in the general notes of the construction drawings.

Prior to the closure of or working in or on any portion of a street the Contractor shall obtain permission from the City of Dublin.

The Contractor shall include and pay all state and local sales, consumer, and use taxes. Materials purchased for incorporation into the work will be exempt from state and local sales tax. A sales tax exemption certificate will be issued by the City at the request of the Contractor.

A. Licensed Water Contractor Requirement. It shall be unlawful for any person to perform any work on City of Dublin water line systems without first registering with the City of Dublin and securing license from the City of Columbus to engage in such work. This work includes any attachments, additions, alterations, or rehabilitation of any city service pipe or appurtenances (including water service lines and taps). This requirement may be met by utilization of a subcontractor who holds a City of Dublin Water Contractor License or a Combined Water/Sewer Contractor License to perform this work. Utilization of a subcontractor must meet the licensing requirements of City of Dublin and/or City of Columbus Building Code.

B. Licensed Sewer Tapper Requirement. It shall be unlawful for any person to engage in the business of sewer tapping and sewer building, or to open or tap any sewer in any street, alley or any public or private place or rehabilitation of any sewer or appurtenances (including manholes, inlets, and service laterals) in the City of Dublin without first registering with the City and securing license from the City of Columbus to

engage in such business. Utilization of a subcontractor must meet the licensing requirements of the City of Dublin and/or City of Columbus Building Code.

107.03 Patented Devices, Materials and Processes. If the Contractor employs any design, device, material, or process covered by letters of patent or copyright, suitable legal agreement(s) with the patentee or owner shall be provided for such use. The Contractor shall defend, indemnify and hold harmless the City, as well as any affected third party or political subdivision, as provided in 107.24 relating to any infringement by reason of the use of any such patented design, device, material or process or any trademark or copyright.

The Contractor must obtain the approval of the City to substitute a patented material or process specified in the Contract Documents.

In the case of patented pavements and wearing courses, where royalties, licensing and proprietary service charges exacted or to be exacted by the patentees are published and certified agreements are filed with the City, guaranteeing to prospective Bidders free unrestricted use of all such proprietary rights and trademarked goods upon payment of such published charges, such patented payments may be specifically designated in the Proposal and competition secured upon the item exclusive of the patent or proprietary charges.

107.04 Restoration of Surfaces Opened by Permit. The right to construct or reconstruct any utility service in the roadway, street, or Right-of-Way or to grant permits for same, at any time, is hereby expressly reserved by the Director, or the owner of said roadway, street or Right-of-Way.

Any individual, firm, or corporation wishing to make an opening in the street must secure a permit. The Contractor shall allow parties bearing such permits, and only those parties, to make openings in the roadway.

When ordered by the Engineer, the Contractor shall make in an acceptable manner all necessary repairs due to such openings and such necessary work will be paid for as provided in the Specifications, and the repair work shall conform to the Contract Documents.

107.05 Federal-Aid Provisions. When the United States Government pays for all or any portion of the Project's cost, the federal laws and the rules and regulations made pursuant to such laws must be observed and the Work is subject to the inspection of the appropriate Federal agency.

Such inspections shall not make the Federal Government a party to this Contract and such inspections will in no way interfere with the rights of the Contractor or the City under the Contract.

107.06 Sanitary Provisions. The Contractor shall provide and maintain in a neat, sanitary condition such accommodations for the use of its employees and City representatives as may be necessary to comply with the requirements of the State and local Board of Health, or of other authorities having jurisdiction. All waste, trash, and debris shall be properly disposed of, and under no condition shall any waste, trash, and debris be buried on the job site.

107.07 Public Convenience and Safety. The Contractor shall, at all times, so conduct the Work as to assure the least possible obstruction to traffic. The safety and convenience of the general public and the residents along the street and the protection of persons and property shall be provided for by the Contractor as specified under 104.04.

The Contractor shall provide and maintain safeguards, safety devices and protective equipment and take any other needed actions as may be necessary to protect the public and property in connection with the work. Do not close streets unless specifically allowed by the Contract.

The presence of barricades or lights provided and maintained by any party other than the Contractor shall not relieve the Contractor of this responsibility.

107.08 Barricades and Warning Signs. Temporary traffic control devices and facilities shall be furnished, erected, maintained and paid for in accordance with the provisions of Item 614, Maintaining Traffic. All traffic control devices shall conform to Part 7 of the OMUTCD for Streets and Highways as amended, as required under Section 4511.09 of the Ohio Revised Code. The provisions of this item and this Section shall not in any way relieve the Contractor of any of its legal responsibilities or liabilities for the safety of the public.

107.09 Maintenance of Traffic. All work shall be performed in accordance with Item 614, Maintaining Traffic.

To avoid interruption of bus and coach operations, the Contractor shall give sufficient advance notice to the company or companies concerned to permit rerouting of lines, if necessary. When material is piled in the gutters, suitable drains of sufficient size to carry all the storm water flowing in the gutters, shall first be laid. Where the drainage from cross streets or alleys is interfered with or cut off by reason of the nature of the work, suitable crossings shall be provided for pedestrians. No material shall be piled within 20 feet (6.0 m) of any fire hydrant.

Dublin will notify the appropriate Fire and Police Divisions and "Paving the Way" whenever a street or section of street is about to be closed to traffic and also when it is to be opened.

107.10 Use of Explosives. When and if it is necessary for the prosecution of the Work to resort to blasting with explosives, the Contractor shall use the highest degree of care and adequate protective measures so as not to endanger life, completed portions of the Work, and all other property, both public and private. Before conducting any blasting operations, the Contractor shall furnish the Engineer, in writing, a schedule of intended blasting operations and it shall give the Engineer prior written notification of any changes in such schedule.

The use, handling, storage and transportation of explosives shall conform and be in accordance with the applicable requirements and/or provisions of:

- the latest revision of "State of Ohio Administrative Code Chapter 4121:1-3," issued by the Department of Industrial Relations and the Industrial Commission of the State of Ohio;

- the Ohio Explosive Laws, Section 3743.01 - 3743.26 of the ORC and amendments thereto;
- all local regulations, including but not limited to Section 150.160 of the Codified Ordinances of the City of Dublin; and
- as specified herein.

The Contractor shall secure written permission from the Engineer, City of Dublin before any blasting work is begun.

All shot firing shall be done by IME approved electrical or non-electric blasting systems which allows the blaster to control the exact moment in which firing of the shot will occur. The Contractor shall make suitable provisions to prevent the scattering of broken rock, earth, stones or other material during blasting operations.

107.11 Protection and Restoration of Property. The Contractor is responsible for the preservation of all property impacted by the Contractor's operations.

The Contractor is responsible for all damage or injury to property, during the prosecution of the Work, resulting from any act, omission, neglect, defective work or materials, or misconduct in the manner or method of executing the Work. The Contractor shall remain responsible for all damage and injury to property until the Project is accepted under 109.11. The Contractor shall defend, indemnify and hold harmless the City as provided in 107.24 relating to any damage or injury to property. If the Contractor causes any direct or indirect damage or injury to public or private property by any act, omission, neglect, or misconduct in the execution or the non-execution of the Work, then it must restore, at its own expense, the property to a condition similar or equal to that existing before the damage or injury.

If mailboxes, road, or street name signs and supports interfere with the Work, then remove and erect them in a temporary location during construction in a manner satisfactory to and as directed by the Engineer. After completion of the Work and before final acceptance of the Project, erect the mailboxes, road, or street name signs and supports in their permanent locations according to the plans unless otherwise directed by the Engineer. Consider the cost of this Work as incidental to the affected items.

Cooperate with the Engineer in protecting and preserving monuments, cornerstones and boundary survey markers that are affected by the Work as required by ORC 5519.05.

When specified in the plans, the Contractor will construct the Monument Assemblies with the iron pin and Reference Monuments with the iron pin and cap. Right-of-Way Monuments are property boundary monuments set to comply with Ohio Administrative Code Section 4733.37, "Minimum Standards for Boundary Surveys in the State of Ohio" and ORC 5519.05 and are recited in the Right-of-Way deeds to convey the property or easement rights. If shown in the Right-of-Way plans, Right-of-Way monuments will be set after acquisition and prior to construction activities by the City. These monuments normally delineate the boundary secured for the highway construction. There are situations where temporary Right-of-Way easements are purchased to construct the work and it is expected that the permanent Right-of-Way monuments within the temporary easements may get destroyed to perform the work. Any

permanent Right-of-Way Monuments or property monuments on or outside the Right-of-Way limits and not enclosed within a temporary easement for the project will be the Contractor's responsibility to protect. Upon completion of the final grading replace any Right-of-Way Monuments destroyed during or by construction activities. A quantity for replacement of Right-of-Way Monuments expected to be destroyed that are within a temporary easement will be paid under Item 604. When specified in the plans, the Contractor will construct the Monument Assemblies and Reference Monuments with the iron pin and cap. Right-of-Way Monuments, Monument Assemblies and Reference Monuments are to be set under the direct supervision of a Registered Surveyor.

Do not begin grading or resurfacing operations until the Contractor has referenced and verified the position of all known monuments, cornerstones, and boundary survey markers in the area to be improved, relative to the survey information provided to the Contractor by the City. Make a reasonable search effort using common iron pin locating devices to locate monuments, cornerstones, and boundary survey markers at normal probable locations (i.e., offsets at occupation lines) if no monuments are shown on the Plans. If monuments, cornerstones, and boundary survey markers are unexpectedly encountered, then protect, reference, and preserve them in the same manner. Referencing, as indicated above, shall mean locating their positions relative to a project control network, traverse line or centerline using standard acceptable surveying measurements and techniques suitable to meet the requirements of OAC Section 4733-37-04, Measurement Specifications. The locating method, field data recording procedures and equipment to be used will be reviewed and approved by the Engineer prior to performing the work.

Provide the Engineer with a report indicating the monuments, cornerstones, and boundary survey markers located. List project coordinates and/or station and offset relative to the plan centerline and a description of the monuments, cornerstones, and boundary survey markers found, including size, material, condition, any cap stamping or markings and noting any differences from the plan locations of any of the monuments. The Engineer shall compare the Contractor's preconstruction monument report with the plans and any preconstruction checks provided by the City.

If monuments, cornerstones, and boundary survey markers of the Public Land Survey System control corners are encountered in the performance of the Work, and adjustable monument assemblies are not listed in the Proposal, then the City will furnish them and supervise their precise location and installation in conformity with ORC 5519.05. Furnish all labor, equipment, and materials required to perform such installations. The City will pay for any labor, equipment, or materials furnished during the installation according to 109.05. Perform relocation Work under the supervision of a registered surveyor.

The Engineer will deduct from the estimates the cost incurred by the City for repair, re-determination of location, and replacement of any monuments, cornerstones, or boundary survey markers within the highway that were damaged, destroyed, or made inaccessible during the progress of the Work by the Contractor or its employees, subcontractors, or their agents, in violation of these provisions.

Do not create staging areas, store materials and equipment, or borrow or waste materials in areas labeled as an environmental resources areas in the Contract Documents. All properties to be utilized by the

Contractor outside the project Right- of-Way must be cleared for all environmental resource impacts prior to the beginning of work. Environmental resources include but may not be limited to:

- Cultural Resources
- Buildings, structures, objects, and sites eligible for or listed on the National Register of Historic Places
- Historic or prehistoric human remains, cemeteries, and/or burial sites (pursuant with ORC 2909.05 and 2927.11
- Ecological Resources
- Wetlands
- Streams
- Wooded areas with trees to be removed in excess of 8 inches diameter at breast height
- Public Lands
- Lands meeting the criteria of 49 U.S.C. 303, 23 CFR 771.135: 4(f).
- Lands meeting the criteria of 16 U.S.C. 4601-4, 36 CFR59.1: 6(f).
- FEMA Mapped 100 year Floodplains
- Hazardous Waste Areas.

All areas proposed to be utilized by the Contractor outside the Construction Limits shall be reviewed by the City and/or environmental contractor(s) that are prequalified by the City for each environmental resource. Have the consultant(s) certify that the proposed site to be utilized for the Contractor will not impact:

- Cultural Resources
- Ecological Resources Public Lands
- FEMA Mapped 100 year Floodplains Hazardous Waste Areas
- Provide all documentation and the consultant certification to the Engineer.

Should the areas proposed for use by the Contractor outside the project right of way limits contain environmental resources the Contractor is responsible to the City for all environmental clearances and permits prior to the beginning of Work.

107.12 Contractor's Use of the Project Right-of-Way or Other City-Owned Property.

A. Disposal of Waste Material and Construction Debris and Excavation of Borrow on the Project Right-of-Way or on Other City-Owned Property. Dispose of waste material according to 105.16 and dispose of construction debris according to 105.19. In addition to the rights granted in 104.05, the Contractor's use of the Project Right-of-Way or other City-owned property for the disposal of waste material and construction debris and excavation of borrow material is restricted as follows:

- If the Contract Documents identify locations for the disposal of waste material and construction debris or excavation of borrow material within the Project Right-of-Way or on other City-owned property, then only perform these operations in these designated locations.
- If the Contract Documents do not identify locations for the disposal of waste material and construction debris or excavation of borrow material within the Project Right-of-Way or on other City-owned property, then do not bid assuming that the City will make such locations available.
- If the Contractor's request to use locations within the Project Right-of-Way or on other City-owned property is approved by the Engineer, then the City may allow the Contractor to dispose of waste material and construction debris or excavate borrow material for a fee of \$0.50 per cubic yard.

B. Equipment Storage and Staging. The Contractor may use, fee-free, any portion of the Project within the Project Right-of-Way for staging, equipment storage, or an office site with the approval of the Engineer, provided such usages do not interfere with the Work and are not prohibited by the Contract Documents. Do not bid in anticipation of using any properties within the Project Right-of-Way or any City-owned property that is outside the Project Right-of-Way for equipment storage or staging.

C. Equipment Removal and Site Restoration. Remove all Contractor equipment and completely restore all utilized sites used as required by 104.07 before Final Acceptance as provided in 109.11.

107.13 Responsibility for Damage Claims. The Contractor shall defend, indemnify and hold harmless the City, as well as any participating railroad or railway company, as provided in 107.24 relating to any injuries or damages sustained by any person or property in consequence of any neglect in safeguarding the work or through the use of unacceptable materials in the construction of the Project or on account of any act or omission, by the Contractor, its agents, its subcontractors, or its suppliers.

107.14 Motorist Damage Claims. The resolution of motorist damage claims shall comply with the applicable provisions of City Code.

107.15 Opening Sections of Project to Traffic.

A. When Ordered by the Engineer. Upon written notice from the Engineer directing that the highway, street, bridge, or culvert, or any part thereof be opened for travel, the Contractor shall put the highway, street, bridge or culvert or such portions thereof as the Engineer may direct in such condition for travel as the Engineer may direct, and shall remove all barriers and obstructions. Acceptance of the Work in whole or in part is not involved in this case, but the Contractor shall be responsible for damage by such

traffic to completed or partially completed portions of the Work. Additional costs and time to the Contractor by such action shall be reimbursed in accordance with 104.02.F and 108.06.D, as applicable.

B. When Progress is Unsatisfactory or Work is Suspended by the Contractor.

When a portion of a roadway or a structure is completed and the progress schedule for the Work has not been met or the Contractor suspends work for over fourteen days during the normal construction season, the Engineer on written notice to the Contractor may order the road or structure to be opened for travel and the Contractor shall place the highway, street, structure, or portions thereof in such condition for travel as the Engineer may order and shall remove all barriers and obstructions at no cost to the City.

107.16 Contractor's Responsibility for Work. Until Final Acceptance of the Project by the Engineer, the Contractor shall have the charge and care thereof and shall take every precaution against injury or damage to any part thereof by the action of the elements, from vandalism, from vehicular accidents, or from any other cause, whether arising from the execution or from the non-execution of the Work. The Contractor shall rebuild, repair, restore and make good all injuries or damages to any portion of the Work occasioned by any of the above causes before Final Acceptance and shall bear the expense thereof.

In case of suspension of work by the Contractor, or under the provisions of 105.01.B, the Contractor shall be responsible for the Work and shall take such precautions as may be necessary to prevent damage to the Work, provide for adequate drainage, erect any necessary temporary structures, temporary pavements, signs, or other facilities, and providing required maintenance of traffic and public and private access to property, all at the Contractor's expense. During such period of suspension of work, the Contractor shall properly and continuously maintain in an acceptable growing condition all living material in newly established plantings, seeding, and sodding furnished under the Contract, and shall take adequate precautions to protect new tree growth and other important vegetative growth against injury.

107.17 Contractor's Responsibility for Utility Property and Services. At points where the Contractor's operations are adjacent to properties of railway, telephone, cable, fiber optics, and power companies, or are adjacent to private wells, private wastewater disposal facilities, private stormwater conveyance systems and other utilities or property, damage to which might result in considerable expense, loss, or inconvenience, work shall not be commenced until all arrangements necessary for the protection thereof have been made.

The Contractor shall cooperate with the owners of any underground or overhead utility lines in their protection and in removal and rearrangement operations in order that these operations may progress in a reasonable manner, that duplication of rearrangement work may be reduced to a minimum, and that services rendered by those parties will not be unnecessarily interrupted.

In the event of interruption to underground or overhead utility services, water lines, private water wells, private wastewater disposal facilities or utility services as a result of accidental breakage or as a result of being exposed or unsupported, the Contractor shall immediately notify the occupants of nearby premises and the proper authority or operator of the utility facility of the disruption and shall cooperate with the said authority in the restoration of service. If water or sewer service is interrupted, repair work shall be

continuous until the service is restored by a licensed Contractor. No work shall be undertaken around fire hydrants until provisions for continued service have been approved by the local fire authority.

107.18 Furnishing Right-of-Way. The City will be responsible for the securing of all necessary rights-of-entries in advance of construction deemed necessary by the City. Any exceptions will be indicated in the Contract Documents.

107.19 Personal Liability of Public Officials. In carrying out any of the provisions of these specifications, or in exercising any power or authority granted to them by or within the scope of the Contract, there shall be no liability of the Director or other City-authorized representatives, either personally or as officials of the City, it being understood that in all such matters they act solely as agents and representatives of the City.

107.20 No Waiver of Legal Rights. No action or inaction by the City, including but not limited to, the inspection by the Engineer, nor by any inspector or duly authorized City representatives, nor any order, measurements, or certificate by the Director, or said representatives, nor any order by the Director for the payments of money, nor any payment for, nor acceptance of any Work by the Engineer, nor any extension of time, nor any possession taken by the City or its duly authorized representatives, shall operate as a waiver of any provision of this Contract, or of any power herein reserved to the City, or any right to damages herein provided, or any other rights or remedies that the City may have under the Contract, at law or otherwise; nor shall any waiver of any breach of the Contract be held to be a waiver of any other subsequent breach.

107.21 OSHA. All Contractors shall comply with the provisions of the Occupation Safety and Health Act of 1972 and all amendments thereto.

107.22 Litigation. All lawsuits involving claims, counterclaims, disputes and other matters in question between the City, its agents and employees, and the Contractor arising out of or relating to this Contract or its breach shall be brought in and decided by a court of competent jurisdiction within the County of Franklin, State of Ohio, and the law of Ohio shall govern without reference to its conflict of laws rules, if applicable.

107.23 Environmental and Natural Resources Protection. Comply with all Federal, State, and local laws and regulations controlling protection of the environment and natural resources. Avoid polluting streams, lakes, ponds, and reservoirs with fuels, oils, bitumens, chemicals, sediments, or other harmful materials, and avoid polluting the atmosphere with particulate and gaseous matter. Adopt sustainability best management practices, including clean and efficient energy use, the use of recycled materials if allowed by the Contract Documents, and waste reduction and recycling.

A. Water Pollution Control. The Contractor shall comply with all federal, state and local water pollution control laws and regulations, permits, plans, and policies, including but not limited to:

- The Clean Water Act and the regulations promulgated thereunder;
- Ohio Revised Code Chapter 6111 and the regulations promulgated thereunder;

- City of Dublin Stormwater Design Manual;
- Individual NPDES Permits issued for City of Dublin Facilities, if applicable;
- Ohio General Permit to Discharge Stormwater associated with Industrial activity, if applicable;
- Ohio General Permit for filling Category 1 and Category 2 Isolated Wetlands;
- Ohio EPA General Permit for Storm Water Discharges Associated with Construction Activity;
- Stormwater Pollution Prevention Plans adopted for City of Dublin facilities and/or required for the Project pursuant to the Clean Water Act;
- Any Spill Prevention Control and Countermeasures Plan required under the Clean Water Act;
- Dublin Erosion and Sediment Pollution Control Regulation latest revision.

When equipment is working next to a City storm sewer inlet, stream, lake, pond, or reservoir, spill response equipment is required in the event of a hydraulic leak. Do not stockpile fine material next to a sewer inlet, stream, lake, pond, or reservoir.

Take precautions to avoid demolition debris and discharges associated with the excavation and hauling of material from entering the stream. Remove any material that does enter a storm sewer or stream immediately.

When excavating in or adjacent to streams, separate such areas from the main stream by a dike or barrier to keep sediment from entering the stream. Take care during the construction and removal of such barriers to minimize sediment entering the stream.

Accomplish control of ground water and water in excavations in a manner that prevents the degradation of the water quality of any surface water. Install wells and well points with suitable screens and filters where necessary to prevent the continuous pumping of fines. Pump sediment-laden water in a manner to prevent introduction into the city storm sewer system or degradation of streams, lakes, ponds, or other areas of water impoundment. Such prevention may involve but is not limited to the means and methods described in Item 207. Use the methods necessary to prevent adverse effects to surface waters as provided in OAC-3745-1-04. The cost of constructing and maintaining these measures is incidental to the Contract.

Contain, collect, characterize and legally dispose of all waste water and sludge generated during the work. Do not allow or mix any waste water with storm water. Do not discharge any waste water without the appropriate regulatory permits. Manage waste water and sludge in accordance with ORC Chapter 6111 and all other laws, regulations, permits and local ordinances relating to this waste. Waste water management is incidental to the Work unless otherwise specified in the contract.

B. Dredging, Filling, and Construction Activities in the Waters of the United States or Isolated Wetlands.

When the Work involves dredging, filling, and/or construction in the waters of the United States as defined by federal law, including but not limited to wetlands, and ephemeral and intermittent streams with a significant nexus to the navigable waters of the United States, the Contractor shall:

- Comply with the applicable United States Army Corps of Engineers (USACE) Nationwide General Permit, including any requirement to file a pre-construction notification or to obtain an individual permit;
- Comply with any applicable USACE Nationwide Permits Regional General Conditions, Nationwide Permits for the State of Ohio, promulgated by the USACE Huntington District Engineer;
- Comply with the applicable Ohio EPA Section 401 Nationwide Permits Certification General Conditions and Limitations and Special Conditions and Limitations; and
- Obtain an Ohio EPA Section 401 Certification for dredging, filling, and/or construction activities in the waters of the United States.

When the Work involves dredging, filling, and/or construction activities in an isolated wetland, the Contractor shall obtain from the Ohio EPA an isolated wetlands permit as required by ORC Sections 6111.02 through 6111.028

C. Construction Activities or Filling in Special Flood Hazard Areas.

When the Work involves construction activities or filling in a Special Flood Hazard Area as defined in the City of Dublin Flood Plain Management Regulations, and these activities will occur within the Dublin city limits, the Contractor shall:

- Obtain a Special Flood Hazard Area Development and Use Permit from the City of Dublin, Division of Engineering prior to beginning the Work;
- Obtain prior approval for the Work from the Federal Emergency Management Agency if required under the Dublin Flood Control Regulations and 40 C.F.R. 60.3; and
- Comply with the flood plain filling mitigation requirements of the Dublin Stormwater Design Manual and Flood Control Regulations.

When the Work involves construction activities or filling in a Special Flood Hazard Area outside the Dublin City limits, the Contractor shall, to the extent requested, assist Dublin in obtaining all necessary permits and comply with the flood plain management regulations of the jurisdiction in which these activities will occur.

D. Air Pollution Control. The Contractor shall comply with Ohio's Air Pollution Control Laws and Regulations, ORC Chapter 3704 and the regulations promulgated thereunder, including but not limited to controlling fugitive dust emissions as required under OAC 3745-17-08.

E. Solid and Hazardous Waste Management. The Contractor shall manage all solid and hazardous wastes generated in carrying out the Work in compliance with Ohio's Solid and Hazardous Waste Laws, ORC Chapter 3734 and the regulations promulgated thereunder.

F. Endangered Species. Prior to engaging in any activities that may impact the habitat of threatened or endangered species; the Contractor shall perform any environmental review required under the National Environmental Policy Act, the Endangered Species Act, or Ohio laws and regulations.

G. Historic Preservation. Where the Work may impact archaeological, historic, or cultural resources, the Contractor shall conduct any assessments, reviews, and/or studies required under the applicable provisions of the National Environmental Policy Act or other federal law and Ohio's Historic Preservation Laws and regulations, including but not limited to ORC Section 149.53 and OAC Chapter 149-1.

H. Recordkeeping. The Contractor shall maintain records establishing compliance with all applicable federal, state and local laws and regulations, permits, plans, and policies related to environmental and natural resources protection.

107.24 Indemnification. To the fullest extent permitted by law, the Contractor shall defend, indemnify and hold harmless the City and its officers, employees, representatives, and agents (hereinafter collectively referred to as the "City") against any and all claims, actions, damages, costs, and legal liability of every name and nature that the City may sustain, incur or be required to pay (including, but not limited to, consultant and attorney's fees, disbursements, costs or other expenses) arising out of or in connection with the Work by reason of any action, inaction, omission, or breach by the Contractor, its agent(s) or person(s) employed by the Contractor, or any of its subcontractors or suppliers, including, but not limited to, (i) failure to comply with the terms and conditions of the Contract or pertinent subcontract(s), or (ii) any of the Contractor's liability under the Contract Documents.

The City may retain any amounts due or that may become due to the Contractor as may be necessary to satisfy any claim for indemnification under the Contract. The Contractor's obligation under this Section shall not be deemed waived by the failure of the City to retain in whole or any part of such monies due to the Contractor, nor shall such suit, action, damages and/or costs have to have been resolved or determined prior to release of any monies to the Contractor under the Contract, nor shall such obligation be deemed limited or discharged by the procurement of any insurance for liability for damages imposed by law upon the Contractor, its subcontractors or suppliers, or the City.

In applying this indemnification provision, the Contractor shall be required to indemnify the City in any action brought by an employee of the Contractor, or any employee of its subcontractors or suppliers, whenever such employee is found to have been comparatively negligent, even if Contractor and/or its subcontractors or suppliers are found not to have been negligent themselves.

The Contractor shall advise the Engineer in writing immediately upon its receipt of notice, actual or otherwise, of any (a) incident or circumstance or (b) claim or action that could give rise to a claim covered by this indemnification provision.

ITEM 108 PROSECUTION AND PROGRESS OF WORK

108.01 Subletting of Contract

108.02 Preconstruction Conference

108.03 Prosecution and Progress

108.04 Limitation of Operations

108.05 Character of Workers, Methods, and Equipment

108.06 Determining a Time Extension to the Completion Date and Payment for Excusable Delays

108.07 Failure to Complete on Time

108.08 Unsatisfactory Progress and Default of Contractor

108.09 Certified Payroll

108.01 Subletting of Contract. The Contractor must obtain the Director's written consent to sublet, sell, transfer, assign, or otherwise relinquish any rights, title, or interest in the Work. Upon the Engineer's request, the Contractor shall also promptly furnish copies of subcontracts and supply agreements.

The Contractor must perform Work amounting to not less than 51 percent of the Contract Sum with its own organization, unless otherwise approved by Director. Any items set forth in the Proposal to be "specialty items" may be performed by subcontract and the cost of any such specialty items so performed by sub- contract may be deducted from the Contract Sum before computing the amount of work required to be performed by the Contractor's own organization. The Contractor's percentage of the Contract Sum includes the cost of materials and manufactured products purchased by Contractor, but not the cost of materials and manufactured products purchased by subcontractors. The Engineer will calculate Contractor's percentage based on the quantities shown in the Proposal and the unit prices of the Contract items to be performed by the Contractor's organization.

All subcontractors must hold a valid contract compliance certification number before the City will approve the subcontractor pursuant to this Section.

108.02 Preconstruction Conference. Unless otherwise provided for in the Contract Documents, no Work shall be commenced under this Contract until a Preconstruction Conference has been held.

After the Contract is fully executed, the City will send Preconstruction Conference notices to all parties. In general, fourteen days are required to notify all interested parties of a Preconstruction Conference. The Contractor shall take due note of this requirement and aid in the timely scheduling of the Preconstruction Conference to avoid unnecessary delays in the commencement of the Work.

At or before the Preconstruction Conference, the Contractor shall submit to the Engineer the baseline construction schedule prepared according to 108.03. Furnish a list of proposed subcontractors and

material suppliers at or before the Preconstruction Conference. If the Contractor fails to provide the required submissions at or before the Preconstruction Conference, the Engineer may order the Preconstruction Conference suspended until they are furnished.

108.03 Prosecution and Progress. The Construction Schedule shall reflect the Contractor's detailed construction plan to be implemented during all phases of the construction process, Notice to Proceed to final completion. The approved Construction Schedule also serves as a means for the Contractor to schedule, coordinate and evaluate the work of its subcontractors and suppliers. The Contractor is required to include and involve all subcontractors and suppliers in the development and updating of the Construction Schedule. The Contractor shall produce schedule updates and reports to analyze project progress and current status and shall be prepared to respond to reasonable requests from the Engineer for additional information.

Unless a specific Pay Item is included in the Proposal, the cost of preparation of the Construction Schedule, progress updates, and other schedule related information requested by the Engineer is to be included within the Contractor's bid prices for the various pay items.

Failure to comply with Project scheduling requirements may be grounds for termination of the Contract. In addition, the City may withhold pay estimates until all scheduling requirements, including providing schedule updates, are met and accepted by the Engineer.

The Contractor shall provide the Engineer with a minimum twenty-four (24) hour advance notice prior to performing any Work on the Project.

When a pay item for a CPM schedule is included in the Bid Documents, use Type B – Critical Path Method (CPM) Schedule. Otherwise, all projects shall be scheduled using the Type A – Basic Construction Schedule.

A. Basic Construction Schedule (Type A).

1. Initial/Baseline Construction Schedule Submission. The Contractor shall submit to the Engineer at or before the Preconstruction Conference a baseline bar chart construction schedule and written narrative describing the sequence of construction, and critical events including delivery of materials, services, or equipment.

The Engineer will review the schedule and within seven calendar days of receipt, will either accept the schedule or provide the Contractor with written comments. Acceptance of the schedule does not revise the Contract Documents. Provide clarification or any needed additional information within seven calendar days of a written request by the Engineer. The City will withhold pay estimates until the Engineer accepts the schedule.

The Contractor shall provide a working day schedule that shows the various activities of Work in sufficient detail to demonstrate a reasonable and workable plan to complete the Project by the Completion Date. Show the order and the sequence for accomplishing the Work. Describe all major activities in sufficient detail so that the Engineer can readily identify the Work and measure the progress. The bar chart schedule must reflect the scope of work, required phasing, maintenance of traffic, interim completion dates, final

Completion Date, and other project milestones established in the Contract Documents. Include activities for major submittals, as provided in 105.02, major material procurement and fabrication, and the delivery of key materials, plant, and equipment, and other similar activities. The schedule must be detailed on letter or 11 x 17 sized paper.

2. Completion Date. The baseline construction schedule shall not indicate a completion date that is earlier than the Contract Completion Date.

3. Monthly Progress Updates. Prior to the 5th of every month, submit an updated schedule that includes the following:

- Date that all progress is being recorded through;
- Actual start date of progressed activities;
- Actual finish date of completed activities;
- Actual percent complete for each progressed activity.

4. Changed Conditions Reporting.

a. Schedule Revisions. If the Contractor's operations are materially affected by changes in the Work plan or in the amount of the Work or if the Contractor has failed to comply with the approved Construction Schedule, the Contractor shall submit a revised construction schedule. The revised schedule shall show how the Contractor proposes to prosecute the balance of the Work. All schedule revisions are subject to Engineer's approval.

b. Recovery Schedules. If the Monthly Update Schedule or Revised Monthly Update Schedule projects a finish date for the Project later than the current Completion Date, submit a recovery schedule showing a plan to finish by the current Completion Date as requested by the Engineer, at no additional cost to the City. Such measures to regain schedule may include, but are not limited to, increasing the size of the workforce; increasing the number of working hours per shift, shifts per work day, work days per week, the amount of equipment or combination thereof; or rescheduling of work activities to achieve maximum concurrence of work efforts, all at no additional cost to the City. The Contractor shall submit the recovery schedule within five calendar days after the request is made by the Engineer.

The City will withhold Estimates until the Engineer approves the recovery schedule. The approved Recovery Schedule will supersede the then-current Construction Schedule and be used as the basis for progress evaluations. Acceptance by the City of the recovery schedule and/or recovery plan shall not serve as a time extension approval.

c. Delay and Analysis of the Construction Schedule. The Contractor shall not be entitled to and hereby waives any extension of time resulting from any event, circumstance, condition or cause unless a Claim for an extension of time is made in accordance with the requirements of 104.03. In the event the Contractor requests an extension of the Contract Time, it shall furnish such justification and supporting

evidence as the Engineer may deem necessary for a determination of whether or not the Contractor is entitled to an extension of time under the provisions of the Contract.

The written claim seeking an extension of time must include the following information:

- Nature of the delay.
- Date (or anticipated date) of commencement of delay.
- Identification of person(s) or organization(s) or events affected by delay.
- Activities on the Construction Schedule affected by the delay, or new activities created by the delay and their relationship with existing activities.
- Identification of person(s) or organization(s) or event(s) the Contractor believes responsible for the delay.
- Anticipated extent of the delay.
- Recommended action to avoid or minimize the delay.
- Identification of the pertinent contract provisions and supporting documents or project records.

Any request for an extension of the Contract Completion Date must be processed per 108.06. If there is a time extension request pending, the Contractor shall not include the time extension in a monthly progress update until the request is approved by the City and shall not use the time extension request as a basis for refusing to prepare and submit a recovery schedule.

B. Critical Path Method (CPM) Schedule (Type B).

The Contractor shall submit to the Engineer a baseline construction schedule as described in 108.03.B.1 in the form of a computer generated CPM Schedule in a format approved by the Engineer or as specified. The Contractor shall designate a Scheduler(s) who shall be responsible for preparing and maintaining the schedule and coordinating with the Engineer. The Contractor shall provide personnel or a subcontractor specializing in CPM scheduling with experience in scheduling three projects of a similar complexity to the Project. If requested by the Engineer, provide at the preconstruction meeting the experience and qualifications of the scheduler(s).

The CPM Construction Schedule shall clearly show the sequence of work and interdependence of activities by utilizing predecessor and successor relationships.

1. Initial/Baseline Construction Schedule Submission. The Contractor shall submit a baseline schedule within fifteen calendar days from the Notice to Proceed. The baseline schedule will be in CPM format and as described herein. The baseline construction schedule shall provide a complete and detailed sequence of operations of the work within the time limits specified in the Contract. The baseline construction schedule shall show the order in which the Contractor proposes to carry out the work, the dates on which

the various portions of the work shall commence, and the dates on which the Contractor contemplates completing the Work.

In addition to providing the baseline construction schedule, the Contractor shall provide an initial work plan narrative containing the following: the planned number of crews: crew type, approximate crew size, and equipment.

The Engineer will review the baseline schedule and will provide a disposition of the schedule within fourteen calendar days of receipt. The Engineer's review of the baseline schedule will be for compliance with the Specifications and Contract requirements. Approval by the Engineer shall not relieve the Contractor of any of its responsibilities for the accuracy or feasibility of the schedule.

For baseline schedules that are not accepted, the Engineer shall indicate in writing all portions of the schedule that are not in compliance with the Contract requirements. The Contractor shall make the necessary revisions and resubmit the revised schedule within seven Calendar Days. The Engineer will reject baseline schedules that are not in compliance with Contract requirements. The Engineer shall conduct a mandatory meeting with the Contractor and the Contractor's Schedule Representative within seven calendar days of the Engineer's written notice for any baseline schedule that is not accepted. The purpose of this meeting is to resolve issues with the baseline schedule. At this meeting the Contractor shall provide clarification and additional information necessary for the Engineer to accept the baseline schedule.

The City shall withhold pay estimates until the baseline schedule is "accepted". Acceptance of the baseline schedule does not revise the Contract Documents.

a. Schedule Requirements. Provide a working day schedule that shows the various activities of work in sufficient detail to demonstrate a reasonable and workable plan to complete the Project by the Contract Completion Date. Show the order and interdependence of activities and the sequence for accomplishing the Work. Describe all activities in sufficient detail so that the Engineer can readily identify the elements of the Work and measure the progress of each activity. The baseline schedule must reflect the scope of work, required phasing, maintenance of traffic requirements, interim completion dates, the Completion Date, and other project milestones established in the Contract Documents. Include activities for major submittals, working drawings, shop drawings, submittal review time for the City, material procurement and fabrication, and the delivery of materials, plant, and equipment, and other similar activities.

The Contractor shall be responsible for assuring subcontractor and supplier work, is included in the schedule. The Contractor shall be responsible for assuring that all work sequences are logical and that the schedule indicates a coordinated plan.

Failure by the Contractor to include any element of Work required for performance of the Contract shall not excuse the Contractor from completing all Work by the Completion Date. Omissions and errors shall be corrected as described in 108.03.B.4.a and will not affect Contract Time.

b. CPM Schedule Format.

i. Administrative Identifier Information: The following information should be included in the title bar on all schedule sheets:

a. Project Number

b. Project Name

c. Project Location

d. Data Date

e. Completion Date

f. Contractor's Name

ii. Project Activities shall represent an uninterrupted action, task, component, process or operation and include the following:

a. Activity Identification (ID). Assign each activity a unique identification number. Activity ID length shall not exceed 10 characters. Once accepted, the Activity ID shall be used for the duration of the project.

b. Activity Description. Each activity shall have a narrative description consisting of a verb or work function (e.g.; form, pour, excavate) and an object (e.g.; slab, footing, underdrain).

c. Activity Original Duration. "Activity Original Duration" is defined as the amount of time required to complete the activity based on a set of planned resources necessary to complete the activity. Assign a planned duration in working days for each activity. Do not exceed a duration of 20 working days for any construction activity unless approved by the Engineer. Do not represent the maintenance of traffic, erosion control, and other similar items as single activities extending to the Completion Date. Break these Pay Items into component activities in order to meet the duration requirements of this paragraph.

d. Activity Relationships:

1. All activities, except the first activity, shall have a predecessor(s). All activities, except the final activity, shall have a successor(s).

2. Use only finish-to-start relationships with no leads or lags to link activities.

a. No activity shall involve more than one trade or specialty subcontractor. There is to be at least one activity for every subcontractor performing work on the Project.

b. Provide activities for procurement of major equipment and any other long lead time items.

c. Any activity durations that are based on other than a single shift operation are to be clearly and individually identified with an appropriate explanation of how those multi-shift activities relate to the other schedule activities. Shift work needs to be consistently addressed either in an activity id and/or in

an activity code. The schedule is considered to be based on an eight hour days, five day work-weeks unless otherwise noted.

iii. Project Milestones. Milestones shown in the Contractor Documents shall be included in the Baseline Schedule. Milestone dates may be modified only by Change Order or Contract Modification. In addition to any milestones identified in the Contract Documents, include the following milestones in the schedule:

a. Start Project: The Contractor shall include as the first milestone in the schedule, a milestone named "Start Project". The date used for this milestone is the date provided in the Notice to Proceed.

b. End Project Milestone: The Contractor shall include as the last activity in the project schedule, a milestone named "End Project". The date used for this milestone is considered the project completion date.

c. Start Phase Milestone: The Contractor shall include as the first activity for a project phase, an activity named "Start Phase X", where "X" identifies the phase of work.

d. End Phase Milestone: The Contractor shall include as the last activity in a project phase, an activity named "End Phase X" where "X" identifies the phase of work. The Contractor may include additional milestones, but at a minimum contractual milestones.

iv. Level of Effort Activities: Use level of effort activities to show the duration of specified contract work periods, phases and road closures. The level of effort activity type is allowed to have a start-to-start relationship with the first activity in a series of activities and a finish-to-finish relationship with the last activity in a series of activities.

v. Constraints: The Construction Schedule is to have no constrained activities except the Start Project Milestone and the End Project Milestone dates, unless otherwise permitted by the Engineer. Interim dates are to be controlled by logic and activity duration only. Mandatory start and finish constraints are not to be used in the schedule.

vi. Seasonal Weather Conditions: Anticipated weather days outlined in the Table 108.07-1 identify the number of days each month the Contractor must plan for weather impacts. Seasonal weather conditions shall be considered and included in the planning and scheduling of all Work in accordance with Table 108.07-1.

Anticipated weather days specified in Table 108.07-1 shall be incorporated in the schedule using work calendars. In the baseline schedule, random non-sequential weekdays shall be considered non-workdays to match the anticipated weather days total for that month according to 108.07. Anticipated weather days must be the same dates on all calendars affected by weather. Subsequent schedule updates shall remove the random weather days and replace them with the actual agreed weather days at no additional cost to the City. The winter shutdown periods shall be shown using non-work calendars. The activity can be assigned to a calendar indicating time periods of non-work. These custom calendars can be created to show days, weeks, or months of non-work. Seasonal weather conditions shall be considered and included in the planning and scheduling of all work.

vii. Linking Projects: Independent projects shall not be linked.

vii. Activity Codes: The Contractor shall, at a minimum, include codes for Area, Phase, and Responsibility for each activity. At the Engineer's approval, the Contractor may use a Work Breakdown Structure (WBS) to organize the construction schedule.

ix. Schedule Options: The schedule may only be calculated using actual dates. Schedule durations are to be contiguous. Total float shall be calculated as finish float. All activities must have a predecessor/successor relationship except for the first activity (Project Start) and the last activity (Project Finish).

x. Calendars: All calendars are to be based on a five-day, work week and activity durations are to be in working days unless otherwise approved by the Engineer. Calendars are to include any recognized holidays (when observed) that will shorten a five working-day week. The construction schedule shall include multiple calendars appropriate to the activity (i.e. 7 day calendar for cure time, burn-in time, settlement period, etc). Calendars should reflect weather restrictions for certain work (i.e. asphalt, painting, etc.).

c. Completion Date. The baseline construction schedule shall not indicate a completion date that is earlier than the Contract Completion Date.

d. Submission Requirements. Submit all schedules within the time frames specified. Submit the schedule and information in electronic file format.

Submit the following information along with the electronic baseline schedule:

i. A baseline schedule in a bar chart format, including the Administrative Identifier Information on the first page of the schedule. For each activity on the chart, indicate the Activity ID, Activity Description, Original Duration, Remaining Duration, Total Float, Early Start Date, Early Finish Date, and Calendar ID. Use arrows to show the relationships among activities.

ii. A baseline schedule in a bar chart format, on paper. Identify the critical path of the project on the bar chart in red. The critical path is defined as; the longest path of activities in the project that determines the project completion date. The activities that make-up the critical path of activities are the "Critical Activities."

iii. A Six Week Look Ahead Schedule in bar chart format. This schedule will have all the requirements of the baseline schedule in bar chart format except that it shall be limited to those activities that have an early start or early finish within a six week period of the data date.

iv. A Scheduling Statistics Report. Submit a report of baseline schedule statistics, including number of activities, number of activities on the longest path, number of started activities, number of completed activities, number of relationships, percent complete, and number and type of constraints.

v. A Logic Diagram (If requested by the Engineer). Submit a diagram in PERT chart format showing the logic of the baseline schedule.

vi. An Activity ID Sort. Submit a listing of all activities included in the baseline schedule sorted by ascending Activity Identification Number.

vii. A Total Float Sort. Submit a listing of all activities included in the baseline schedule sorted by increasing total float and by early start date.

viii. A Detailed Predecessor/Successor Sort. Submit a listing of all activities included in the baseline schedule indicating the activities that immediately precede and immediately succeed that activity in the schedule logic.

2. Float. Float is not time for the exclusive use or benefit of either the City or the Contractor but is to be a shared commodity to be reasonably used by either party to mitigate delay to the Contract Completion Date.

Pursuant to the float sharing requirements of this Section, the use of float suppression techniques such as: preferential or logic sequencing (arranging critical path through activities more susceptible to City caused delay); special lead/lag restraints; extended activity durations; as late as possible constraints; imposed constraint dates other than those required by the Contract Documents; and the like are prohibited and shall be cause for rejection of the project schedule or its updates.

a. Definitions of Float: "Float" is defined as the amount of time between the early start date and the late start date (or the early finish date and late finish date) of any activity in the Construction Schedule. "Total Float" is defined as the amount of time any given activity or path of activities may be delayed before it will affect the Contract Completion Date. Project Float is the length of time between the End Project Milestone and the Contract Completion Date.

Ownership of Float: Float available in the schedule, at any time, shall not be considered for the exclusive use of either the City or the Contractor. During the course of contract execution, any float generated due to the efficiencies of either party is not for the sole use of the party generating the float; rather it is a shared commodity to be reasonably used by either party. Efficiencies gained as a result of favorable weather within a calendar month, where the number of days of normally anticipated weather is less than expected, will also contribute to the Project Float. A monthly progress update schedule showing work completing in less time than the contract time, and accepted by the City, will be considered to have Project Float. Project Float will be a resource available to both the City and the Contractor. No time extensions will be granted nor delay damages paid unless a delay occurs which impacts the Project's critical path, consumes all available float and extends the work beyond the Contract Completion Date.

Negative Float: Negative float will not be a basis for requesting time extensions. Any extension of time will be addressed in accordance with 108.03.B.4.c. Scheduled completion date(s) that extend beyond the Contract (or phase) Completion Date(s) may be used in computations for assessment of liquidated

damages. The use of this computation shall not be construed as an order by the City to accelerate the Work.

3. Monthly Progress Updates. Prior to the 5th of every month, submit an updated schedule with a data date of the last day of the previous month, unless a different date is agreed to by the Engineer. A monthly update schedule is a schedule in which only progress is updated from the prior data date to the current data date. Work added and/or excusable delays encountered since the prior data date must be represented as a schedule revision as described in 108.03.B.4.a.

a. Update Requirements.

i. Submit the monthly updated bar chart on paper and a copy of the updated schedule in electronic file format. The Engineer shall accept or not accept the schedule update within seven calendar days of receipt of the updated CPM schedule.

ii. Correct out-of-sequence progress listings generated by the Scheduling Statistics Report as directed by the Engineer.

iii. Maintain schedules to record actual start and finish dates of completed activities on a weekly basis until otherwise notified by the Engineer.

iv. Identify the actual start date and remaining duration for all activities in progress. Indicate progress of each activity to date of revision using remaining duration, not percent complete.

v. Show accumulated percentage of completion of each item for updates, and total percentage of Work completed, as of the schedule's data date.

b. Submit the following with each updated schedule:

i. CPM Schedule in Bar Chart Format - Two large printed copies, minimum 22" X 34"

Two Week Look Ahead CPM Schedule in Bar Chart Format

Logic Diagram (If requested by the Engineer)

Activity ID Sort (If requested by the Engineer)

Total Float Sort (If requested by the Engineer)

Detailed Predecessor/Successor Sort (If requested by the Engineer)

Schedule Statistics Report

The Contractor may submit a statement that there were no changes in the schedule logic, activity durations, or calendars since the previous update in lieu of submission of items 3, 4, 5 and 6.

c. Provide two printed copies of a Narrative Status Report that includes the following:

- i. A description of the general status of the Work.
 - ii. Any outstanding issues that affect the construction schedule, i.e., any current and anticipated delaying factors, and describe their impact on the construction schedule, the critical path and the Project Completion Date.
 - iii. Any activities added to the construction schedule with an explanation for their addition.
 - iv. Any activities deleted from the construction schedule with an explanation for their deletion.
 - v. Any changes in the relationships of activities with an explanation.
 - vi. Any changes to worker hours or budgeted costs with an explanation.
 - vii. An explanation of any recovery measures being taken.
- d. Estimates will not be processed unless all schedule requirements are met.
- e. Early Completion Monthly Update Schedule. In the event that an accepted monthly progress update indicates a completion date that is earlier than the Contract Completion Date, the Contractor shall not be entitled to any extension in Contract time or recovery of any cost for delay, disruption, interference, hindrance, extension, or acceleration costs incurred, however caused, because of an extension of the early completion date until such time as the network or activities affected increases the critical path duration of the CPM Schedule beyond the Contract Completion Date.
- f. Late Completion Monthly Update Schedule. A Late Completion Monthly Update Schedule is defined as a monthly update schedule submitted by the Contractor in which the Finish Date exceeds the Contract Completion Date.
- g. The project schedule shall be reviewed at each progress meeting.
- h. Any corrections to the schedule shall be made and submitted to the Engineer within seven calendar days.

4. CPM Changed Conditions.

a. Schedule Revisions. If the Contractor's operations are materially affected by changes in the Work plan or in the amount of the Work or if the Contractor has failed to comply with the approved Construction Schedule, the Contractor shall submit a revised construction schedule, which schedule shall show how the Contractor proposes to prosecute the balance of the Work.

Any addition of new activities or new calendars or changes to existing activities, calendars or logic constitute a revision. All revisions must be reported in narrative form on a cover sheet accompanying the monthly update schedule. The schedule revision must be accompanied by a narrative detailing the changes in logic, activities, and durations from the accepted baseline.

Any revision which modifies the critical path or impacts an interim date or project completion date must be represented on a companion schedule submitted with the monthly update schedule or as a fragnet within the monthly update schedule. A fragnet is defined as the sequence of new activities that are proposed to be added to the existing schedule. The fragnet shall identify the predecessors to the new activities and demonstrate the impacts to successor activities. If submitted as a fragnet, the Contractor shall compute two Finish Dates. The first Finish Date shall be computed without consideration of any impact by the fragnet. The second Finish Date shall be computed with consideration of any impact by the fragnet. The Contractor shall also submit a written narrative stating the reason for the proposed revisions. The Engineer shall “approve” or “reject” proposed revisions within ten days of receipt of appropriate schedules and narrative. All approved revisions will be incorporated into the Monthly Update Schedule which will become the Revised Monthly Update Schedule.

b. Recovery Schedules. If the Monthly Update Schedule or Revised Monthly Update Schedule projects a finish date for the Project more than fourteen calendar days later than the current Completion Date, submit a recovery schedule showing a plan to finish by the current Completion Date if requested by the Engineer, at no additional cost to the City. The recovery schedule shall also include a written plan detailing how the Contractor proposes to recover the lost time and meet the Completion Date. Such measures may include, but are not limited to, increasing the size of the workforce; increasing the number of working hours per shift, shifts per work day, work days per week, the amount of equipment or combination thereof; or rescheduling of work activities to achieve maximum concurrence of work efforts, all at no additional cost to the City. The Contractor shall submit the recovery schedule within ten days after the request is made by the Engineer.

The City may withhold Estimates until the Engineer approves the recovery schedule. The Engineer will use the schedule to evaluate time extensions and associated costs requested by the Contractor. In the event the current Completion Date is in dispute, the recovery schedule must be submitted once the dispute has been resolved.

The Engineer will review the Contractors’ revised plan and provide comments. The Contractor is to incorporate or resolve all such comments to the satisfaction of the Engineer. At that time, the revised Construction Schedule will supersede the then-current Construction Schedule and be used as the basis for progress evaluations. Acceptance by the City of the revised construction schedule and/or recovery plan shall not serve as a time extension approval.

c. Delay and Analysis of the Construction Schedule. The Contractor shall not be entitled to and hereby waives any extension of time resulting from any event, circumstance, condition or cause unless a request for an extension of time is made in accordance with the requirements of 104.03. In the event the Contractor requests an extension of the Contract Time, it shall furnish such justification and supporting evidence as the Engineer may deem necessary for a determination of whether or not the Contractor is entitled to an extension of time under the provisions of the Contract.

Any request for an extension of the Contract Completion Date must be processed per 108.06. If there is a time extension request pending, the Contractor shall not include the time extension in a monthly progress

update until the request is approved by the City and shall not use the time extension request as a basis for refusing to prepare and submit a recovery schedule in accordance with this Section. The City may withhold payment estimates until the progress schedule, revised progress schedule and/or recovery plan is approved by the City. Should the prosecution of the Work, for any reason, be discontinued, the Contractor shall notify the Engineer at least one Work Day in advance of resuming operations.

Submit the impacted schedule with the request for time extension. Include a narrative report describing the effects of new activities and relationships to interim and contract completion dates. The written claim seeking an extension of time must include the following information:

- i. Nature of the delay.
- ii. Date (or anticipated date) of commencement of delay.
- iii. Identification of person(s) or organization(s) or events affected by delay.
- iv. Activities on the Construction Schedule affected by the delay, or new activities created by the delay and their relationship with existing activities.
- v. Identification of person(s) or organization(s) or event(s) responsible for the delay.
- vi. Anticipated extent of the delay.
- vii. Recommended action to avoid or minimize the delay.
- viii. Identification of the pertinent contract provisions and copies of applicable documents and project records.
- ix. Show the impact of the delay on the Critical Path by comparing the original longest path to the current longest path that incorporates the delay.

The determination of the total number of days' extension shall be based upon the most recently approved Schedule Update as of the start of the delay claimed by Contractor and on all data relevant to the extension. Circumstances and activities leading to such claim shall be indicated or referenced in the Contractor's daily field report for the day(s) affected.

Perform the following analysis to compute the duration of the time extension. Submit two paper copies and two electronic copies of each analysis performed.

- i. Determine project progress prior to circumstance(s) necessitating the time extension. Provide an interim schedule updated to the date of the circumstance alleging to have caused delay. This schedule is referred to as the Un-impacted Schedule.
- ii. Prepare a fragmentary network (fragnet) depicting the circumstance that is believed to have delayed the project.

iii. Insert the fragnet into the Un-impacted Schedule, run the schedule calculations and determine the finish date. This schedule is referred to as the Impacted Schedule.

iv. Compare the Impacted Schedule finish date with the Un-impacted Schedule finish date in order to determine the duration of any warranted time extension.

All approved time extensions will be incorporated into the monthly update with the fragnet used to determine impacts incorporated into the schedule.

C. Basis of Payment.

No separate payment will be made for Type A schedules and the cost of such schedule shall be included in the prices bid for the various Pay Items of the Contract.

The City will make payments for Type B Schedules according to 109.07 and as modified by the following schedule:

The City will release 60 percent of the lump sum amount bid for CPM Progress Schedule to the Contractor with the first regular estimate payable after the Engineer has approved the CPM Baseline schedule submission.

The City will release an additional 30 percent of the lump sum amount bid for CPM Progress Schedule to the Contractor with the first regular estimate payable after 50 percent of the original contract amount is complete.

The City will release the remaining 10 percent of the lump sum amount bid for CPM Progress Schedule to the Contractor with the first regular estimate payable after 90 percent of the original contract amount is complete.

The City will pay for the accepted quantities at the contract price as follows:

Item	Unit	Description
108.03	Lump Sum	Type B CPM Progress Schedule

108.04 Limitation of Operations. The Contractor shall conduct the Work at all times in such a manner and in such sequence as will assure the least interference with traffic and other operations of the City and the public. The Contractor shall conduct the Work with due regard to the location of detours and to the provisions for handling traffic. The Contractor shall not open up work that would interfere with other work or operations already started or adversely impact work that is already partially completed. The Engineer may require the Contractor to finish a section on which work is in progress before work or operations are started on any additional sections if the completion and opening of such section is essential to public convenience.

Work Hours. All Work on this Contract shall be performed only during the hours of 7:00 a.m. to 7:00 p.m. unless otherwise indicated in the Contract Documents.

Night Work, Work on Saturday, Sunday and National Holidays. Authorization to work at night, on Saturday, Sunday, and/or National Holidays shall only be upon written permissions of the Engineer or as detailed in the Contract Documents. Requests to work at night, on Saturday, Sunday, and/or National Holidays must be made in writing three working days prior to the night, Saturday, Sunday, and/or Holiday work.

The Contractor is advised, however, that if permission is granted by the Engineer, all work at night, on Sunday and/or National Holidays must be in accordance with Section 150.160 of the Codified Ordinances of the City of Dublin, the City's Noise Ordinance, unless such requirements have been waived by action of the Director.

108.05 Character of Workers, Methods, and Equipment.

A. Labor, Materials and Equipment. The Contractor shall at all times employ sufficient competent labor, materials and equipment for prosecuting the Work to completion in the manner, method, sequence and time required by the Contract Documents. All workers shall have sufficient skill and experience to perform properly the work assigned to them. Workers engaged in special work or skilled work or operations shall have sufficient experience in such work and in the operation of the equipment required to perform all work properly and satisfactorily.

B. Personnel. Any person employed by the Contractor or by any subcontractor who, in the opinion of the Engineer, does not perform their work in a proper and skillful manner or is intemperate or disorderly shall, at the request of the Engineer, be removed forthwith by the Contractor or its subcontractor employing such person, and shall not be employed again in any portion of the Work without the approval of the Engineer.

C. Equipment. All equipment that is proposed to be used on the Work shall be of sufficient type and size and in such mechanical condition as to meet requirements of the Contract and produce a satisfactory quality of Work. Equipment used on any portion of the Work shall be such that no injury to workers, the public, the roadway, adjacent property, or other streets or highways will result from its use.

When the methods and equipment to be used by the Contractor in accomplishing the Work are not prescribed in the Contract, the Contractor may use any methods or equipment that is demonstrated to the satisfaction of Engineer will accomplish the Work in conformity with the requirements of the Contract.

When working or staging on existing pavements that are not including in the contract for replacement or resurfacing, Contractor shall select equipment and sequences such that the existing pavements are not further degraded by the Work. Contractor may use any equipment that increases efficiency or production and that results in additional degradation of the pavements, but agrees that the use of this equipment was used knowingly that degradation of pavements would occur and that all pavements degraded from his Work shall be resurfaced or replaced as determined by the Engineer at no additional cost to the City.

When the Contract specifies that the Work be performed by the use of certain methods and equipment, such methods and equipment shall be used unless others are authorized in writing by the Engineer. If the

Contractor desires to use a method or type of equipment other than those specified in the Contract, the Contractor may request authority from Engineer to do so. The request shall be in writing and shall include a full description of the methods and equipment proposed to be used and an explanation of the reasons for requesting to make the change. If approval is given, it will be on the condition that the Contractor will be fully responsible for producing Work in conformity with Contract requirements. If, after trial use of the substituted methods or equipment, the Engineer determines that the work produced does not meet Contract requirements, the Contractor shall discontinue the use of the substitute methods or equipment and shall complete the remaining Work with the Contract specified methods and equipment. The Contractor agrees that the substitution of methods and equipment shall not be a basis for any Claim seeking additional cost or time.

D. Withholding of Payment. Should the Contractor fail to furnish sufficient competent personnel, materials and equipment for the proper prosecution of the Work, or fail to remove such person(s) as requested by the Engineer, the Engineer may withhold all payment estimates, which are or may become due.

108.06 Determining a Time Extension to the Completion Date and Payment for Excusable Delays.

A. General. The City will extend the Completion Date only for (a) excusable delays as specified in 108.06.B or 108.06.D that (b) delay Work on the critical path as shown on the accepted progress schedule and (c) impact the Completion Date. For purposes of this Section, the critical path is defined as the longest path of activities in the Project that determines the Completion Date. Any delay that is not on the critical path of the Project shall not be excusable or compensable.

The City will not evaluate a request for extension of the Completion Date unless the Contractor notifies the Engineer consistent with the process and timelines as specified in 104.03. In the event that the Contractor does not know the extent of the delay at the time of the first written notice, it shall supplement its notice and schedule analysis per 104.03, 108.03.A.4.c and 108.03.B.4.c as it becomes aware of the extent of the delay for which it is requesting a time extension.

If the Contractor contends that an excusable delay is also compensable as specified in 108.06.D, the Contractor shall also submit a detailed cost analysis of the requested additional compensation in accordance with 109.05 along with the request for an extension of the Completion Date.

The Contractor is responsible for mitigating any delay, whether caused by the City, the Contractor, its subcontractors or suppliers, a third party, or an intervening event. Mitigation efforts may include, but are not limited to, re-sequencing work activities, acceleration, and continuation of work through an otherwise planned shutdown period. The Contractor and the Engineer shall work cooperatively with one another to explore and implement mitigation efforts in a timely manner. The Engineer will measure all time extensions in Calendar Days. The Engineer will not grant an extension of time for delays incurred from December 1 to April 30 unless the Contractor's accepted progress schedule shows work on the critical path occurring during this period. The Engineer may order Contractor to continue the Work after November 30 and compensate Contractor for additional costs incurred due to cold weather work during the period December 1 to April 30.

If the Engineer extends the Completion Date pursuant to 108.06, the City will excuse the Contractor from corresponding liquidated damages as specified in 108.07.

B. Excusable, Non-Compensable Delays. Excusable, non-compensable delays are critical path delays that are not the City's or the Contractor's fault or responsibility. If the conditions in 108.06.A are met, the Engineer will extend the Completion Date only for the following excusable, non-compensable delays:

- Delays due to floods, tornadoes, lightning strikes, earthquakes, or other cataclysmic phenomena of nature.
- Delays due to weather as specified in 108.06.C.
- Extraordinary delays in material deliveries the Contractor or its suppliers cannot foresee or avoid resulting from freight embargoes, government acts, or industry-wide and area-wide material shortages. Delays due to Contractor's, subcontractor's, or supplier's insolvency, actions or omissions, or mismanagement are not excusable.
- Delays due to civil disturbances.
- Delays from fires or epidemics.
- Delays from labor strikes that are beyond the Contractor's, subcontractor's, or supplier's power to settle and are not caused by improper acts or omissions of the Contractor, subcontractor, or supplier.
- Added quantities that delay an activity on the critical path.
- All other delays to the critical path that are not the Contractor's or the City's fault or responsibility.

C. Extension to the Completion Date for Weather or Seasonal Conditions. The Contractor shall be entitled to a non-compensable extension of the Completion Date caused by weather days only as permitted in 108.06.C. A weather day is defined as a Work Day on which weather or seasonal conditions reduced production by more than fifty percent on items of work on the critical path as defined by 108.06.A; provided, however, Sundays and holidays will not be counted as lost Work Days.

Delays caused by weather or seasonal conditions should be anticipated by the Contractor. The following Table 108.06-1 of monthly anticipated abnormally inclement weather delays is based on National Oceanic and Atmospheric Administration (NOAA) or other similar data for Dublin, Ohio and will constitute the baseline for monthly inclement weather evaluations. The Construction Schedule must reflect these anticipated adverse weather delays in all weather dependent activities. Inclement weather will be considered as the basis for an extension of the Completion Date only when the actual Work Days lost due to inclement weather exceeds the anticipated number of inclement weather days as shown in the following table:

TABLE 108.06-1 MONTHLY ANTICIPATED INCLEMENT WEATHER

DELAY TABLE

(Work Days Based on a Five Day Work Week)

January	15
February	12
March	7
April	6
May	6
June	5
July	4
August	4
September	5
October	6
November	6
December	10

This table applies to the duration between Notice to Proceed and original Completion Date. Extensions for weather days beyond the original Completion Date will be determined in accordance with 108.06.C.

The Engineer will not extend the Completion Date for work days lost from December 1 to April 30, unless the Contractor's accepted progress schedule depicts Work on the critical path occurring during the period from December 1 to April 30 and the number of weather days is in excess of those listed above for the period from December 1 to April 30.

D. Excusable, Compensable Delays. Excusable, compensable delays are critical path delays that are not Contractor's fault or responsibility and are City's fault or responsibility or are determined by judicial proceeding to be City's sole responsibility.

If the conditions in 108.06.A are met, the Engineer will extend the Completion Date only for the following excusable, compensable delays:

- Delays due to revised Work as specified in 104.02.B; 104.02.D; and 104.02 F.
- Delays due to utility or railroad interference within the Construction Limits that are not the Contractor's responsibility.

- Delays due to an Engineer-ordered written delay or suspension as specified in 104.02.C.
- Delays due to acts of the government or a political subdivision other than the City; provided, however, these compensable delay costs are limited to escalated labor and material costs only, as allowed in 109.05.D.2.b and 109.05.D.2.d.

Compensation for excusable, compensable delays will be determined by Engineer in accordance with 109.05.D.

E. Non-Excusable Delays. Non-excusable delays are delays that are Contractor's fault or responsibility. All non-excusable delays are non-compensable.

F. Concurrent Delays. Concurrent delays are separate critical path delays that occur at the same time. For all time periods when a non-compensable critical path delay is concurrent with a compensable critical path delay as shown by the schedule analysis performed pursuant to 108.03, the Contractor shall be entitled only to additional time but not entitled to additional compensation.

108.07 Failure to Complete on Time. If the Contractor fails to complete the Work by the Completion Date, then the Engineer, if satisfied that the Contractor is making reasonable progress, and deems it in the best interest of the City, may allow Contractor to continue in control of the Work. If the Contractor is permitted to continue, Contractor must provide for the Engineer's approval a written work plan and schedule for completion of the Project and shall diligently prosecute the Work in such a manner as required by the Contractor's approved work plan.

For each Calendar Day that Work remains uncompleted after the Completion Date, the City will deduct the sums specified herein from any money due Contractor, not as a penalty, but as liquidated damages based on the following schedule:

TABLE 108.07-1 SCHEDULE OF LIQUIDATED DAMAGES

Original Contract Amount (Total Amount of the Bid)		Amount of Liquidated Damages to be Deducted for Each Calendar Day of Overrun Time
From More Than:	To and Including:	(\$)
\$0	\$50,000	\$150.00
\$50,001	\$150,000	\$250.00
\$150,001	\$500,000	\$500.00
\$500,001	\$2,000,000	\$1,000.00
\$2,000,001	\$5,000,000	\$2,000.00
\$5,000,001	\$10,000,000	\$2,500.00
Over \$10,000,001		\$3,000.00

If the Contract Documents contain a special provision for liquidated damages, it shall be used in lieu of the schedule listed above.

In addition to such Liquidated Damages, the Contractor shall indemnify, defend, and hold the **Error! Reference source not found.** and its employees and agents harmless from any and all claims, whether or not such claims are proven, and from all costs and expenses incurred as a result of such claims, including but not limited to attorneys' and experts' fees and expenses, and additional inspection costs that arise out of or are related to the Contractor's failure to meet the Completion Date. The Contractor acknowledges that these costs are in addition to the liquidated damages set forth above to compensate the City for its inability to use the Work as scheduled for its intended purpose and the Contractor expressly waives any right to assert or plead that such costs are duplicative of the liquidated damages set forth above.

The City will continue to pay the Contractor for Work performed on the Project less any liquidated damages set forth in this Section. The City may deduct the liquidated damages and inspection costs from all estimates due and payable to the Contractor after the Completion Date.

108.08 Unsatisfactory Progress and Default of Contractor.

A. Termination for Default.

1. The Director will notify the Contractor in writing of unsatisfactory progress and provide a Notice of Intent to Declare the Contractor in Default ("Notice of Default") for any of the following reasons:

- The Contractor assigns or sublets the Work without approval of the Director.
- The Contractor makes a material misrepresentation in any of the required Bid or Contract Documents.
- The Contractor fails to supply a sufficient number of properly skilled workers or proper equipment or materials.
- The Contractor becomes financially unable to meet its obligations, as evidenced by any of the following: filing for bankruptcy protection, making a general assignment for the benefit of creditors, a receiver is appointed to take charge of Contractor's affairs, or Contractor's property is levied or taken in execution or under attachment.
- Contractor is not fulfilling or is violating any of the terms of the Contract or fails or refuses to perform or complete the Work.
- Contractor is not making such progress in the execution of the Work as needed to meet the Completion Date.
- The Contractor abandons the Work under the Contract.
- The Contractor disregards laws, permits, ordinances, codes, rules, regulations or orders of any public authority having jurisdiction or fails to follow instructions of the City.
- The Contractor repeatedly fails to make prompt payment to subcontractors or suppliers, or for materials and labor.
- The Contractor has not furnished required schedule(s) or schedule information, or has not commenced or progressed the Work by the dates established in the approved project schedule or updates.
- Any other reason the Director believes jeopardizes completion of the Work by the Completion Date.

If the Contractor does not (a) proceed to commence to correct such default within 48 hours of the Notice of Default; (b) after receiving the Notice of Default, utilize best efforts to correct such failure; or (c) complete its corrections within 30 days of the Notice of Default, the Director may declare the Contractor in default and issue a Notice of Termination to the Contractor and terminate the Contractor's employment and notify the Surety and the Contractor that the responsibility to complete the Contract is transferred to the Surety. Upon receipt of the Notice of Termination the Contractor's right to control and supervise the Work shall immediately cease and the Contractor shall not be entitled to receive any further payment. Upon the receipt of the Notice of Termination, the Contractor shall discontinue the Work or such part thereof as the Director shall designate.

2. Owner's Remedies. Upon the occurrence of an event of default the Owner shall have the following remedies, which shall be cumulative:

Order the Contractor to stop the Work, which the Contractor shall do immediately;

To perform through others all or any part of the Work remaining to be done and to deduct the cost thereof from the unpaid balance of the Contract Sum or, if the unpaid balance of the Contract Sum is inadequate, to demand reimbursement of amounts previously paid to the Contractor;

To terminate this Agreement and take possession of, for the purpose of completing the Work or any part of it, all materials, equipment, scaffolds, tools, appliances, and other items belonging to or possessed by the Contractor, all of which the Contractor hereby transfers and assigns to the Owner for such purpose, and to employ any person or persons to complete the Work, including the Contractor's employees, and the Contractor shall not be entitled to receive any further payment until the Work is completed; and/or,

All other remedies which the Owner may have at law or in equity or otherwise under the Contract Documents.

3. Termination of Agreement. The termination of this Agreement shall be without prejudice to the Owner's rights and remedies, including without limitation the Owner's right to be indemnified by the Contractor.

4. Payments Due Contractor. If the unpaid balance of the Contract Sum exceeds the cost of finishing the Project, including any costs, expenses or damages incurred by the Owner as a result of the event of default, including attorneys' and consultants' fees and the administrative expense of the Owner's staff, such excess shall be paid to the Contractor. If such costs exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The obligations under this Paragraph shall survive the termination of this Agreement.

5. If after default termination pursuant this Section, it is determined that none of the circumstances set forth in 108.08.A exist, then such termination shall be considered a termination for convenience pursuant to 108.08.B. In such event, the Contractor's sole remedy shall be the costs permitted by 109.05.F.

B. Termination for Convenience.

1. General. The City may by written order to the Contractor terminate the Contract or any portion thereof when such termination would be in the best interests of the City.

Any such termination shall be effected by delivery to the Contractor of an Order of Termination specifying that the termination is for the convenience of the City, the extent to which performance of Work under the Contract is terminated, and the effective date of the termination.

2. Contractor Obligations. After receipt of the Order of Termination the Contractor shall immediately:

- Stop work under the Contract on the date and to the extent specified in the Order of Termination.

- Place no further orders or subcontracts for materials, services or facilities except as may be necessary for completion of such portion of the Work under the Contract as is not terminated.
- Terminate all orders or subcontracts for materials, services or facilities except as may be necessary for completion of such portion of the Work under the Contract as is not terminated.
- Submit to the Engineer a material inventory list ("Materials Inventory"), certified as to quantity and quality of materials in its possession or in transit to the Project.
- Transfer to the Engineer the completed or partially completed submittals, plans, drawings, information, and other property which if the Contract had been completed would be required to be furnished to the City.
- Take such actions as may be necessary for the protection and preservation of property related to the Project which is in possession of the Contractor and in which the City has or may acquire an interest.
- Complete performance of such part of the Work as shall not have been terminated by the Notice of Termination.

3. Materials. Acceptable materials included the Materials Inventory that have not been incorporated into the Work may, at the option of the City, be purchased from the Contractor and delivered to a location prescribed by the Engineer or otherwise disposed of as mutually agreed.

4. Amount Due Contractor. Upon a Termination for convenience, the Contractor shall be entitled to recover the amounts outlined in 109.05.F of the General Conditions. The Contractor shall present its claim for these amounts within 90 days of the Order of Termination. The City will meet with the Contractor to reach a settlement acceptable to both the Contractor and the City.

Failure of the Contractor to submit its Claim within the ninety day period will result in the Director's determination of amounts due the Contractor, if any, on the basis of information available, and the City will thereupon pay to the Contractor the amount so determined. Such determination by the Director shall be final and binding and the Contractor expressly waives its right to contest the Director's determination.

5. Continuation of Contractual Responsibilities. Termination of the Contract or a portion thereof shall not relieve the Contractor of its contractual responsibilities for the completed Work and shall not relieve the Contractor's Surety of its obligation for and concerning any claim arising out of the Work performed.

6. If this Agreement is terminated without cause for the Owner's convenience and there exists an event of the Contractor's default, as defined in this Agreement, the Contractor shall be entitled to receive only such sums as it would be entitled to receive following the occurrence of an event of default under this Agreement.

C. SUSPENSION FOR THE CONVENIENCE OF THE OWNER.

- 1.** The Owner may, without cause, order the Contractor to suspend, delay, or interrupt the Work in whole or in part for such period of time as the Owner may determine.
- 2.** An adjustment shall be made for increases in the cost of performance of the Work, including profit and overhead on the increased cost of performance, caused by the suspension, delay or interruption, provided that the total cost of profit and overhead shall not exceed 10% of the amount of the increased cost not attributable to profit or overhead. No adjustment shall be made to the extent that: performance

is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible; or an equitable adjustment is made or denied under another provision of this Agreement.

108.09 Certified Payroll. The Contractor shall submit weekly to the Prevailing Wage Coordinator of the City of Dublin a copy of all project employee payrolls for the duration of the time of construction. The copy shall be accompanied by a certified statement, signed by the Contractor or an authorized agent, indicating that the payrolls are correct and complete and that the wage rates contained therein are not less than those required by the prevailing wage rates in the Contract, or any subsequent revision of wage rates during the life of the Contract. The Contractor shall be responsible for the submission of copies of payrolls of all subcontractors.

Provide any additional forms and records as specified in ORC 4115 or as required by Federal law. The Contractor shall make employment records available for inspection by authorized representatives of the City and will permit employees to be interviewed during working hours by these representatives.

All weekly payrolls shall contain or have attached the following:

- the full name and social security number of each employee;
- the current address of the employee;
- the Job Classification of the employee (same as shown on wage determination or provisional approval);
- hourly rate of pay;
- hours worked each day and total for each week;
- fringe payments and deductions made;
- gross and net wages for each week.

Failure to furnish and submit the above information as part of the required weekly Certified Payroll will be cause for the City to withhold the preparation of the monthly estimate. In the event of a violation of the wage rate provisions by the Contractor or any subcontractor, the City may, after notice to the Contractor, suspend further payments or proceed to terminate the Contract as provided by the Contract.

ITEM 109 ACCEPTANCE, MEASUREMENT, AND PAYMENT

109.01 Measurement of Quantities

109.02 Measurement Units

109.03 Scope of Payment

109.04 Compensation for Altered or Eliminated Quantities

109.05 Extra Work

109.06 Directed Acceleration

109.07 Estimates/Requests (Partial Payments)

109.08 Project Contingency

109.09 Retainage

109.10 Payment for Material on Hand

109.11 Final Inspection and Acceptance

109.12 Release of Liability

109.13 Guarantee/Warranties

109.14 Back Charges

109.15 Right to Set-Off

109.01 Measurement of Quantities. The City will measure the quantities of Work and calculate payments based on the method of measurement and basis of payment provisions provided in these Specifications. When the following units of measure are specified, the City will measure quantities as described below unless otherwise specified in the Contract Documents.

Lump Sum. Describes payment as reimbursement for all resources necessary to complete the Work. When a complete structure or structural unit is specified as the unit of measurement, the unit will include all necessary fittings and accessories. Partial payments of work bid as a lump sum may be made based upon an agreed percentage of work completed or an approved Schedule of Values.

Each. Measured by the number of individual items of Work completed.

Foot (Meter). Measured parallel to the longitudinal base or foundation upon which items are placed, or along the longitudinal surface of the item. Measured vertically to the nearest 0.1 foot (0.01 m).

Square Yard or Square Foot (Square Meter). Measured by a two-dimensional area method on the surface of the item.

Cubic Yard (Cubic Meter). Measured by a three-dimensional volume method. Measure all “loose material” or material “measured in the vehicle” by the cubic yard (cubic meter). Haul material “measured in the vehicle” in approved vehicles and measure in the vehicle at the point of delivery. For this purpose, use approved vehicles of any type or size satisfactory to the Engineer, provided the vehicle’s bed is of such type that the actual contents are readily and accurately determined. Unless all approved vehicles on a job are of uniform capacity, each approved vehicle must bear a legible identification mark indicating the specific approved capacity. The Inspector may reject all loads not hauled in such approved vehicles.

Cubic Yard (Cubic Meter) for Asphalt Concrete. Measure as specified in 401.21.

Acre (Hectare) . Measured by a two-dimensional area method on the surface to the nearest 0.1 acre (0.05 ha).

Pound (Kilogram). Measured by actual item net weight avoirdupois (mass).

Ton (Metric Ton). The term “ton” means the short ton consisting of 2000 pounds avoirdupois. The term “metric ton” means 1000 kilograms. Weigh all materials that are proportioned by weight on accurate and approved scales that are operated by competent, qualified personnel at locations approved by the Engineer. However, car weights will not be acceptable for materials to be passed through mixing plants. If trucks are used to haul material being paid for by weight, weigh the empty truck at least once daily and as the Engineer directs and only if the weight of the truck is used in determining the ticket weight. Place a plainly legible identification mark on each truck bearing the weight of the truck.

For Work on a tonnage basis, file with the Engineer receipted freight bills for railroad shipments and certified weight-bills when materials are received by any other method, showing the actual tonnage used. For Work on a volume basis, itemize evidence of the volume used.

Gallon (Liter). Measured by actual item liquid volume. The City will measure the following materials by the gallon (liter) at the following temperatures:

Temperatures	Items
60 °F (16 °C)	Creosote for Priming Coat, Creosote Oil, Creosote Solutions for Timber Preservatives, Asphalt Primer for Water-proofing, and Liquefier.
100 °F (38 °C)	RC, MC Asphalt Emulsions, CBAE, Primer 20, and Primer 100
300 °F (149 °C)	Asphalt Binder.

Measure tank car outage of asphalt material at its destination before any material has been removed from the tank car according to City of Columbus Supplement 1060.

Convert the net weight of asphalt material shipments to gallons (liters) at the specified pay temperature according to City of Columbus Supplement 1060.

Convert the gallons (liters) at the measured temperature to gallons (liters) of asphalt material at the specified pay temperature according to City of Columbus Supplement 1060.

Thousand Board Feet, MBF (Cubic Meter) . Measure timber by MBF (cubic meter) actually incorporated in the structure. Base the measurement on nominal widths, thicknesses, and the extreme length of each piece.

Standard Manufactured Items. When standard manufactured items are specified such as fence, wire, plates, rolled shapes, pipe conduit, etc., and these items are identified by size, unit weight, section dimensions, etc., such identification will be to nominal weights or dimensions set by the industry.

109.02 Measurement Units. The City will measure using either English or metric units as indicated in the Contract Documents. Use the appropriate factor provided in the IEEE/ASTM SI 10.

109.03 Scope of Payment. The Contractor shall receive and accept compensation provided for in the Contract as full payment for performing all Work under the Contract in a complete and acceptable manner and for all risk, loss, damage, or expense of whatever character arising out of the nature of the Work or the prosecution thereof, except as otherwise provided in 104.02, 104.03 and 107.16.

Each unit price "Basis of Payment" clause in the Specifications includes any essential work or material described in the Specification unless specifically covered under any other pay item.

109.04 Compensation for Altered or Eliminated Quantities. When the accepted quantities of Work vary from the quantities in the Proposal, the Contractor shall accept as payment in full, payment at the original contract unit prices for the accepted quantities of work done, unless a request for an adjustment is made in accordance with 104.02.D.

The adjustment permitted by 104.02.D shall apply only for the quantities in excess of 125% of the estimated quantity stated in the Contract. For those excess quantities the adjustment shall replace the unit price with a new unit or lump sum price, based upon the reasonable verifiable cost of performance of the excess quantities and calculated in accordance with 109.05.

For decreased quantities below 75% of the estimated quantities in the Contract, the adjustment shall apply to the total actual quantity and shall consist solely of an adjustment for the portion of fixed costs, actually incurred and reasonably allocable to the affected pay item, that the Contractor would have otherwise recovered at the contract unit price if 75% of the estimated quantity had been performed.

Items listed as contingency items may not be adjusted in price due to decreased quantities below that of the estimated quantities.

The Contract adjustment for payment for eliminated items shall be at the original Contract unit price for such eliminated item(s), subject to the Contractor making a timely demand for additional adjustment if

there is a significant change. Payment for eliminated items will only be made for materials ordered to be incorporated in the project that cannot be cancelled or returned to the supplier. Items requiring approval of submittals prior to ordering must have been approved prior to item(s) being eliminated in order to be subject to partial payment. The payment for the eliminated items will be limited to the material portion of the bid item. The City will not apply a deduction from such payment for maintaining traffic, mobilization, and construction layout stakes items for eliminated items, unless there is a significant change as defined by 104.02.D.

In no event shall allowances be made for loss of anticipated profits suffered or claimed by the Contractor resulting directly or indirectly from such increased, decreased or eliminated quantities or from unbalanced allocation among the Contract items, or from any other cause.

109.05 Extra Work.

A. General. If City revises the Contract, City will pay for changes and Extra Work with a Change Order using the sequence provided in 109.05.B through 109.05.D that constitutes payment in full for all changes and Extra Work.

B. Negotiated Prices. Prior to the Extra Work being performed, Engineer and Contractor may negotiate agreed unit or lump sum prices using one or more of the following methods.

- Original Contract prices for similar work but adjusted for:
- increased or decreased material costs.
- increased or decreased labor costs.
- increased or decreased equipment costs.
- Prices computed by the Engineer.
- Cost analysis of labor, material, equipment, and mark ups as allowed in 109.05.C.
- Cost analysis for compensable delays shall be prepared by the Contractor and approved by the Engineer.
- Negotiated prices for changes and Extra Work shall be comparable to prices that would have resulted from a competitively bid contract.

If the City negotiates with the Contractor but does not agree on a lump sum or unit price adjustment, Engineer may direct the Contractor to perform all or part of the revised Work under Force Account or Unilateral Change Order.

C. Force Account.

1. General. Force account procedures shall only be used when necessary, such as when agreement cannot be reached with the Contractor on the price of a new work item, when the extent of work is unknown or is of such character that a price cannot be determined to a reasonable degree of accuracy, or when in the best interest of the City. The reason or reasons for using force account procedures shall be documented. When directed by the Engineer, the Contractor shall submit a cost estimate and written description of the Work, including the planned equipment, materials, labor, and work schedule.

If the Contractor performs any work that it submits for payment as a force account, it must notify the Engineer in writing before beginning the work such that the City may track the materials, labor, and equipment in order to verify the Contractor's quantities. If the Contractor fails to notify the Engineer in writing before beginning force account work, the work performed by the Contractor shall be paid for under the original contract sum. However, the Contractor shall not be entitled to any compensation for force account work if it is later determined that the work was otherwise included in the original contract or determined to be otherwise non-compensable under the Contract. The Engineer will provide documentation stating the reasons that the work is non-compensable under the Contract.

2. Labor. For all labor and for all foremen in direct charge of the specific operations, the Contractor shall receive the rate of wage and fringe benefits currently in effect at the time the work is performed for each and every hour that said labor and foremen are actually engaged in such work, to which may be added an amount equal to 15 percent of the sum thereof. In addition to the above the Contractor shall itemize the actual cost of Social Security Tax, Worker's Compensation and State and Federal Unemployment Insurance. In lieu of itemizing these 4 items, 22 percent of the sum of wages and fringe benefits may be added.

The City will pay, without mark up, the actual itemized cost of fees and dues paid to labor unions or to business associations when they are based on payroll hours and required by a collective bargaining agreement. The City will not pay for wages or benefits for personnel connected with the Contractor's forces above the classification of foreman that have only general supervisory responsibility for the force account work. (Proration of hours between force and non-force account work also is required.)

The City will pay the prevailing wage and fringe rates that apply to the Project for the classifications required for Extra Work. The Contractor must provide payroll records for pay rates higher than the prevailing wages and establish that the higher than prevailing rates are paid for original Contract Work. The City will pay for foremen and time keepers not covered by prevailing wages not more than the salaried rate they receive when engaged in original Contract Work.

3. Materials. The City will pay Contractor's actual invoice costs, including applicable taxes and actual freight charges, for Engineer-approved materials that the Contractor uses in force account work. The City will pay an additional 5 percent (5%) mark up on these costs. Freight or hauling costs charged to the Contractor and not included in unit prices shall be itemized and supported by invoices. The cost of owned or rented equipment used to haul materials to the Project shall not be part of the materials cost. The Contractor shall submit invoices to support the quantities of materials used, unit prices paid and transportation charges.

If the Contractor uses materials from the Contractor's stock and original receipted invoices for the materials and transportation charges do not exist, the City and the Contractor will agree on a price that represents the actual cost to the Contractor.

4. Equipment.

a. General. The City will pay the Contractor's costs for equipment the Engineer deems necessary to perform the force account work for the time directed by the Engineer or until the Contractor completes the force account work, whichever happens first. The City will pay the Contractor the Blue Book established rates for equipment only during the hours that it is operated, except as otherwise allowed elsewhere in the Specifications. The City will pay for non-operating hours at the idle equipment rate as specified in 109.05.C.4.c. Established equipment rates in the Specifications include compensation for overhead and profit except as otherwise specified.

The City will not pay additional costs for crew vehicles or tool trucks already required for use for completing Work required under the Contract Documents. The City will not pay rental for small tools or equipment that show a daily rate less than \$5.00 or for unlisted equipment that has a value of less than \$400.00, unless such equipment is shown to be specialized to a specific area of work and not normally included in Blue Book. Traffic control devices used in maintaining traffic and owned by the Contractor will be treated as owned equipment. Allowed rates for common traffic control devices and concrete barrier that are not listed in the Blue Book will be as determined by City.

For force account work the Contractor may use Engineer-approved equipment in good working condition and providing normal output or production. The Engineer may reject equipment not in good working condition or not properly sized for efficient performance of the force account work. For each piece of equipment used, whether owned or rented, the Contractor shall provide the Engineer with the following information:

- Manufacturer's name or trademark
- Equipment type
- Year of manufacture
- Model number
- Type of fuel used
- Horsepower rating
- Attachments required, together with their size or capacity
- All further information necessary to determine the proper rate
- Dates, daily hours, total hours of actual operation and idle time
- Blue Book rate with reference or category
- Quantity
- Applicable Blue Book hourly operating cost
- Invoices for all rental equipment

b. Hourly Owned Equipment Rates. For any machinery or special equipment other than small tools which it may be deemed necessary or desirable to use for the force account work, the Contractor shall receive payment for such equipment actually engaged in such work (hourly, daily, weekly or monthly).

For all machinery or special equipment already employed on the Project site at the time of the force account work, the Rental Rate Blue Book shall apply. The monthly rate will be divided by 176 to arrive at the hourly rate. The Contractor will be compensated at that rate for the working hours, which includes only those hours the equipment is actually in operation performing force account work. Base rate for the machine and attachments represent the major cost of equipment ownership, such as depreciation, interest, taxes, insurance, storage, and major repairs. The hourly operating rate represents the major costs of equipment operation, such as fuel and oil lubrication, field repairs, tires, expendable parts, and supplies.

Compensation for equipment normally used on a 24 hours per day basis will not exceed the monthly rate plus adjustments and operating costs. The rate adjustment factor assigned to any attachment will be the yearly factor as determined for the base equipment.

c. Hourly Idle Equipment Rate. For equipment that is in operational condition, on site, and necessary for force account work, but is idle, the City will pay an hourly idle equipment rate. If rented equipment necessary for force account work is idle and with the Engineer's approval, the City will pay the Contractor for all equipment that was idled. The hourly rate of compensation for any idle equipment will be the monthly rental rate times a factor of 0.50 divided by 176 hours per month with no operating costs added.

The City will not pay idle equipment costs for more than eight hours in a 24-hour day or forty hours in a week. The City will not pay for inoperable equipment. Compensation for idle equipment will stop at the completion of the force account work or at the end of the suspension of work.

d. Rented Equipment. If the Contractor rents or leases equipment from a third party exclusively for force account work, the City will pay the actual invoiced amount. The actual invoiced rates must be reasonably in line with the Blue Book and approved by the Engineer. The City will pay a two percent (2%) mark up for overhead and profit for all rented equipment costs supported by the actual invoices. Blue Book hourly operating cost will be added to the marked up actual invoiced rates only for the time the rented equipment was used on the Force Account work.

If the Contractor uses rented equipment currently on the Project for original Contract Work to perform force account Work, then determine the hourly equipment rate as described in 109.05.C.4.b.

The City will not compensate for rental rates that exceed the Blue Book rates unless approved in advance of the work by the Engineer.

5. Subcontract Work. For Work performed by an approved subcontractor, City will pay the approved subcontractor invoice plus 5 percent (5%) mark up for administrative costs. The administrative cost for subcontract work shall not exceed \$5,000.00. No additional mark-up is allowed for work of a subcontractor, trucking services, or other services employed by a subcontractor.

6. Payment for Force Account Work. The compensation to the Contractor as provided 109.05.C shall constitute payment in full for Extra Work done on a force account basis, including administration, superintendence, overhead, use of tools and equipment for which no rental is allowed, profit, taxes other than sales tax, premium on insurance, and any other expense incidental to performing the force account work. Sales tax will not be allowed on any item for which tax exemption may be obtained.

7. Force Account Records. The Contractor's representative and the Engineer's or City's representative shall compare records daily of the extra work done as ordered on a force account basis. Daily Force Account Records shall be signed by both City and Contractor daily. In the event the Contractor declines to sign the Daily Force Account Record, the City's records shall govern. Any resulting dispute must be pursued in accordance with 104.03.

City and Contractor personnel will document the labor and equipment used on the Force Account work on a Daily Force Account Record. At the end of each Workday, City and Contractor personnel will compare and sign the Daily Force Account Record. The City will make no Force Account payment before the Contractor submits an itemized statement of the costs for that work. The Engineer will examine and, if found to be acceptable, approve all rates and costs submitted by Contractor.

Final payment will not be made for Work performed on a force account basis until the Contractor has furnished the Engineer with itemized statements of the costs of such force account work detailed as follows:

- Name, classification, date, daily hours, total hours, rate, and extension for each laborer and supervisor.
- Designation, dates, daily hours, total hours, rental rate, and extension for each unit of machinery and equipment.
- Quantities of materials, prices, and extensions.
- Transportation of materials.

Statements shall be accompanied and supported by proper invoices for all materials used and transportation charges, and rented equipment performing work on force account operations. However, if materials used on the force account work are not specifically purchased for such work but are produced by the Contractor or taken from the Contractor's stock, then in lieu of the invoices the Contractor shall furnish an affidavit certifying that such materials were produced by or taken from the Contractor's stock, that the quantity claimed was actually used, and that the price and transportation claimed represent the actual cost to the Contractor. Statements shall be filed not later than thirty days following the period in which the work was actually performed.

D. Delay Costs.

1. General. If the City agrees that it is responsible for a delay as defined by 108.06, the City will pay for the costs specified in 109.05.D, unless these costs have been previously paid. Such payment constitutes full compensation for any and all delay costs.

Submit an itemized statement of applicable costs in the time period specified in 109.05.C.7 and that includes the content specified in 109.05.C.7 for the applicable items in this subsection and the following:

- Proof of cost of Superintendent, or other project staff salaries, wages, and payroll taxes and insurance.
- Proof of cost of office rent, utilities, land rent, and office supplies.
- Proof of escalated cost for labor and material.
- Proof of material storage costs.

2. Allowable Delay Costs.

a. Extended Labor. Compute labor costs during delays as specified in 109.05.C.2 for all non-salaried personnel remaining on the Project as required under collective bargaining agreements or for other Engineer-approved reasons.

b. Escalated Labor. To receive payment for escalated labor costs, demonstrate that the delay forced the Work to be performed during a period when labor costs were higher than planned at the time of the Proposal. The City will pay wages and fringes with a 20% mark-up to cover administrative costs.

c. Idle Equipment or Equipment Demobilization. The City will pay the Contractor according to 109.05.C.4.c for idle equipment, other than small tools, that must remain on the Project during the delay period. With prior approval, the City will pay the Contractor's transportation costs to remove and return equipment not required on the Project during the delay period. No other equipment costs shall be recoverable as a result of delay.

d. Material Escalation or Material Storage. The City will pay the Contractor for increased material costs or material storage costs due to the delay. Obtain the Engineer's approval before storing materials due to a delay. Payment will be based upon the accepted quantity of work performed during the period for which escalated costs have been approved. The City will pay increased material costs with an 8% mark-up to cover administrative costs and any material waste inherent to the Work.

e. Overhead and Profit. City will pay a 15% mark up on all direct costs as all inclusive compensation of all other Contractor costs, including but not limited to, (a) home office overhead, unabsorbed home office overhead, extended home office overhead, and all other overhead costs for which payment is not provided for in 109.05.D.2, and (b) profit.

E. Unrecoverable Costs. The Contractor shall not be entitled to additional compensation for any costs not specifically allowed or provided for in 109.05, including, but not limited to, the following:

- Loss of anticipated profit.
- Consequential damages, including loss of bonding capacity, loss of bidding opportunities, insolvency, and the effects of force account work on other projects, or business interruption.
- Impact, Disruption, Loss of Efficiency, Loss of Productivity.
- Indirect costs.
- Attorneys fees, claim preparation expenses, and the costs of litigation.

F. Damages for Termination for Convenience. If the Contract is terminated in accordance with 108.08.B, Termination for Convenience, the City will compensate the Contractor costs:

1. Payment for Completed Work. All completed items of Work as of the date of termination will be paid for at the Contract bid price. Payment for partially completed Work at the time of termination will be based upon actual costs incurred up to the date of termination and payment will be made either at agreed prices or by force account methods for extra work change order. The reasonable costs of the termination of convenience, may include accounting, clerical and other expenses, reasonable storage, transportation as set forth herein and the cost of demobilization which cannot exceed the price bid item and other reasonable and verifiable costs incurred in connection with the protection or disposition of materials obtained for this Project

2. Materials. Payment for materials included in the material inventory will be made at actual cost delivered to the project or City designated storage site, including transportation charges to which 15 percent for all overhead and profit markup will be added but shall not exceed the unit bid price for the referenced number involved. If the material is not turned over to the City, the City will pay the Contractor a restocking charge or actual disposal costs supported by paid invoices and an additional 5 percent markup on the overhead and profit. In addition hauling costs if not included in the restocking charges for returned material and for material delivered to the City are compensable.

3. Idle Equipment. Claims for idle equipment time, if any, following termination of the Contract are limited to a maximum of thirty days and may not include any operating expenses. In the case of rented or leased equipment, the Contractor shall recover the lesser of the actual rental costs or fair market rental costs as established in 109.05.C and the amount shall not exceed thirty days rental.

4. Overhead and Profit. The mark-up for overhead and profit will comply with 109.05.C, except as provided in 109.05.F. In no event, however, shall consequential damages, loss of overhead, loss of overhead contribution or absorption of any kind, or loss of anticipated profits on Work that was not performed be compensable or considered as part of any settlement.

109.06 Directed Acceleration. The Contractor shall always have the obligation to complete the Work in the time frames set forth in the Contract, provided, however, the Engineer, in writing, may order the Contractor, or may approve the Contractor's written request, to accelerate the Work to avoid or mitigate delay or associated costs or to complete the Project earlier than the Contract Completion Date. For

purposes of this Section, lack of express written direction or approval by the Engineer shall never be construed as consent or direction to accelerate the Work.

In the event of an Engineer ordered or approved acceleration, the Engineer and the Contractor shall negotiate and agree on acceleration costs in advance of any acceleration work being started. To the extent, however, that the direction or approval to accelerate was due to delay caused by the fault or responsibility of the Contractor, the Contractor shall not be entitled to any additional time or costs associated with the acceleration. To the extent that the acceleration was directed for the benefit of the City or for a reason not the fault or responsibility of the Contractor, the Contractor will be entitled to a time or cost adjustment as provided by 108.06 and 109.05.

109.07 Estimates/Requests (Partial Payments). If satisfactory progress is being made, the Contractor will receive monthly payments based on the value of the Work completed and the materials in place and for materials delivered as specified in 109.10 as determined by the Engineer. The monthly payment is approximate only, and all partial estimates/requests and payments shall be subject to correction in the Final Pay Estimate/Request and payment. Pay estimates/requests must be signed by the Contractor and approved by the Engineer.

Payment for Work and materials shall not, in any way, prevent later rejection when defective Work or material is discovered, or constitute acceptance under 109.11. No estimate/request or payment shall be construed as acceptance of unacceptable Work or non-conforming materials. The City will not pay the adjusted Final Pay Estimate/Request until the Contractor remedies all unacceptable work, defective work, and accepted work damaged by the Contractor's operations.

Before the second partial payment estimate/request is processed and for each subsequent partial estimate/request thereafter, the Contractor shall submit a notarized affidavit confirming that all bills for materials and for subcontracted Work represented by the previous partial payment have been paid. The City will not pay an estimate/request until the Contractor certifies to the Engineer that the Work for which payment is being made was performed in accordance with the Contract Documents. Certification will be made on forms provided by the City.

Should any unacceptable Work, non-conforming material, or acceptable Work that has been damaged by the Contractor's operations be discovered prior to final acceptance thereof or should a reasonable doubt arise prior to final acceptance as to the integrity of any part of the completed Work, the estimate/request and payment for such defective or questioned Work shall not be allowed until the defect has been remedied and cause for doubt removed, by and at the expense of the Contractor.

Partial payments may, at any time, be withheld, if in the opinion of the Engineer, any Work will not be completed in accordance with the Contract Documents.

109.08 Project Contingency. Project Contingency is identified in the Proposal. This amount shall be included in the Contract Sum and shall be included in the coverage of the Proposal Guaranty. During the Contract, this pay item shall be utilized by the City as a resource for funding necessary changes in the Work. Project Contingency shall not, however, be considered a sum to which the Contractor has any

entitlement, except as portions of it are assigned for payment by Change Order, and as progress is made by the Contractor upon the Work under such Change Order.

Upon completion of the Work under this Contract, any portion of the Project Contingency which has not been assigned for payment by Change Order shall be deducted by the final Contract Modification. Thereafter, such deducted amount may be deleted from the Contractor Bond, warranty, guarantee, and other applicable coverages.

109.09 Retainage. Five percent (5%) of the Estimates may be retained by the City until fifty percent (50%) of the Work has been completed. When more than fifty percent (50%) of the Work has been completed, the amount retained may be reduced at the City's sole discretion. The Engineer may also, at any time, increase retainage by any amount needed to protect the City's interests with respect to any incomplete, defective or unsatisfactory Work; costs or damages incurred by the City that are subject to the Contractor's indemnification obligations; or back charges that the City may assess against the Contractor.

The Contractor is hereby put on notice that the City will neither deposit retainage in an escrow account, nor pay interest on such retainage.

109.10 Payment for Material on Hand. The City may pay, up to 75 percent of the applicable contract item, for the invoiced cost of the delivered and approved materials before they are incorporated into the Work, when delivered on the Project or stored in acceptable storage places. Delivered cost shall be evidenced by supplier's or manufacturer's invoice bearing the statement that all previous invoices have been paid.

The Contractor shall make application for payment for materials on hand or stored on a form provided by the City. Information will be required as to the cost of the materials, when such materials will be incorporated in the Work and such other information that will be considered for approval of such payment. Consideration will be given only as to materials for major items of the Contract.

No partial payment will be made on living or perishable plant materials.

109.11 Final Inspection and Acceptance.

A. Final Inspection. The Final Inspection shall be a limited visual review of the Work and shall only serve as the City's verification that the Work appears substantially complete. Final Inspection does not waive any available rights or remedies of the City, nor divest the Contractor of any responsibility for compliance with the Contract Documents or liability for damages.

When the Contractor completes all or portions of the Work to be accepted by the City, a request by the Contractor for a Final Inspection shall be made. If the Engineer agrees the Work is complete, then within ten business days the Inspector will inspect the Work and categorize it as one of the following:

- Unacceptable or not complete.
- Substantially complete with punch list items found by the Inspector.
- Substantially complete.

If the Inspector finds the Work substantially complete or substantially complete with punch list items, then the Contractor's maintenance responsibilities end on the day of the Final Inspection, except for any maintenance related to unfinished punch list items. This shall not relieve the Contractor of responsibility to correct defective Work or repair damage caused by the Contractor or waive any other remedy to which the City is entitled under the Contract, applicable law, in equity, or otherwise. The Inspector will issue a Final Inspection Report that will document the findings of the inspection and start any guarantee and warranty period(s).

B. Punch List. As provided in this Section, the Inspector will issue to the Contractor a written punch list of work required as a condition of acceptance. The Inspector's punch list will stipulate a reasonable time to complete the required work unless the Contractor can demonstrate to the Inspector that completion of the punch list work within the Inspector's time frame is unreasonable.

Notify the Engineer in writing when all of the punch list items are complete.

C. Finalization. The Contractor will receive the Engineer's list of final quantities within forty-five Calendar Days from the date that the Work is determined to be substantially complete by the Inspector. The Contractor shall accept the final quantities as determined by the Engineer or provide a written notice indicating the reason for disagreement within thirty Calendar Days of receiving the Engineer's list of final quantities. The prescribed 30 Calendar Day period can be modified by mutual agreement of the Contractor and the Engineer. If no notice of disagreement is received, then the final estimate shall be based on the Engineer's list of final quantities.

Within sixty Calendar Days from receipt of the Engineer's list of final quantities, the Contractor shall supply Final Project Documents for Project closeout, to include, but not be limited to:

- Material certificates
- Payrolls
- Wage affidavits
- DBE/MBE/WBE affidavits, if applicable
- As-built drawings as required
- Warranties
- O&M Manuals
- Lien Waivers
- Final Force Account Statement(s)
- Surety Consent for Final Payment
- Spare Parts List

- Certificate of Completion
- Bond Rider (Check with the bond form)
- Affidavit of Final Payment

Failure to submit these acceptably completed documents will result in an administrative fee of \$100.00 per Calendar Day deducted from the Final Pay Estimate for every day that any of the required documents remain delinquent, starting with thirty Calendar Days after receipt of written notification from the Engineer of a document deficiency.

D. Final Acceptance/Project Closeout Process. After the Final Inspection and the issuance of the Punch List, the Contractor must complete the items on the Punch List in the stipulated time frame. After completing the items on the punch list, the Contractor shall notify the Engineer to confirm that the items have been completed. When the work noted on the Punch List has been confirmed to be complete, the Engineer will issue a Notice of Final Acceptance.

Final Acceptance of the Work does not waive any available rights or remedies of the City under the Contract, applicable law, in equity, or otherwise, and shall not discharge the Contractor from any obligations it has under the Contract, including, but not limited to: unsettled liens and claims against the City; faulty, defective, or nonconforming work discovered or appearing after Final Acceptance; failure of the Work to comply with the requirements of the Contract Documents; the terms of any warranties or guarantees contained in or required by the Contract Documents; any indemnification rights including damages or costs incurred by the City resulting claims or lawsuits brought against the City based on actions on the part of the Contractor, its subcontractors, sub-subcontractors, suppliers, or any of their employees, representatives or agents; fraud or bad faith committed by the Contractor or any subcontractor or supplier during performance of Work, but discovered by the City after Final Payment; and the City's audit and adjustment rights under the Contract.

E. Final Pay Estimate/Request. Final payment to the Contractor is based on:

- The agreed final quantities or as determined by the Engineer;
- Finding of Final Acceptance by the Engineer;
- Receipt of acceptable Final Project Documents; and
- Contractor certification that the Work was performed in accordance with the Contract Documents.

As soon as practical after the Final Acceptance of the Work by the City and after approval of the final Change Order, or the final Contract Modification if the final Contract Amount exceeds the amount authorized by City Council, there shall be issued a final estimate for payment based upon the actual quantities of completed and accepted Work performed under the Contract. Compensation will not be made for any Work that was not authorized.

Final Estimates shall be approved by the City, after which the City shall pay the entire sum found to be due, after deducting all previous payments under 109.07. All prior estimates are subject to correction in the Final Estimate.

F. Completion of Contract and Continuation of Contractor's Responsibility.

The Engineer will issue a letter confirming completion of the Contract, noting any exception as provided in Items 659 and 661 and any guarantee or warranty.

The Contract is complete, except for items covered by any required bonds, when the Contractor receives final payment.

Neither Substantial Completion, Final Acceptance nor Completion of the Contract relieves the Contractor of any responsibilities to properly perform or correct the Work or to repair damage or waives any remedies to which the City is entitled under the Contract, at law, in equity, or otherwise.

109.12 Release of Liability. No person or corporation other than the signer of this Contract as Contractor, has any interest hereunder and no claim shall be made or be valid, and neither the City, nor any official or agent thereof, shall be liable for or be held to pay any money, except as provided in the Contract. The acceptance by the Contractor of final payment shall operate as and shall be a release to the City, and every officer and agent thereof, from all claims and liability to the Contractor for anything done or furnished for, or relating to the Work, or for any act or neglect of the City, or of any person relating to or affecting the Work.

109.13 Guarantee/Warranties. Unless otherwise noted in the Contract Documents, the guarantee period begins upon Final Acceptance of the Work by the City. In addition to any other guarantees or warranties provided in the Contract Documents, there shall be a one-year correction period if any Defective Work is found. Unless the Owner provides written acceptance of the condition, the Contractor shall promptly correct the Defective Work at its own cost and time and bear the expense of additional services required for correction of any Defective Work for which it is responsible.

The Contractor guarantees and warrants to the City that materials and equipment furnished under the Contract are of good quality and new unless otherwise required or permitted by the Contract Documents; that the Work is free from faults and defects not inherent in the quality required or permitted; that the Work conforms to all requirements of the Contract Documents; that the Work is complete and fully functional; and that any failure to conform to these requirements or the occurrence of any defects or failures in the Work shall be remedied by the Contractor promptly and at no cost to the City.

In addition to the Contractor's guarantee and without in any way diminishing or changing it, the Contract Documents may also specify other express Contractor warranties or subcontractor, manufacturer or supplier warranties that apply. Notwithstanding the existence of other warranties, the Contractor shall remain as the responsible party to the City under the Contractor's guarantee for purposes of the City exercising its rights under this Section.

The guarantee provisions do not relieve the Contractor from completing the Work in accordance with the Contract and do not diminish any rights or remedies the City may have under the Contract, applicable law, in equity, or otherwise.

At any time during the correction period, the City may notify the Contractor that certain repairs or other actions are necessary. Within ten days after being so notified, the Contractor shall make such repairs or take such other actions as are declared necessary to restore the Work to a good and serviceable condition consistent with the requirements of the Contract Documents. In the event that the Contractor fails to comply with the order to repair or take other actions, such repairs may be made or other actions undertaken by the City and the Contractor agrees that it shall reimburse the City for any such expenses it incurs within ten days following the receipt of a statement rendered to the Contractor by the City for such expenses. Specifications for the Work performed under this Contract shall govern in the making of repairs or taking other action pursuant to this Section.

Upon the expiration of the one-year correction period, the Contractor shall take all steps necessary to transfer to the City all remaining rights and obligations that may exist under any other warranties from the Contractor, subcontractors, manufacturers or suppliers and shall continue to assist the City, as needed, to enforce such warranties.

109.14 Back Charges. To the extent the City has the right to back charge the Contractor pursuant to the Contract, the City, at its option, may take one or more of the following actions: (a) require the Contractor to make payment to the City within ten days of the Contractor's receipt of the invoice; (b) deduct the back charge from the next and subsequent pay estimates until the full amount of the back charge has been satisfied; or (c) deduct the back charge from Retainage. The City's right to back charge is in addition to any or all other rights and remedies provided in the Contract, at law, in equity, or otherwise.

109.15 Right to Set-Off. The City shall have all of its contractual, common law, equitable, and statutory rights of set-off. These rights shall include, but not limited to, the City's option to withhold for the purposes of set-off (a) any monies due or that may become due to the Contractor under this Contract; (b) any monies due or owing under any other contract with the City Department that holds or funds this Contract; or (c) any monies due or owing the Contractor under any other contract with the City for tax delinquencies, fee delinquencies, or monetary penalties relative thereto. The City shall exercise its set-off rights pursuant to audit by the Finance Director, or its representative.

Revision 1
List ID 74471
Title Woodlands Basin 2

Item ID	REF NO.	ITEM	DESCRIPTION	QUANTITY	UNIT
1164649	1	201	Clearing & Grubbing, As Per Plan	1	LS
1164650	2	202	Pipe Removed, 24" Diameter and Under	31	LF
1164651	3	202	Pipe Removed, Over 24"	30	LF
1164652	4	202	Removal Misc.: Concrete Channel Removed, As Per Plan	21	SY
1164653	5	202	Removal Misc.: Outlet Structure Removed, As Per Plan	1	EA
1164654	6	202	Removal Misc.: Headwall Removed, As Per Plan	3	EA
1164655	7	202	Manhole Removed	1	EA
1164656	8	203	Embankment (Placing Stockpiled Material), As Per Plan	40	CY
1164657	9	203	Excavation (Stockpiled), As Per Plan	40	CY
1164658	10	203	Excavation (To Haul Offsite), As Per Plan	240	CY
1164659	11	207	Erosion and Sediment Control, As Per Plan	1	LS
1164660	12	601	Rock Channel Protection, Type B, with Aggregate Filter, As Per Plan	7	CY
1164661	13	601	Rock Channel Protection, Type B, with Filter	8	CY
1164662	14	602	Concrete Masonry Includes Reinforcing (for Headwall)	2.5	CY
1164663	15	602	Concrete Masonry (for Anti-Seep Collar)	2.8	CY
1164664	16	604	Manhole AA-S102	1	EA
1164665	17	605	6" Perforated Underdrain, As Per Plan	90	LF
1164666	18	609	Remove and Replace Concrete Curb and Gutter, As Per Plan	121	LF
1164667	19	611	Catch Basin No. 2-6, with Trash Rack and Trash Screen, As Per Plan	2	EA
1164668	20	614	Maintaining Traffic, As Per Plan	1	LS
1164669	21	623	Construction Layout Stakes	1	LS
1164670	22	624	Mobilization	1	LS
1164671	23	653	Topsoil Furnished and Placed, As Per Plan	130	CY
1164672	24	659	Seeding and Mulching, Class Special, As Per Plan	440	SY
1164673	25	659	Seeding and Mulching, Basin Floor Mix, As Per Plan	410	SY
1164674	26	659	Seeding and Mulching, Basin Side Slopes Mix, As Per Plan	1,210.00	SY
1164675	27	659	Repair Seeding and Mulching, Class Special	80	SY
1164676	28	659	Repair Seeding and Mulching, Basin Floor Mix	80	SY
1164677	29	659	Repair Seeding and Mulching, Basin Side Slopes Mix	220	SY
1164678	30	661	Deciduous Tree, No. 15 Cont., As Per Plan	3	EA
1164679	31	670	Slope Erosion Protection Mat, As Per Plan	1,331.00	SY
1164680	32	670	Turf Reinforcement Mat, As Per Plan	192	SY
1164681	33	703	#57 Stone (for Underdrain)	20	CY
1164682	34	703	River Cobble (for Underdrain)	10	CY
1164683	35	901	24" Storm Pipe, with Type I Bedding	14	FT
1164684	36	901	30" Storm Pipe, with Type I Bedding	5	FT
1164685	37	901	48" Storm Pipe, with Type II Bedding, As Per Plan	16	FT
1164686	38	SPEC	Clean Out, As Per Plan	3	EA
1164687	39	SPEC	Dewatering, As Per Plan	1	LS
1164688	40	SPEC	Digital Video Recording	1	LS
1164689	41	SPEC	Grade Checking, As Per Plan	1	LS
1164690	42	SPEC	Headwall with Energy Dissipator, As Per Plan	1	EA
1164691	43	SPEC	Record Drawing, As Per Plan	1	LS
1164692	44	SPEC	Root Pruning, As Per Plan	1	LS
1164693	45	SPEC	Stone Veneer (Dublin SCD STM-03)	30	SY
1164694	46	SPEC	Wall Cap (Dublin SCD STM-04)	31	LF

Revision 1

List ID 74472

Title Riverside Woods Basin 1

Item ID	REF NO.	ITEM	DESCRIPTION	QUANTITY	UNIT
1164695	47	201	Clearing & Grubbing, As Per Plan	1	LS
1164696	48	202	Pipe Removed, 24" Diameter and Under	49	LF
1164697	49	202	Removal Misc.: Outlet Structure Removed, As Per Plan	1	EA
1164698	50	202	Removal Misc.: Headwall Removed, As Per Plan	2	EA
1164699	51	202	Removal Misc.: Fence Removed	17	LF
1164700	52	202	Removal Misc.: Underdrain Debris Material Removed, As Per Plan	1	LS
1164701	53	203	Embankment (Placing Stockpiled Material), As Per Plan	10	CY
1164702	54	203	Excavation (Stockpiled), As Per Plan	10	CY
1164703	55	203	Excavation (To Haul Offsite), As Per Plan	370	CY
1164704	56	207	Erosion and Sediment Control, As Per Plan	1	LS
1164705	57	253	Spot Full Depth Asphalt Pavement Repair, Roadway, As Per Plan	320	SY
1164706	58	253	Spot Full Depth Drive Approach Pavement Repair, As Per Plan	70	SY
1164707	59	601	Rock Channel Protection, Type B, with Aggregate Filter, As Per Plan	10	CY
1164708	60	601	Rock Channel Protection, Type C, with Aggregate Filter, As Per Plan	10	CY
1164709	61	602	Concrete Masonry Includes Reinforcing (for Headwall)	3.8	CY
1164710	62	602	Concrete Masonry (for Anti-Seep Collar)	1.7	CY
1164711	63	605	6" Perforated Underdrain, As Per Plan	160	LF
1164712	64	609	Remove and Replace Straight Concrete Curb, As Per Plan	27	LF
1164713	65	611	Catch Basin No. 2-6, with Trash Rack and Trash Screen, As Per Plan	1	EA
1164714	66	614	Maintaining Traffic, As Per Plan	1	LS
1164715	67	614	Law Enforcement Officer with Patrol Car, As Per Plan	16	HR
1164716	68	623	Construction Layout Stakes	1	LS
1164717	69	624	Mobilization	1	LS
1164718	70	653	Topsoil Furnished and Placed, As Per Plan	151	CY
1164719	71	659	Seeding and Mulching, Class Special, As Per Plan	560	SY
1164720	72	659	Seeding and Mulching, Basin Floor Mix, As Per Plan	740	SY
1164721	73	659	Seeding and Mulching, Basin Side Slopes Mix, As Per Plan	1,310.00	SY
1164722	74	659	Repair Seeding and Mulching, Class Special	120	SY
1164723	75	659	Repair Seeding and Mulching, Basin Floor Mix	150	SY
1164724	76	659	Repair Seeding and Mulching, Basin Side Slopes Mix	270	SY
1164725	77	661	Deciduous Tree, No. 15 Cont., As Per Plan	3	EA
1164726	78	670	Slope Erosion Protection Mat, As Per Plan	2,391.00	SY
1164727	79	670	Turf Reinforcement Mat, As Per Plan	91	SY
1164728	80	703	#57 Stone (for Underdrain)	30	CY
1164729	81	703	River Cobble (for Underdrain)	12	CY
1164730	82	901	12" Storm Pipe, with Type I Bedding	8	FT
1164731	83	901	18" Storm Pipe, with Type II Bedding, As Per Plan	33	FT
1164732	84	SPEC	Clean Out, As Per Plan	3	EA
1164733	85	SPEC	Dewatering, As Per Plan	1	LS
1164734	86	SPEC	Digital Video Recording	1	LS
1164735	87	SPEC	Grade Checking, As Per Plan	1	LS
1164736	88	SPEC	Record Drawing, As Per Plan	1	LS
1164737	89	SPEC	Root Pruning, As Per Plan	1	LS
1164738	90	SPEC	Stone Veneer (Dublin SCD STM-03)	17	SY
1164739	91	SPEC	Wall Cap (Dublin SCD STM-04)	17	LF

C. COMBINED BID/PERFORMANCE/PAYMENT BOND

CITY OF DUBLIN

25-024-CIP 2026 Stormwater Management Basin Maintenance Program

KNOW ALL PERSONS BY THESE PRESENTS, that we, the undersigned

_____ (the "Principal") and
_____ (the "Surety"), are
hereby held and firmly bound unto the CITY OF DUBLIN, Ohio as obligee in the penal sum of the
dollar amount of the bid submitted by the Principal to the CITY OF DUBLIN on
_____, 2026 to undertake the project known as the **25-024-CIP 2026
Stormwater Management Basin Maintenance Program.**

The penal sum referred to herein shall be the dollar amount of the Principal's bid to CITY OF DUBLIN, incorporating any additive or deductive alternate proposals made by the Principal on the date referred to above to the CITY OF DUBLIN, which are accepted by the CITY OF DUBLIN. The penal sum shall be equal to the full amount of the Principal's bid, including alternates.

For the payment of the penal sum well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors, and assigns.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH, that whereas the above-named Principal has submitted a bid for the **25-024-CIP 2026 Stormwater Management Basin Maintenance Program.**

NOW, THEREFORE, if the CITY OF DUBLIN accepts the bid of the Principal and the Principal fails to enter into a proper contract in accordance with the bid, plans, details, specifications, and bills of material; and in the event the Principal pays to the CITY OF DUBLIN the difference not to exceed ten percent of the penalty hereof between the amount specified in the bid and such larger amount for which the CITY OF DUBLIN may in good faith contract with the next lowest bidder to perform the work covered by the bid, or in the event the CITY OF DUBLIN does not award the contract to the next lowest bidder and resubmits the project for bidding, the Principal will pay the CITY OF DUBLIN the difference not to exceed ten percent of the penalty hereof between the amount specified in the bid, or the costs, in connection with the resubmission, of printing new contract documents, required advertising and printing and mailing notices to prospective bidders, whichever is less, then this obligation shall be null and void, otherwise to remain in full force and effect; if the CITY OF DUBLIN accepts the bid of the Principal and the Principal within ten days after the awarding of the contract, enters into a proper contract in accordance with the bid, plans, details specifications, and bills of material, which said contract is made a part of this bond the same as though set forth herein.

NOW ALSO, if the Principal shall well and faithfully do and perform the things agreed by Principal to be done and performed according to the terms of said contract; and shall pay all lawful claims of subcontractors, material men, and laborers, for labor performed and materials furnished in the carrying forward, performing, or completing of said contract; we agreeing and assenting that this undertaking shall be for the benefit of any material man or laborer having a just claim, as well as

for the CITY OF DUBLIN herein; then this obligation shall be void; otherwise the same shall remain in full force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall in no event exceed the penal amount of this obligation as herein stated.

The Surety hereby stipulates and agrees that no modifications, omissions, or additions, in or to the terms of said contract or in or to the plans or specifications therefore shall in any wise affect the obligations of the Surety on the Surety's bond, and the Surety does hereby waive notice of any such modifications, omissions or additions to the terms of the contract or to the plans or specifications.

Signed this ____ day of _____, 2026.

PRINCIPAL:

By: _____

(Signature)

Print Name: _____

Title: _____

Address:

Telephone: () _____

SURETY:

By: _____

(Signature)

Print Name: _____

Title: _____

Address:

Telephone: () _____

SURETY AGENT:

By: _____

(Signature)

Print Name: _____

Title: _____

Address:

Telephone: () _____

D. ALTERNATE BID SECURITY FORM

Bidder Name: _____

Project Name: **25-024-CIP 2026 Stormwater Management Basin Maintenance Program**

The undersigned Bidder hereby submits with its bid the following bid security equaling 10% of the total amount of the bid as required by Ohio Revised Code Section 153.54:

☐ A Certified Check

☐ A Cashier's Check

☐ A Letter of Credit pursuant to Chapter 1305 of the Ohio Revised Code

A bid guaranty filed under this form shall be conditioned to provide that if the bid is accepted, the bidder, after the awarding or the recommendation for the award of the contract, whichever the CITY OF DUBLIN designates, will enter into a proper contract in accordance with the bid, plans, details, specifications, and bills of material. All bid guaranties filed hereunder shall be payable to the CITY OF DUBLIN, be for the benefit of the CITY OF DUBLIN, and be deposited with, and held by, the CITY OF DUBLIN.

Bidder Signature: _____

Print Name: _____