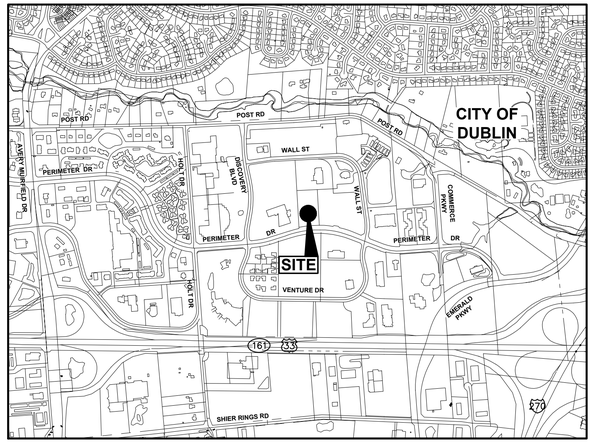
# CITY OF DUBLIN, COUNTY OF FRANKLIN, OHIO
# FINAL DEVELOPMENT PLAN
# FOR
# SCHOEDINGER FUNERAL HOME
# 5980 PERIMETER DRIVE
## 2020




**VICINITY MAP**
SCALE: 1" = 1000'

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## BENCHMARKS

BASED ON NAVD 1988 DATUM.

SOURCE – ELEVATIONS WERE ESTABLISHED USING 45 MINUTE STATIC OBSERVATIONS UTILIZING GLOBAL POSITIONING SYSTEM (GPS) PROCEDURES. THE GPS DATA WAS SUBMITTED TO THE NATIONAL GEODETIC SURVEY'S (NGS) ONLINE POSITIONING USER SERVICE RAPID–STATIC (OPUS–RS) SYSTEM FOR PROCESSING. THE SYSTEM USES THE CONTINUALLY OPERATING REFERENCE STATIONS (CORS) TO ESTABLISH THE GEODETIC ELEVATION.

SOURCE BM – CHISELED SQUARE ON THE NORTHWEST CORNER OF A CONCRETE LIGHT POLE BASE LOCATED AT THE NORTHEAST CORNER OF THE INTERSECTION OF POST ROAD AND COMMERCE PARKWAY.

ELEVATION = 895.28' (NAVD 88)

SITE BM – NORTH RIM OF A MANHOLE APPROXIMATELY 42 FEET EAST OF THE SOUTHEAST PROPERTY CORNER.

ELEVATION = 904.36' (NAVD 88)

## BASIS OF BEARINGS:

BEARINGS ARE BASED ON THE OHIO STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NAD83 (NSRS2007). SAID BEARINGS WERE DERIVED FROM GPS OBSERVATION AND DETERMINE A PORTION OF THE CENTERLINE OF PERIMETER DRIVE HAVING A BEARING OF S71°46'35"W.

## FLOODPLAIN

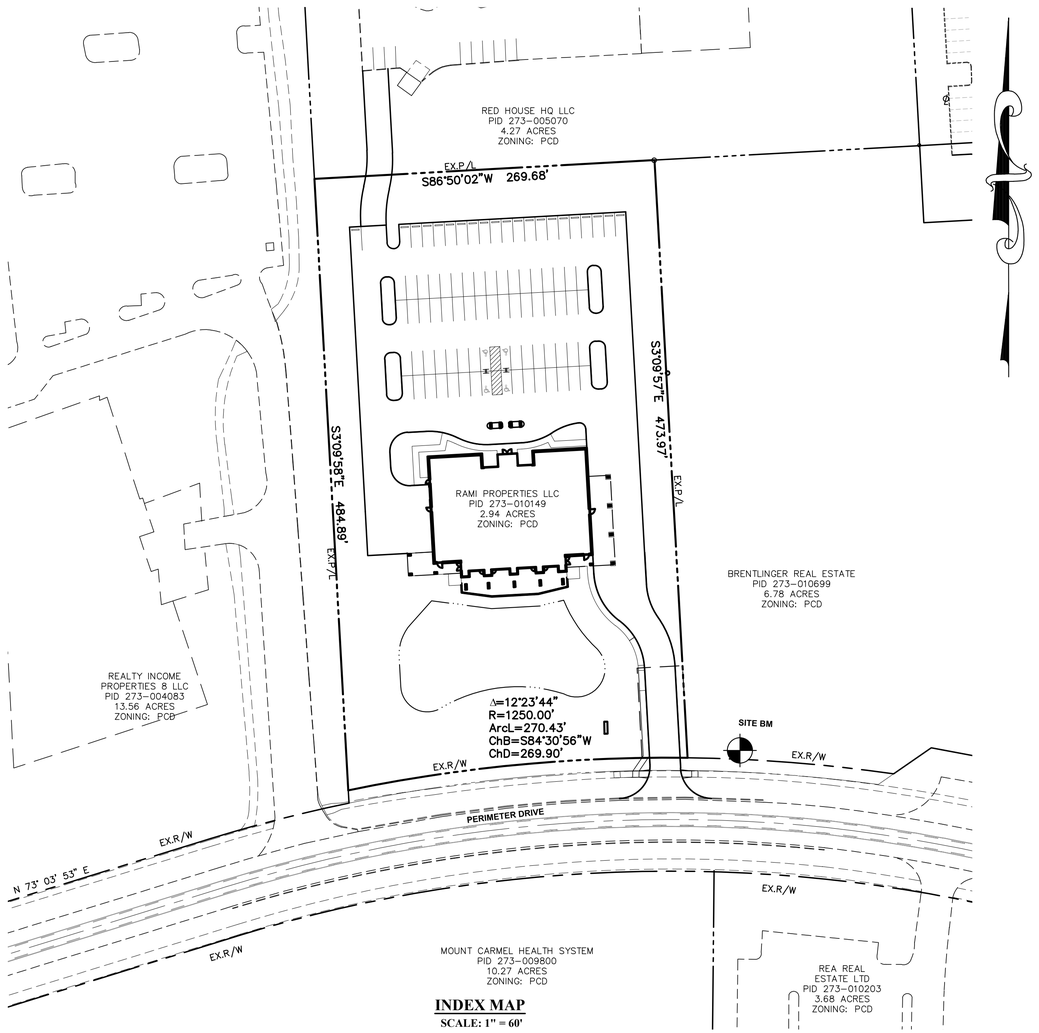
THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) SHOWS THAT THE SUBJECT PROPERTY IS LOCATED WITHIN AN AREA DESIGNATED AS ZONE X. ZONE X IS DEFINED AS: AREAS DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN AS SHOWN ON FLOOD INSURANCE RATE MAPS (FIRM); FRANKLIN COUNTY, OHIO, PANEL 39049C0132K, EFFECTIVE DATE: JUNE 16, 2008.

## STANDARD CONSTRUCTION DRAWINGS

| CITY OF DUBLIN (2017) | CITY OF COLUMBUS (CONSTRUCTION) | CITY OF COLUMBUS (SEWER & WATER) | |
|---|---|---|---|
| PD–02 | 2230 | AA–S102 | L–1001 |
| PD–08 | | AA–S104 | L–6306 |
| RD–02 | | AA–S106 | L–6309B |
| RD–03 | | AA–S107 | L–6309E |
| RD–05 | | AA–S112 | L–6310 |
| RD–06 | | AA–S117 | L–6311 |
| RD–07 | | AA–S119 | L–6312 |
| RD–11 | | AA–S133A | L–6317A |
| SA–03 | | AA–S133B | L–6317B |
| ST–01 | | AA–S139 | L–6409A |
| ST–03 | | AA–S141 | L–7001 |
| WA–01 | | AA–S149 | L–9002A,B |
| | | AA–S150 | L–9002G |
| | | AA–S151 | L–9901 |
| | | AA–S160 | |
| | | AA–S161 | |
| | | AA–S168 | |

NOTE:

STORM STRUCTURE 5 IN THIS PLAN SET IS WITHIN THE PUBLIC RIGHT–OF–WAY AND THEREFORE IS OWNED BY THE CITY AND WILL BE MAINTAINED BY THE CITY OF DUBLIN.




**INDEX MAP**
SCALE: 1" = 60'

OHIO Utilities Protection SERVICE
Call Before You Dig
800-362-2764 or 8-1-1
www.oups.org

**OWNER**
RAMI PROPERTIES LLC
229 EAST STATE STREET
COLUMBUS, OHIO 43214

**PLANS PREPARED FOR**
SCHOEDINGER FUNERAL AND CREMATION SERVICE
1740 ZOLLINGER ROAD
COLUMBUS, OHIO 43221
PHONE: 614–429–5755
RANDY SCHOEDINGER
RANDY@SCHOEDINGER.COM

**LANDSCAPE ARCHITECT**
FARIS PLANNING & DESIGN LLC
243 N. FIFTH STREET
COLUMBUS, OHIO 43215
PHONE: 614–487–1964
TFARIS@FARISPLANNINGANDDESIGN.COM

**GRAPHIC SCALE**
0 30 60 120
1 inch = 60 feet

## CITY OF DUBLIN APPROVAL

SIGNATURES BELOW SIGNIFY ONLY CONCURRENCE WITH THE GENERAL PURPOSES AND THE GENERAL LOCATION OF THE PROJECT AND DO NOT CONSTITUTE ASSURANCE TO OPERATE AS INTENDED. ALL TECHNICAL DETAILS REMAIN THE RESPONSIBILITY OF THE PROFESSIONAL CIVIL ENGINEER PREPARING THE PLANS.

CITY ENGINEER, CITY OF DUBLIN, OHIO — DATE
PAUL A. HAMMERSMITH, P.E.

INTERIM DIRECTOR OF LAND USE AND LONG RANGE PLANNING, CITY OF DUBLIN, OHIO — DATE
JENNIFER M. RAUCH, AICP

**PREPARED BY:**

ADVANCED CIVIL DESIGN
ENGINEERS SURVEYORS
422 Beecher Road
Gahanna, Ohio 43230
ph 614.428.7750
fax 614.428.7755

REGISTERED ENGINEER — NUMBER — DATE

**DUBLIN PROJECT NUMBER: 19-008-COM**

PLAN PREPARED BY:
ADVANCED CIVIL DESIGN ENGINEERS SURVEYORS
422 Beecher Road
Gahanna, Ohio 43230
ph. 614.428.7750
fax. 614.428.7755

PLAN PREPARED FOR:
SCHOEDINGER FUNERAL AND CREMATION SERVICES
1740 ZOLLINGER ROAD
COLUMBUS, OHIO 43221
ATTN: RANDY SCHOEDINGER
PH: 614-429-5755

DUBLIN, FRANKLIN COUNTY, OHIO
**FINAL DEVELOPMENT PLAN FOR**
**SCHOEDINGER FUNERAL HOME**
**PERIMETER DRIVE DEVELOPMENT**
**TITLE SHEET**

Issue Dates:

Date: 01/20/2020
Scale: AS NOTED

| Drawn By: | Checked By: |
|---|---|
| CLE | TMW |

Project Number: 18–0001–918

Drawing Number: **C.01 / 10**

Z:\18–0001–918\DWG\PRODUCTION DRAWINGS\FINAL DEVELOPMENT PLAN\Amended\01–TITLE SHEET.dwg TITLE SHEET Jan 20, 2020 – 12:04:27pm cechelberry

## GENERAL NOTES

1. CITY OF COLUMBUS AND OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS, CURRENT EDITIONS, AND ANY SUPPLEMENTS THERETO (HEREAFTER REFERRED TO AS STANDARD SPECIFICATIONS), SHALL GOVERN ALL CONSTRUCTION ITEMS UNLESS OTHERWISE NOTED. IF A CONFLICT BETWEEN SPECIFICATIONS IS FOUND, THE MORE STRICT SPECIFICATION WILL APPLY AS DECIDED BY THE CITY ENGINEER. ITEM NUMBERS LISTED REFER TO CITY OF COLUMBUS ITEM NUMBERS UNLESS OTHERWISE NOTED.

2. THE CITY ENGINEER WILL NOT BE RESPONSIBLE FOR MEANS, METHODS, PROCEDURES, TECHNIQUES, OR SEQUENCES OF CONSTRUCTION THAT ARE NOT SPECIFIED HEREIN. THE CITY ENGINEER WILL NOT BE RESPONSIBLE FOR SAFETY ON THE WORK SITE, OR FOR FAILURE BY THE CONTRACTOR TO PERFORM WORK ACCORDING TO CONTRACT DOCUMENTS.

3. THE DEVELOPER OR CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN ALL NECESSARY PERMITS INCLUDING, BUT NOT LIMITED TO, OHIO EPA PERMITS TO INSTALL (PTI) AND NOTICES OF INTENT (NOI), BUILDING PERMITS, ETC.

4. THE CONTRACTOR SHALL NOTIFY THE CITY OF DUBLIN DIVISION OF ENGINEERING IN WRITING AT LEAST 3 WORKING DAYS PRIOR TO BEGINNING CONSTRUCTION.

5. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR COMPLYING WITH ALL FEDERAL, STATE AND LOCAL SAFETY REQUIREMENTS INCLUDING THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970. THE CONTRACTOR SHALL EXERCISE PRECAUTION ALWAYS FOR THE PROTECTION OF PERSONS (INCLUDING EMPLOYEES) AND PROPERTY. IT SHALL ALSO BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO INITIATE, MAINTAIN AND SUPERVISE ALL SAFETY REQUIREMENTS, PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK, INCLUDING THE REQUIREMENTS FOR CONFINED SPACES PER 29 CFR 1910.146.

6. FOLLOWING COMPLETION OF CONSTRUCTION OF THE SITE IMPROVEMENTS AND BEFORE REQUESTING OCCUPANCY, A PROOF SURVEY SHALL BE PROVIDED TO THE DIVISION OF ENGINEERING THAT DOCUMENTS "AS-BUILT" ELEVATIONS, DIMENSIONS, SLOPES AND ALIGNMENTS OF ALL ELEMENTS OF THIS PROJECT. THE PROOF SURVEY SHALL BE PREPARED, SIGNED AND SUBMITTED BY THE PROFESSIONAL ENGINEER WHO SEALED THE CONSTRUCTIONS DRAWINGS.

7. THE CONTRACTOR SHALL RESTRICT CONSTRUCTION ACTIVITY TO PUBLIC RIGHT-OF-WAY AND AREAS DEFINED AS PERMANENT AND/OR TEMPORARY CONSTRUCTION EASEMENTS, UNLESS OTHERWISE AUTHORIZED BY THE CITY ENGINEER.

8. THE CONTRACTOR SHALL CAREFULLY PRESERVE BENCHMARKS, PROPERTY CORNERS, REFERENCE POINTS, STAKES AND OTHER SURVEY REFERENCE MONUMENTS OR MARKERS. IN CASES OF WILLFUL OR CARELESS DESTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORATIONS. RESETTING OF MARKERS SHALL BE PERFORMED BY AN OHIO PROFESSIONAL SURVEYOR AS APPROVED BY THE CITY ENGINEER.

9. NON-RUBBER TIRED VEHICLES SHALL NOT BE MOVED ON OR ACROSS PUBLIC STREETS OR HIGHWAYS WITHOUT THE WRITTEN PERMISSION OF THE CITY ENGINEER.

10. THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO EQUAL OR BETTER CONDITION THAN EXISTED BEFORE CONSTRUCTION. DRAINAGE DITCHES OR WATERCOURSES THAT ARE DISTURBED BY CONSTRUCTION SHALL BE RESTORED TO THE GRADES AND CROSS-SECTIONS THAT EXISTED BEFORE CONSTRUCTION.

11. TRACKING OR SPILLING MUD, DIRT OR DEBRIS UPON STREETS, RESIDENTIAL OR COMMERCIAL DRIVES, SIDEWALKS OR BIKE PATHS IS PROHIBITED ACCORDING TO SECTION 97.38 OF THE DUBLIN CODE OF ORDINANCES. ANY SUCH OCCURRENCE SHALL BE CLEANED UP IMMEDIATELY BY THE CONTRACTOR AT NO COST TO THE CITY. IF THE CONTRACTOR FAILS TO REMOVE SAID MUD, DIRT, DEBRIS, OR SPILLAGE, THE CITY RESERVES THE RIGHT TO REMOVE THESE MATERIALS AND CLEAN AFFECTED AREAS, THE COST OF WHICH SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

12. DISPOSAL OF EXCESS EXCAVATION WITHIN SPECIAL FLOOD HAZARD AREAS (100-YEAR FLOODPLAIN) IS NOT PERMITTED.

13. ALL SIGNS, LANDSCAPING, STRUCTURES OR OTHER APPURTENANCES WITHIN RIGHT-OF-WAY DISTURBED OR DAMAGED DURING CONSTRUCTION SHALL BE REPLACED OR REPAIRED TO THE SATISFACTION OF THE CITY ENGINEER. THE COST OF THIS WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

14. ALL FIELD TILE BROKEN OR ENCOUNTERED DURING EXCAVATION SHALL BE REPLACED OR REPAIRED AND CONNECTED TO THE PUBLIC STORM SEWER SYSTEM AS DIRECTED BY THE CITY ENGINEER. THE COST OF THIS WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

15. ALL PRECAST CONCRETE PRODUCTS SHALL BE INSPECTED AT THE LOCATION OF MANUFACTURE. APPROVED PRECAST CONCRETE PRODUCTS WILL BE STAMPED OR HAVE SUCH IDENTIFICATION NOTING THAT INSPECTION HAS BEEN CONDUCTED BY THE CITY OF COLUMBUS. PRECAST CONCRETE PRODUCTS WITHOUT PROOF OF INSPECTION SHALL NOT BE APPROVED FOR INSTALLATION.

16. BACKFILL WITHIN A 1:1 INFLUENCE LINE OF EXISTING STRUCTURES (HOUSES, GARAGES, ETC.) OR PUBLIC INFRASTRUCTURE (PAVEMENT, CURBS, SIDEWALKS, BIKE PATHS, ETC.) SHALL BE COMPACTED GRANULAR BACKFILL ACCORDING TO ITEM 912 OF THE STANDARD SPECIFICATIONS OR FLOWABLE CDF, TYPE II ACCORDING TO ITEM 613. ITEM 911 OF THE STANDARD SPECIFICATIONS SHALL BE USED ELSEWHERE.

17. THE CONTRACTOR SHALL SUBMIT A COPY OF THE APPROVED CONSTRUCTION DRAWINGS AND A LIST OF PROPOSED PRECAST CONCRETE PRODUCT MANUFACTURERS TO THE CITY OF COLUMBUS CONSTRUCTION INSPECTION DIVISION BEFORE COMMENCING CONSTRUCTION.

SEND THE INFORMATION TO THE FOLLOWING ADDRESS:

CONSTRUCTION INSPECTION DIVISION
CITY OF COLUMBUS
1800 EAST 17TH AVENUE
COLUMBUS, OHIO 43219

SEND A COPY OF THE TRANSMITTAL LETTER TO THE FOLLOWING ADDRESS:

DIVISION OF ENGINEERING
CITY OF DUBLIN
5800 SHIER RINGS ROAD
DUBLIN, OHIO 43016

18. ALL TRENCHES WITHIN PUBLIC RIGHT-OF-WAY SHALL BE BACKFILLED ACCORDING TO THE APPROVED CONSTRUCTION DRAWINGS OR SECURELY PLATED DURING NONWORKING HOURS. TRENCHES OUTSIDE THESE AREAS SHALL BE BACKFILLED OR SHALL BE PROTECTED BY APPROVED TEMPORARY FENCING OR BARRICADES DURING NONWORKING HOURS. CLEAN UP SHALL FOLLOW CLOSELY BEHIND THE TRENCHING OPERATION.

19. ALL TREES WITHIN THE CONSTRUCTION AREA NOT SPECIFICALLY DESIGNATED FOR REMOVAL SHALL BE PRESERVED,WHETHER SHOWN OR NOT SHOWN ON THE APPROVED CONSTRUCTION DRAWINGS. TREES TO BE PRESERVED SHALL BE PROTECTED WITH HIGH VISIBILITY FENCING PLACED A MINIMUM 15 FEET FROM THE TREE TRUNK. TREES 6 INCHES OR GREATER AT DBH (DIAMETER BREAST HEIGHT) MUST BE PROTECTED WITH FENCING PLACED AT THE CRITICAL ROOT ZONE OR 15 FEET, WHICHEVER IS GREATER. TREES NOT INDICATED ON THE APPROVED CONSTRUCTION DRAWINGS FOR REMOVAL MAY NOT BE REMOVED WITHOUT PRIOR APPROVAL OF THE DIVISION OF ENGINEERING.

20. CONDUIT MUST BE DIRECTIONALLY BORED ACROSS STREETS INSTEAD OF OPEN CUT, UNLESS SPECIFICALLY APPROVED BY THE CITY ENGINEER. USE OF PNEUMATIC AIR RAM DEVICES IS NOT PERMITTED. PERMITS TO CONSTRUCT IN THE RIGHT-OF-WAY OF EXISTING STREETS MUST BE OBTAINED FROM THE CITY OF DUBLIN DIVISION OF ENGINEERING BEFORE COMMENCING CONSTRUCTION. SHOULD OPEN CUTTING OF EXISTING PAVEMENT BE PERMITTED, CONTROLLED DENSITY BACKFILL (TYPE II) SHALL BE USED IN PLACE OF COMPACTED GRANULAR BACKFILL, ACCORDING TO ITEM 613 OF THE STANDARD SPECIFICATIONS.

21. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONDITION OF TRENCHES WITHIN THE RIGHT-OF-WAY OF EXISTING STREETS AND PUBLIC EASEMENTS FOR A PERIOD OF ONE YEAR FROM THE FINAL ACCEPTANCE OF THE WORK, AND SHALL MAKE ANY NECESSARY REPAIRS AT NO COST TO THE CITY.

22. PAVEMENTS SHALL BE CUT IN NEAT STRAIGHT LINES THE FULL DEPTH OF THE EXISTING PAVEMENT, OR AS REQUIRED BY THE CITY ENGINEER. PAVEMENT REPLACEMENT SHALL BE CONDUCTED ACCORDING TO CITY OF COLUMBUS STANDARD DRAWING 1441 AND APPLICABLE CITY OF DUBLIN STANDARD DRAWINGS. THE REPLACEMENT OF DRIVEWAYS, HANDICAPPED RAMPS, SIDEWALKS, BIKE PATHS, PARKING LOT PAVEMENT, ETC. SHALL BE PROVIDED ACCORDING TO THE APPROVED CONSTRUCTION DRAWINGS AND CITY OF DUBLIN STANDARD CONSTRUCTION DRAWINGS.

23. TREE TRIMMING WITHIN THE CONSTRUCTION ZONE IS TO BE COMPLETED BY A CERTIFIED ARBORIST. AT THE COMPLETION OF THE PROJECT, THE ARBORIST IS TO RETURN AND TRIM ANY BROKEN BRANCHES AS NEEDED.

24. ANY MODIFICATION TO THE WORK SHOWN ON DRAWINGS MUST HAVE PRIOR WRITTEN APPROVAL BY THE CITY ENGINEER, CITY OF DUBLIN.

25. ALL INLETS SHALL BE CHANNELIZED.

26. PARK AREAS SHALL BE FINE-GRADED AND SEEDED WITH THE FOLLOWING MIXTURE:

IMPROVED KENTUCKY BLUEGRASS: 40% OF WEIGHT (2 VARIETIES IN EQUAL PARTS) IMPROVED PERENNIAL RYE: 60% OF WEIGHT (2 VARIETIES IN EQUAL PARTS) GERMINATION RATE: 85% APPLICATION RATE: 7 LBS PER 1000 SQ FT OR AS DIRECTED BY THE DIVISION OF PARKS AND RECREATION, CITY OF DUBLIN, OHIO.

27. TRAFFIC CONTROL AND OTHER REGULATORY SIGNS SHALL BE TYPE S WITH A SQUARE POST ANCHOR BASE INSTALLATION AND MEET ALL REQUIREMENTS OF ODOT TC-41.20 AND APPLICABLE CITY OF DUBLIN SPECIFICATIONS.

28. STREET SIGNS SHALL MEET ALL CITY OF DUBLIN SPECIFICATIONS WITH LETTERING COLORED IN WHITE DISPLAYED OVER A BROWN BACKGROUND. SIGN TUBING SHALL BE BROWN IN COLOR AND CONFORM WITH THE TYPE S, SQUARE POST ANCHOR BASE INSTALLATION REQUIREMENTS OF ODOT TC-41.20.

## UTILITIES

1. THE FOLLOWING UTILITIES ARE KNOWN TO BE LOCATED WITHIN THE LIMITS OF THIS PROJECT:

GAS
COLUMBIA GAS OF OHIO, INC.
1600 DUBLIN ROAD
COLUMBUS, OHIO 43215
(614) 481-1000

ELECTRIC
AMERICAN ELECTRIC POWER
850 TECH CENTER DRIVE
GAHANNA, OHIO 43230
(614) 883-6817

COMMUNICATION
SPECTRUM
1015 OLENTANGY RIVER ROAD
COLUMBUS, OHIO 43212
(614) 481-5000

FRONTIER COMMUNICATIONS
(800) 982-8772

AT&T
111 N. 4TH STREET
COLUMBUS, OHIO 43215
(614) 223-5780

DUBLINK
CITY OF DUBLIN
6555 SHIER-RINGS ROAD
DUBLIN, OHIO 43016
(614) 410-4750

SANITARY, STORM, WATER
CITY OF DUBLIN
6555 SHIER-RINGS ROAD
DUBLIN, OHIO 43016
(614) 410-4750

CITY OF COLUMBUS
DIVISION OF POWER
3368 INDIANOLA AVENUE
COLUMBUS, OHIO 43214
(614) 645-7360

CITY OF COLUMBUS
DIVISION OF SEWERS AND DRAINS
1250 FAIRWOOD AVENUE
COLUMBUS, OHIO 43206
(614) 645-7102

CITY OF COLUMBUS
DIVISION OF WATER
910 DUBLIN ROAD
COLUMBUS, OHIO 43215
(614) 645-8276

2. THE CONTRACTOR SHALL GIVE NOTICE OF INTENT TO CONSTRUCT TO OHIO UTILITIES PROTECTION SERVICE (TELEPHONE NUMBER 800-362-2764), PRODUCER'S UNDERGROUND PROTECTION SERVICE (TELEPHONE NUMBER 614-587-0486), AND TO OWNERS OF UNDERGROUND UTILITIES THAT ARE NOT MEMBERS OF A REGISTERED UNDERGROUND PROTECTION SERVICE. NOTICE SHALL BE GIVEN AT LEAST 2 WORKING DAYS BEFORE START OF CONSTRUCTION.

3. THE IDENTITY AND LOCATIONS OF EXISTING UNDERGROUND UTILITIES IN THE CONSTRUCTION AREA HAVE BEEN SHOWN ON THE APPROVED CONSTRUCTION DRAWINGS AS ACCURATELY AS PROVIDED BY THE OWNER OF THE UNDERGROUND UTILITY. THE CITY OF DUBLIN AND THE CITY ENGINEER ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THE LOCATIONS OR DEPTHS OF UNDERGROUND FACILITIES SHOWN ON THE APPROVED CONSTRUCTION DRAWINGS. IF DAMAGE IS CAUSED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OF THE SAME AND FOR ANY RESULTING CONTINGENT DAMAGE.

4. LOCATION, SUPPORT, PROTECTION AND RESTORATION OF ALL EXISTING UTILITIES AND APPURTENANCES, WHETHER SHOWN OR NOT SHOWN ON THE APPROVED CONSTRUCTION DRAWINGS, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

5. WHEN UNKNOWN OR INCORRECTLY LOCATED UNDERGROUND UTILITIES ARE ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER AND THE CITY ENGINEER.

6. PUBLIC STREET LIGHTING MAY BE IN THE VICINITY OF THIS PROJECT. CONTACT THE CITY OF DUBLIN, DIVISION OF ENGINEERING AT 410-4637, TWO DAYS PRIOR TO BEGINNING WORK.

## TRAFFIC CONTROL

1. TRAFFIC CONTROL SHALL BE FURNISHED, ERECTED, MAINTAINED, AND REMOVED BY THE CONTRACTOR ACCORDING TO OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (OMUTCD), CURRENT EDITION.

2. ALL TRAFFIC LANES OF PUBLIC ROADWAYS SHALL BE FULLY OPEN TO TRAFFIC FROM 7:00 AM TO 9:00 AM AND FROM 4:00 PM TO 6:00 PM UNLESS AUTHORIZED DIFFERENTLY BY THE CITY ENGINEER. AT ALL OTHER HOURS THE CONTRACTOR SHALL MAINTAIN MINIMUM ONE-LANE TWO-WAY TRAFFIC. UNIFORMED, OFF-DUTY POLICE OFFICERS SHALL REPLACE FLAGMEN DESIGNATED BY THE OMUTCD, AND SHALL BE PRESENT WHENEVER ONE-LANE, TWO-WAY TRAFFIC CONTROL IS IN EFFECT. POLICE CRUISERS MAY BE REQUIRED AS DIRECTED BY THE CITY ENGINEER.

3. IF THE CITY ENGINEER DETERMINES THAT THE CONTRACTOR IS NOT PROVIDING PROPER PROVISIONS FOR TRAFFIC CONTROL, THE CITY ENGINEER SHALL ASSIGN UNIFORMED, OFF-DUTY POLICE OFFICERS TO THE PROJECT AT NO COST TO THE CITY.

4. STEADY-BURNING, TYPE "C" LIGHTS SHALL BE REQUIRED ON ALL BARRICADES, DRUMS, AND SIMILAR TRAFFIC CONTROL DEVICES IN USE AT NIGHT.

5. ACCESS FROM PUBLIC ROADWAYS TO ALL ADJOINING PROPERTIES FOR EXISTING RESIDENTS OR BUSINESSES SHALL BE MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT FOR MAIL, PUBLIC WATER AND SANITARY SEWER SERVICE, AND EMERGENCY VEHICLES. THE CONTRACTOR SHALL PROVIDE A TRAFFIC CONTROL PLAN DETAILING THE PROPOSED MAINTENANCE OF TRAFFIC PROCEDURES. THE TRAFFIC CONTROL PLAN MUST INCORPORATE ANY TRAFFIC CONTROL DETAILS CONTAINED HEREIN. THE TRAFFIC CONTROL PLAN PROPOSED BY THE CONTRACTOR MUST BE APPROVED BY THE CITY ENGINEER PRIOR TO CONSTRUCTION.

## EROSION AND SEDIMENT CONTROL

1. THE CONTRACTOR OR DEVELOPER IS RESPONSIBLE FOR SUBMITTING A NOTICE OF INTENT (NOI) TO BE REVIEWED AND APPROVED BY THE OHIO EPA. THE NOI MUST BE SUBMITTED TO OEPA 45 DAYS PRIOR TO THE START OF CONSTRUCTION AND MAY ENTITLE COVERAGE UNDER THE OHIO EPA GENERAL PERMIT FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY. A PROJECT LOCATION MAP MUST BE SUBMITTED WITH THE NOI. A SEDIMENT AND EROSION CONTROL PLAN MUST BE SUBMITTED TO THE CITY ENGINEER FOR APPROVAL IF A SEDIMENT AND EROSION CONTROL PLAN HAS NOT ALREADY BEEN INCLUDED WITH THE APPROVED CONSTRUCTION DRAWINGS. THIS PLAN MUST BE MADE AVAILABLE AT THE PROJECT SITE AT ALL TIMES. THE DESIGN OF EROSION CONTROL SYSTEMS SHALL FOLLOW THE REQUIREMENTS OF OHIO EPA, ITEM 207 OF OHIO DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, AND THE CITY ENGINEER. AN INDIVIDUAL NPDES STORMWATER DISCHARGE PERMIT MAY BE REQUIRED. THE CONTRACTOR SHALL BE CONSIDERED THE PERMITTEE.

2. THE CONTRACTOR SHALL PROVIDE SEDIMENT CONTROL AT ALL POINTS WHERE STORM WATER RUNOFF LEAVES THE PROJECT, INCLUDING WATERWAYS, OVERLAND SHEET FLOW, AND STORM SEWERS.

3. ACCEPTED METHODS OF PROVIDING EROSION/SEDIMENT CONTROL INCLUDE BUT ARE NOT LIMITED TO: SEDIMENT BASINS, SILT FILTER FENCE, AGGREGATE CHECK DAMS, AND TEMPORARY GROUND COVER. HAY OR STRAW BALES ARE NOT PERMITTED.

4. THE CONTRACTOR SHALL PROVIDE ADEQUATE DRAINAGE OF THE WORK AREA AT ALL TIMES CONSISTENT WITH EROSION CONTROL PRACTICES.

5. DISTURBED AREAS THAT WILL REMAIN UNWORKED FOR 30 DAYS OR MORE SHALL BE SEEDED OR PROTECTED WITHIN SEVEN CALENDAR DAYS OF THE DISTURBANCE. OTHER SEDIMENT CONTROLS THAT ARE INSTALLED SHALL BE MAINTAINED UNTIL VEGETATIVE GROWTH HAS BEEN ESTABLISHED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL TEMPORARY SEDIMENT DEVICES AT THE CONCLUSION OF CONSTRUCTION BUT NOT BEFORE GROWTH OF PERMANENT GROUND COVER.

## BLASTING (IF PERMITTED)

1. THE CONTRACTOR MUST OBTAIN A BLASTING PERMIT FROM WASHINGTON TOWNSHIP FIRE DEPARTMENT PRIOR TO BLASTING FOR ROCK EXCAVATION. THE CONTRACTOR SHALL SUBMIT BLASTING REPORTS UPON COMPLETION OF BLASTING TO THE CITY ENGINEER, THE OWNER, AND THE OWNER'S ENGINEER. TOP OF ROCK ELEVATIONS SHALL BE SHOWN ON "AS-BUILT" CONSTRUCTION DRAWINGS.

## SANITARY SEWERS

1. CONNECTIONS TO THE SANITARY SEWER WILL BE PERMITTED UPON RECEIVING AN OEPA PERMIT TO INSTALL (PTI), AND UPON RECEIVING A SATISFACTORY LETTER FROM THE DESIGN ENGINEER STATING THAT THE PROJECT HAS BEEN CONSTRUCTED AS PER THE PLANS, AND ALL OF THE CONDITIONS OF THE PTI HAVE BEEN MET. THE DEVELOPER IS RESPONSIBLE FOR OBTAINING ALL REQUIRED OHIO EPA APPROVALS AND PAYING REVIEW FEES.

2. SANITARY SEWAGE COLLECTION SYSTEMS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE RULES, REGULATIONS, STANDARDS AND SPECIFICATIONS OF THE CITY OF DUBLIN, OHIO EPA, OHIO DEPARTMENT OF HEALTH AND THE CURRENT EDITION OF THE GREAT LAKES-UPPER MISSISSIPPI RIVER BOARD (TEN STATES) - RECOMMENDED STANDARDS FOR WASTEWATER FACILITIES.

3. THE MINIMUM REQUIREMENTS FOR SANITARY SEWER PIPE WITH DIAMETERS 8-INCHES TO 10-INCHES SHALL BE PVC SEWER PIPE ASTM D3034, SDR 35. PIPE FOR 6-INCH DIAMETER HOUSE SERVICE LINES SHALL BE PVC PIPE ASTM D3034, SDR 35. PVC PIPE SHALL NOT BE USED AT DEPTHS GREATER THAN 28 FEET. PIPE MATERIALS AND RELATED STRUCTURES SHALL BE SHOP TESTED IN ACCORDANCE WITH CITY OF COLUMBUS CONSTRUCTION INSPECTION DIVISION QUALITY CONTROL REQUIREMENTS.

4. THE MINIMUM REQUIREMENTS FOR SANITARY SEWER PIPES WITH DIAMETERS 12-INCHES TO 30-INCHES SHALL BE PVC SEWER PIPE, ASTM D3034, SDR 35 OR SANITTIE HP PIPE, ASTM F2764. SANITARY SEWER PIPES WITH DIAMETERS 30-INCHES TO 60-INCHES SHALL BE PVC SEWER PIPE, ASTM D3034, SDR 35 OR SANITITE HP PIPE, ASTM F2764.

5. ALL IN-LINE WYE AND TEE CONNECTIONS IN CONCRETE SEWERS, 18-INCH DIAMETER AND LARGER, SHALL BE EITHER KOR-N-TEE OR KOR-N-SEAL CONNECTIONS CONFORMING TO THE MANUFACTURER'S RECOMMENDATIONS.

6. GRANULAR BACKFILL SHALL BE COMPACTED GRANULAR MATERIAL ACCORDING TO ITEM 912 OF THE STANDARD SPECIFICATIONS OR CONTROLLED DENSITY BACKFILL ACCORDING TO ITEM 613, TYPE II OF THE STANDARD SPECIFICATIONS AS DIRECTED BY THE CITY ENGINEER.

7. ALL MANHOLE LIDS SHALL BE PROVIDED WITH CONTINUOUS SELF-SEALING GASKETS. THE APPROVED CONSTRUCTION DRAWINGS SHALL SHOW WHERE BOLT-DOWN LIDS ARE REQUIRED. SANITARY SEWER MANHOLES SHALL BE PRECAST CONCRETE OR AS APPROVED BY THE CITY ENGINEER AND CONFORM TO THE CITY OF DUBLIN SANITARY MANHOLE STANDARD DRAWING. MANHOLE LIDS SHALL INCLUDE CITY OF DUBLIN LOGO.

8. ALL PVC SEWER PIPES SHALL BE DEFLECTION TESTED NO LESS THAN 60 DAYS AFTER COMPLETION OF BACKFILLING OPERATIONS. ALL OTHER REQUIREMENTS SHALL BE ACCORDING TO ITEM 901.21 OF THE STANDARD SPECIFICATIONS.

9. TEMPORARY BULKHEADS SHALL BE PLACED IN PIPES AT LOCATIONS SHOWN ON THE APPROVED CONSTRUCTION DRAWINGS AND SHALL REMAIN IN PLACE UNTIL THE PERMIT TO INSTALL (PTI) HAS BEEN ISSUED BY THE OEPA AND THE SEWERS HAVE BEEN APPROVED FOR USE BY THE CITY ENGINEER. THE COST FOR FURNISHING, INSTALLING, MAINTAINING, AND REMOVING BULKHEADS SHALL BE INCLUDED IN THE CONTRACT UNIT BID PRICE FOR THE VARIOUS SANITARY SEWER ITEMS.

10. ALL SANITARY SEWERS INCLUDING SANITARY SEWER SERVICE LINES SHALL BE SUBJECTED TO AND PASS INFILTRATION OR EXFILTRATION TESTS ACCORDING TO ITEM 901 OF THE STANDARD SPECIFICATIONS AND MUST BE APPROVED FOR USE BY THE CITY ENGINEER BEFORE ANY SERVICE CONNECTIONS ARE TAPPED INTO SEWERS.

11. FOR SANITARY SEWER INFILTRATION, LEAKAGE THROUGH JOINTS SHALL NOT EXCEED 100 GALLONS PER INCH OF TRIBUTARY SEWER DIAMETER PER 24 HOURS PER MILE OF LENGTH OR THE COMPUTED EQUIVALENT. ALL SANITARY SEWERS SHALL BE TESTED.

12. AT THE DETERMINATION OF THE CITY ENGINEER, THE CONTRACTOR MAY BE REQUIRED TO PERFORM A TV INSPECTION OF THE SANITARY SEWER SYSTEM PRIOR TO FINAL ACCEPTANCE BY THE CITY. THIS WORK SHALL BE COMPLETED BY THE CONTRACTOR AT HIS EXPENSE.

13. VISIBLE LEAKS OR OTHER DEFECTS OBSERVED OR DISCOVERED DURING TV INSPECTION SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

14. ROOF DRAINS, FOUNDATION DRAINS, FIELD TILE OR OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER SYSTEM ARE STRICTLY PROHIBITED ACCORDING TO SECTION 51.23 OF THE DUBLIN CODE OF ORDINANCES.

15. ALL WATER LINES SHALL BE LOCATED AT LEAST 10 FEET HORIZONTALLY AND 18 INCHES VERTICALLY, FROM SANITARY SEWERS AND STORM SEWERS, TO THE GREATEST EXTENT PRACTICABLE. WHERE SANITARY SEWERS CROSS WATERMAINS OR OTHER SEWERS OR OTHER UTILITIES, TRENCH BACKFILL SHALL BE PLACED BETWEEN THE PIPES CROSSING AND SHALL BE COMPACTED GRANULAR MATERIAL ACCORDING TO ITEM 912 OF THE STANDARD SPECIFICATIONS. IN THE EVENT THAT A WATER LINE MUST CROSS WITHIN 18 INCHES OF A SANITARY SEWER, THE SANITARY SEWER SHALL BE CONCRETE ENCASED OR CONSIST OF DUCTILE IRON PIPE MATERIAL.

16. SERVICE RISERS SHALL BE INSTALLED WHERE THE DEPTH FROM WYES TO PROPOSED GROUND ELEVATION EXCEEDS 10 FEET. TOPS OF RISERS SHALL BE NO LESS THAN 9 FEET BELOW PROPOSED GROUND ELEVATION IF BASEMENT SERVICE IS INTENDED.

17. WHERE SERVICE RISERS ARE NOT INSTALLED, A MINIMUM 5-FOOT LENGTH OF SANITARY SEWER SERVICE PIPE OF THE SAME SIZE AS THE WYE OPENING SHALL BE INSTALLED.

18. THE CONTRACTOR SHALL FURNISH AND PLACE, AS DIRECTED, APPROVED WYE POLES MADE OF 2 INCHES X 2 INCHES LUMBER AT ALL WYE LOCATIONS, ENDS OF EXTENDED SERVICES, OR AT THE END OF EACH RISER WHERE RISERS ARE REQUIRED. WYE POLES SHALL BE VISIBLE BEFORE ACCEPTANCE BY THE CITY. THE COST OF THESE POLES SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR THE VARIOUS SEWER ITEMS.

19. EXISTING SANITARY SEWER FLOWS SHALL BE MAINTAINED AT ALL TIMES. COSTS FOR PUMPING AND BYPASSING SHALL BE INCLUDED IN THE CONTRACTOR'S UNIT PRICE BID FOR THE RELATED ITEMS.

20. THE CONTRACTOR SHALL FURNISH ALL MATERIAL, EQUIPMENT, AND LABOR TO MAKE CONNECTIONS TO EXISTING MANHOLES. THE SEWER PIPE TO MANHOLE CONNECTIONS FOR ALL SANITARY SEWERS SHALL BE FLEXIBLE AND WATERTIGHT. ALL HOLES SHALL BE NEATLY CORED. THE SEWER PIPE BARREL AT THE SPRINGLINE SHALL NOT EXTEND MORE THAN 1 INCH BEYOND THE INSIDE FACE OF THE MANHOLE. TO MAINTAIN FLEXIBILITY IN THE CONNECTION, A 1-INCH SPACE SHALL BE LEFT BETWEEN THE END OF THE PIPE INSIDE THE MANHOLE AND THE CONCRETE CHANNEL; THIS SPACE SHALL BE FILLED WITH A WATERPROOF FLEXIBLE JOINT FILLER. ANY METAL THAT IS USED SHALL BE TYPE 300 SERIES STAINLESS STEEL. THE CONNECTION MAY BE ANY OF THE FOLLOWING TYPES:

A. RUBBER SLEEVE WITH STAINLESS STEEL BANDING.

1) KOR-N-SEAL AS MANUFACTURED BY NATIONAL POLLUTION CONTROL SYSTEMS, INC.
2) LOCK JOINT FLEXIBLE MANHOLE SLEEVE AS MANUFACTURED BY INTERPACE CORPORATION.
3) OR EQUAL AS APPROVED BY THE CITY ENGINEER.

B. RUBBER GASKET COMPRESSION.

1) PRESS WEDGE II AS MANUFACTURED BY PRESS-SEAL GASKET CORPORATION.
2) DURA SEAL III AS MANUFACTURED BY DURA TECH, INC.
3) LINK-SEAL AS MANUFACTURED BY THUNDERLINE CORPORATION.
4) OR EQUAL AS APPROVED BY THE CITY ENGINEER.

THE COST FOR THIS WORK ALONG WITH A NEW CHANNELIZED BASE FOR THE MANHOLE SHALL BE INCLUDED IN THE UNIT BID PRICE FOR THE RELATED ITEMS OF WORK.

## WATER LINE

1. ALL WATER LINE MATERIALS SHALL BE PROVIDED AND INSTALLED ACCORDING TO CURRENT SPECIFICATIONS OF THE CITY OF COLUMBUS DIVISION OF WATER.

2. ALL PUBLIC WATER PIPE WITH A DIAMETER 3 INCHES TO 8 INCHES SHALL BE DUCTILE IRON, CLASS 53. PUBLIC WATER PIPE 12 INCHES IN DIAMETER OR LARGER SHALL BE DUCTILE IRON, CLASS 54. PUBLIC WATER PIPE 20 INCHES IN DIAMETER OR LARGER MAY BE PRESTRESSED CONCRETE PIPE. PRIVATE WATER PIPE SHALL MEET THE APPROVAL OF THE CITY OF COLUMBUS DIVISION OF WATER PRIOR TO APPROVAL OF THE CONSTRUCTION DRAWINGS.

3. ONLY FIRE HYDRANTS CONFORMING TO CITY OF COLUMBUS STANDARDS WILL BE APPROVED FOR USE.

4. PUBLIC WATER LINES SHALL BE DISINFECTED BY THE CITY OF COLUMBUS DIVISION OF WATER. REQUESTS FOR WATER LINE CHLORINATION SHALL BE MADE THROUGH THE CITY OF DUBLIN DIVISION OF ENGINEERING. THE COST FOR CHLORINATION SHALL BE PAID FOR BY THE CONTRACTOR.

5. ALL WATER LINES SHALL BE DISINFECTED ACCORDING TO ITEM 801.15 OF THE STANDARD SPECIFICATIONS. SPECIAL ATTENTION IS DIRECTED TO APPLICABLE SECTIONS OF AMERICAN WATER WORKS ASSOCIATION SPECIFICATION C-651, PARTICULARLY FOR FLUSHING (SECTION 5) AND FOR CHLORINATING VALVES AND FIRE HYDRANTS (SECTION 7). PRESSURE TESTING SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 801.14 OF THE CITY OF COLUMBUS CONSTRUCTION AND MATERIAL SPECIFICATIONS. WHEN WATER LINES ARE READY FOR DISINFECTION, THE CITY OF DUBLIN SHALL SUBMIT TWO (2) SETS OF "AS-BUILT" PLANS, AND A LETTER STATING THAT THE WATER LINES HAVE BEEN PRESSURE TESTED AND NEED TO BE DISINFECTED, TO THE CITY OF COLUMBUS, DIVISION OF WATER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH THE DISINFECTION OF ALL WATER LINE CONSTRUCTION PER THIS PLAN. PRESSURE TESTING SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 801.14 OF THE CITY OF COLUMBUS CONSTRUCTION AND MATERIAL SPECIFICATIONS.

6. THE CONTRACTOR SHALL PAINT ALL FIRE HYDRANTS ACCORDING TO CITY OF DUBLIN STANDARDS. THE COST OF PAINTING FIRE HYDRANTS SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR FIRE HYDRANTS.

7. NO WATER TAPS OR SERVICE CONNECTIONS (E.G., TO CURB STOPS OR METER PITS) MAY BE ISSUED UNTIL ADJACENT PUBLIC WATER LINES SERVING THE CONSTRUCTION SITE HAVE BEEN DISINFECTED BY THE CITY OF COLUMBUS DIVISION OF WATER AND HAVE BEEN ACCEPTED BY THE CITY ENGINEER. A TAP PERMIT FOR EACH WATER SERVICE MUST BE OBTAINED FROM THE CITY OF DUBLIN AND THE CITY OF COLUMBUS DIVISION OF WATER BEFORE MAKING ANY TAPS INTO PUBLIC WATER LINES.

8. THE CONTRACTOR SHALL NOTIFY THE CITY OF COLUMBUS DIVISION OF WATER AT 645-7788 AND THE CITY OF DUBLIN DIVISION OF ENGINEERING AT LEAST 24 HOURS BEFORE TAPPING INTO EXISTING WATER LINES.

9. ALL WATER MAIN STATIONING SHALL BE BASED ON STREET CENTERLINE STATIONING.

10. ALL BENDS, JOINT DEFLECTIONS AND FITTINGS SHALL BE BACKED WITH CONCRETE PER CITY OF COLUMBUS STANDARDS.

11. THE CONTRACTOR SHALL GIVE WRITTEN NOTICE TO ALL AFFECTED PROPERTY OWNERS AT LEAST 1 WORKING DAY, BUT NOT MORE THAN 3 WORKING DAYS PRIOR TO ANY TEMPORARY INTERRUPTION OF WATER SERVICE. INTERRUPTION OF WATER SERVICE SHALL BE MINIMIZED AND MUST BE APPROVED BY THE CITY ENGINEER.

12. WATER METERS SHALL BE INSTALLED INSIDE PROPOSED STRUCTURES UNLESS A METER PIT INSTALLATION IS APPROVED BY THE CITY OF COLUMBUS DIVISION OF WATER. METER PITS MUST CONFORM TO STANDARD DRAWINGS L-7103, A&B FOR 5/8" THROUGH 1" METERS OR L-6317, A, B, C&D FOR 1-1/2" OR LARGER METERS.

13. WATER LINES TO BE INSTALLED IN EMBANKMENT AREAS SHALL BE PLACED AFTER THE EMBANKMENT HAS BEEN PLACED AND COMPACTED ACCORDING TO THE STANDARD SPECIFICATIONS.

14. CURB STOP BOXES SHALL BE LOCATED AT LEAST 1 FOOT INSIDE THE RIGHT-OF-WAY AND SET AT FINISHED GRADE.

15. IF THE TOP OF THE OPERATING NUT OF ANY VALVE IS GREATER THAN 36 INCHES BELOW FINISHED GRADE, AN EXTENSION STEM SHALL BE FURNISHED TO BRING THE TOP OF THE OPERATING NUT TO WITHIN 24 INCHES OF FINISHED GRADE ELEVATION.

16. ALL WATER LINES SHALL BE PLACED AT A MINIMUM DEPTH OF 4 FEET MEASURED FROM TOP OF FINISHED GRADE TO TOP OF WATER LINE. WATER LINES SHALL BE SET DEEPER AT ALL POINTS WHERE NECESSARY TO CLEAR EXISTING OR PROPOSED UTILITY LINES OR OTHER UNDERGROUND RESTRICTIONS BY A MINIMUM OF 18 INCHES.

17. TWO ¾INCH TAPS SHALL BE INSTALLED WITHIN 2 FEET OF THE END OF THE LINE ON ALL DEAD-END WATER LINES.

## STORM SEWER

1. ALL STORM WATER DETENTION AND RETENTION AREAS AND MAJOR FLOOD ROUTING SWALES SHALL BE CONSTRUCTED TO FINISH GRADE AND HYDRO-SEEDED AND HYDRO-MULCHED ACCORDING TO ITEMS 203 AND 659 OF THE STANDARD SPECIFICATIONS.

2. WHERE PRIVATE STORM SEWERS CONNECT TO PUBLIC STORM SEWERS, THE LAST RUN OF PRIVATE STORM SEWER CONNECTING TO THE PUBLIC STORM SEWER SHALL BE REINFORCED CONCRETE PIPE CONFORMING TO ASTM DESIGNATION C76, WALL B, CLASS IV FOR PIPE DIAMETERS 12 INCHES TO 15 INCHES, CLASS III FOR 18 INCHES TO 24 INCH PIPES, AND 27 INCHES AND LARGER PIPE SHALL BE CLASS II, UNLESS OTHERWISE SHOWN ON THE APPROVED CONSTRUCTION DRAWINGS. INSPECTION IS REQUIRED BY THE CITY OF DUBLIN'S DIVISION OF ENGINEERING.

3. GRANULAR BACKFILL SHALL BE COMPACTED GRANULAR MATERIAL ACCORDING TO ITEM 912 OF THE STANDARD SPECIFICATIONS OR CONTROLLED DENSITY BACKFILL ACCORDING TO ITEM 613, TYPE II OF THE STANDARD SPECIFICATIONS AS DIRECTED BY THE CITY ENGINEER.

4. ALL STORM SEWERS SHALL BE REINFORCED CONCRETE PIPE CONFORMING TO ASTM DESIGNATION C76, WALL B, CLASS IV FOR PIPE DIAMETERS 12 INCHES TO 15 INCHES, CLASS III FOR 18 INCHES TO 24 INCH PIPES, AND 27 INCHES AND LARGER PIPE SHALL BE CLASS II, UNLESS OTHERWISE SHOWN ON THE APPROVED CONSTRUCTION DRAWINGS.

5. HEADWALLS AND ENDWALLS SHALL BE REQUIRED AT ALL STORM SEWER INLETS OR OUTLETS TO AND FROM STORMWATER MANAGEMENT FACILITIES. NATURAL STONE AND/OR BRICK APPROVED BY THE CITY ENGINEER SHALL BE PROVIDED ON ALL VISIBLE HEADWALLS AND/OR ENDWALLS SURFACES.

6. STORM INLETS OR CATCH BASINS SHALL BE CHANNELIZED AND HAVE BICYCLE SAFE GRATES. MANHOLE LIDS SHALL INCLUDE CITY OF DUBLIN LOGO AND ALL CURB INLET AND CATCH BASIN GRATES SHALL INCLUDE ENGRAVED LETTERING: "DUMP NO WASTE; DRAINS TO RIVER."

7. STORM SEWER OUTLETS GREATER THAN 18 INCHES IN DIAMETER ACCESSIBLE FROM STORMWATER MANAGEMENT FACILITIES OR WATERCOURSES SHALL BE PROVIDED WITH SAFETY GRATES, AS APPROVED BY THE CITY ENGINEER.

## MAIL DELIVERY

1. THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THAT US MAIL DELIVERY WITHIN THE PROJECT LIMITS IS NOT DISRUPTED BY CONSTRUCTION OPERATIONS. THIS RESPONSIBILITY IS LIMITED TO RELOCATION OF MAILBOXES TO A TEMPORARY LOCATION THAT WILL ALLOW THE COMPLETION OF THE WORK AND SHALL ALSO INCLUDE THE RESTORATION OF MAILBOXES TO THEIR ORIGINAL LOCATION OR APPROVED NEW LOCATION. ANY RELOCATION OF MAILBOX SERVICES MUST BE FIRST COORDINATED WITH THE US POSTAL SERVICE AND THE HOMEOWNER.

2. BEFORE RELOCATING ANY MAILBOXES, THE CONTRACTOR SHALL CONTACT THE U.S. POSTAL SERVICE AND RELOCATE MAILBOXES ACCORDING TO THE REQUIREMENTS OF THE POSTAL SERVICE.

## USE OF FIRE HYDRANTS

1. THE CONTRACTOR SHALL MAKE PROPER ARRANGEMENTS WITH THE DUBLIN SERVICE DEPARTMENT AND THE COLUMBUS DIVISION OF WATER FOR THE USE OF FIRE HYDRANTS WHEN USED FOR WORK PERFORMED UNDER THIS CONTRACT AND PROVIDE THE CITY OF DUBLIN A COPY OF THE HYDRANT USAGE PERMIT OBTAINED FROM THE CITY OF COLUMBUS. THE CONTRACTOR SHALL ALSO SEND A COPIES OF PERMITS OBTAINED FROM DUBLIN AND COLUMBUS TO THE WASHINGTON AND/OR PERRY TOWNSHIP FIRE DEPARTMENT. PERMITS SHALL BE KEPT AT THE CONSTRUCTION SITE AT ALL TIMES.

2. BEFORE THE FINAL ESTIMATE IS PAID, THE CONTRACTOR SHALL SUBMIT A LETTER FROM THE CITY OF COLUMBUS DIVISION OF WATER TO THE CITY ENGINEER STATING THAT THE CONTRACTOR HAS RETURNED THE SIAMESE VALVE TO THE CITY OF COLUMBUS AND HAS PAID ALL COSTS ARISING FROM THE USE OF THE FIRE HYDRANTS.

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PLAN PREPARED FOR:
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COLUMBUS, OHIO 43221
ATTN: RANDY SCHOEDINGER
PH: 614-429-5755

DUBLIN, FRANKLIN COUNTY, OHIO

**FINAL DEVELOPMENT PLAN FOR**
**SCHOEDINGER FUNERAL HOME**
**PERIMETER DRIVE DEVELOPMENT**

**GENERAL NOTES**

Issue Dates:

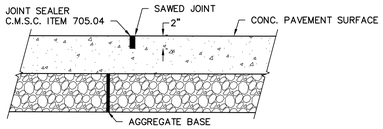
**Date:** 01/20/2020
**Scale:** NONE

| **Drawn By:** | **Checked By:** |
|---|---|
| CLE | TMW |

**Project Number:** 18-0001-918

**Drawing Number:** **C.02 / 10**

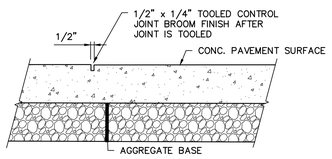
Z:\18-0001-918\DWG\PRODUCTION DRAWINGS\FINAL DEVELOPMENT PLAN\Amended\02-NOTES.dwg GENERAL NOTES Jan 20, 2020 - 12:05:34pm cechelberry




JOINTS SHALL BE SAWED AS SOON AS THE INITIAL SETTING OF THE CONCRETE WILL PERMIT MOVEMENT OF THE SAWING EQUIPMENT WITHOUT DAMAGE TO THE SURFACE

## SAWED CONTROL JOINT DETAIL

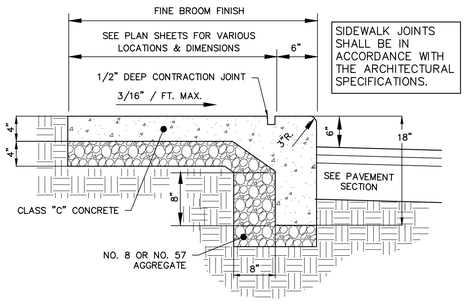
NO SCALE




NOTE: CONSTRUCTION JOINTS MAY BE SAWED OR TOOLED AS DIRECTED BY THE CONSTRUCTION MANAGER.

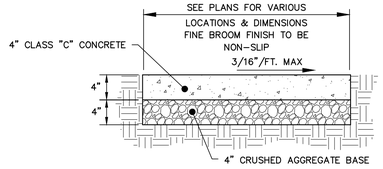
## TOOLED CONTROL JOINT DETAIL

NO SCALE



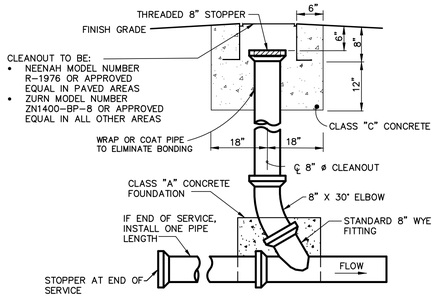

## COMBINED CURB AND WALK

NO SCALE



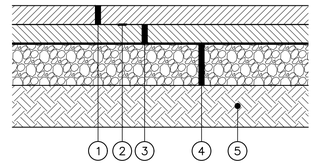

## CONCRETE SIDEWALK SECTION

NO SCALE




## SEWER CLEANOUT

NO SCALE



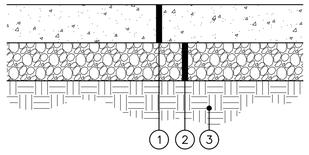

| | LIGHT DUTY (LD) | HEAVY DUTY (HD) |
|---|---|---|
| 1 | ITEM 441, 1-1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), PG64-22 | ITEM 441, 1-1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), PG64-22 |
| 2 | ITEM 407, TACK COAT (0.15-0.20 GAL/SQ. YD.) | ITEM 407, TACK COAT (0.15-0.20 GAL/SQ. YD.) |
| 3 | ITEM 441, 1-1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448) | ITEM 441, 2-1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448) |
| 4 | ITEM 304, 8" CRUSHED AGGREGATE BASE | ITEM 304, 10" CRUSHED AGGREGATE BASE |
| 5 | ITEM 204, SUBGRADE COMPACTION | ITEM 204, SUBGRADE COMPACTION |

NOTES:
1. THE TACK COAT MAY BE ELIMINATED IF THE INTERMEDIATE COURSE IS CLEAN AND THE SURFACE IS PLACED IMMEDIATELY FOLLOWING THE PLACEMENT OF THE INTERMEDIATE COURSE.
2. ALL PAVEMENT MATERIAL SHALL CONFORM TO THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS.
3. THE PAVEMENT SECTIONS ARE A RECOMMENDATION ASSUMING SUITABLE SOIL CONDITIONS. ACD RECOMMENDS THAT A GEOTECHINCAL ENGINEER REVIEWS THE SOIL CONDITIONS AND MAKES A FINAL RECOMMENDATION FOR THE SUBGRADE AND PAVEMENT SECTION.

## PAVEMENT SECTION

NO SCALE

**NOTE:** LIGHT DUTY TO BE USED IN STANDARD PARKING SPACE LOCATIONS HEAVY DUTY TO BE USED IN DRIVE AISLES AND HEAVY TRAFFIC AREAS SEE SITE PLAN, SHEET 5.

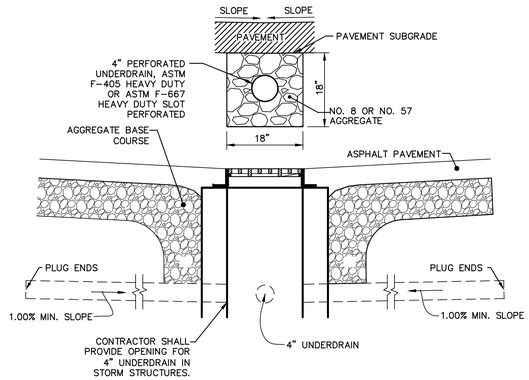



1. ITEM 451, 8" REINFORCED P.C. CONCRETE PAVEMENT (CLASS C)
2. ITEM 304, 6" CRUSHED AGGREGATE BASE
3. ITEM 204, SUBGRADE COMPACTION

NOTES:
1. ALL PAVEMENT MATERIAL SHALL CONFORM TO THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS.
2. THE PAVEMENT SECTIONS ARE A RECOMMENDATION ASSUMING SUITABLE SOIL CONDITIONS. ACD RECOMMENDS THAT A GEOTECHINCAL ENGINEER REVIEWS THE SOIL CONDITIONS AND MAKES A FINAL RECOMMENDATION FOR THE SUBGRADE AND PAVEMENT SECTION.

## CONCRETE DUMPSTER PAD SECTION

NO SCALE

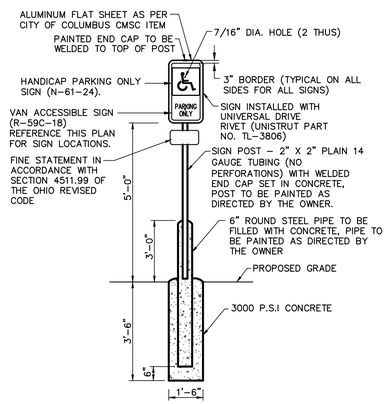



THE PERFORATED PIPE SHALL BE PROTECTED FROM HEAVY TRAFFIC AFTER INSTALLATION PRIOR TO PLACEMENT OF PROPOSED PAVING.

UNDERDRAIN SHALL BE INSTALLED IN ALL DIRECTIONS FOR THE SHORTEST OF THE THREE CONDITIONS BELOW:
1. FOR A LENGTH OF 20'
2. TO THE END OF PAVEMENT
3. TO THE PAVEMENT HIGH POINT

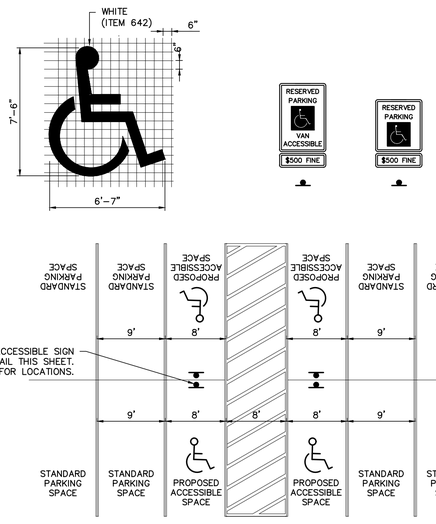
## 4" UNDERDRAIN AT CATCH BASIN DETAIL

NO SCALE



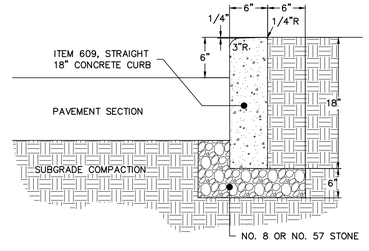

## ACCESSIBLE PARKING SIGN DETAIL

NO SCALE



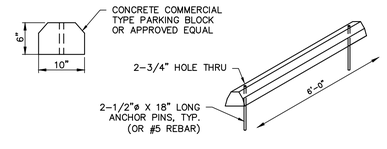

## TYPICAL ACCESSIBLE PARKING DETAIL

NO SCALE




## 18" STRAIGHT CONCRETE CURB DETAIL

NO SCALE




## STANDARD PARKING BLOCK DETAIL

NO SCALE

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DUBLIN, FRANKLIN COUNTY, OHIO

# FINAL DEVELOPMENT PLAN FOR SCHOEDINGER FUNERAL HOME PERIMETER DRIVE DEVELOPMENT

## DETAILS & ESTIMATED QUANTITIES

Issue Dates:

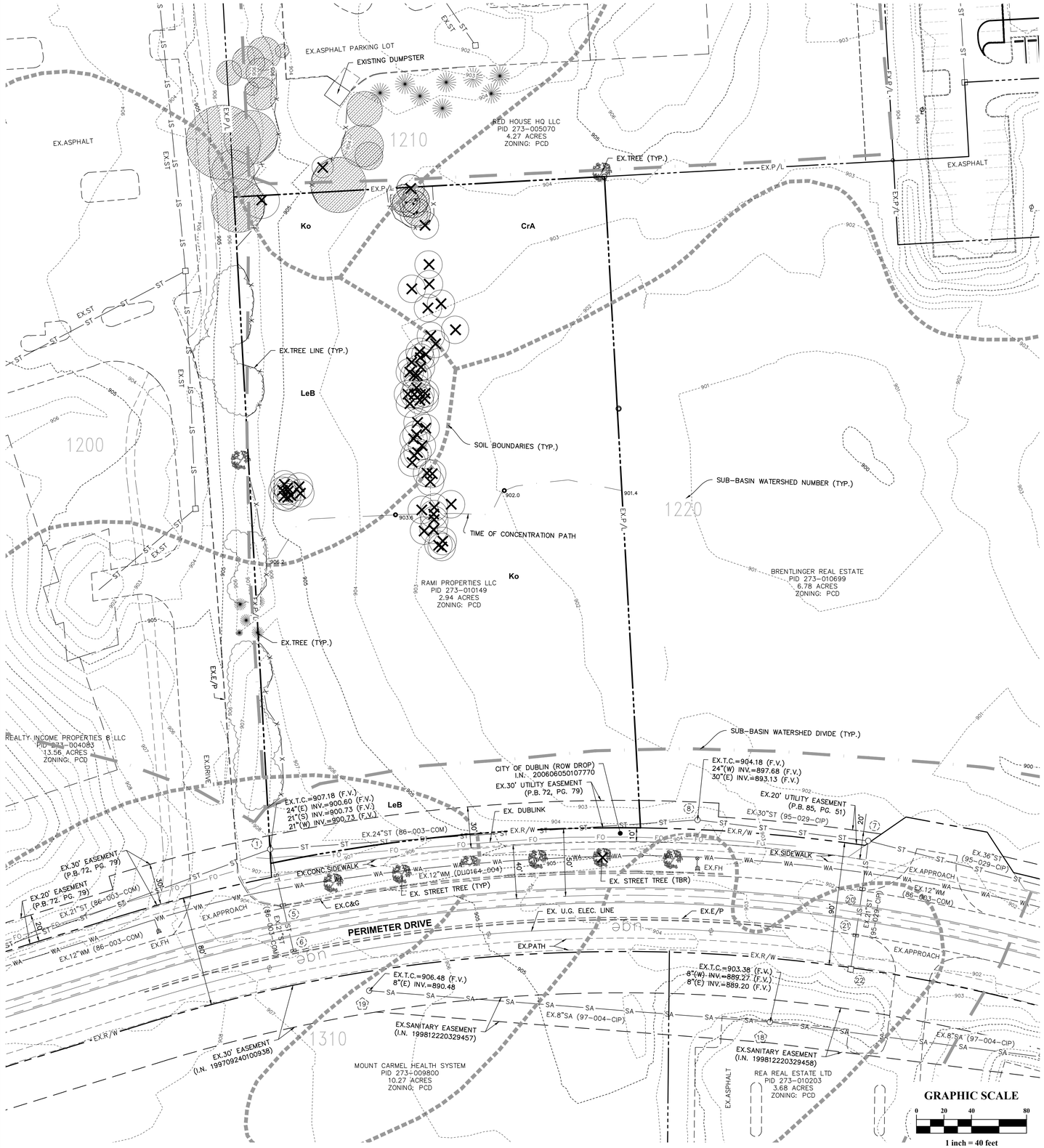
Date: 01/20/2020
Scale: AS NOTED

Drawn By: CLE
Checked By: TMW

Project Number: 18-0001-918

Drawing Number: C.03 / 10

Z:\18-0001-918\DWG\PRODUCTION DRAWINGS\FINAL DEVELOPMENT PLAN\Amended\03-DETAILS.dwg DETAILS & ESTIMATED QUANTITIES Jan 20, 2020 - 12:05:38pm cechelberry




## LEGEND

- 875 — EXISTING MAJOR CONTOUR
- 876 — EXISTING MINOR CONTOUR
- EXISTING SOILS LINE
- STORMWATER MASTER PLAN SUB-BASIN WATERSHED DIVIDE
- FIRE HYDRANT, VALVE, WA, WATER METER — EXISTING WATER MAIN
- MANHOLE SA — EXISTING SANITARY SEWER
- MANHOLE ST, CATCH BASIN CURB INLET R — EXISTING STORM SEWER
- FO — EXISTING FIBER OPTIC LINE
- 3 — EXISTING UNDERGOUND ELECTRIC
- X — X — TREE PROTECTION FENCE
- (TBR) — TO BE REMOVED
- TO BE REMOVED — EXISTING TREES TO BE REMOVED, SEE LANDSCAPE PLAN L-4 FOR FULL DETAILS AND LISTINGS
- TO BE RETAINED — EXISTING TREES TO BE PRESERVED, SEE LANDSCAPE PLAN L-4 FOR FULL DETAILS AND LISTINGS
- (F.V.) — FIELD VERIFIED

## NOTES

1. REFER TO LANDSCAPING PLAN FOR DETAILS ON TREE PRESERVATION AND EXISTING TREE INFORMATION.
2. INSTALLATION OF TREE PROTECTION BARRICADES SHALL BE PERFORMED BEFORE ANY SITE DEVELOPMENT ACTIVITY TAKES PLACE.
3. THE TREE PROTECTION BARRICADES SHALL REMAIN IN PLACE THROUGHOUT THE CONSTRUCTION PHASE AND UNTIL SITE DEVELOPMENT ACTIVITIES ARE FULLY COMPLETE.
4. ANY DAMAGE THAT MAY OCCUR TO THE BARRICADES SHALL BE REPAIRED OR REPLACED TO THE ORIGINAL SPECIFICATIONS WITHIN 24 HOURS OF THE DAMAGE OCCURRING.
5. THE AREA WITHIN THE TREE PROTECTION BARRICADES SHALL NOT BE USED FOR STORAGE OF ANY MATERIAL, DEBRIS OR THE DISPOSAL OF ANY SOLID, LIQUID OR GASEOUS MATERIAL THAT COULD CAUSE HARM TO TREES.
6. ANY PROPOSED UNDERGROUND UTILITY SHALL BE ROUTED AROUND PROTECTED TREES TO THE OUTSIDE TREE DRIPLINE. IF THIS IS NOT FEASIBLE, AS DETERMINED BY THE CITY, A SLEEVE MAY BE USED UNDER THE TREE, PROVIDED ALL ACCEPTABLE HORTICULTURAL/ARBORICULTURAL PRACTICES ARE ADHERED TO.

## MAP UNIT LEGEND

| MAP UNIT SYMBOL | SOIL NAME / HYDROLOGIC RATING |
|---|---|
| CrA | CROSBY SILT LOAM, SOUTHERN OHIO TILL PLAIN, 0 TO 2 PERCENT SLOPES |
| Ko | KOKOMO SILTY CLAY LOAM, 0 TO 2 PERCENT SLOPES |
| LeB | LEWSBURG-CROSBY COMPLEX, 2 TO 6 PERCENT SLOPES |

## FLOODPLAIN

THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) SHOWS THAT THE SUBJECT PROPERTY IS LOCATED WITHIN AN AREA DESIGNATED AS ZONE X. ZONE X IS DEFINED AS: AREAS DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN AS SHOWN ON FLOOD INSURANCE RATE MAPS (FIRM); FRANKLIN COUNTY, OHIO, PANEL 39049C0132K, EFFECTIVE DATE: JUNE 16, 2008.

## REFERENCES

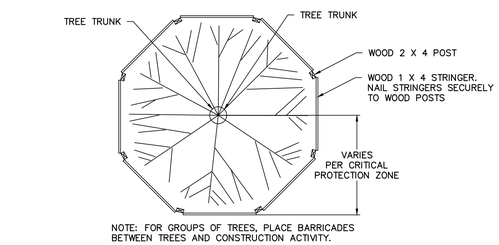
1. SOILS INFORMATION IS PER USDA WEB SOIL SURVEY, ACCESSED AUGUST 2018.
2. EXISTING UTILITIES SHOWN ARE BASED OFF FIELD SURVEY INFORMATION AND RECORD PLANS PROVIDED BY THE CITY OF DUBLIN.

## SITE ZONING INFORMATION

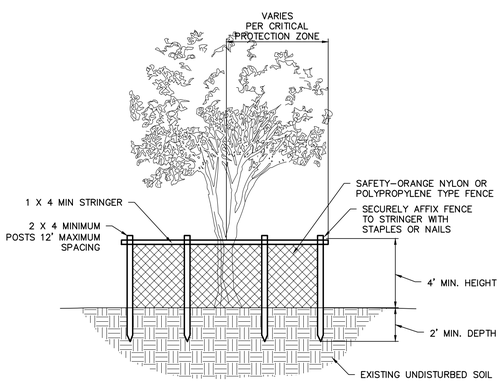
| | |
|---|---|
| ZONING DISTRICT: | PCD: PLANNED COMMERCE DISTRICT<br>PERIMETER CENTER DEVELOPMENT TEXT SUBAREA C |
| OWNER: | RAMI PROPERTIES, LLC |
| TAX DISTRICT: | CITY OF DUBLIN-WASH TWP |
| PARCEL NUMBER: | 273-010149 |
| LAND AREA: | 2.94 ACRES |

## OFFSITE ZONING INFORMATION

| | |
|---|---|
| ZONING DISTRICT: | PCD: PLANNED COMMERCE DISTRICT<br>PERIMETER CENTER DEVELOPMENT TEXT SUBAREA C |
| EXISTING USE: | BUSINESS |
| OWNER: | RED HOUSE HQ LLC |
| TAX DISTRICT: | CITY OF DUBLIN-WASH TWP |
| PARCEL NUMBER: | 273-005070 |
| LAND AREA: | 4.27 ACRES (186,001 SQ. FT.) |




NOTE: FOR GROUPS OF TREES, PLACE BARRICADES BETWEEN TREES AND CONSTRUCTION ACTIVITY.




## TREE PROTECTION DETAIL

NOTE: TREE PROTECTION BARRICADES SHALL BE LOCATED TO PROTECT A MINIMUM OF 75% OF THE CRITICAL PROTECTION ZONE.

PLAN PREPARED BY:
ADVANCED CIVIL DESIGN
ENGINEERS | SURVEYORS
422 Beecher Road
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fax. 614.428.7755

PLAN PREPARED FOR:
SCHOEDINGER FUNERAL AND CREMATION SERVICES
1740 ZOLLINGER ROAD
COLUMBUS, OHIO 43221
ATTN: RANDY SCHOEDINGER
PH: 614-429-5755

# FINAL DEVELOPMENT PLAN FOR SCHOEDINGER FUNERAL HOME PERIMETER DRIVE DEVELOPMENT

DUBLIN, FRANKLIN COUNTY, OHIO

## EXISTING CONDITIONS

Issue Dates:

Date: 01/20/2020
Scale: 1" = 40'

Drawn By: CLE | Checked By: TMW

Project Number: 18-0001-918

Drawing Number: C.04 / 10

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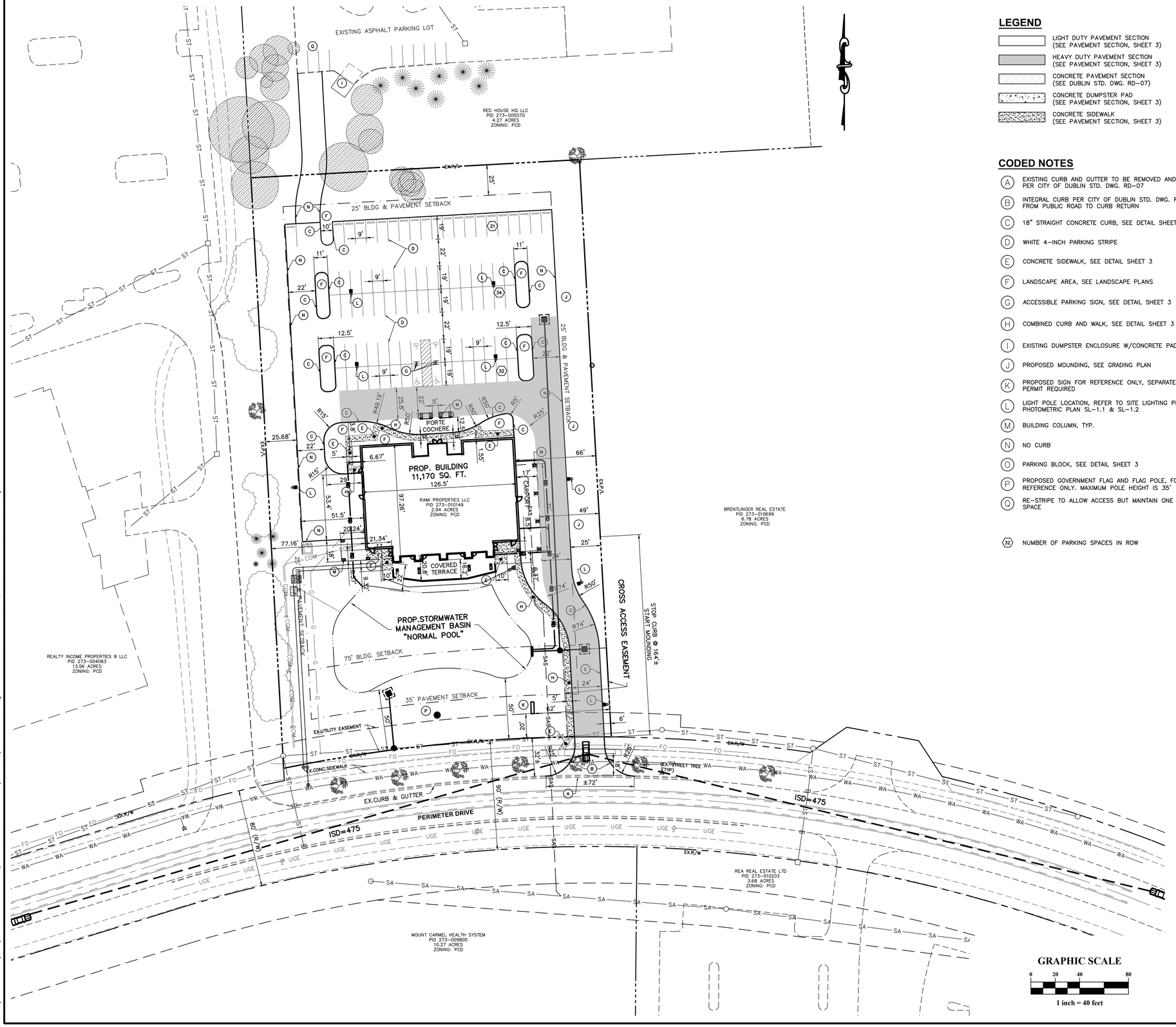


## LEGEND

- LIGHT DUTY PAVEMENT SECTION (SEE PAVEMENT SECTION, SHEET 3)
- HEAVY DUTY PAVEMENT SECTION (SEE PAVEMENT SECTION, SHEET 3)
- CONCRETE PAVEMENT SECTION (SEE DUBLIN STD. DWG. RD-07)
- CONCRETE DUMPSTER PAD (SEE PAVEMENT SECTION, SHEET 3)
- CONCRETE SIDEWALK (SEE PAVEMENT SECTION, SHEET 3)

## CODED NOTES

- (A) EXISTING CURB AND GUTTER TO BE REMOVED AND REPLACED PER CITY OF DUBLIN STD. DWG. RD-07
- (B) INTEGRAL CURB PER CITY OF DUBLIN STD. DWG. RD-07 FROM PUBLIC ROAD TO CURB RETURN
- (C) 18" STRAIGHT CONCRETE CURB, SEE DETAIL SHEET 3
- (D) WHITE 4-INCH PARKING STRIPE
- (E) CONCRETE SIDEWALK, SEE DETAIL SHEET 3
- (F) LANDSCAPE AREA, SEE LANDSCAPE PLANS
- (G) ACCESSIBLE PARKING SIGN, SEE DETAIL SHEET 3
- (H) COMBINED CURB AND WALK, SEE DETAIL SHEET 3
- (I) EXISTING DUMPSTER ENCLOSURE W/CONCRETE PAD
- (J) PROPOSED MOUNDING, SEE GRADING PLAN
- (K) PROPOSED SIGN FOR REFERENCE ONLY, SEPARATE SIGN PERMIT REQUIRED
- (L) LIGHT POLE LOCATION, REFER TO SITE LIGHTING PLAN AND PHOTOMETRIC PLAN SL-1.1 & SL-1.2
- (M) BUILDING COLUMN, TYP.
- (N) NO CURB
- (O) PARKING BLOCK, SEE DETAIL SHEET 3
- (P) PROPOSED GOVERNMENT FLAG AND FLAG POLE, FOR REFERENCE ONLY. MAXIMUM POLE HEIGHT IS 35'
- (Q) RE-STRIPE TO ALLOW ACCESS BUT MAINTAIN ONE PARKING SPACE

(32) NUMBER OF PARKING SPACES IN ROW

## SITE NOTES

1. ALL DIMENSIONS AND RADII ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
2. CURB RADII NOT LABELED ARE 5' UNLESS OTHERWISE SHOWN OR ONE-HALF THE WIDTH OF CURB ISLAND.
3. ALL PRIVATE PAVEMENT MARKINGS SHALL BE WHITE UNLESS OTHERWISE NOTED.
4. ALL DISTURBED AREAS ARE TO RECEIVE FOUR INCHES OF TOPSOIL, SEED, MULCH AND WATER UNTIL A HEALTHY STAND OF GRASS IS ESTABLISHED.
5. ALL WORK AND MATERIALS SHALL COMPLY WITH ALL CITY REGULATIONS AND CODES AND O.S.H.A. STANDARDS.
6. TREES WITHIN THE "ISD" SHALL BE PRUNED IN ACCORDANCE WITH POLICY 08.013

## SITE ZONING INFORMATION

| | |
|---|---|
| ZONING DISTRICT: | PCD: PLANNED COMMERCE DISTRICT<br>PERIMETER CENTER DEVELOPMENT TEXT SUBAREA C |
| PROPOSED USE: | PERSONAL SERVICE – FUNERAL HOME |
| OWNER: | RAMI PROPERTIES, LLC |
| TAX DISTRICT: | CITY OF DUBLIN–WASH TWP |
| PARCEL NUMBER: | 273–010149 |
| LAND AREA: | 2.94 ACRES (128,066 SQ. FT.) |
| ZONING REQUIREMENTS: | |
| PERIMETER DRIVE SETBACKS: | 75' BUILDING<br>35' PAVEMENT |
| SIDE & REAR YARD SETBACKS: | 25' BUILDING<br>25' PAVEMENT |
| BUILDING COVERAGE: | |
| PROPOSED | 15,307 SQ. FT. = 11.9% |
| MAX | 32,016 SQ. FT. = 25% |
| LOT COVERAGE: | |
| PROPOSED | 52.1% (1.53 AC. / 66,711 SQ. FT.)<br>VEHICULAR USE AREA = 48,583 SQ. FT.<br>BUILDING AREA = 11,557 SQ. FT.<br>MISC. CONCRETE = 6,571 SQ. FT. |
| MAX | 75% (2.205 AC. / 96, 049 SQ. FT.) |

## PARKING CALCULATION

| | |
|---|---|
| BUILDING AREA:<br>COVERED TERRACE<br>PORTE COCHERE &<br>CARPORTS: | 11,170 SQ. FT.<br><br><br>4,020 SQ. FT. |
| PARKING REQUIRED: | 1 SPACE PER 150 SQ. FT.<br>+ 1 SPACE PER BUSINESS VEHICLE<br>11,170 SQ. FT. / 150 SQ. FT. = 75 SPACES<br>+ 4 BUSINESS VEHICLES<br>79 SPACES |
| PARKING PROVIDED: | 87 SPACES<br>INCLUDES 4 HANDICAP SPACES<br>(1 VAN ACCESSIBLE SPACE) |

## OFFSITE ZONING INFORMATION

| | |
|---|---|
| ZONING DISTRICT: | PCD: PLANNED COMMERCE DISTRICT<br>PERIMETER CENTER DEVELOPMENT TEXT SUBAREA C |
| EXISTING USE: | BUSINESS |
| OWNER: | RED HOUSE HQ LLC |
| TAX DISTRICT: | CITY OF DUBLIN–WASH TWP |
| PARCEL NUMBER: | 273–005070 |
| LAND AREA: | 4.27 ACRES (186,001 SQ. FT.) |
| ZONING REQUIREMENTS: | |
| LOT COVERAGE: | |
| EXISTING | 40.1% (1.71 AC / 74,567 SQ. FT.) |
| PROPOSED | 41.0% (1.75 AC. / 76,238 SQ. FT.) |
| MAX | 75% (3.20 AC. / 139,500 SQ. FT.) |

## OFFSITE PARKING CALCULATION

| | |
|---|---|
| EXISTING BUILDING AREA: | 22,439 SQ. FT. |
| EXISTING PARKING REQUIRED: | 90 SPACES (INCLUDING 3 HC SPACES) |
| CURRENT PARKING PROVIDED: | 94 SPACES (INCLUDING 4 HC SPACES) |
| PROPOSED PARKING PROVIDED: | 92 SPACES (INCLUDING 4 HC SPACES) |

PLAN PREPARED BY:
ADVANCED CIVIL DESIGN ENGINEERS SURVEYORS
422 Beecher Road
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ph 614.428.7750
fax 614.428.7755

PLAN PREPARED FOR:
SCHOEDINGER FUNERAL AND CREMATION SERVICES
1740 ZOLLINGER ROAD
COLUMBUS, OHIO 43221
ATTN: RANDY SCHOEDINGER
PH: 614-429-5755

DUBLIN, FRANKLIN COUNTY, OHIO

# FINAL DEVELOPMENT PLAN FOR SCHOEDINGER FUNERAL HOME PERIMETER DRIVE DEVELOPMENT

# SITE DIMENSION PLAN

Issue Dates:

Date: 01/20/2020
Scale: 1" = 40'

| Drawn By: | Checked By: |
|---|---|
| CLE | TMW |

Project Number: 18–0001–918

Drawing Number: C.05 / 10

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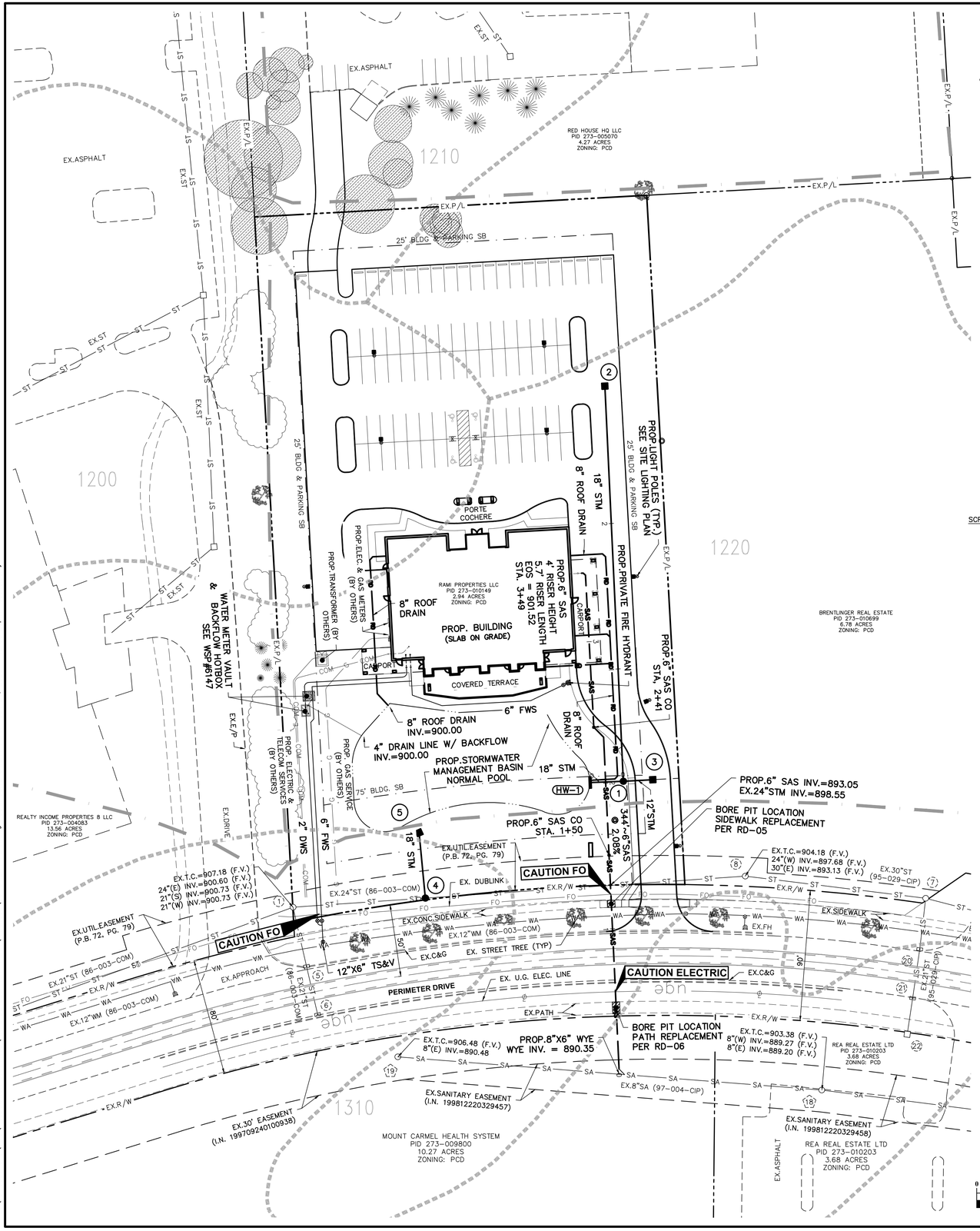



## LEGEND

- EXISTING SOILS LINE
- STORMWATER MASTER PLAN SUB-BASIN WATERSHED DIVIDE
- EXISTING WATER MAIN (FIRE HYDRANT, VALVE, WATER METER)
- EXISTING SANITARY SEWER (MANHOLE)
- EXISTING STORM SEWER (MANHOLE, CATCH BASIN, CURB INLET)
- EXISTING FIBER OPTIC LINE
- PROPOSED STORM SEWER
- PROPOSED DOMESTIC WATER SERVICE
- PROPOSED FIRE PROTECTION WATER SERVICE
- PROPOSED SANITARY SERVICE

## UTILITY NOTES

1. ALL WORK AND MATERIALS SHALL COMPLY WITH CITY REGULATIONS AND CODES AS WELL AS ALL OSHA STANDARDS.
2. CONTRACTOR TO FIELD VERIFY ALL EXISTING UTILITY LOCATIONS AND DEPTHS PRIOR TO SITE EXCAVATION.
3. CONTRACTOR SHALL USE EXTREME CAUTION NOT TO BREAK FIBER OPTIC LINES. ALL UTILITY LINE DAMAGES ARE CONTRACTOR'S RESPONSIBILITY TO REPAIR.
4. NEW SANITARY WYE TO BE INSTALLED BY THE CONTRACTOR. SANITARY SERVICE INSTALLED SHALL BE CONSTRUCTED TO MAINTAIN 10-FOOT HORIZONTAL CLEARANCE AND 18-INCH VERTICAL CLEARANCE UNDER/ABOVE STORM SEWER AND WATER LINES.
5. TAPS INTO EXISTING SEWER SYSTEMS ARE TO BE CORE DRILLED AND INSPECTED.
6. CONTRACTOR TO ADJUST EXISTING UTILITY FEATURES TO GRADE AS NECESSARY.
7. ANY PRIVATE UTILITY WORK (GAS, ELECTRIC, TELECOMMUNICATIONS, ETC.) WITHIN THE RIGHT-OF-WAY AND/OR PUBLIC EASEMENTS WILL REQUIRE SEPERATE RIGHT-OF-WAY PERMITS.
8. ALL ROOF DRAINS ARE TO BE EXTENDED UNDERGROUND AND COLLECTED BY A 8" DRAIN SYSTEM. DRAIN SYSTEM TO OUTLET INTO THE STORMWATER MANAGEMENT BASIN.
9. GAS COMPANY TO EXTEND MAIN LINE ALONG PERIMETER DRIVE TO SERVE THIS PROJECT SITE, UNDER SEPARATE SET OF PLANS AND RIGHT-OF-WAY PERMIT.
10. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY AND ALL SITE FEATURES DAMAGED DURING CONSTRUCTION. REPAIRS SHALL BE MADE TO THE SATISFACTION OF THE CITY ENGINEER.

## STORMWATER MANAGEMENT SUMMARY

### DISCHARGE

| STORM EVENT | 1 | 2 | 5 | 10 | 25 | 50 | 100 |
|---|---|---|---|---|---|---|---|
| MASTER PLAN ALLOWABLE DISCHARGE (CFS) PER ACRE (SUB-BASIN 1200) | 1.400 | 1.800 | 2.400 | 3.000 | 3.800 | 4.800 | 5.700 |
| CRITICAL STORM ALLOWABLE DISCHARGE (CFS) PER ACRE (SUB-BASIN 1200) | 1.400 | 1.400 | 1.400 | 1.400 | 1.400 | 4.800 | 5.700 |
| ALLOWABLE (ON-SITE) DISCHARGE (CFS) PER 0.021 ACRES TRIBUTARY AREA | 0.029 | 0.029 | 0.029 | 0.029 | 0.029 | 0.101 | 0.120 |
| MASTER PLAN ALLOWABLE DISCHARGE (CFS) PER ACRE (SUB-BASIN 1220) | 0.010 | 0.010 | 0.100 | 0.200 | 0.400 | 0.700 | 1.100 |
| CRITICAL STORM ALLOWABLE DISCHARGE (CFS) PER ACRE (SUB-BASIN 1220) | 0.010 | 0.010 | 0.010 | 0.010 | 0.010 | 0.700 | 1.100 |
| ALLOWABLE (ON-SITE) DISCHARGE (CFS) PER 2.305 ACRES TRIBUTARY AREA | 0.023 | 0.023 | 0.023 | 0.023 | 0.023 | 1.613 | 2.535 |
| MASTER PLAN ALLOWABLE DISCHARGE (CFS) PER ACRE (SUB-BASIN 1310) | 0.200 | 0.300 | 0.400 | 0.500 | 0.600 | 0.900 | 1.200 |
| CRITICAL STORM ALLOWABLE DISCHARGE (CFS) PER ACRE (SUB-BASIN 1310) | 0.200 | 0.200 | 0.200 | 0.200 | 0.200 | 0.900 | 1.200 |
| ALLOWABLE (ON-SITE) DISCHARGE (CFS) PER 0.321 ACRES TRIBUTARY AREA | 0.064 | 0.064 | 0.064 | 0.064 | 0.064 | 0.289 | 0.385 |
| *COMPOSITE ALLOWABLE (ON-SITE) DISCHARGE (CFS) | 0.116 | 0.116 | 0.116 | 0.116 | 0.116 | 2.003 | 3.040 |
| ACTUAL (ON-SITE) DETAINED DISCHARGE (CFS) | 0.060 | 0.070 | 0.080 | 0.090 | 0.100 | 0.110 | 0.440 |

DISCHARGE RATES ARE BASED ON LIMITS FOR RUNOFF DEFINED BY THE CITY OF DUBLIN STORMWATER MASTER PLAN FOR THE SOUTH FORK INDIAN RUN WATERSHED

CRITICAL STORM: 25-YR EVENT

* = COMPOSITE DOES NOT INCLUDE THE CALCULATED ALLOWABLE RATES FOR THE UNDETAINED AREAS.

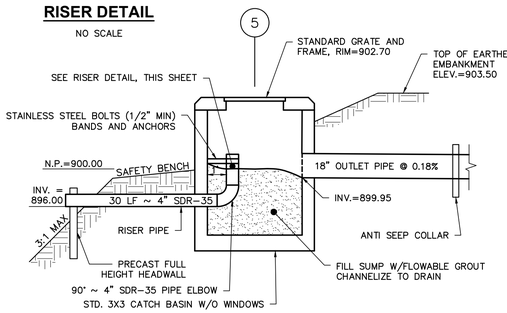
### SITE PONDING & STORAGE (100-YR STORM EVENT)

| LOCATION | PONDING VOLUMES AVAILABLE (CF) | PONDING VOLUME REQUIRED (CF) | STRUCTURE TOP OF CASTING | PONDING ELEVATION | PONDING DEPTH (FT) | PONDING AREA (SF) | OUTLET CONTROL |
|---|---|---|---|---|---|---|---|
| STORMWATER BASIN | 47,014 | 33,878 | 902.70 | 902.72 | 2.72 | 10,696 | STR #5 |




## RISER DETAIL

NO SCALE




## PERMANENT OUTLET STRUCTURE 5

NO SCALE

| INSPECTION ITEM | MAINTENANCE PROCEDURES | FREQUENCY OF INSPECTION |
|---|---|---|
| INLET/OUTLET STRUCTURE & SIDE SLOPES | DO NOT FERTILIZE VEGETATION SURROUNDING BASIN<br>REMOVE ACCUMULATED SEDIMENT AND DEBRIS FROM INLET AND OUTLET STRUCTURES<br>MOW SIDE SLOPES | MONTHLY |
| BASIN EMBANKMENT | REPAIR UNDERCUT/ERODED AREAS AND STABILIZE | EVERY 6 MONTHS |
| STORM WATER BASIN | INSPECT FOR DAMAGE, PAYING PARTICULAR ATTENTION TO OUTLET CONTROL STRUCTURES<br>CHECK FOR SIGNS OF EUTROPHIC CONDITIONS (ALGAE BUILD-UP)<br>NOTE SIGNS OF HYDROCARBON BUILD-UP, REMOVE APPROPRIATELY<br>MONITOR SEDIMENT ACCUMULATION IN THE FACILITY<br>EXAMINE TO ENSURE INLET AND OUTLET DEVICES ARE FREE OF DEBRIS AND ARE OPERATIONAL<br>INSPECT FOR INVASIVE VEGETATION IF WETLAND COMPONENTS INCLUDED | ANNUALLY |
| STORM WATER BASIN SEDIMENT ACCUMULATION | MONITOR SEDIMENT ACCUMULATIONS, AND REMOVE SEDIMENT WHEN THE POOL VOLUME HAS BECOME REDUCED SIGNIFICANTLY (25% OF PERMANENT POOL VOLUME LOST), OR THE POOL BECOMES EUTROPHIC | ANNUALLY |

## STORM STRUCTURE COORDINATES (BASED ON NAD83 OHIO ZONE SOUTH – 1986 ADJ)

| STRUCTURE NO. | PLAN NORTHING | PLAN EASTING | AS-BUILT NORTHING | AS-BUILT EASTING |
|---|---|---|---|---|
| HW-1 | 766840.2669 | 1787582.2736 | | |
| 1 | 766841.1044 | 1787605.0156 | | |
| 2 | 767112.4493 | 1787592.4159 | | |
| 3 | 766842.2242 | 1787625.2604 | | |
| 4 | 766760.9182 | 1787469.0724 | | |
| 5 | 766805.7159 | 1787464.8104 | | |

## POST-CONSTRUCTION BMP, MAINTENANCE & INSPECTION

THE PROPERTY OWNER, ITS ADMINISTRATORS, EXECUTORS, SUCCESSORS, HEIRS OR ASSIGNS SHALL MAINTAIN THE STORMWATER CONTROL FACILITIES IN GOOD WORKING CONDITION ACCEPTABLE TO THE CITY OF DUBLIN AND IN ACCORDANCE WITH THE SCHEDULE OF LONG TERM MAINTENANCE ACTIVITIES PROVIDED IN THE APPROVED STORMWATER CONTROL FACILITY MAINTENANCE PLAN FOR THE STORMWATER CONTROL FACILITIES. MAINTAINED INFRASTRUCTURE SHALL INCLUDE ALL PIPES AND CHANNELS BUILT TO CONVEY STORMWATER TO THE FACILITY, AS WELL AS ALL STRUCTURES, IMPROVEMENTS, AND VEGETATION PROVIDED TO CONTROL THE QUANTITY AND QUALITY OF THE STORMWATER FROM THE FACILITY. "MAINTAIN" IS HEREIN DEFINED AS GOOD WORKING CONDITION SO THAT THESE FACILITIES ARE PERFORMING THEIR DESIGN FUNCTIONS. RESPONSIBILITY AND ASSURANCE OF MAINTENANCE AND THE CONTINUOUS FUNCTIONALITY OF THIS STORMWATER FACILITY IS PERPETUAL; BEGINNING WITH THE OWNER AT THE TIME OF INSTALLATION AND CONTINUING TO ALL FUTURE OWNERS.

THIS PLAN MUST BE POSTED ON-SITE.

RETENTION BASIN MAINTENANCE:
REGULAR MAINTENANCE IS REQUIRED TO ENSURE PROPER OPERATION OF THE RETENTION BASIN. A MINIMUM INSPECTION FREQUENCY SHALL BE AT LEAST TWICE PER YEAR TO CONFIRM THAT THE DRAINAGE SYSTEMS IS FUNCTIONING PROPERLY. IT WILL BE EXTREMELY IMPORTANT TO CHECK THE OUTLET SIDE OF STRUCTURE 5 TO ENSURE THAT THE OUTLET REMAINS UNCLOGGED AND FREE OF DEBRIS. ANY SEDIMENT OR DEBRIS WHICH HAS REDUCED THE EFFICIENCY OF THIS DETENTION SYSTEM SHALL BE REMOVED IMMEDIATELY. SHOULD A STRUCTURE OR FEATURE BECOME DAMAGED, THE CURRENT OWNER OR CONTRACTOR SHALL REPAIR OR REPLACE SUCH ITEMS IN AN EXPEDITIOUS MANNER TO REDUCE THE POSSIBILITY OF INAPPROPRIATE DISCHARGE. RECORDS OF THESE INSPECTIONS SHALL BE KEPT AND MADE AVAILABLE TO JURISDICTIONAL AGENCIES IF REQUESTED.

THE FOLLOWING SHALL BE INCLUDED IN A ROUTINE MAINTENANCE SCHEDULE TO BE PERFORMED BI-ANNUALLY:

- INSPECT STORMWATER STRUCTURES INCLUDING CATCH BASINS, STORM PIPES, AND OUTLET CONTROL STRUCTURES. REMOVE CLOGS OR DEBRIS IF NOTED. REMOVE ACCUMULATED SEDIMENT AND STABILIZE ONSITE. REPAIR STRUCTURES TO MAINTAIN CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS.
- CHECK INLET/OUTLET AREAS FOR EROSION AND STABILIZE IF REQUIRED.
- CHECK BANKS FOR RUTTING, CRACKING OR BULGING, EROSION, AND SLOPE FAILURES. ANDY DEBRIS FROM EROSION OR FAILURES SHALL BE REMOVED, AND THE FACILITY REPAIRED. ACCUMULATED TRASH AND DEBRIS SHOULD BE REMOVED FROM EMBANKMENTS, SIDE SLOPES, AND OUTLET AREA
- STORM SEWER OUTLET SHALL BE INSPECTED TO ENSURE ROCK CHANNEL PROTECTION HAS NOT BEEN WASHED OUT OR CAUSING RUTTING OR EROSION WITHIN THE FOREBAY.
- SEDIMENT SHALL BE REMOVED WHEN SEDIMENT ACCUMULATION REACHES 6" ABOVE THE DESIGN FOREBAY BOTTOM. REMOVAL FREQUENCY TYPICALLY VARIES FROM 5 TO 25 YEARS OR MORE. A FIXED VERTICAL SEDIMENT DEPTH MARKER SHALL BE INSTALLED IN THE FOREBAY. THE DEPTH MARKER SHALL HAVE A MARK SHOWING THE DEPTH WHERE SEDIMENT REMOVAL IS REQUIRED. SEDIMENT LEVEL SHOULD BE CHECKED ON AN ANNUAL BASIS. DISPOSE OF COLLECTED SEDIMENT AND POLLUTANTS IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS. RESTORE BASIN TO DESIGN GRADES PER THIS PLAN.

## GRAPHIC SCALE

0 20 40 80

1 inch = 40 feet

PLAN PREPARED BY:
ADVANCED CIVIL DESIGN ENGINEERS SURVEYORS
422 Beecher Road
Gahanna, Ohio 43230
ph 614.428.7750
fax 614.428.7755

PLAN PREPARED FOR:
SCHOEDINGER FUNERAL AND CREMATION SERVICES
1740 ZOLLINGER ROAD
COLUMBUS, OHIO 43221
ATTN: RANDY SCHOEDINGER
PH: 614-429-5755

DUBLIN, FRANKLIN COUNTY, OHIO

# FINAL DEVELOPMENT PLAN FOR SCHOEDINGER FUNERAL HOME PERIMETER DRIVE DEVELOPMENT

## COMPOSITE UTILITY PLAN

Issue Dates:

Date: 01/20/2020
Scale: 1" = 40'

Drawn By: CLE
Checked By: TMW

Project Number: 18-0001-918

Drawing Number: C.06 / 10

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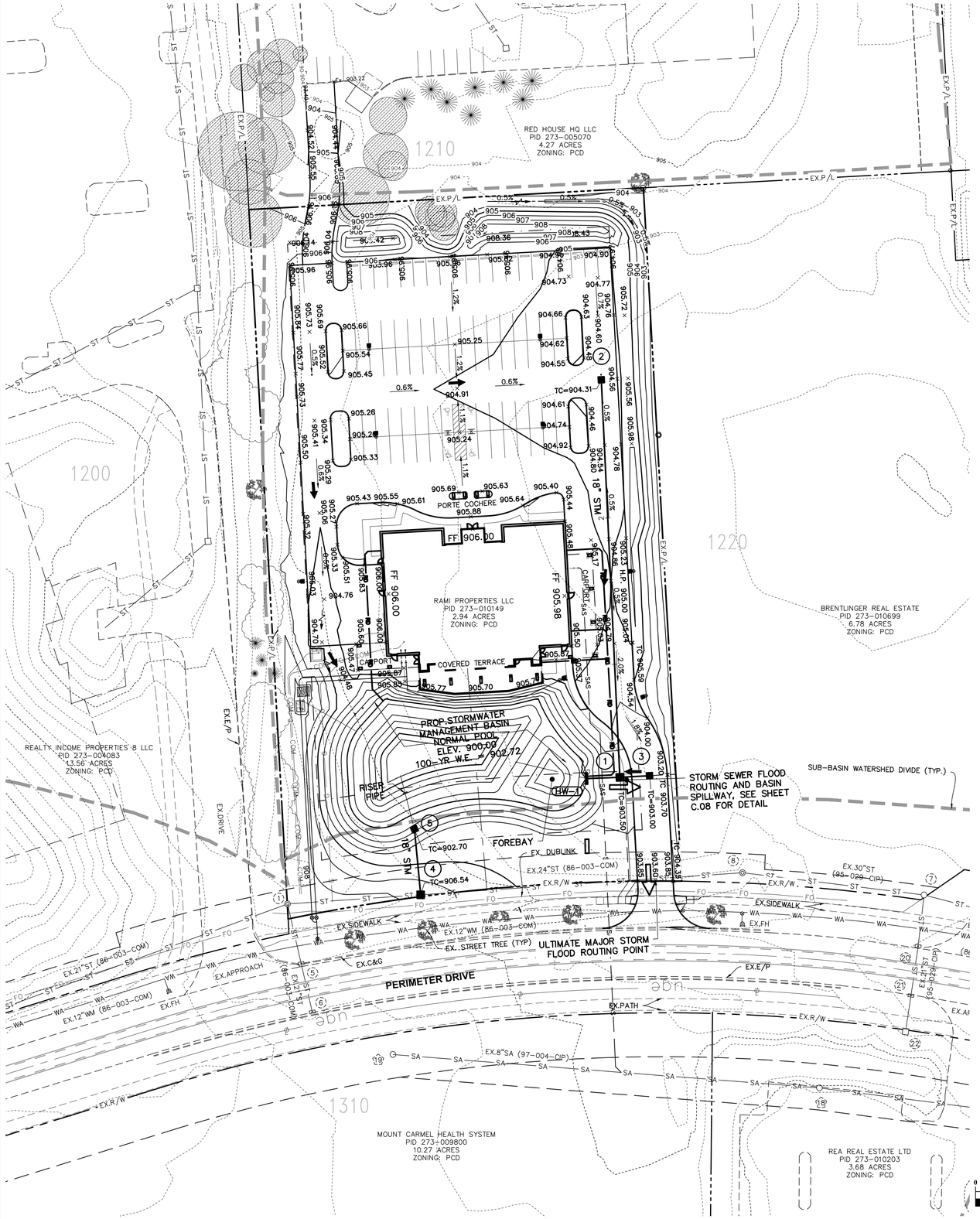
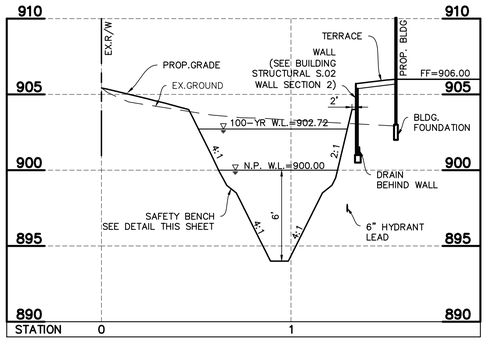



## LEGEND

| | |
|---|---|
| 921 | EXISTING MINOR CONTOUR |
| 920 | EXISTING MAJOR CONTOUR |
| 921 | PROPOSED MINOR CONTOUR |
| 920 | PROPOSED MAJOR CONTOUR |
| TC=795.20 | TOP OF CASTING ELEVATION |
| X TC 795.20 | TOP OF CURB ELEVATION |
| X 795.20 | TOP OF PAVEMENT OR SURFACE ELEVATION |
| x Ex.795.20 | EXISTING TOP OF PAVEMENT OR SURFACE ELEVATION |
| | FLOOD ROUTING – STORM SEWER |
| | FLOOD ROUTING – STORMWATER MANAGEMENT BASIN |
| | FLOW ARROW |
| | LIMITS OF GRADING |
| 15" STM | PROPOSED STORM SEWER |
| WS | PROPOSED WATER SERVICE |
| SAS | PROPOSED SANITARY SERVICE |
| ST | EXISTING STORM SEWER |
| SA | EXISTING SANITARY SEWER |
| WA | EXISTING WATER MAIN |




## TYPICAL BASIN GRADING SECTION

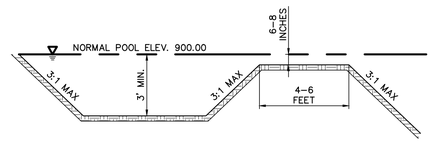
SCALE: 1"=40' HORIZ. & 1" = 5' VERT.

1 inch = 5 feet (V)
1 inch = 40 feet (H)

0 20 40 80

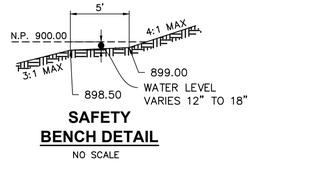
## SITE GRADING NOTES

1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES WHICH MAY CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
2. ALL CUT AND FILL SLOPES SHALL BE 3:1 OR FLATTER.
3. EXISTING AND PROPOSED CONTOURS SHOWN AT 1 FOOT INTERVALS.
4. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER.
5. ALL STORM SEWER PIPE ENTERING STRUCTURES SHALL BE GROUTED TO ASSURE CONNECTION AT STRUCTURE IS WATERTIGHT.
6. CONTRACTOR SHALL ASSURE POSITIVE DRAINAGE AWAY FROM THE BUILDING FOR ALL NATURAL AND PAVED AREAS.
7. ELEVATIONS SHOWN HEREON ARE BASED ON NORTH AMERICAN VERTICAL DATUM (NAVD) 1988
8. THE CONTRACTOR SHALL ADHERE TO ALL TERMS & CONDITIONS AS OUTLINED IN THE GENERAL N.P.D.E.S. PERMIT FOR STORMWATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES.



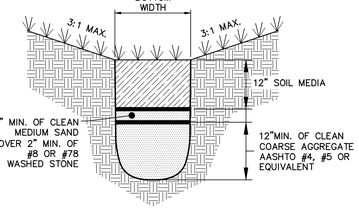

## TYPICAL FOREBAY GRADING SECTION

NO SCALE



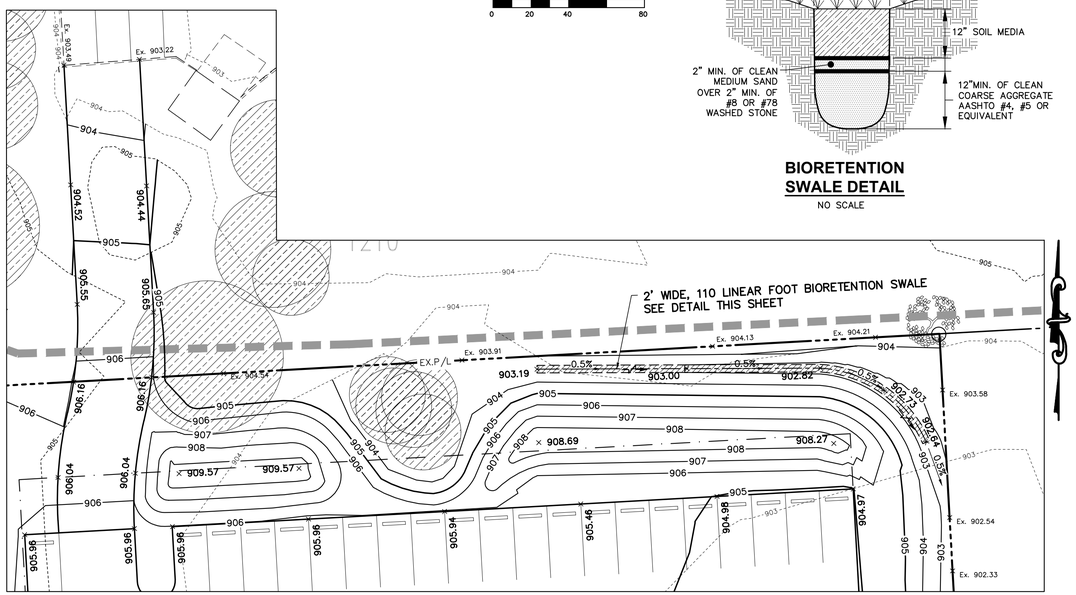

## SAFETY BENCH DETAIL

NO SCALE




## BIORETENTION SWALE DETAIL

NO SCALE




## NORTH PROPERTY LINE GRADING DETAIL

SCALE: 1"=20'

GRAPHIC SCALE
0 20 40 80
1 inch = 40 feet

GRAPHIC SCALE
0 10 20 40
1 inch = 20 feet


PLAN PREPARED BY:
ADVANCED CIVIL DESIGN
ENGINEERS | SURVEYORS
422 Beecher Road
Gahanna, Ohio 43230
ph. 614.428.7750
fax. 614.428.7755

PLAN PREPARED FOR:
SCHOEDINGER FUNERAL AND CREMATION SERVICES
1740 ZOLLINGER ROAD
COLUMBUS, OHIO 43221
ATTN: RANDY SCHOEDINGER
PH: 614-429-5755


DUBLIN, FRANKLIN COUNTY, OHIO

# FINAL DEVELOPMENT PLAN FOR SCHOEDINGER FUNERAL HOME PERIMETER DRIVE DEVELOPMENT

## GRADING PLAN

Issue Dates:

Date: 01/20/2020
Scale: AS NOTED

| Drawn By: | Checked By: |
|---|---|
| CLE | TMW |

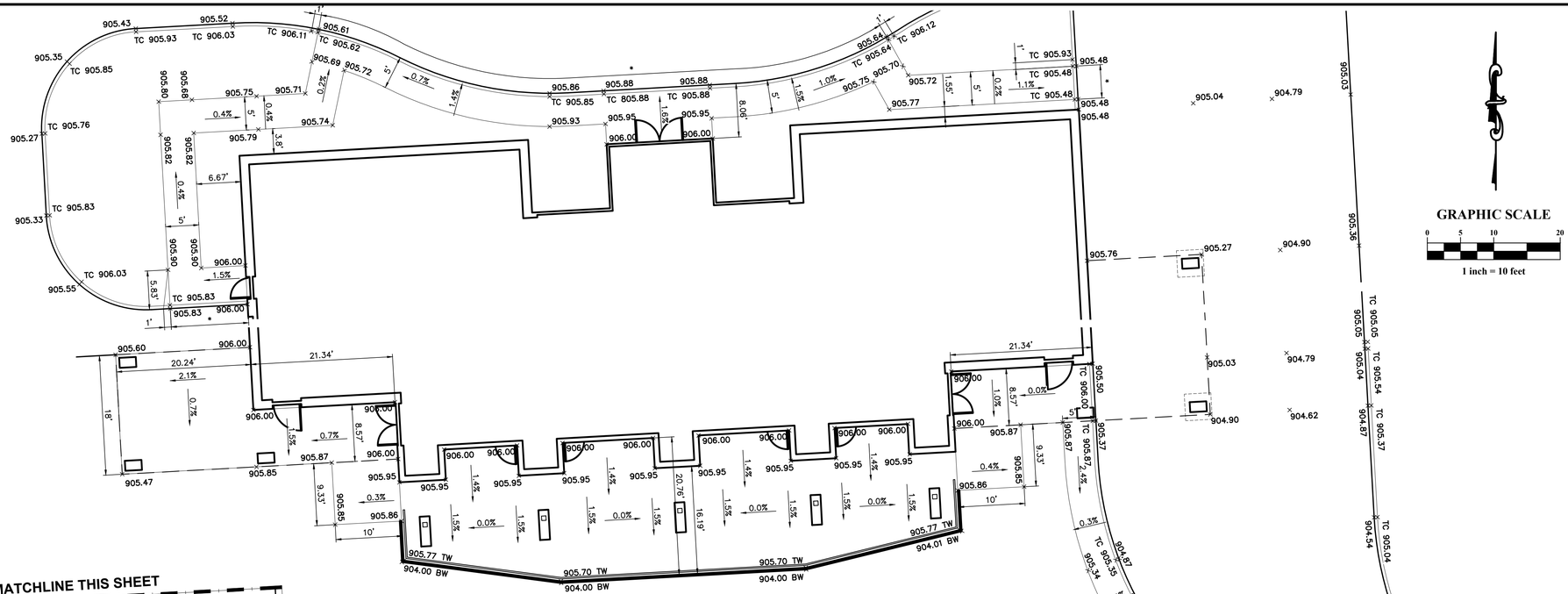
Project Number: 18-0001-918

Drawing Number: C.07 / 10

Z:\18-0001-918\DWG\PRODUCTION DRAWINGS\FINAL DEVELOPMENT PLAN\Amended\06-GRADING PLAN.dwg GRADING PLAN Jan 20, 2020 - 12:07:39pm cechelberry

| | |
|---|---|
| TC | = TOP OF CURB |
| * | = LIMITS OF PAVEMENT FLUSH WITH CURB |
| ** | = TAPER CURB REVEAL 0" TO 6" THROUGH AREA SHOWN |
| ← | = STORM SEWER FLOOD ROUTING |
| ⇦ | = BASIN SPILLWAY, MAJOR FLOOD ROUTING |

NOTE: ALL DIMENSIONS ARE FROM FACE OF CURB UNLESS NOTED OTHERWISE.



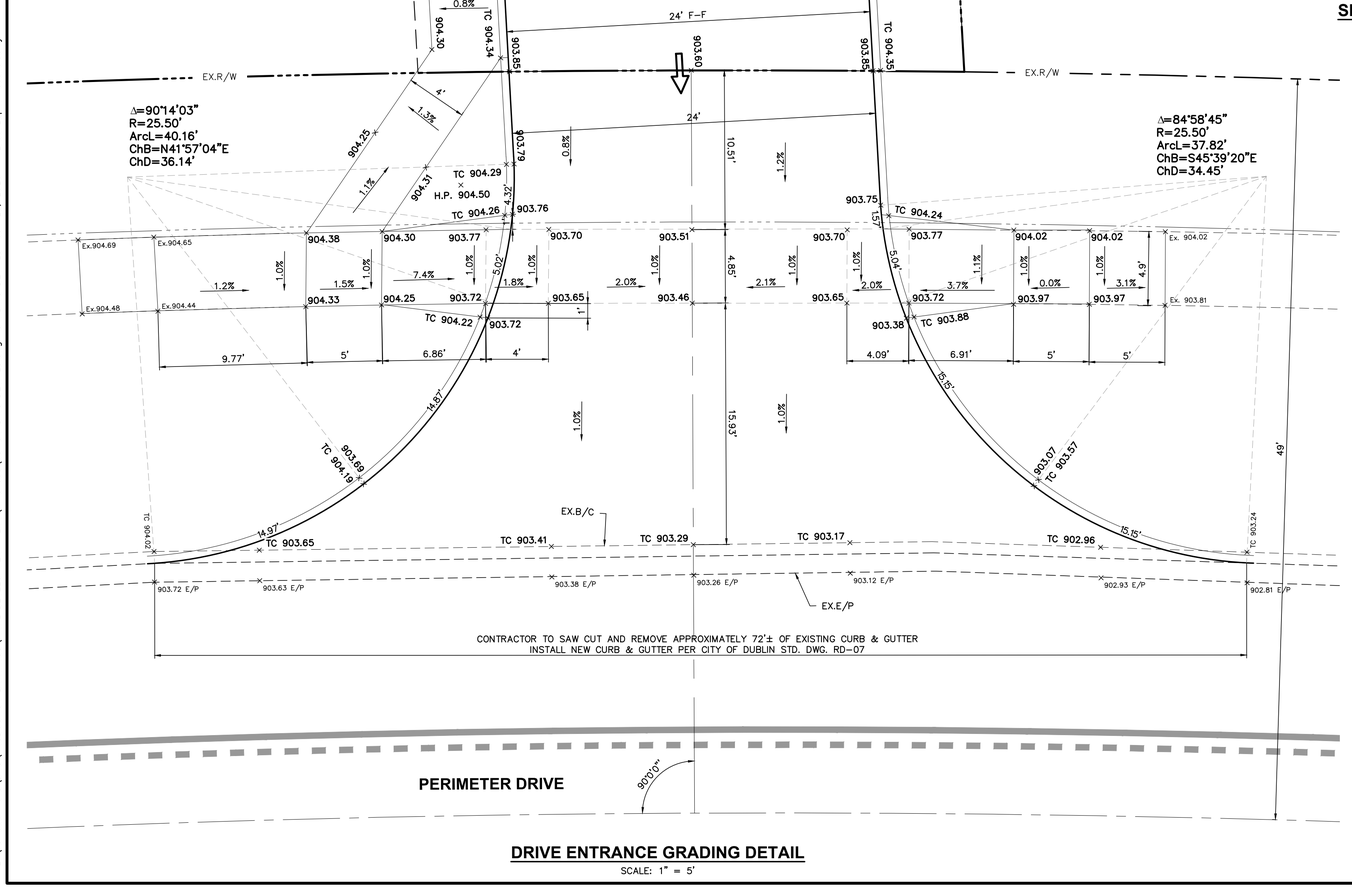

## SIDEWALK AND TERRACE GRADING DETAIL

SCALE: 1" = 10'

GRAPHIC SCALE

0 5 10 20

1 inch = 10 feet




## DRIVE ENTRANCE GRADING DETAIL

SCALE: 1" = 5'

GRAPHIC SCALE

0 2.5 5 10

1 inch = 5 feet


PLAN PREPARED BY:

ADVANCED CIVIL DESIGN ENGINEERS | SURVEYORS

422 Beecher Road
Gahanna, Ohio 43230
ph. 614.428.7750
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PLAN PREPARED FOR:

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1740 ZOLLINGER ROAD
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DUBLIN, FRANKLIN COUNTY, OHIO

# FINAL DEVELOPMENT PLAN FOR SCHOEDINGER FUNERAL HOME PERIMETER DRIVE DEVELOPMENT

## GRADING DETAILS

Issue Dates:

Date: 01/20/2020
Scale: AS NOTED

| Drawn By: | Checked By: |
|---|---|
| CLE | TMW |

Project Number: 18-0001-918

Drawing Number: **C.08 / 10**


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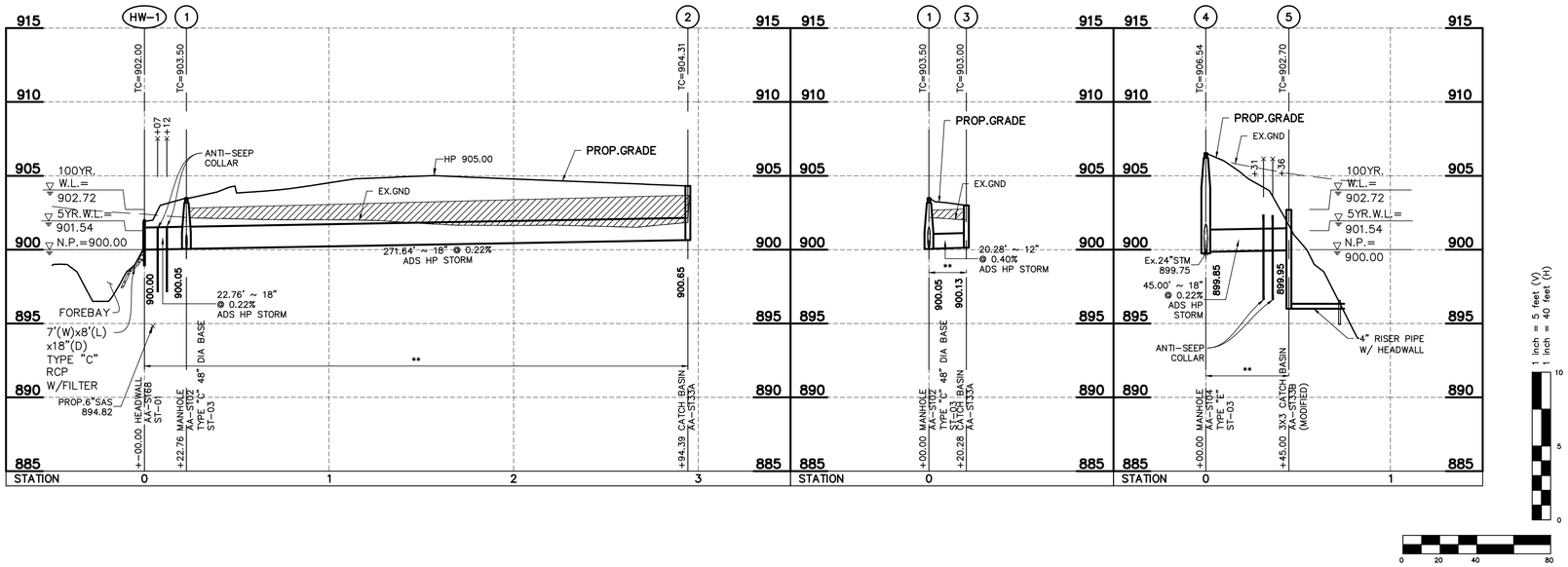


ALL TRENCH BACKFILL SHALL BE COMPACTED BACKFILL TO 95% OF MAXIMUM DRY WEIGHT AT OPTIMUM MOISTURE CONTENT (±2%) UNLESS NOTED AS:

** COMPACTED GRANULAR BACKFILL, ITEM 912

NOTE: PER CMSC ITEM 911, WHERE NATURAL MATERIAL DOES NOT MEET THE REQUIREMENTS OF ITEM 911, THEN COMPACTED BACKFILL, ITEM 912, SHALL BE USED.

BACKFILL TO BE PLACED AND COMPACTED PER ITEM 203 TO MINIMUM 30" ABOVE STORM PIPE, PRIOR TO STORM SEWER INSTALLATION.

NOTE:

STORM PIPE MATERIAL SHALL BE RCP, HIGH PERFORMANCE (HP) STORM, OR SANITITE HP

NOTE:

STORM STRUCTURE 4 WITHIN THIS PLAN SET IS WITHIN THE PUBLIC RIGHT-OF-WAY AND THEREFORE IS OWNED BY THE CITY AND WILL BE MAINTAINED BY THE CITY OF DUBLIN.


PLAN PREPARED BY:

ADVANCED CIVIL DESIGN ENGINEERS SURVEYORS

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Gahanna, Ohio 43230
ph. 614.428.7750
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DUBLIN, FRANKLIN COUNTY, OHIO

# FINAL DEVELOPMENT PLAN FOR SCHOEDINGER FUNERAL HOME PERIMETER DRIVE DEVELOPMENT

## STORM SEWER PROFILES

Issue Dates:

**Date:** 01/20/2020
**Scale:** AS NOTED

| Drawn By: | Checked By: |
|---|---|
| CLE | TMW |

**Project Number:** 18-0001-918

**Drawing Number:** C.09 / 10


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# EROSION AND SEDIMENT CONTROL NARRATIVE

PLAN ENGINEERS: ADVANCED CIVIL DESIGN, INC.
422 BEECHER ROAD
GAHANNA, OH 43230
PH (614) 428-7750
FAX (614) 428-7755
CONTACT: TOM WARNER
EMAIL: TWARNER@ADVANCEDCIVILDESIGN.COM

PROPERTY OWNER: RAMI PROPERTIES LLC
229 EAST STATE STREET
COLUMBUS, OHIO 43214

EXISTING SITE DESCRIPTION: THE PROJECT SITE IS AN EXISTING OPEN LOT, CONSISTING OF GRASS FIELD AND TREES

EXISTING SITE DISTURBANCE: 2.94 ACRES

EXISTING SITE DRAINAGE CONDITION: THE EXISTING SITE DRAINS PRIMARILY TO THE EAST INTO AN EXISTING DRAINAGE SWALE.

**NOI PERMIT NUMBER: 4GC06864*AG**

ADJACENT AREAS: THE SITE IS BOUNDED BY A COMMERCIAL PROPERTY TO THE NORTH AND EAST AND PUBLIC STREETS TO THE SOUTH AND COMMERCIAL PROPERTY TO THE WEST.

CRITICAL AREAS: THE PUBLIC ROADS AND STORM SEWERS SHALL BE PROTECTED FROM ANY AND ALL SEDIMENT LADEN RUNOFF.

EROSION & SEDIMENT CONTROL MEASURES: EROSION AND SEDIMENT RUNOFF WILL BE CONTROLLED BY THE USE OF SEDIMENT FENCE AND INLET PROTECTION. THE STORMWATER BASIN WILL ACT AS A SECONDARY SEDIMENT BASIN.

MAINTENANCE: MAINTENANCE OF THE EROSION & SEDIMENT CONTROL ITEMS SHALL BE IN ACCORDANCE WITH THE NOTES LISTED WITHIN THIS PLAN.

CONSTRUCTION SEQUENCE: (EROSION & SED. CONTROL)

1. OBTAIN PROPER CITY OF DUBLIN, COUNTY, STATE, AND FEDERAL PERMITS.
2. PRIOR TO CONSTRUCTION THE OWNER/OPERATOR SHALL COORDINATE WITH ALL CONTRACTORS AND THE CITY OF DUBLIN ENGINEER AS REQUIRED.
3. THE CONTRACTOR SHALL CALL THE OHIO UTILITIES PROTECTION SERVICE (OUPS) AT 1-800-362-2764 FORTY-EIGHT (48) HOURS IN ADVANCE OF ANTICIPATED START OF CONSTRUCTION, AND SHALL NOTIFY ALL UTILITY COMPANIES AT LEAST 48 HOURS PRIOR TO WORK IN THE VICINITY OF THEIR LINES:
4. ESTABLISH THE TEMPORARY CONSTRUCTION ENTRANCE INTO THE SITE PER DETAIL ON THIS SHEET.
5. THE CONTRACTOR SHALL INSTALL ORANGE CONSTRUCTION FENCE AROUND ALL PROTECTION AREAS (PRESERVED TREES) PRIOR TO COMMENCEMENT OF WORK.
6. CLEAR NECESSARY VEGETATION FOR THE INSTALLATION OF THE PERIMETER SEDIMENT FENCE.
7. INSTALL SEDIMENT BASIN AND OUTLET STRUCTURE PER THE TEMPORARY SEDIMENT CONTROL DETAIL ON THIS SHEET.
8. WHILE PERFORMING SITE GRADING ACTIVITIES, DISTURBED AREAS SHALL BE SEEDED WITHIN 7 DAYS OF CONSTRUCTION. DRAINAGE SHALL BE DIRECTED TO A FILTERING FACILITY AT ALL TIMES DURING CONSTRUCTION. TOPSOIL SHALL BE STOCKPILED FOR LATER RE-SPREAD OR HAULED OFFSITE.
9. AS EACH AREA IS DISTURBED AND MOUNDING TAKES PLACE IN ORDER TO PROVIDE COMPACTION AND PLACEMENT OF FILL ACROSS THE SITE, EROSION CONTROL MEASURES SHALL BE USED. STOCKPILES SHALL BE SURROUNDED BY SEDIMENT FENCE AND TEMPORARY SEEDING APPLIED.
10. SEED AND MULCH THE SITE ACCORDING TO THE TEMPORARY AND PERMANENT SEEDING REQUIREMENTS TO REESTABLISH ALL DENUDED AREAS.
11. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF THE TEMPORARY EROSION CONTROL DEVICES AND TEMPORARY SEDIMENT CONTROL FEATURE, ONLY AFTER ALL AREAS HAVE BEEN PAVED AND/OR SEEDED/MULCHED AND STABILIZED TO THE SATISFACTION OF THE CITY ENGINEER. AFTER REMOVAL OF THE EROSION CONTROL DEVICES, THE CONTRACTOR SHALL CLEAN ALL INLETS AND STORM SEWER PIPES OF ALL SEDIMENT INCURRED DURING CONSTRUCTION.

CONTRACTOR RESPONSIBILITY: DETAILS HAVE BEEN PROVIDED ON THE PLANS IN AN EFFORT TO HELP THE CONTRACTOR PROVIDE EROSION AND SEDIMENTATION CONTROL. THE DETAILS SHOWN ON THE PLAN SHALL BE CONSIDERED A MINIMUM. ADDITIONAL OR ALTERNATE DETAILS MAY BE FOUND IN THE RAINWATER AND LAND DEVELOPMENT MANUAL. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR PROVIDING NECESSARY AND ADEQUATE MEASURES FOR PROPER CONTROL OF EROSION AND SEDIMENT RUNOFF FROM THE SITE ALONG WITH PROPER MAINTENANCE AND INSPECTION IN COMPLIANCE WITH THE NPDES GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY.

## GENERAL EROSION AND SEDIMENT CONTROL NOTES

PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN DAYS AFTER FINAL PROPOSED GRADE IS REACHED ON ANY PORTION OF THE SITE. ALL DENUDED AREAS SHALL BE CONSTRUCTED TO FINAL PROPOSED GRADE AS QUICKLY AS POSSIBLE AND SHOULD NOT BE LEFT DORMANT UNLESS SITE CONDITIONS DO NOT ALLOW FINAL GRADING TO BE COMPLETED. SOIL STABILIZATION SHALL ALSO BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS WHERE GRADING MAY NOT BE COMPLETE, BUT WILL REMAIN DORMANT (UNDISTURBED) FOR LONGER THAN FORTY-FIVE DAYS.

SHEET FLOW RUNOFF FROM DENUDED AREAS SHALL BE FILTERED OR DIVERTED TO A SETTLING FACILITY.

SEDIMENT BARRIERS SUCH AS SEDIMENT FENCE OR DIVERSIONS TO SETTLING FACILITIES SHALL PROTECT ADJACENT PROPERTIES AND WATER RESOURCES FROM SEDIMENT TRANSPORTED BY SHEET FLOW.

PRIOR TO CONSTRUCTION OPERATIONS IN A PARTICULAR AREA, ALL SEDIMENTATION AND EROSION CONTROL FEATURES SHALL BE IN PLACE. FIELD ADJUSTMENTS WITH RESPECT TO LOCATIONS AND DIMENSIONS MAY BE MADE BY THE ENGINEER.

THE CONTRACTOR SHALL PLACE INLET PROTECTION FOR THE EROSION CONTROL IMMEDIATELY AFTER CONSTRUCTION OF THE CATCH BASINS OR INLETS WHICH ARE NOT TRIBUTARY TO A SEDIMENT BASIN OR DAM.

THE LIMITS OF SEEDING AND MULCHING WILL EXTEND OVER THE PROJECT AREA IN ACCORDANCE WITH THE LEVEL OF DISTURBANCE ASSOCIATED WITH THE ACTUAL CONSTRUCTION SEQUENCE. ALL AREAS NOT DESIGNATED TO BE SEEDED SHALL REMAIN UNDER NATURAL GROUND COVER. THOSE AREAS DISTURBED OUTSIDE THE SEEDING LIMITS SHALL BE SEEDED AND MULCHED AT THE CONTRACTOR'S EXPENSE.

## CONTRACTOR RESPONSIBILITY

DETAILS HAVE BEEN PROVIDED ON THE PLANS IN AN EFFORT TO HELP THE CONTRACTOR PROVIDE EROSION AND SEDIMENTATION CONTROL. THE DETAILS SHOWN ON THE PLAN SHALL BE CONSIDERED A MINIMUM. ADDITIONAL OR ALTERNATE DETAILS MAY BE FOUND IN THE RAINWATER AND LAND DEVELOPMENT MANUAL. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR PROVIDING NECESSARY AND ADEQUATE MEASURES FOR PROPER CONTROL OF EROSION AND SEDIMENT RUNOFF FROM THE SITE ALONG WITH PROPER MAINTENANCE AND INSPECTION IN COMPLIANCE WITH THE NPDES GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY.

THE CONTRACTOR SHALL PROVIDE A SCHEDULE OF OPERATIONS TO THE OWNER. THE SCHEDULE SHOULD INCLUDE A SEQUENCE OF THE PLACEMENT OF THE SEDIMENTATION AND EROSION CONTROL MEASURES THAT PROVIDES FOR CONTINUAL PROTECTION OF THE SITE THROUGHOUT THE EARTH MOVING ACTIVITIES.

THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THAT OFF-SITE TRACKING OF SEDIMENTS BY VEHICLES AND EQUIPMENT IS MINIMIZED. ALL SUCH OFF-SITE SEDIMENT SHALL BE CLEANED UP DAILY.

MAINTENANCE: IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN THE SEDIMENT CONTROL FEATURES USED ON THIS PROJECT. THE SITE SHALL BE INSPECTED EVERY 7 DAYS AND WITHIN 24 HOURS OF A STORM EVENT GREATER THAN 0.5" PER 24 HOUR PERIOD. RECORDS OF THESE INSPECTIONS SHALL BE KEPT AND MADE AVAILABLE TO JURISDICTIONAL AGENCIES IF REQUESTED. ANY SEDIMENT OR DEBRIS WHICH HAS REDUCED THE EFFICIENCY OF A STRUCTURE SHALL BE REMOVED IMMEDIATELY. SHOULD A STRUCTURE OR FEATURE BECOME DAMAGED, THE CONTRACTOR SHALL REPAIR OR REPLACE AT NO ADDITIONAL COST TO THE OWNER.

SCHEDULE: THE CONTRACTOR SHALL PROVIDE A SCHEDULE OF OPERATIONS TO THE CONSTRUCTION MANAGER. SEDIMENTATION AND EROSION CONTROL FEATURES SHALL BE PLACED IN ACCORDANCE WITH THIS SCHEDULE.

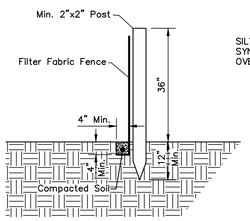
## TEMPORARY SEEDING

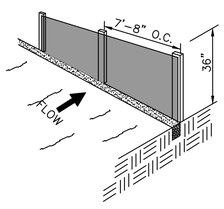
| Area requiring temporary stabilization | Time frame to apply erosion controls |
|---|---|
| Any disturbance areas within 50 feet of a surface water of the State and not at final grade | Within two days of the most recent Disturbance if the area will remain idle for more than 21 days |
| For all construction activities, any disturbed areas that will be dormant for more than 21 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 |
| Disturbed areas that will be idle over winter | Prior to the onset of winter weather |

## PERMANENT SEEDING

| Area requiring Permanent stabilization | Time frame to apply erosion controls |
|---|---|
| Any area that will lie dormant for one year or more | Within seven days of the most recent disturbance |
| Any areas within 50 feet of a surface water of the State and at final grade | Within two days of reaching final grade |
| Any other areas at final grade | Within seven days of reaching final grade within that area |

| DESCRIPTION | DATES | RECOMMENDED APPLICATION RATE (OR EQUIVALENT) AS SPECIFIED IN RAINWATER & LAND DEVELOPMENT | |
|---|---|---|---|
| PERMANENT SEEDING | MARCH 1-SEPT 30 | GENERAL USE | MIX OF - CREEPING RED FESCUE @ 20-40 LB/AC; DOMESTIC RYEGRASS @ 10-20 LB/AC; KENTUCKY BLUEGRASS @ 10-20 LB/AC |
| | | STEEP BANKS | TALL FESCUE @ 40 LB/AC |
| | | ROAD DITCHES | |
| TEMPORARY SEEDING | MARCH 1-SEPT 30 | MIX OF - PERENIAL RYEGRASS @ 40 LB/AC; TALL FESCUE @ 40 LB/AC; ANNUAL RYEGRASS @ 40 LB/AC | |
| DORMANT SEEDING | OCT 1-NOV 20 | PREPARE SEEDBED, ADD LIME & FERTILIZER, THEN MULCH. FROM NOV 21 THROUGH MARCH 15, APPLY THE SELECTED SEED MIXTURE AT A 50% INCREASE IN RATE | |
| | NOV 20-MARCH 15 | PREPARE SEEDBED, ADD LIME & FERTILIZER, APPLY THE SELECTED SEED MIXTURE AT A 50% INCREASE IN RATE, THEN MULCH | |
| MULCH | ANY TIME OF YEAR | STRAW | 2 TONS/AC OR 90 LB/1000FT |
| | | HYDROSEED (WOOD CELLULOSE FIBER) | 1 TON/AC OR 46 LB/1000FT |




SEDIMENT FENCE DETAIL
(No Scale)

## SEDIMENT FENCE NOTES

SILT FENCE: THIS SEDIMENT BARRIER UTILIZES STANDARD STRENGTH OR EXTRA STRENGTH SYNTHETIC FILTER FABRICS. IT IS DESIGNED FOR SITUATIONS IN WHICH ONLY SHEET OR OVERLAND FLOWS ARE EXPECTED.

1. THE HEIGHT OF A SILT FENCE SHALL NOT EXCEED 36-INCHES (HIGHER FENCES MAY IMPOUND VOLUMES OF WATER SUFFICIENT TO CAUSE FAILURE OF THE STRUCTURE).
2. THE FILTER FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID THE USE OF JOINTS. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM OF A 6 INCH OVERLAP, AND SECURELY SEALED.
3. POSTS SHALL BE SPACED A MAXIMUM OF 10 FEET APART AT THE BARRIER LOCATION AND DRIVEN SECURELY INTO THE GROUND (MINIMUM OF 12-INCHES). WHEN EXTRA STRENGTH FABRIC IS USED WITHOUT THE WIRE SUPPORT FENCE, POST SPACING SHALL NOT EXCEED 6 FEET.
4. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 4-INCHES WIDE AND 4 INCHES DEEP ALONG THE LINE OF POSTS AND UPSLOPE FROM THE BARRIER.
5. WHEN STANDARD STRENGTH FILTER FABRIC IS USED, A WIRE MESH SUPPORT FENCE SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY DUTY WIRE STAPLES AT LEAST 1-INCH LONG, TIE WIRES OR HOG RINGS. THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF 2-INCHES AND SHALL NOT EXTEND MORE THAN 36-INCHES ABOVE THE ORIGINAL GROUND SURFACE.
6. THE STANDARD STRENGTH FILTER FABRIC SHALL BE STAPLED OR WIRED TO THE FENCE, AND 8-INCHES OF THE FABRIC SHALL BE EXTENDED INTO THE TRENCH. THE FABRIC SHALL NOT EXTEND MORE THAN 36-INCHES ABOVE THE ORIGINAL GROUND SURFACE. FILTER FABRIC SHALL NOT BE STAPLED TO EXISTING TREES.
7. WHEN EXTRA STRENGTH FILTER FABRIC AND CLOSER POST SPACING ARE USED, THE WIRE MESH SUPPORT FENCE MAY BE ELIMINATED. IN SUCH A CASE, THE FILTER FABRIC IS STAPLED OR WIRED DIRECTLY TO THE POSTS WITH ALL OTHER PROVISIONS OF ITEM NO. 6 APPLYING.
8. THE TRENCH SHALL BE BACKFILLED AND SOIL COMPACTED OVER THE FILTER FABRIC.
9. SILT FENCES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.

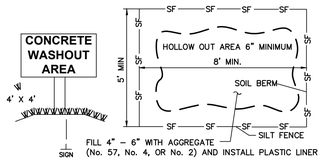
SILT FENCES AND FILTER BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.

MAINTENANCE

SHOULD THE FABRIC ON A SILT FENCE OR FILTER BARRIER DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER IS STILL NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY.

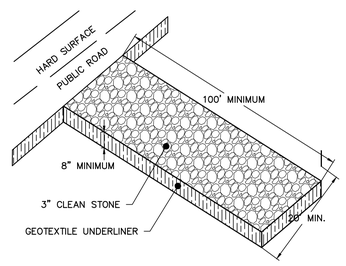
SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.

ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE OR FILTER BARRIER IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE, PREPARED AND SEEDED.



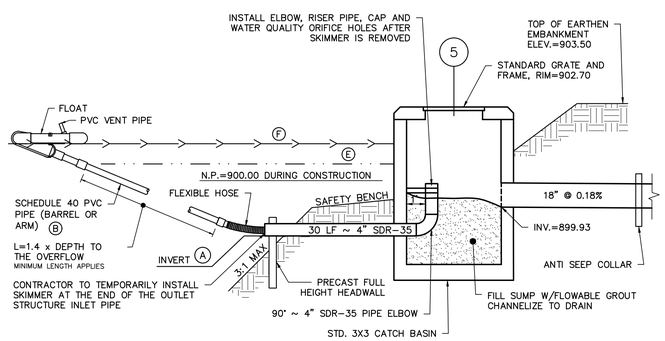

**CONCRETE WASHOUT AREA DETAIL**
NO SCALE

NOTE: THE USE OF PORTABLE CONCRETE WASHOUT UNITS IS APPROVED (AND ENCOURAGED) FOR ALL CONSTRUCTION AREAS




**CONSTRUCTION ENTRANCE DETAIL**
(SCD 2230)
NO SCALE

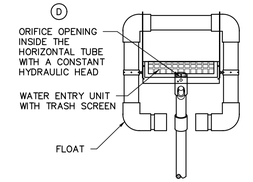
ENTRANCE SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MUD AND DIRT TRACKED ONTO PUBLIC ROADWAY. PERIODIC STREET CLEANING OR CLEANING AS DIRECTED BY THE ENGINEER MAY BE REQUIRED AND SHOULD BE INCLUDED IN THE BID PRICE FOR ITEM 207, EROSION AND SEDIMENT CONTROL.



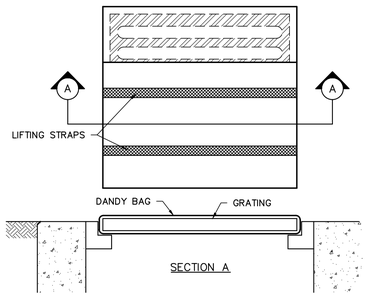

**TEMPORARY SEDIMENT CONTROL STRUCTURE 5**
NO SCALE

| CONTROL STRUCTURE | | |
|---|---|---|
| A | INVERT | 896.00 |
| B | SKIMMER DIAMETER SIZE (INCHES) | 2" |
| C | SKIMMER PIPE LENGTH (FEET) | 7' |
| D | SKIMMER ORIFICE DIAMETER (INCHES) | 1.8" |
| E | SEDIMENT STORAGE VOLUME 121 CU. YD. | 900.30 |
| F | DEWATERING VOLUME 211 CU. YD. | 900.80 |

TEMPORARY SEDIMENT BASIN SCHEDULE




| SEDIMENT BASIN B | | | | | | | | PERMANENT STORMWATER BASIN DATA | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | DEWATERING VOLUME | | SEDIMENT STORAGE ZONE | | | | | | | | |
| CONTRIBUTING DRAINAGE AREA | DISTURBED AREA | REQUIRED 67 CU.YD./AC. DRAINAGE | PROVIDED VOLUME | REQUIRED 37 CU.YD./AC. /DIST. AC. | PROVIDED STORAGE VOLUME | DETENTION TIME MIN. 48 HOURS | SEDIMENT CONTROL ORIFICE SIZE | WATER QUALITY VOLUME REQUIRED | WATER QUALITY VOLUME PROVIDED | PERMANENT POOL VOLUME | RETENTION TIME | WATER QUALITY ORIFICE SIZE |
| (AC.) | (AC.) | (CU.YD.) | (CU.YD.) | (CU.YD.) | (CU.YD.) | (HRS.) | (IN.) | (CU.YD.) | (CU.YD.) | (CU.YD.) | (HRS.) | (IN.) |
| 2.608 | 2.608 | 175 | 211 ELEV. 900.80 | 96 | 121 ELEV. 900.30 | 48 | 1.8 | 219 | 246 ELEV. 900.60 | 960 ELEV. 900.00 | 24 | 1.6 |



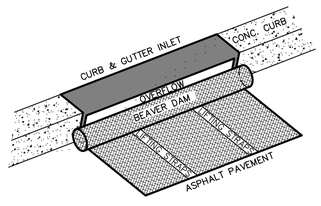

INSTALLATION: STAND GRATE ON END. PLACE DANDY BAG OVER GRATE. ROLL GRATE OVER SO THAT OPEN END IS UP. PULL UP SLACK. TUCK FLAP IN. BE SURE END OF GRATE IS COMPLETELY COVERED BY FLAP OR DANDY BAG WILL NOT FIT PROPERLY. HOLDING HANDLES, CAREFULLY PLACE DANDY BAG WITH GRATE INSERTED INTO CATCH BASIN FRAME SO THAT RED DOT ON THE TOP OF THE DANDY BAG IS VISIBLE.

MAINTENANCE: WITH A STIFF BRISTLE BROOM OR SQUARE POINT SHOVEL REMOVE SILT & OTHER DEBRIS OFF SURFACE AFTER EACH EVENT.

TO BE USED ON STRUCTURE #'S: 2, 3 & 5

DIRECT DISCHARGE OF SEDIMENT LADEN WATER TO THE CITY'S SEWER SYSTEM OR A RECEIVING STREAM IS A VIOLATION OF OHIO EPA AND CITY OF DUBLIN'S REGULATIONS. THE CONTRACTOR WILL BE HELD LIABLE FOR THE VIOLATION AND SUBSEQUENT FINES.

**INLET PROTECTION DETAIL**
NO SCALE

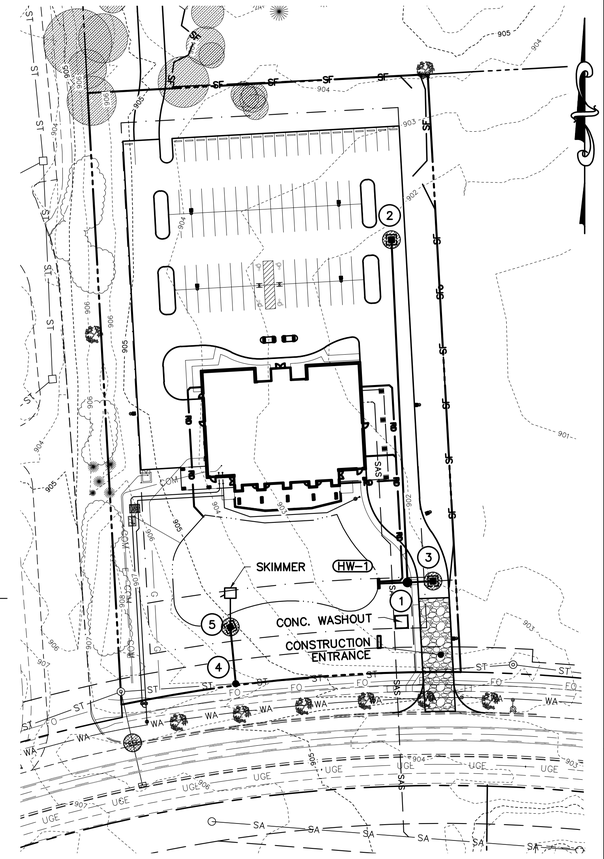



INSTALLATION AND MAINTENANCE PER MANUFACTURERS SPECIFICATIONS. USE FOR CURB AND GUTTER INLET

TO BE USED ON STRUCTURE #'S: PERIMETER DRIVE CURB INLETS

DIRECT DISCHARGE OF SEDIMENT LADEN WATER TO THE CITY'S SEWER SYSTEM OR A RECEIVING STREAM IS A VIOLATION OF OHIO EPA AND CITY OF DUBLIN'S REGULATIONS. THE CONTRACTOR WILL BE HELD LIABLE FOR THE VIOLATION AND SUBSEQUENT FINES.

CURB INLET PROTECTION
BEAVER DAM DETAIL
(NO SCALE)




EROSION CONTROL PLAN
SCALE: 1"=60'

PROPOSED INLET PROTECTION DANDY BAG OR EQUIVALENT
CONCRETE WASHOUT AREA
SEDIMENT FENCE OR FILTER SOCK

GRAPHIC SCALE
0 30 60 120
1 inch = 60 feet

PLAN PREPARED BY:
ADVANCED CIVIL DESIGN
ENGINEERS SURVEYORS
422 Beecher Road
Gahanna, Ohio 43230
ph. 614.428.7750
fax. 614.428.7755

PLAN PREPARED FOR:
SCHOEDINGER FUNERAL AND CREMATION SERVICES
1740 ZOLLINGER ROAD
COLUMBUS, OHIO 43221
ATTN: RANDY SCHOEDINGER
PH: 614-429-5755

DUBLIN, FRANKLIN COUNTY, OHIO

# FINAL DEVELOPMENT PLAN FOR SCHOEDINGER FUNERAL HOME PERIMETER DRIVE DEVELOPMENT

## EROSION & SEDIMENT CONTROL PLAN

Issue Dates:

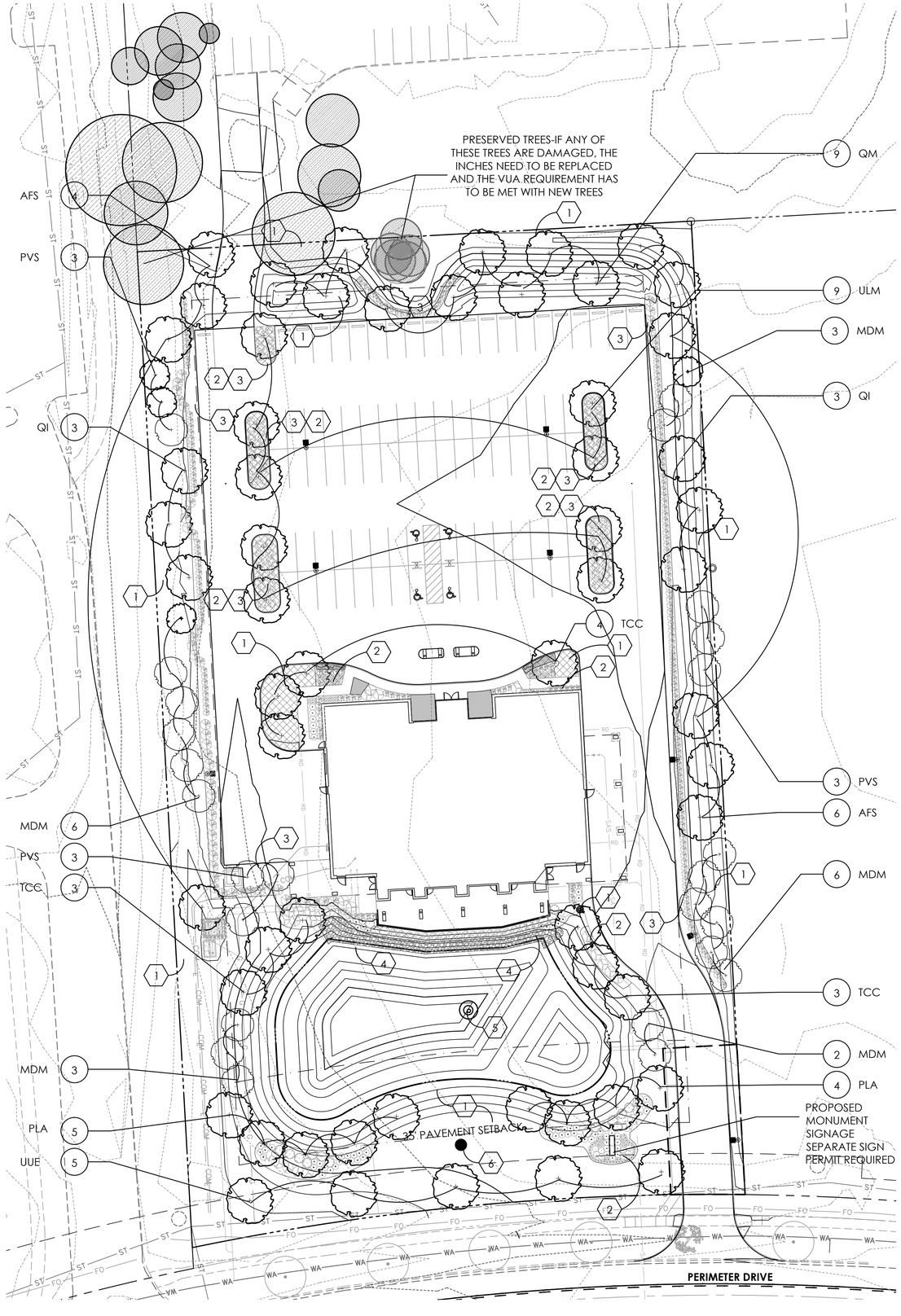
Date: 01/20/2020
Scale: AS NOTED

Drawn By: CLE
Checked By: TMW

Project Number: 18-0001-918

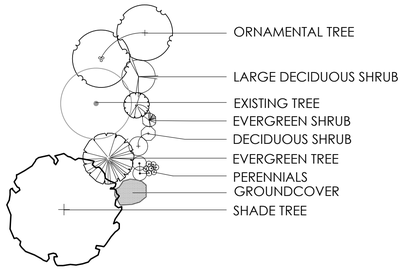
Drawing Number: C.10 / 10

Z:\18-0001-918\DWG\PRODUCTION DRAWINGS\FINAL DEVELOPMENT PLAN\Amended\09-EROSION CONTROL.dwg EROSION & SEDIMENT CONTROL PLAN Jan 20, 2020 - 12:10:49pm cechelberry




## PLANT KEY TYPICALS

SEE PLANT LIST FOR SPECIFIC PLANT SPECIES




## LANDSCAPE CALCULATIONS

| | | |
|---|---|---|
| LOT COVERAGE | | |
| - VEHICULAR USE AREA | | 48,762 S.F. |
| - BUILDING AREA-INCLUDES ALL AREA WITHIN FOOTPRINT, COLUMNS, AND DUMPSTER | | 11,557 S.F. |
| INTERIOR GREENSPACE REQUIRED | | |
| - 48,762 S.F. X 5% = 2,239 S.F. REQUIRED | | |
| - 2,852 S.F. PROVIDED = 5.8% | | |
| GROUND COVERAGE TREE REQUIREMENTS - 1 / 5000 S.F. | | |
| - 60,319 S.F. OF PROPOSED TOTAL GROUND COVERAGE | | |
| - 13 MIN. TREES REQUIRED AT 2" MIN. CALIPER INCHES - REQUIREMENT MET | | |
| ADDITIONAL SITE LANDSCAPE REQUIREMENTS - 1 CAL. INCH PER 1,500 SF OF BUILDING GROUND COVERAGE | | |
| - 11,557 S.F. OF TOTAL BUILDING COVERAGE | | |
| - 7.7 CALIPER INCHES REQUIRED - REQUIREMENT MET | | |
| VEHICULAR USE AREA PERIMETER REQUIREMENTS | | |
| - REQ - 3.5' HGT MOUND / HEDGE / 1 REQ TREE PER 40' AT 1.75" MIN CALIPER INCHES | | |

| | LF | REQUIRED | PROVIDED |
|---|---|---|---|
| WEST | 261 | HEDGE / MOUND - 1/40 LF = X TREES | HEDGE & 7 TREES |
| EAST | 434 | HEDGE / MOUND - 1/40 LF = X TREES | HEDGE & 11 TREES |
| NORTH | 219 | HEDGE / MOUND - 1/40 LF = X TREES | MOUND/HEDGE & 6 TREES (6 EXISTING) |

## GENERAL PLANTING NOTES:

1. ALL PLANTS SHALL MEET OR EXCEED STANDARDS SET IN THE USA STANDARD FOR NURSERY STOCK.
2. ALL PLANTING OPERATIONS SHALL ADHERE TO THE AMERICAN ASSOCIATION OF NURSERYMEN STANDARDS.
3. PLANT LOCATIONS AND BEDS SHALL BE LOCATED BY CONTRACTOR AND APPROVED BY LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
4. PLANTING BEDS SHALL HAVE A MINIMUM 3" DEEP SHREDDED HARDWOOD BARK MULCH. MULCH HEDGES IN A CONTINUOUS BED.
5. ALL PLANTING BEDS TO BE TILLED TO A MINIMUM DEPTH OF 12".
6. ALL PLANTING BEDS TO BE FERTILIZED WITH 10-10-10 OR APPROVED EQUAL.
7. SODDING / SEEDING BY LANDSCAPE CONTRACTOR.
8. THE LOCATION OF THE EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING WORK AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
9. ALL AREAS DISTURBED BY CONSTRUCTION ARE TO BE RESTORED, FINE GRADED AND SEEDED/ SODDED.
10. ALL EXISTING PLANT MATERIAL SHOWN ON THIS PLAN IS TO BE PRESERVED UNLESS SPECIFICALLY NOTED OTHERWISE.

## CONSTRUCTION NOTES:

1. LAWN AREA, PROVIDE POSITIVE DRAINAGE ACROSS ALL SURFACES.
2. LANDSCAPE AREA, PROVIDE POSITIVE DRAINAGE ACROSS ALL SURFACES.
3. MULCH AREA, PROVIDE POSITIVE DRAINAGE ACROSS ALL SURFACES.
4. 8" DEPTH LOCAL WASH GRAVEL - 4" DIAMETER, MIX IN RANDOM LARGER SIZE COBBLES. PROVIDE ALUMINUM EDGING AND STAKES BETWEEN MULCH BEDS AND STONE, AND 6"-12" BELOW WATER LINE TO CONTAIN STONE
5. FOUNTAIN- 1 HP 'EAGLE" 60 HZ BY AQUAMASTER OR OWNER APPROVED EQUAL- VOLTAGE TBD- MOUNT CONTROL CABINET ON WEST FACE OF BUILDING WWW.AQUAMASTERFOUNTAINS .COM
6. FLAGPOLE LOCATION- FINAL ILLUMINATION BY OWNER. MAXIMUM HEIGHT TO BE 35', WITH GOVERNMENT (AMERICAN) FLAG. A FOUNDATION PERMIT MUST BE RECEIVED FOR ALL FLAG POLE FOUNDATIONS FROM THE BUILDING DEPARTMENT

## PLANT LIST

(CONTRACTOR RESPONSIBLE FOR ALL PLANTS SHOWN ON PLAN)

| QTY | KEY | BOTANICAL NAME | COMMON NAME | SIZE | COND. | REMARKS |
|---|---|---|---|---|---|---|
| TREES | | | | | | |
| 10 | TCC | TILIA CORDATA 'CORINTHIAN' | CORINTHIAN LINDEN | 3-1/2" CAL. | B&B | |
| 9 | QM | QUERCUS MACROCARPA | BURR OAK | 3-1/2" CAL. | B&B | |
| 12 | PVS | PRUNUS VIRGINIANA' CANADA RED' | CANADIAN RED SELECT CHERRY | 3-1/2" CAL. | B&B | |
| 20 | MDM | MAGNOLIA X LOEBNERI 'DOCTOR MERRILL' | DOCTOR MERRILL MAGNOLIA | 3-1/2" CAL. | B&B | |
| 9 | ULM | ULMUS 'MORTON GLOSSY' | TRIUMPH ELM | 3-1/2" CAL. | B&B | |
| 6 | QI | QUERCUS IMBRICARIA | SHINGLE OAK | 3-1/2" CAL. | B&B | |
| 9 | PLA | PLATANUS X ACERFOLIA | LONDON PLANETREE | 3-1/2" CAL. | B&B | |
| 5 | UUE | ULMUS X 'URBAN ELM' | URBAN ELM | 3-1/2" CAL. | B&B | |
| 10 | AFS | ACER X FREEMANII 'SIENNA GLEN' | SIENNA GLEN MAPLE | 3-1/2" CAL. | B&B | |
| | | | | | | |
| | | | | | | |

KEY

INTERIOR GREEN SPACE AREAS

NOTE: THE USE OF UNDERSIZED TREES WILL RESULT IN EITHER ADDITIONAL REPLACEMENT TREES OR A FEE OF $150 PER CALIPER INCH TOWARDS THE REPLACEMENT TOTAL

NOTE: THERE ARE TOO MANY ORNAMENTAL TREES, MAGNOLIA IS NOT VERY URBAN TOLERANT AND CHERRY TREES ARE SHORT LIVED. MODIFY THE QUANTITIES TO INCREASE SHINGLE OAK AND ELMS FOR REPLACEMENT TREES. CONTACT BRIAN MARTIN AT 614-410-4660 PRIOR TO ORDERING AND PLANTING TREES.

NORTH
1"=30'
0 15 30 60 90

PERMIT SET 7/26/19

| REVISIONS | |
|---|---|
| | 9/6/19 |
| | 9/20/19 |
| | 12/30/19 |
| | |

OVERALL LANDSCAPE PLAN

SCHOEDINGER FUNERAL HOME

PREPARED FOR
ADVANCED CIVIL DESIGN
422 BEECHER ROAD
GAHANNA, OH 43230


Faris Planning & Design
LAND PLANNING
243 N. 5th Street
p (614) 487-1964
LANDSCAPE ARCHITECTURE
Suite 401
Columbus, OH 43215
www.farisplanninganddesign.com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|---|---|
| DATE | 7/25/19 |
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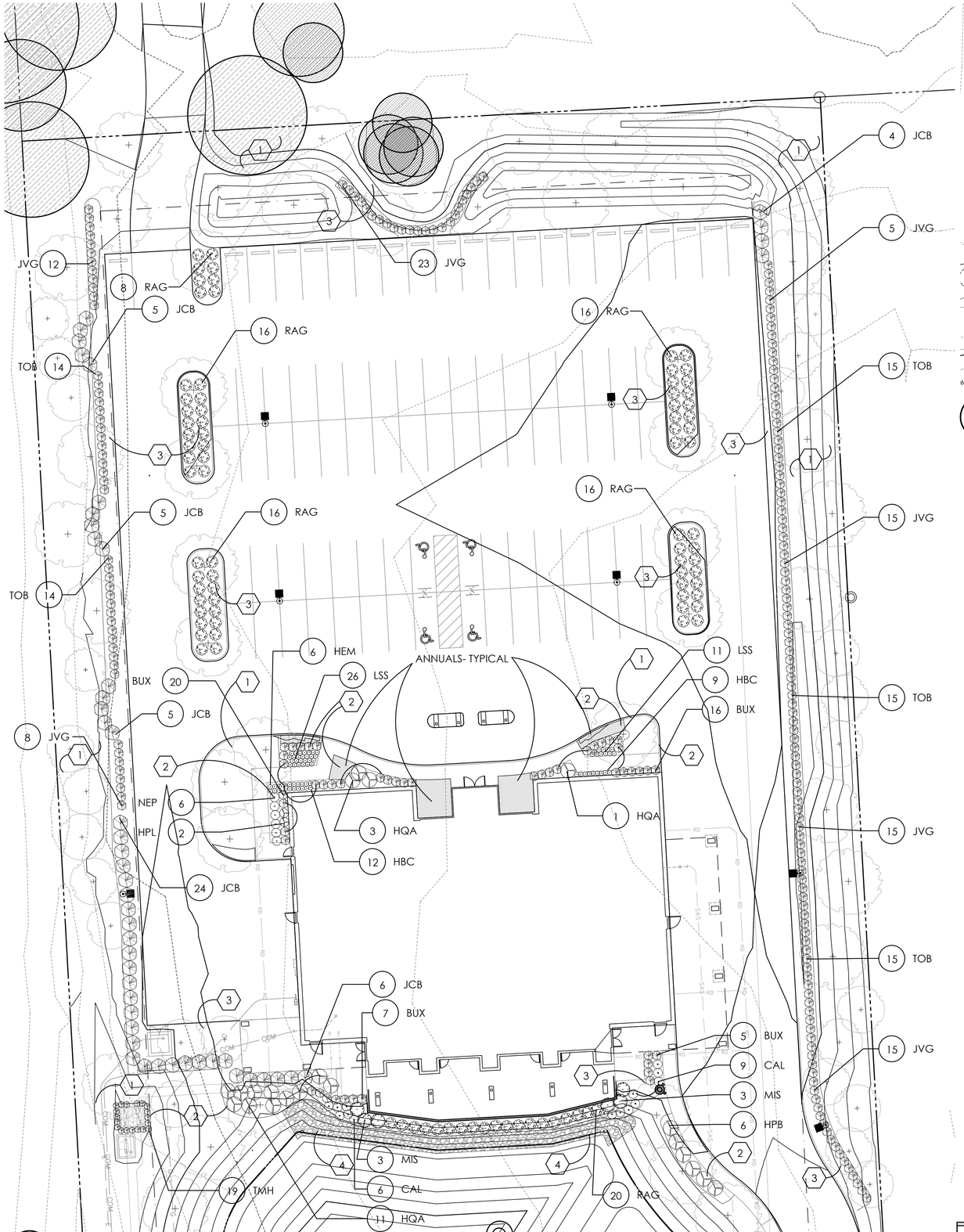
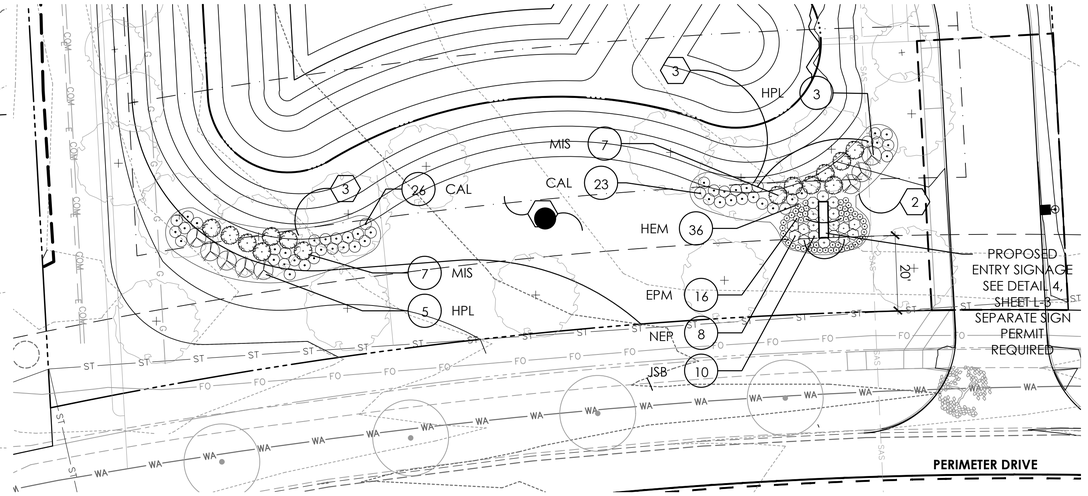
| PROJECT | 18129 |
| | |
| SHEET | |

L-1




1 OVERALL SITE ENLARGEMENT LANDSCAPE PLAN

SCALE: 1"=20'




2 PERIMETER DRIVE FRONTAGE ENLARGEMENT LANDSCAPE PLAN

SCALE: 1"=20'

## GENERAL PLANTING NOTES:

1. ALL PLANTS SHALL MEET OR EXCEED STANDARDS SET IN THE USA STANDARD FOR NURSERY STOCK.
2. ALL PLANTING OPERATIONS SHALL ADHERE TO THE AMERICAN ASSOCIATION OF NURSERYMEN STANDARDS.
3. PLANT LOCATIONS AND BEDS SHALL BE LOCATED BY CONTRACTOR AND APPROVED BY LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
4. PLANTING BEDS SHALL HAVE A MINIMUM 3" DEEP SHREDDED HARDWOOD BARK MULCH. MULCH HEDGES IN A CONTINUOUS BED.
5. ALL PLANTING BEDS TO BE TILLED TO A MINIMUM DEPTH OF 12".
6. ALL PLANTING BEDS TO BE FERTILIZED WITH 10-10-10 OR APPROVED EQUAL.
7. SODDING / SEEDING BY LANDSCAPE CONTRACTOR.
8. THE LOCATION OF THE EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING WORK AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
9. ALL AREAS DISTURBED BY CONSTRUCTION ARE TO BE RESTORED, FINE GRADED AND SEEDED/ SODDED.
10. ALL EXISTING PLANT MATERIAL SHOWN ON THIS PLAN IS TO BE PRESERVED UNLESS SPECIFICALLY NOTED OTHERWISE.

## PLANT LIST

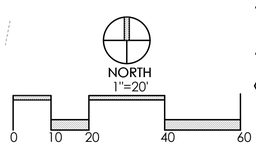
(CONTRACTOR RESPONSIBLE FOR ALL PLANTS SHOWN ON PLAN)

| QTY | KEY | BOTANICAL NAME | COMMON NAME | SIZE | COND. | REMARKS |
|---|---|---|---|---|---|---|
| SHRUBS | | | | | | |
| 14 | HQA | HYDRANGEA QUERCIFOLIA 'ALICE' | OAKLEAF HYDRANGEA | 24" HGT. | B&B | |
| 6 | HPB | HYDRANGEA PANICULATA 'ILVOBO' | BOBO HYDRANGEA | 24" HGT. | CONT. | |
| 10 | HPL | HYDRANGEA PANICULATA 'LITTLE LIMELIGHT' | LITTLE LIMELIGHT HYDRANGEA | 24" HGT. | CONT. | |
| 49 | JCB | JUNIPERUS CHINENSIS 'BLUE POINT' | BLUE POINT JUNIPER | 4' HGT. | B&B | |
| 87 | TOB | THUJA OCCIDENTALIS 'MR BOWLING BALL' | MR. BOWLING BALL ARBORVITAE | 24" HGT. | B&B | |
| 93 | JVG | JUNIPERUS VIRGINIANA 'GREY OWL' | GREY OWL JUNIPER | 24" HGT. | B&B | |
| 10 | JSB | JUNIPERUS SQUAMATA 'BLUE STAR' | BLUE STAR JUINPER | 24" SRPD. | CONT | |
| 92 | RAG | RHUS AROMATICA 'GRO-LOW' | GRO-LOW FRAGRANT SUMAC | 24" SRPD. | CONT. | |
| 48 | BUX | BUXUS 'GREEN VELVET' | GREEN VELVET BOXWOOD | 24" SRPD. | B&B | |
| 19 | TMH | TAXUS X MEDIA 'HICKS' | HICKS YEW | 36" HGT | B&B | |
| PERENNIALS/ORNAMENTAL GRASSES | | | | | | |
| 65 | CAL | CALAMAGROSTIS ACUTIFLORA 'KARL FOERSTER' | FEATHER REED GRASS | 1 GAL. | CONT. | |
| 20 | MIS | MISCANTHUS SINENSIS 'GRACILLIMUS' | MAIDEN GRASS | 2 GAL. | CONT. | |
| 14 | NEP | NEPETA X FAASSENII 'WALKER'S LOW' | WALKER'S LOW CATMINT | 1 GAL. | CONT. | |
| 42 | HEM | HEMEROCALLIS 'STELLA DE ORO' | STELLA DE ORO DAYLILY | 1 GAL. | CONT. | |
| 16 | EPM | ECHINACEA PURPUREA 'KIMS KNEE HIGH' | KIMS KNEE HIGH CONEFLOWER | 1 GAL. | CONT. | |
| 21 | HBC | HOSTA 'BLUE CADET' | BLUE CADET HOSTA | 1 GAL. | CONT. | |
| 37 | LSS | LIRIOPE 'SILVERY SUNPROOF' | SILVERY SUNPROOF LIRIOPE | 1 GAL. | CONT. | |

*NOTE: ANNUALS TO BE PLANTED BY OWNER. NOT IN INITIAL LANDSCAPE COSTS.

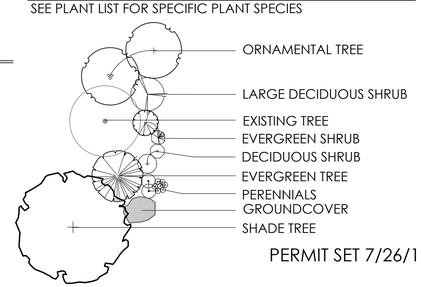
## CONSTRUCTION NOTES:

1. LAWN AREA, PROVIDE POSITIVE DRAINAGE ACROSS ALL SURFACES.
2. LANDSCAPE AREA, PROVIDE POSITIVE DRAINAGE ACROSS ALL SURFACES.
3. MULCH AREA, PROVIDE POSITIVE DRAINAGE ACROSS ALL SURFACES.
4. 8" DEPTH LOCAL WASH GRAVEL - 4" DIAMETER, WITH LARGER COBBLES RANDOMLY PLACED-PROVIDE ALUMINUM EDGING AND STAKES BETWEEN MULCH BEDS AND STONE, AND 6"-12" BELOW WATER LINE TO CONTAIN STONE




## PLANT KEY TYPICALS

SEE PLANT LIST FOR SPECIFIC PLANT SPECIES




PERMIT SET 7/26/19

| REVISIONS | |
|---|---|
| | 12.30.19 |
| | |
| | |
| | |

LANDSCAPE ENLARGEMENTS

SCHOEDINGER FUNERAL HOME

PREPARED FOR

ADVANCED CIVIL DESIGN

422 BEECHER ROAD

GAHANNA, OH 43230


Faris Planning & Design

LAND PLANNING • LANDSCAPE ARCHITECTURE

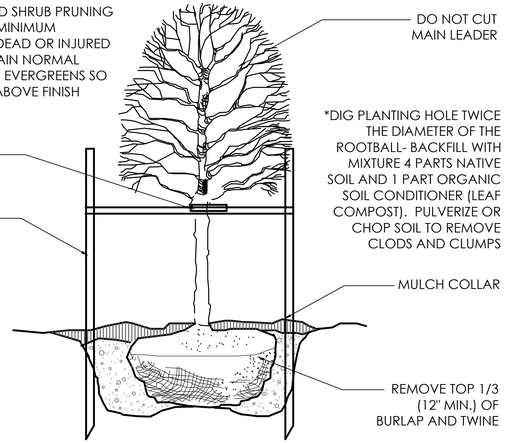
243 N. 5th Street Suite 401 Columbus, OH 43215

p (614) 487-1964 www.farisplanninganddesign.com


| DATE | 7/25/19 |
|---|---|
| | |
| PROJECT | 18129 |
| | |
| SHEET | |

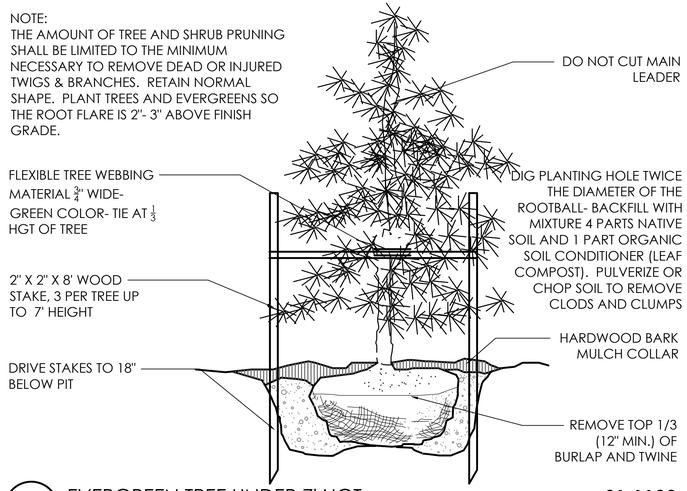
L-2

NOTE:
THE AMOUNT OF TREE AND SHRUB PRUNING SHALL BE LIMITED TO THE MINIMUM NECESSARY TO REMOVE DEAD OR INJURED TWIGS & BRANCHES. RETAIN NORMAL SHAPE. PLANT TREES AND EVERGREENS SO THE ROOT FLARE IS 2"- 3" ABOVE FINISH GRADE



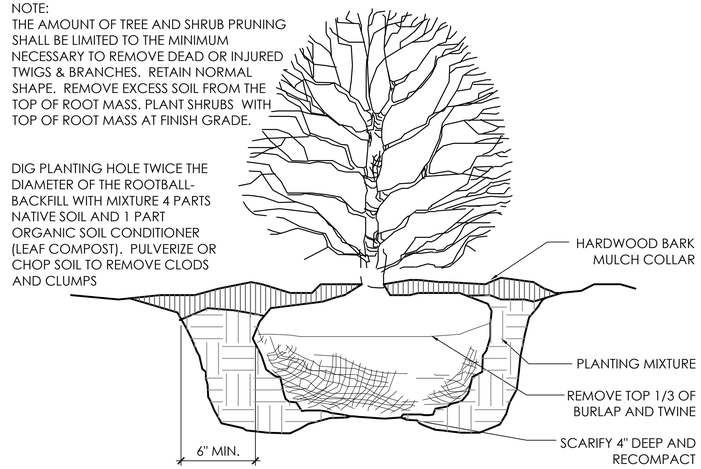

1 DECIDUOUS TREE 01-1001
N.T.S.

NOTE:
THE AMOUNT OF TREE AND SHRUB PRUNING SHALL BE LIMITED TO THE MINIMUM NECESSARY TO REMOVE DEAD OR INJURED TWIGS & BRANCHES. RETAIN NORMAL SHAPE. PLANT TREES AND EVERGREENS SO THE ROOT FLARE IS 2"- 3" ABOVE FINISH GRADE.

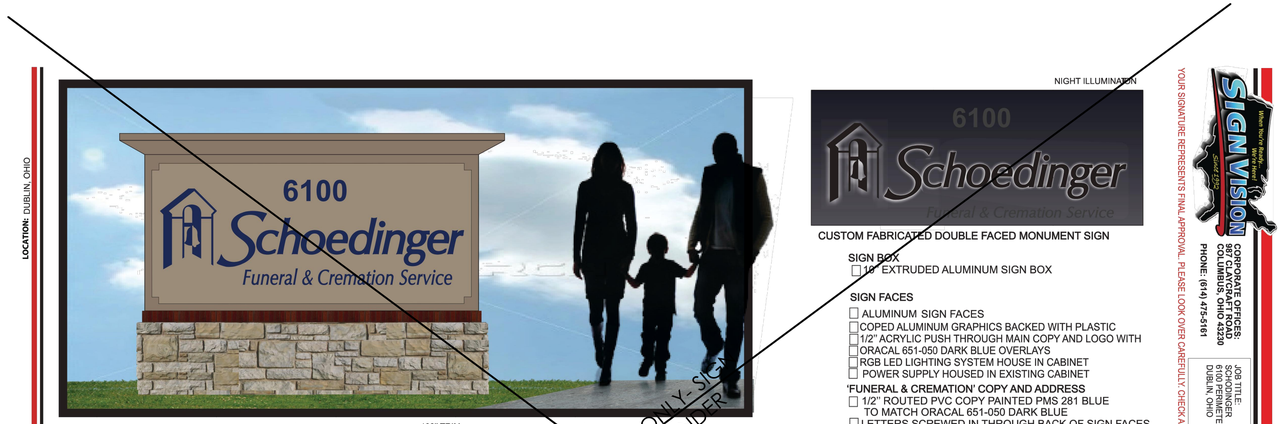



2 EVERGREEN TREE UNDER 7' HGT. 01-1100
N.T.S.

NOTE:
THE AMOUNT OF TREE AND SHRUB PRUNING SHALL BE LIMITED TO THE MINIMUM NECESSARY TO REMOVE DEAD OR INJURED TWIGS & BRANCHES. REMOVE EXCESS SOIL FROM THE TOP OF ROOT MASS. PLANT SHRUBS WITH TOP OF ROOT MASS AT FINISH GRADE.




3 SHRUB PLANTING DETAIL 01-1300
N.T.S.







CUSTOM FABRICATED DOUBLE FACED MONUMENT SIGN

SIGN BOX
☐ 18" EXTRUDED ALUMINUM SIGN BOX

SIGN FACES
☐ ALUMINUM SIGN FACES
☐ COPED ALUMINUM GRAPHICS BACKED WITH PLASTIC
☐ 1/2" ACRYLIC PUSH THROUGH MAIN COPY AND LOGO WITH
☐ ORACAL 651-050 DARK BLUE OVERLAYS
☐ RGB LED LIGHTING SYSTEM HOUSE IN CABINET
☐ POWER SUPPLY HOUSED IN EXISTING CABINET

'FUNERAL & CREMATION' COPY AND ADDRESS
☐ 1/2" ROUTED PVC COPY PAINTED PMS 281 BLUE TO MATCH ORACAL 651-050 DARK BLUE
☐ LETTERS SCREWED IN THROUGH BACK OF SIGN FACES

CONCRETE SIGN BASE AND FOUNDATION DONE BY GC

FOOTER INSPECTION REQUIRED PRIOR TO CONCRETE POUR
614-410-4680

TOPPER & TOP AND BOTTOM DECORATIVE
ALUMINUM DECORATIVE CAP FINISHED AS SHOWN

COLOR SPECIFICATIONS

PAINT COLORS TO MATCH BUILDING
Sycamore Tan SW 2859

PMS 281 BLUE
ORACAL 651-050 DARK BLUE

NOTE:
FABRICATION AND INSTALLATION PER UL SPECIFICATION. INSTALL IN ACCORDANCE WITH THE NEC. ALL SIGNS EQUIPT WITH DISCONNECT SWITCHES.

SIGN VISION
Where Your Vision Meets Power
SINCE 1990

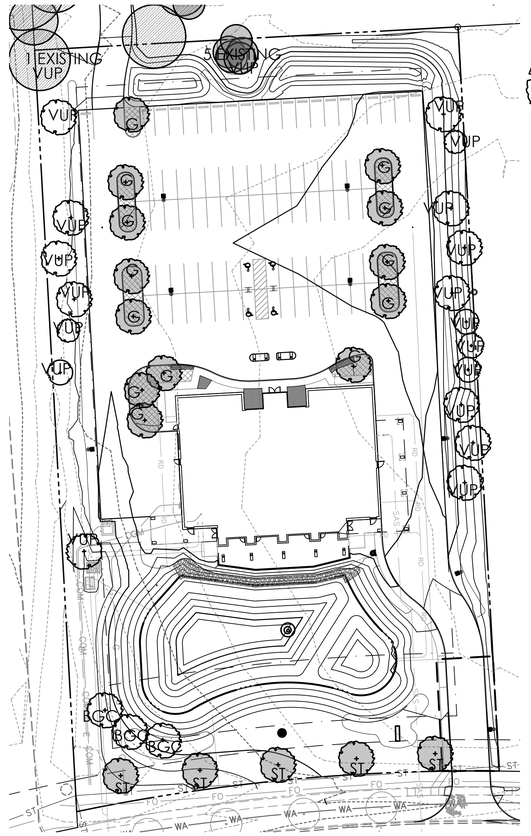
CORPORATE OFFICES:
987 CLAYCRAFT ROAD
COLUMBUS, OHIO 43230
PHONE: (614) 475-5161

JOB TITLE: SCHOEDINGER
INSTALLATION ADDRESS: DUBLIN, OHIO
DATE: AUGUST 10, 2018
SALESMAN: AUSTIN SHANNON
SIGN PANEL DRAWING #2018-189
FILE: SF118189
SCALE: 1/2" = 1'-0"
REVISION: 10.4.18 SD
REVISION:
APPROVED
APPROVED WITH CORRECTIONS ☐
NOT APPROVED/ RESUBMIT ☐
SIGNATURE:

YOUR SIGNATURE REPRESENTS FINAL APPROVAL. PLEASE LOOK OVER CAREFULLY. CHECK ALL SPELLING AND GRAMMAR. SIGN VISION CAN NOT BE RESPONSIBLE FOR ANY ERRORS AFTER FINAL APPROVAL

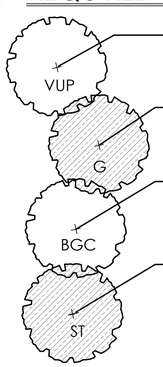
LOCATION: DUBLIN, OHIO
TITLE: SCHOEDINGER REVERSE CHANNEL MONUMENT

4 ENTRY SIGN DETAIL BY SIGN VISION
SCALE: N.T.S.




1 TREE REQUIREMENT PLAN
SCALE: N.T.S.

## REQUIRED PLANT KEY




VEHICULAR USE PERIMETER
GROUND COVERAGE (12 REQUIRED)
BUILDING GROUND COVER
STREET TREE

PERMIT SET 7/26/19

| REVISIONS | |
|---|---|
| | 12.30.19 |
| | |
| | |
| | |

LANDSCAPE DETAILS

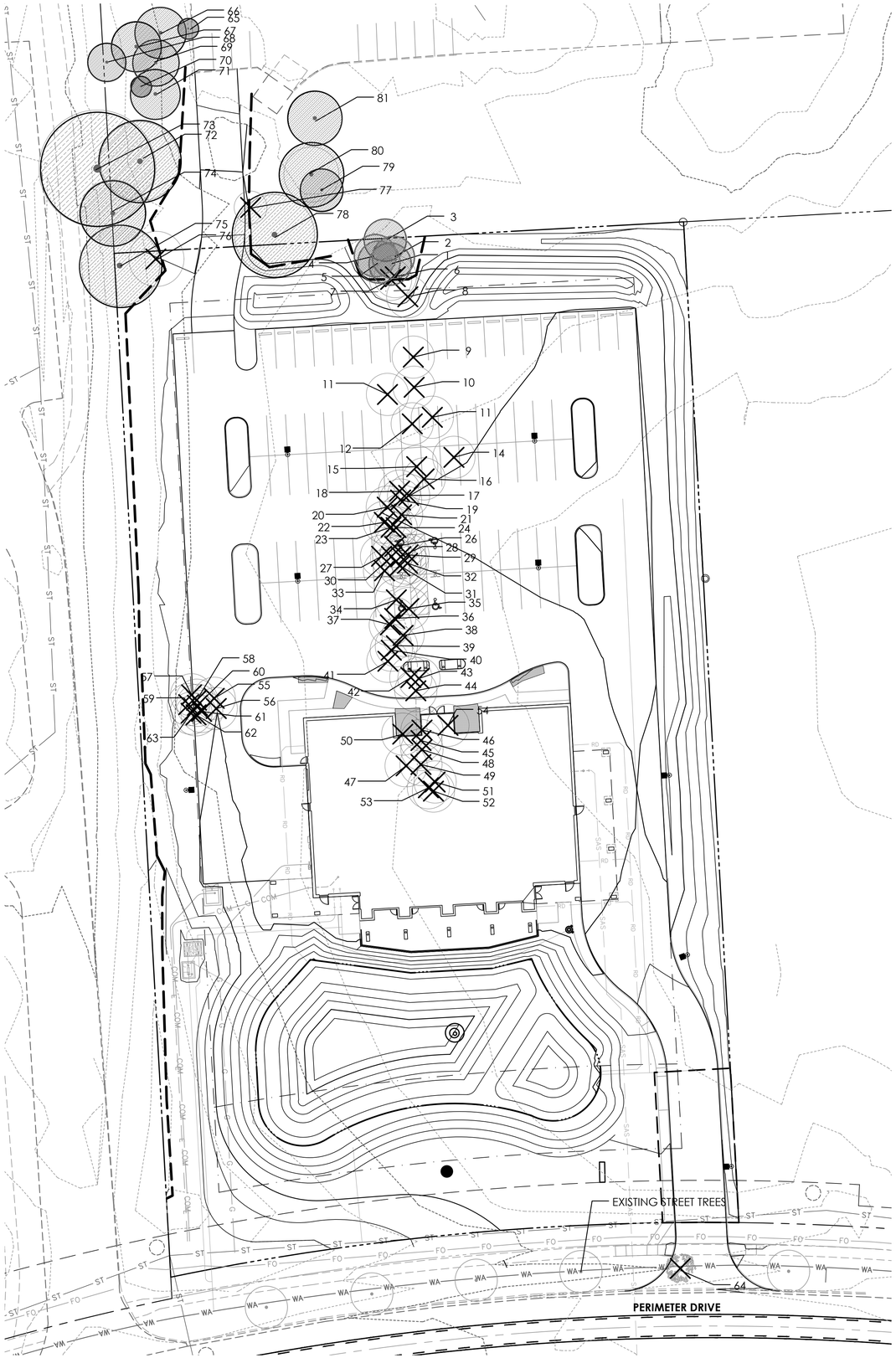
SCHOEDINGER FUNERAL HOME

PREPARED FOR
ADVANCED CIVIL DESIGN
422 BEECHER ROAD
GAHANNA, OH 43230


Faris Planning & Design
LAND PLANNING ◆ LANDSCAPE ARCHITECTURE
243 N. 5th Street Suite 401 Columbus, OH 43215
p (614) 487-1964 www.farisplanninganddesign.com


| DATE | 7/25/19 |
|---|---|
| | |
| PROJECT | 18129 |
| | |
| SHEET | |

L-3



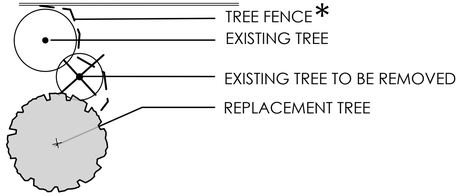

## GENERAL NOTES

1. DIAMETER SHOWN ON PLAN SHEET L-4 REPRESENT THE CRITICAL ROOT ZONE (1' RADIUS PER 1" CALIPER OR 15' WHICHEVER IS GREATER).

## TREES REMOVED

347 CALIPER INCHES OF TREE WHICH ARE REMOVED TO BE REPLACED DUE TO TREE NOT BEING POOR OR DEAD.

## PLANT KEY

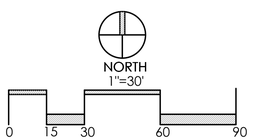



## TREE REPLACEMENT TOTAL*

*ALL TREES WILL BE REMOVED BY DEVELOPMENT.

| | |
|---|---|
| TOTAL EXISTING MAJOR TREES (ON SITE) (CAL. INCHES) | 734" |
| TOTAL EXISTING MAJOR TREES (OFF SITE IN AFFECTED AREA OF NEW DRIVE) (CAL. INCHES) | 190" |
| TOTAL EXISTING MAJOR TREES (CALIPER INCHES) TO BE REMOVED BY DEVELOPMENT ON SITE | 669" |
| TOTAL EXISTING MAJOR TREES (CALIPER INCHES) TO BE REMOVED BY DEVELOPMENT OFF SITE IN AFFECTED AREA OF NEW DRIVE | 7" |
| TOTAL REPLACEMENT TREES REQUIRED (CAL. INCHES) | 347" |
| TOTAL REPLACEMENT TREES PROVIDED (CAL. INCHES) | 224.05" |
| TOTAL REMAINING CAL. INCHES** | 122.95" |

**REMAINING CALIPER INCHES TO BE COVERED BY FEE IN LIEU OF REPLACEMENT.




| SITE ID | SPECIES | COMMON NAME | DIAMETER 4.5 FEET ABOVE GRADE (INCHES) | CONDITION | STATUS |
|---|---|---|---|---|---|
| 1 | CELTIS OCCIDENTALIS | HACKBERRY | 14 | FAIR | P |
| 2 | CELTIS OCCIDENTALIS | HACKBERRY | 7 | FAIR | P |
| 3 | CELTIS OCCIDENTALIS | HACKBERRY | 8 | FAIR | P |
| 4 | CELTIS OCCIDENTALIS | HACKBERRY | 8 | FAIR | P |
| 5 | CELTIS OCCIDENTALIS | HACKBERRY | 6 | FAIR | P |
| 6 | PRUNUS SEROTINA | BLACK CHERRY | 9 | VERY POOR | R |
| 7 | PRUNUS SEROTINA | BLACK CHERRY | 15 | POOR | R |
| 8 | CELTIS OCCIDENTALIS | HACKBERRY | 6 | FAIR | R |
| 9 | PRUNUS SEROTINA | BLACK CHERRY | 12 | VERY POOR | R |
| 10 | PRUNUS SEROTINA | BLACK CHERRY | 17 | POOR | R |
| 11 | CELTIS OCCIDENTALIS | HACKBERRY | 10 | FAIR | R |
| 12 | PRUNUS SEROTINA | BLACK CHERRY | 8 | VERY POOR | R |
| 13 | CELTIS OCCIDENTALIS | HACKBERRY | 8 | FAIR | R |
| 14 | CELTIS OCCIDENTALIS | HACKBERRY | 6 | FAIR | R |
| 15 | CRATAEGUS SPECIES | HAWTHORN | 26 | POOR | R |
| 16 | CRATAEGUS SPECIES | HAWTHORN | 21 | POOR | R |
| 17 | CRATAEGUS SPECIES | HAWTHORN | 7 | FAIR | R |
| 18 | CRATAEGUS SPECIES | HAWTHORN | 7 | FAIR | R |
| 19 | CRATAEGUS SPECIES | HAWTHORN | 8 | FAIR | R |
| 20 | CRATAEGUS SPECIES | HAWTHORN | 15 | VERY POOR | R |
| 21 | CRATAEGUS SPECIES | HAWTHORN | 8 | FAIR | R |
| 22 | CRATAEGUS SPECIES | HAWTHORN | 6 | FAIR | R |
| 23 | CELTIS OCCIDENTALIS | HACKBERRY | 21 | VERY POOR | R |
| 24 | CELTIS OCCIDENTALIS | HACKBERRY | 6 | POOR | R |
| 25 | CELTIS OCCIDENTALIS | HACKBERRY | 6 | VERY POOR | R |
| 26 | CELTIS OCCIDENTALIS | HACKBERRY | 13 | VERY POOR | R |
| 27 | CELTIS OCCIDENTALIS | HACKBERRY | 11 | DEAD | R |
| 28 | CELTIS OCCIDENTALIS | HACKBERRY | 21 | POOR | R |
| 29 | CELTIS OCCIDENTALIS | HACKBERRY | 6 | FAIR | R |
| 30 | CELTIS OCCIDENTALIS | HACKBERRY | 12 | FAIR | R |
| 31 | CELTIS OCCIDENTALIS | HACKBERRY | 23 | GOOD | R |
| 32 | CRATAEGUS SPECIES | HAWTHORN | 6 | FAIR | R |
| 33 | CELTIS OCCIDENTALIS | HACKBERRY | 6 | FAIR | R |
| 34 | CELTIS OCCIDENTALIS | HACKBERRY | 22 | POOR | R |
| 35 | CRATAEGUS SPECIES | HAWTHORN | 21 | FAIR | R |
| 36 | CELTIS OCCIDENTALIS | HACKBERRY | 9 | FAIR | R |
| 37 | CELTIS OCCIDENTALIS | HACKBERRY | 9 | FAIR | R |
| 38 | PRUNUS SEROTINA | BLACK CHERRY | 8 | VERY POOR | R |
| 39 | CELTIS OCCIDENTALIS | HACKBERRY | 7 | FAIR | R |
| 40 | CELTIS OCCIDENTALIS | HACKBERRY | 8 | FAIR | R |
| 41 | CELTIS OCCIDENTALIS | HACKBERRY | 9 | FAIR | R |
| 42 | CRATAEGUS SPECIES | HAWTHORN | 26 | FAIR | R |
| 43 | CRATAEGUS SPECIES | HAWTHORN | 10 | VERY POOR | R |
| 44 | CRATAEGUS SPECIES | HAWTHORN | 8 | FAIR | R |
| 45 | CELTIS OCCIDENTALIS | HACKBERRY | 31 | DEAD | R |
| 46 | CELTIS OCCIDENTALIS | HACKBERRY | 12 | FAIR | R |
| 47 | PRUNUS SEROTINA | BLACK CHERRY | 12 | POOR | R |
| 48 | CELTIS OCCIDENTALIS | HACKBERRY | 12 | POOR | R |
| 49 | CELTIS OCCIDENTALIS | HACKBERRY | 9 | FAIR | R |
| 50 | CELTIS OCCIDENTALIS | HACKBERRY | 8 | FAIR | R |
| 51 | CELTIS OCCIDENTALIS | HACKBERRY | 11 | FAIR | R |
| 52 | CELTIS OCCIDENTALIS | HACKBERRY | 7 | FAIR | R |
| 53 | CELTIS OCCIDENTALIS | HACKBERRY | 6 | FAIR | R |
| 54 | CRATAEGUS SPECIES | HAWTHORN | 8 | VERY POOR | R |
| 55 | CELTIS OCCIDENTALIS | HACKBERRY | 7 | FAIR | R |
| 56 | CELTIS OCCIDENTALIS | HACKBERRY | 10 | POOR | R |
| 57 | CELTIS OCCIDENTALIS | HACKBERRY | 10 | FAIR | R |
| 58 | CELTIS OCCIDENTALIS | HACKBERRY | 6 | FAIR | R |
| 59 | CELTIS OCCIDENTALIS | HACKBERRY | 10 | FAIR | R |
| 60 | CELTIS OCCIDENTALIS | HACKBERRY | 8 | POOR | R |
| 61 | CELTIS OCCIDENTALIS | HACKBERRY | 7 | POOR | R |
| 62 | CELTIS OCCIDENTALIS | HACKBERRY | 11 | GOOD | R |
| 63 | CELTIS OCCIDENTALIS | HACKBERRY | 7 | FAIR | R |
| 64 | GLEDISTIA TRIACANTHOS | HONEYLOCUST | 7 | GOOD | R |
| 65 | PICEA | SPRUCE | 5 | FAIR | P |
| 66 | PINUS | PINE | 12 | GOOD | P |
| 67 | PICEA | SPRUCE | 12 | FAIR | P |
| 68 | PICEA | SPRUCE | 11 | FAIR | P |
| 69 | QUERCUS | OAK | 9 | GOOD | P |
| 70 | PICEA | SPRUCE | 5 | FAIR | P |
| 71 | PICEA | SPRUCE | 12 | FAIR | P |
| 72 | QUERCUS | OAK | 19 | FAIR | P |
| 73 | QUERCUS | OAK | 28 | FAIR | P |
| 74 | QUERCUS | OAK | 16 | GOOD | P |
| 75 | QUERCUS | OAK | 19 | GOOD | P |
| 76 | QUERCUS | OAK | 13 | GOOD | R |
| 77 | PICEA | SPRUCE | 7 | FAIR | R |
| 78 | QUERCUS | OAK | 19 | GOOD | P |
| 79 | PICEA | SPRUCE | 10 | POOR | R |
| 80 | PINUS | PINE | 15 | FAIR | P |
| 81 | PICEA | SPRUCE | 13 | GOOD | P |

PERMIT SET 7/26/19

| REVISIONS | |
|---|---|
| | 12.30.19 |
| | |
| | |
| | |

# TREE PRESERVATION/ REMOVAL PLAN

# SCHOEDINGER FUNERAL HOME

PREPARED FOR
ADVANCED CIVIL DESIGN
422 BEECHER ROAD
GAHANNA, OH 43230

Faris Planning & Design
LAND PLANNING
243 N. 5th Street
p. (614) 487-1964
LANDSCAPE ARCHITECTURE
Suite 401
Columbus, OH 43215
www.farisplanninganddesign.com

| | |
|---|---|
| DATE | 7/25/18 |
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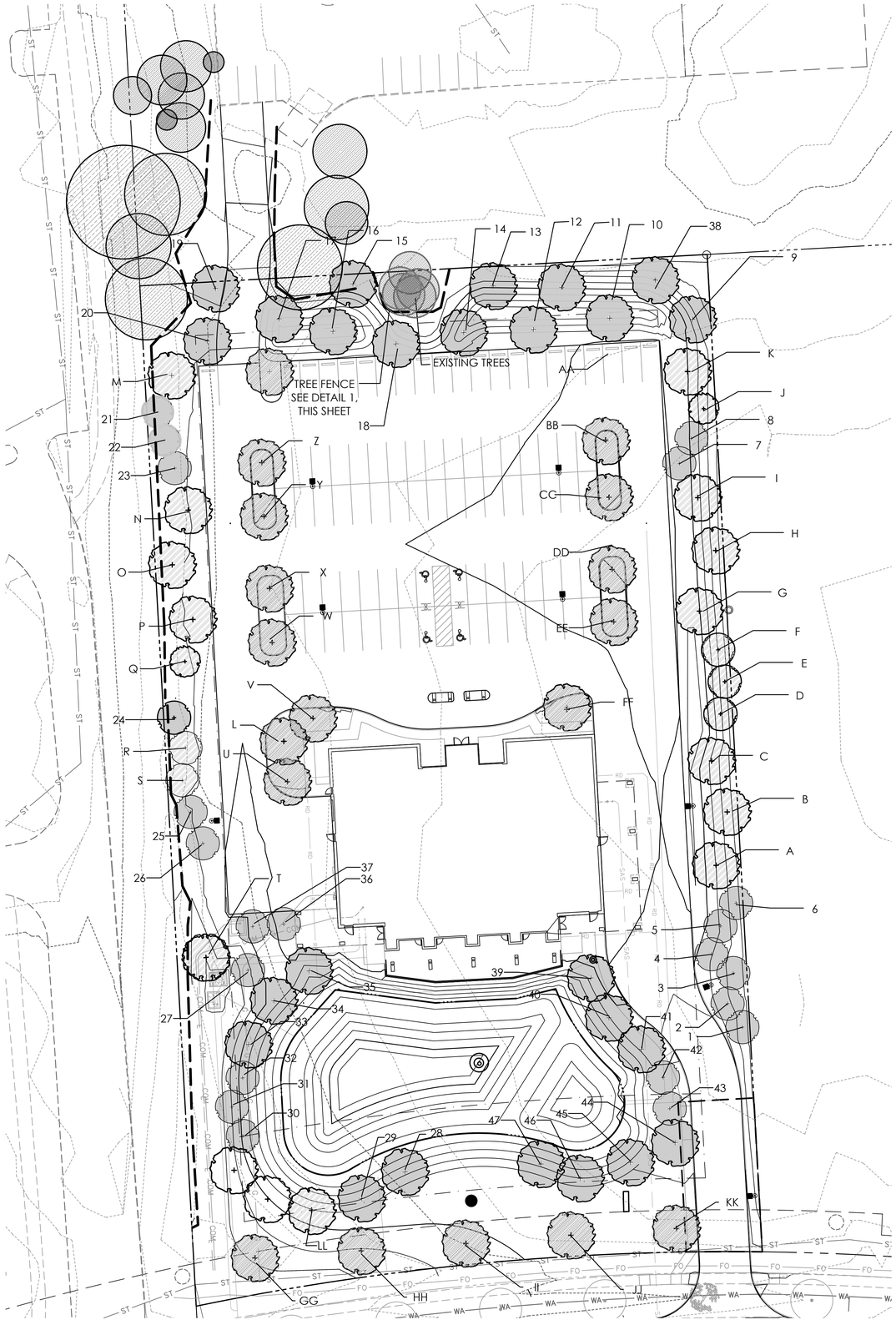
| PROJECT | 18129 |
| | |
| SHEET | |

L-4




## REPLACEMENT TREES

| ID# | COMMON NAME | BOTANICAL NAME | SIZE |
|---|---|---|---|
| 1 | DR. MERRILL MAGNOLIA | MAGNOLIA X LOEBNERI 'DR. MERRILL' | 3.5" CAL. |
| 2 | DR. MERRILL MAGNOLIA | MAGNOLIA X LOEBNERI 'DR. MERRILL' | 3.5" CAL. |
| 3 | DR. MERRILL MAGNOLIA | MAGNOLIA X LOEBNERI 'DR. MERRILL' | 3.5" CAL. |
| 4 | DR. MERRILL MAGNOLIA | MAGNOLIA X LOEBNERI 'DR. MERRILL' | 3.5" CAL. |
| 5 | DR. MERRILL MAGNOLIA | MAGNOLIA X LOEBNERI 'DR. MERRILL' | 3.5" CAL. |
| 6 | DR. MERRILL MAGNOLIA | MAGNOLIA X LOEBNERI 'DR. MERRILL' | 3.5" CAL. |
| 7 | DR. MERRILL MAGNOLIA | MAGNOLIA X LOEBNERI 'DR. MERRILL' | 3.5" CAL. |
| 8 | DR. MERRILL MAGNOLIA | MAGNOLIA X LOEBNERI 'DR. MERRILL' | 3.5" CAL. |
| 9 | SIENNA GLEN MAPLE | ACER FREEMANI 'SIENNA GLEN' | 3.5" CAL. |
| 10 | BURR OAK | QUERCUS MACROCARPA | 3.5" CAL. |
| 11 | BURR OAK | QUERCUS MACROCARPA | 3.5" CAL. |
| 12 | BURR OAK | QUERCUS MACROCARPA | 3.5" CAL. |
| 13 | BURR OAK | QUERCUS MACROCARPA | 3.5" CAL. |
| 14 | BURR OAK | QUERCUS MACROCARPA | 3.5" CAL. |
| 15 | BURR OAK | QUERCUS MACROCARPA | 3.5" CAL. |
| 16 | BURR OAK | QUERCUS MACROCARPA | NOT USED |
| 17 | BURR OAK | QUERCUS MACROCARPA | 3.5" CAL. |
| 18 | BURR OAK | QUERCUS MACROCARPA | 3.5" CAL. |
| 19 | SIENNA GLEN MAPLE | ACER FREEMANI 'SIENNA GLEN' | 3.5" CAL. |
| 20 | SIENNA GLEN MAPLE | ACER FREEMANI 'SIENNA GLEN' | 3.5" CAL. |
| 21 | CANADA RED SELECT CHERRY | PRUNUS VIRGINIANA 'CANADA RED' | 3.5" CAL. |
| 22 | CANADA RED SELECT CHERRY | PRUNUS VIRGINIANA 'CANADA RED' | 3.5" CAL. |
| 23 | CANADA RED SELECT CHERRY | PRUNUS VIRGINIANA 'CANADA RED' | 3.5" CAL. |
| 24 | DR. MERRILL MAGNOLIA | MAGNOLIA X LOEBNERI 'DR. MERRILL' | 3.5" CAL. |
| 25 | DR. MERRILL MAGNOLIA | MAGNOLIA X LOEBNERI 'DR. MERRILL' | 3.5" CAL. |
| 26 | DR. MERRILL MAGNOLIA | MAGNOLIA X LOEBNERI 'DR. MERRILL' | 3.5" CAL. |
| 27 | CANADA RED SELECT CHERRY | PRUNUS VIRGINIANA 'CANADA RED' | 3.5" CAL. |
| 28 | LONDON PLANETREE | PLATANUS X ACERIFOLIA | 3.5" CAL. |
| 29 | LONDON PLANETREE | PLATANUS X ACERIFOLIA | 3.5" CAL. |
| 30 | DR. MERRILL MAGNOLIA | MAGNOLIA X LOEBNERI 'DR. MERRILL' | 3.5" CAL. |
| 31 | DR. MERRILL MAGNOLIA | MAGNOLIA X LOEBNERI 'DR. MERRILL' | 3.5" CAL. |
| 32 | DR. MERRILL MAGNOLIA | MAGNOLIA X LOEBNERI 'DR. MERRILL' | 3.5" CAL. |
| 33 | CORINTHIAN LINDEN | TILIA CORDATA 'CORINTHIAN' | 3.5" CAL. |
| 34 | CORINTHIAN LINDEN | TILIA CORDATA 'CORINTHIAN' | 3.5" CAL. |
| 35 | CORINTHIAN LINDEN | TILIA CORDATA 'CORINTHIAN' | 3.5" CAL. |
| 36 | CANADA RED SELECT CHERRY | PRUNUS VIRGINIANA 'CANADA RED' | 3.5" CAL. |
| 37 | CANADA RED SELECT CHERRY | PRUNUS VIRGINIANA 'CANADA RED' | 3.5" CAL. |
| 38 | SIENNA GLEN MAPLE | ACER FREEMANI 'SIENNA GLEN' | 3.5" CAL. |
| 39 | CORINTHIAN LINDEN | TILIA CORDATA 'CORINTHIAN' | 3.5" CAL. |
| 40 | CORINTHIAN LINDEN | TILIA CORDATA 'CORINTHIAN' | 3.5" CAL. |
| 41 | CORINTHIAN LINDEN | TILIA CORDATA 'CORINTHIAN' | 3.5" CAL. |
| 42 | DR. MERRILL MAGNOLIA | MAGNOLIA X LOEBNERI 'DR. MERRILL' | 3.5" CAL. |
| 43 | DR. MERRILL MAGNOLIA | MAGNOLIA X LOEBNERI 'DR. MERRILL' | 3.5" CAL. |
| 44 | LONDON PLANETREE | PLATANUS X ACERIFOLIA | 3.5" CAL. |
| 45 | LONDON PLANETREE | PLATANUS X ACERIFOLIA | 3.5" CAL. |
| 46 | LONDON PLANETREE | PLATANUS X ACERIFOLIA | 3.5" CAL. |
| 47 | LONDON PLANETREE | PLATANUS X ACERIFOLIA | 3.5" CAL. |
| | | TOTAL | 161" |

## REPLACEMENT TREES (ADDITIONAL CAL OVER REQUIREMENTS)

| ID# | COMMON NAME | BOTANICAL NAME | SIZE (OVER REQUIREMENT | SIZE |
|---|---|---|---|---|
| A | SIENNA GLEN MAPLE | ACER FREEMANI 'SIENNA CGLENN' | 1.75" | 3.5" CAL. |
| B | SIENNA GLEN MAPLE | ACER FREEMANI 'SIENNA CGLENN' | 1.75" | 3.5" CAL. |
| C | SIENNA GLEN MAPLE | ACER FREEMANI 'SIENNA CGLENN' | 1.75" | 3.5" CAL. |
| D | CANADA RED SELECT CHERRY | PRUNUS VIRGINIANA 'CANADA RED' | 1.75" | 3.5" CAL. |
| E | CANADA RED SELECT CHERRY | PRUNUS VIRGINIANA 'CANADA RED' | 1.75" | 3.5" CAL. |
| F | CANADA RED SELECT CHERRY | PRUNUS VIRGINIANA 'CANADA RED' | 1.75" | 3.5" CAL. |
| G | SHINGLE OAK | QUERCUS IMBRICARIA | 1.75" | 3.5" CAL. |
| H | SHINGLE OAK | QUERCUS IMBRICARIA | 1.75" | 3.5" CAL. |
| I | SHINGLE OAK | QUERCUS IMBRICARIA | 1.75" | 3.5" CAL. |
| J | DR. MERRILL MAGNOLIA | MAGNOLIA X LOEBNERI 'DR. MERRILL | 1.75" | 3.5" CAL. |
| K | SIENNA GLEN MAPLE | ACER FREEMANI 'SIENNA CGLENN' | 1.75" | 3.5" CAL. |
| L | CORINTHIAN LINDEN | TILIA CORDATA 'CORINTHIAN' | 1.5" | 3.5" CAL. |
| M | SIENNA GLEN MAPLE | ACER FREEMANI 'SIENNA CGLENN' | 1.75" | 3.5" CAL. |
| N | SHINGLE OAK | QUERCUS IMBRICARIA | 1.75" | 3.5" CAL. |
| O | SHINGLE OAK | QUERCUS IMBRICARIA | 1.75" | 3.5" CAL. |
| P | SHINGLE OAK | QUERCUS IMBRICARIA | 1.75" | 3.5" CAL. |
| Q | CANADA RED SELECT CHERRY | PRUNUS VIRGINIANA 'CANADA RED' | 1.75" | 3.5" CAL. |
| R | CANADA RED SELECT CHERRY | PRUNUS VIRGINIANA 'CANADA RED' | 1.75" | 3.5" CAL. |
| S | CANADA RED SELECT CHERRY | PRUNUS VIRGINIANA 'CANADA RED' | 1.75" | 3.5" CAL. |
| T | SIENNA GLEN MAPLE | ACER FREEMANI 'SIENNA CGLENN' | 1.75" | 3.5" CAL. |
| U | CORINTHIAN LINDEN | TILIA CORDATA 'CORINTHIAN' | 1.5" | 3.5" CAL. |
| V | CORINTHIAN LINDEN | TILIA CORDATA 'CORINTHIAN' | 1.5" | 3.5" CAL. |
| W | TRIUMPH ELM | ULMUS 'MORTON GLOSSY' | 1.5" | 3.5" CAL. |
| X | TRIUMPH ELM | ULMUS 'MORTON GLOSSY' | 1.5" | 3.5" CAL. |
| Y | TRIUMPH ELM | ULMUS 'MORTON GLOSSY' | 1.5" | 3.5" CAL. |
| Z | TRIUMPH ELM | ULMUS 'MORTON GLOSSY' | 1.5" | 3.5" CAL. |
| AA | TRIUMPH ELM | ULMUS 'MORTON GLOSSY' | 1.5" | 3.5" CAL. |
| BB | TRIUMPH ELM | ULMUS 'MORTON GLOSSY' | 1.5" | 3.5" CAL. |
| CC | TRIUMPH ELM | ULMUS 'MORTON GLOSSY' | 1.5" | 3.5" CAL. |
| DD | TRIUMPH ELM | ULMUS 'MORTON GLOSSY' | 1.5" | 3.5" CAL. |
| EE | TRIUMPH ELM | ULMUS 'MORTON GLOSSY' | 1.5" | 3.5" CAL. |
| FF | CORINTHIAN LINDEN | TILIA CORDATA 'CORINTHIAN' | 1.5" | 3.5" CAL. |
| GG | URBAN ELM | ULMUS X 'URBAN ELM' | 1.5" | 3.5" CAL. |
| HH | URBAN ELM | ULMUS X 'URBAN ELM' | 1.5" | 3.5" CAL. |
| II | URBAN ELM | ULMUS X 'URBAN ELM' | 1.5" | 3.5" CAL. |
| JJ | URBAN ELM | ULMUS X 'URBAN ELM' | 1.5" | 3.5" CAL. |
| KK | URBAN ELM | ULMUS X 'URBAN ELM' | 1.5" | 3.5" CAL. |
| LL | LONDON PLANETREE | PLATANUS X ACERIFOLIA | 2.8" | 3.5" CAL. |
| | | | TOTAL | 63.05" |

## TREE PRESERVATION, REMOVAL, REPLACEMENT NOTES

1. COORDINATE ANY STREET TREE REMOVAL FOR ACCESS DRIVE WITH PAULA CHOPE, CITY FORESTER, AT 614-410-4701
2. ALL TREES IN THE CONSTRUCTION AREA NOT SPECIFICALLY DESIGNATED FOR REMOVAL SHALL BE PRESERVED. ALL TREE REMOVAL, RELOCATION, AND PRESERVATION WORK SHALL BE SUPERVISED WITH THE INPUT OF A CERTIFIED ARBORIST.
3. FENCING SHALL BE INSTALLED AROUND ALL TREES TO BE PRESERVED PRIOR TO COMMENCEMENT OF CONSTRUCTION. THE FENCING MUST REMAIN IN PLACE DURING ALL PHASES OF CONSTRUCTION. ANY CHANGE IN THE PROTECTIVE FENCING MUST BE APPROVED BY THE LANDSCAPE INSPECTOR. OWNER SHALL BE RESPONSIBLE FOR THE CONSTRUCTION, ERECTION, AND MAINTENANCE OF PROTECTION FENCING, REFER TO TREE PRESERVATION DETAIL..
4. PRESERVED TREES REMAINING ARE TO BE FERTILIZED AND PRUNED (IF NEEDED) TWO YEARS AFTER CONSTRUCTION.
5. OWNER SHALL MONITOR HEALTH AND VIGOR OF EXISTING TREES THROUGHOUT THE COURSE OF CONSTRUCTION OF THIS PROJECT. CONTRACTOR TO NOTIFY A CERTIFIED ARBORIST IF ANY DECLINE IN HEALTHY TREES IS APPARENT. THE ARBORIST SHALL DETERMINE THE REMEDIAL ACTION, IF ANY, TO BE TAKEN.
6. ALL EXISTING TREES NOTED AS FAIR TO POOR HEALTH SHALL BE FERTILIZED YEARLY IN THE SPRING USING A HORTICULTURALLY APPROVED METHOD FOR A PERIOD OF THREE YEARS. AFTER THREE YEARS, THE HEALTH SHOULD BE EVALUATED BY A CERTIFIED ARBORIST AND CONTINUING MAINTENANCE RECOMMENDATIONS SHALL BE MADE.
7. ANY TREES REMOVED OR DAMAGED IN TREE PRESERVATION AREAS WILL HAVE TO BE REPLACED PER CODE.
8. FAILURE TO ABIDE BY THESE TERMS OF THE TREE PRESERVATION, REMOVAL, AND REPLACEMENT PLANS SHALL BE UNLAWFUL

## TREE REPLACEMENT TOTAL*

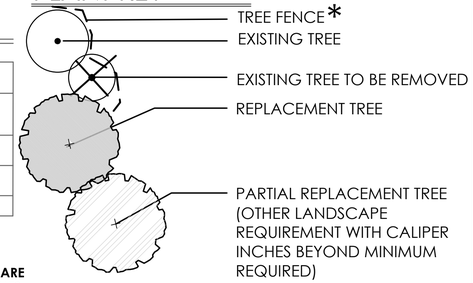
*ALL TREES WILL BE REMOVED BY DEVELOPMENT.

| | |
|---|---|
| TOTAL EXISTING MAJOR TREES ( CAL. INCHES) | 699" |
| TOTAL EXISTING MAJOR TREES (CALIPER INCHES) TO BE REMOVED BY DEVELOPMENT | 656" |
| TOTAL REPLACEMENT TREES REQUIRED (CAL. INCHES) | 327" |
| TOTAL REPLACEMENT TREES PROVIDED (CAL. INCHES) | 224.3 |
| TOTAL REMAINING CAL. INCHES** | 102.7" |

**REMAINING CALIPER INCHES TO BE COVERED BY FEE IN LIEU OF REPLACEMENT.

**CONTACT THE CITY OF DUBLIN IF THESE TREE SIZES ARE UNAVAILABLE. OUTSTANDING REPLACEMENT INCHES SHALL BE REPLACED WITH A FEE OF $150 PER INCH PRIOR TO OCCUPANCY**

## PLANT KEY

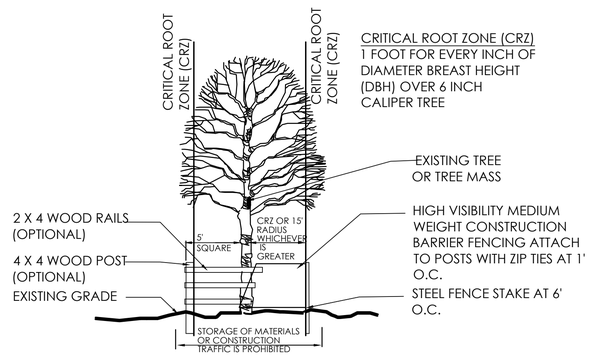



## GENERAL NOTES

1. DIAMETER SHOWN ON PLAN SHEET L-4 REPRESENT THE CRITICAL ROOT ZONE (1' RADIUS PER 1" CALIPER OR 15' WHICHEVER IS GREATER).

## TREES REMOVED

327 CALIPER INCHES OF TREE WHICH ARE REMOVED TO BE REPLACED DUE TO TREE NOT BEING POOR OR DEAD.




NOTES:
- INSPECTION OF INSTALLATION IS REQUIRED CALL (614) 410- 4600
- THE CITY IS TO BE CONTACTED IF FENCE LOCATION NEEDS TO BE ADJUSTED OR PRIOR TO ANY ENCROACHEMNT OF PRESERVATION AREA

1 TREE PRESERVATION
N.T.S.

01-1201

PERMIT SET 7/26/19

| REVISIONS | |
|---|---|
| | 9/20/19 |
| | 12/30/19 |
| | |
| | |

TREE REPLACEMENT PLAN

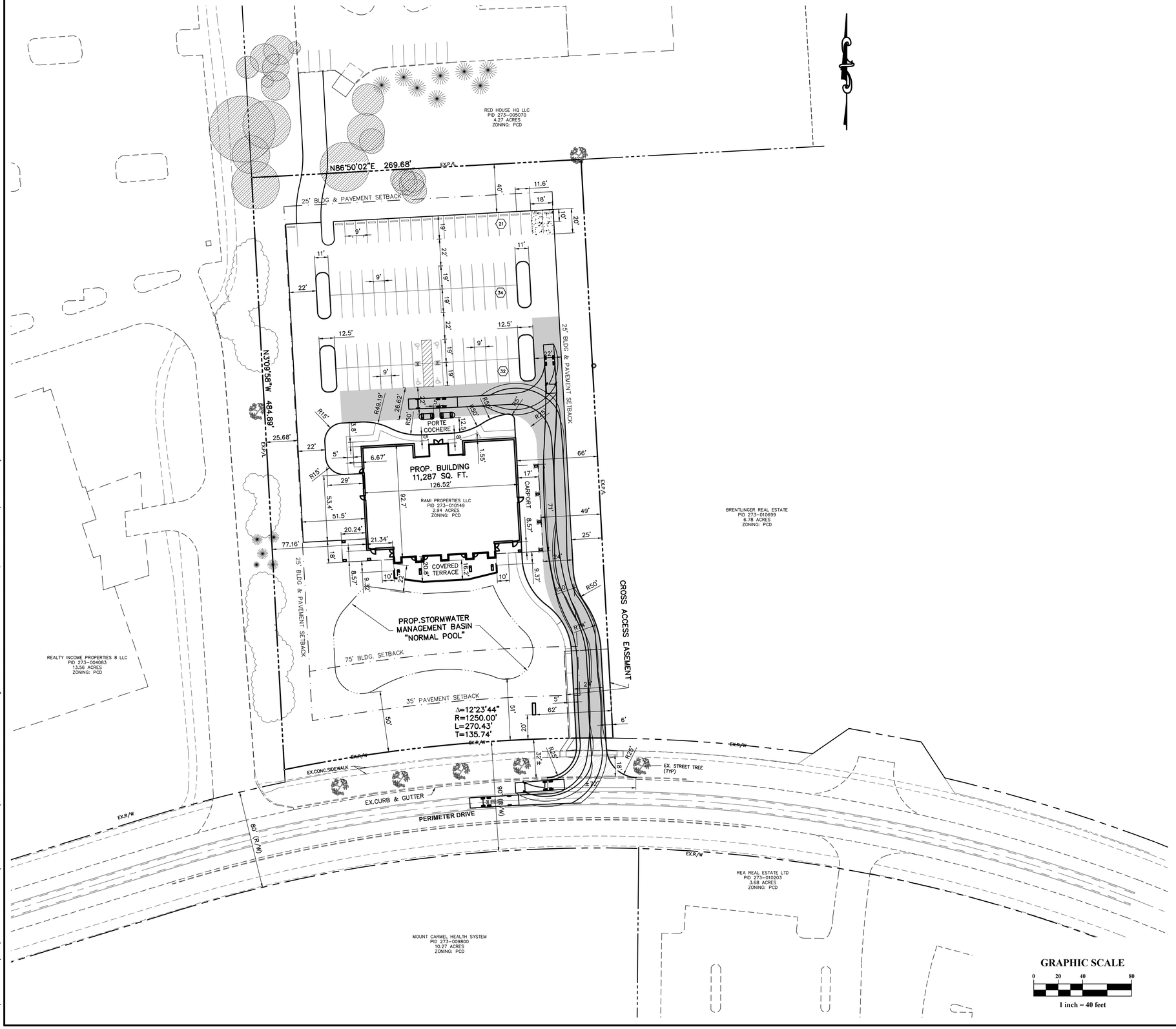
SCHOEDINGER FUNERAL HOME

PREPARED FOR
ADVANCED CIVIL DESIGN
422 BEECHER ROAD
GAHANNA, OH 43230


Faris Planning & Design
LAND PLANNING • LANDSCAPE ARCHITECTURE
243 N. 5th Street • Suite 401 • Columbus, OH 43215
p (614) 487-1964 • www.farisplanninganddesign.com


| | |
|---|---|
| DATE | 7/25/19 |
| | |
| PROJECT | 18129 |
| | |
| SHEET | |

L-5




**GRAPHIC SCALE**

0 20 40 80

1 inch = 40 feet

Z:\18-0001-918\DWG\PRODUCTION DRAWINGS\SITE CONSTRUCTION\13-FIRE TRUCK TURNING EXHIBIT\FIRE TRUCK TURNING EXHIBIT.dwg FIRE TRUCK TURNING EXHIBIT Jan 20, 2020 - 12:29:59pm cechelberry

PLAN PREPARED BY:

ADVANCED CIVIL DESIGN ENGINEERS SURVEYORS
422 Beecher Road
Gahanna, Ohio 43230
ph. 614.428.7750
fax. 614.428.7755

PLAN PREPARED FOR:

**SCHOEDINGER FUNERAL AND CREMATION SERVICES**
**1740 ZOLLINGER ROAD**
**COLUMBUS, OHIO 43221**
**ATTN: RANDY SCHOEDINGER**
**PH: 614-429-5755**

CITY OF DUBLIN, FRANKLIN COUNTY, OHIO

# PRIVATE SITE IMPROVEMENT PLAN FOR SCHOEDINGER FUNERAL HOME 5980 PERIMETER DRIVE

## FIRE TRUCK TURNING EXHIBIT

Issue Dates:

**Date:** 01/20/2020
**Scale:** 1" = 40'

| Drawn By: | Checked By: |
|---|---|
| CLE | DDD |

**Project Number:**
18-0001-918

**Drawing Number:**
**F.01 / 1**

**SCHOEDINGER FUNERAL SERVICES**
**6100 PERIMETER DRIVE**
**5815 WALL STREET**
**AMENDED FINAL DEVELOPMENT PLAN**

The Applicants, RAMI Properties, LLC (Schoedinger Funeral Services) and Red House HQ, LLC, propose to amend the Final Development Plan for 6100 Perimeter Drive and 5815 Wall Street in order to make minor adjustments to the existing final development plan for each site. This request concerns the installation of a private access drive, a gate, shared parking, and dumpster services. The property located at 6100 Perimeter Drive, Parcel No. 273-010149-00, is owned by RAMI Properties, LLC. It is located south of and adjacent to the property located at 5815 Wall Street, Parcel No. 273-005070-00. The most recent Text Modification, Conditional Use and Final Development Plan authorizes Funeral Services as a conditional use for the property at 6100 Perimeter Drive (hereinafter referred to as "Property A"). Property A is in the process of being developed in accordance with the existing Final Development Plan, with the exception of the minor modifications requested as part of this Application.

The property at 5815 Wall Street is owned by Red House HQ LLC. It is a fully developed commercial property that is currently being used as an office building (hereinafter referred to as "Property B").

It is the intent of the Applicants that their respective Final Development Plans be amended to reflect the following changes:

**I. Installation of a Private Access Drive and Gate**

At the southeastern corner of Property B, a private access drive shall be installed connecting Property A and B, as shown on the accompanying plan. Also, a gate across the private access drive shall be installed to ensure that daytime parking for Property B is limited to its employees and customers.

**II. Shared Parking**

Notwithstanding Section I, parking on the parking lot of Property B shall be permitted for visitors and customers of Property A during evening hours and on Saturdays, Sundays, and holidays.

**III. Shared Use of a Dumpster**

Property A and Property B shall have a shared use of a dumpster which will be located on Property B. The costs and expenses associated with the dumpster will be shared in accordance with a separately executed Dumpster Sharing Agreement. A draft of the Dumpster Sharing Agreement is attached. If at any time the dumpster becomes no longer available to service Property A, then Property A shall maintain a dumpster in the location specified in its existing Final Development Plan.

An Easement Agreement will be executed by both owners and recorded within 30 days after this Application is approved, if not earlier. A draft of the Easement Agreement is attached. The agreement contains language concerning the respective obligations of each property owner relating to the use of above-mentioned improvements and maintenance thereof.

The proposal is consistent with the development plans each property, and it meets the criteria for review under Dublin Code Section 153.055. The conditional use application and the final development plans for each property have been thoroughly reviewed as part of the initial process. The proposed changes are minor, and the amended Final Development Plan will continue to satisfy the criteria of Dublin Code Section 153.055 as originally approved.

# DUMPSTER SHARING AGREEMENT

This **DUMPSTER SHARING AGREEMENT** (this "**Agreement**") is made and entered as of the last date of signature below (the "**Effective Date**") by and between **RED HOUSE HQ, LLC**, an Ohio limited liability company, having a tax mailing address of 6315 Emerald Parkway, Dublin, Ohio 43016 ("**Red House**") and **RAMI PROPERTIES, LLC**, an Ohio limited liability company, having a tax mailing address of 229 East State Street, Columbus, Ohio 43214 ("**RAMI**"; Red House and RAMI being collectively referred to herein as the "**Parties**" and any one of the Parties a "**Party**").

## RECITALS

A. Red House is the owner of that certain 4.265± acre tract of land known as 5818 Wall Street, Dublin, Ohio 43017, and identified as of the Effective Date as Franklin County Auditor's Tax Parcel 273-005070 (the "**Red House Parcel**"); and

B. RAMI is the owner of that certain 2.938± acre tract of land situated south and adjacent to the Red House Parcel known as 5980 Perimeter Drive, Dublin, Ohio 43017, and identified as of the Effective Date as Franklin County Auditor's Tax Parcel 273-010149 (the "**RAMI Parcel**"), and

C. To provide for RAMI's use of the refuse receptacle located on the Red House Parcel (the "**Dumpster**") and covering the costs related thereto, the Parties desire to enter this Agreement on the terms herein set forth.

**NOW THEREFORE**, in consideration of the mutual covenants and agreements contained herein, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties do hereby agree as follows:

1. Recitals and Capitalized Terms. The foregoing recitals are true and correct and are incorporated herein by this reference. Capitalized terms used in this Agreement shall have the meanings set forth herein.

2. Right of Use and Entry; Shared Obligations. Red House hereby grants RAMI the right to use the Dumpster for the purpose of disposing of common waste generated by the business being operated on the RAMI Parcel, and to enter onto the Red House Parcel to access and use the Dumpster. The Parties agree to share responsibility for the use, operation, and maintenance of the Dumpster, with service for pick up on a regular basis by a professional refuse collection provider (the "**Hauler**") as may be agreed to as between the Parties. The frequency and day of the regularly scheduled pickup shall be as mutually agreed by the Parties.

3. Hauler Costs. In consideration for Red House issuing RAMI a Grant of Access and Reciprocal Parking Easement contemporaneously with this Agreement, RAMI agrees to be responsible for one hundred percent (100%) of the total actual annual costs as invoiced by the

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Hauler to service the Dumpster and to remove and dispose of the waste contained therein (the "**Hauler Costs**"). Red House shall be responsible for entering the contract with the Hauler on terms and conditions mutually agreed by the Parties. Red House shall receive and pay the entirety of the invoices for such Hauler Costs directly to Hauler, and RAMI shall reimburse Red House in an amount equal to one hundred percent (100%) of such paid invoices ("**RAMI's Share**"). The Parties shall agree upon the timing and method of reimbursement for RAMI's Share of the Hauler Costs. Red House shall provide copies of all invoices evidencing Hauler Costs with proof of payment upon request.

4. Compliance with all Laws; Improvements, Maintenance, and Repair. The use and maintenance of the Dumpster shall be in accordance with all applicable provisions of the City of Dublin (the "**City**") Municipal Code. In the event the City requires improvements or modifications to the Dumpster and/or the immediately surrounding area (collectively, the "**Dumpster Area**") as the result of RAMI's joint use thereof, RAMI, at its sole cost and expense, shall make such improvements or modifications. In the event the City passes any ordinance generally applicable throughout its jurisdiction that shall require modifications or improvements to the Dumpster Area, the cost of complying with any such ordinance shall be equally shared by the Parties. The Parties agree that all times the Dumpster Area shall be maintained in good condition and repair with the cost of general maintenance to be shared equally by the Parties; provided, however, should the Dumpster Area be damaged by act or omission solely attributable of one of either of the Parties (or its tenants, employees, agents, customers, or invitees), the cost to repair and restore the Dumpster Area shall be at such Party's sole cost and expense

5. Indemnity. Except as limited by any waiver of subrogation, to the fullest extent allowed by law, RAMI shall indemnify, defend and hold Red House harmless from and against any and all claims, costs (including, without limitation, attorneys' fees, legal expenses, court costs and interest), liabilities, actions and damages (collectively, "claims") by or on behalf of any employee, agent, contractor or third person disposing of trash generated on the RAMI Parcel arising in connection with that person entering onto the Red House Parcel to access and use the Dumpster

6. Waiver of Subrogation. Notwithstanding the provisions of Section 5 hereof, RAMI hereby releases and waives all claims, rights of recovery, causes of action that RAMI or any party claiming by, through or under (including, without limitation, RAMI's insurers) by subrogation or otherwise may now or hereafter have against Red House or its permittees by reason of force majeure or any other cause, including the negligence of Red House or its permittees, that is covered, in whole or in part, under the terms of an applicable insurance policy or that would have been covered under the terms of an applicable insurance policy.

7. Term. The term ("**Term**") of this agreement shall commence on the Effective Date and shall be for a period of one (1) year. The Term shall automatically renew for successive one (1) year terms unless either Party terminates this Agreement by providing six (6) months prior written notice to the other Party. The financial obligations imposed by this Agreement shall survive the termination hereof for costs and expenses incurred prior to such termination.

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8. No Assignment. This Agreement shall be valid only as between the Parties and shall not be assigned by either Party without prior written consent of the other Party.

9. Miscellaneous. The persons signing this Agreement on behalf of each Party is duly authorized to do so and to bind said Party to the obligations hereunder. This agreement shall be governed by the laws of the State Ohio and subject to the jurisdiction of the courts of Franklin County, Ohio. Should any action or proceeding be brought to construe or enforce the terms and conditions of this Agreement or the Parties' rights hereunder, the prevailing Party shall be entitled to recover from the non-prevailing Party all court costs and reasonable attorneys' fees and other costs of litigation incurred in such action or proceeding, and this obligation shall survive and not be deemed to have been merged into any such judgement or by the expiration or termination of this Agreement. If any clause or provision of this Agreement or the application thereof is or becomes illegal, invalid, or unenforceable because of present or future laws, or any ruling or regulation of any governmental agency, the remaining parts of this Agreement and the application thereof shall be valid and enforceable to the fullest extent permitted by law. This Agreement may be executed in any number of counterparts (including, without limitation, facsimile and electronic counterparts) as may be convenient or necessary, and the signature pages taken from separate individually executed counterparts of this Agreement may be combined to form one and the same Agreement.

[Signatures follow on next page]

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**IN WITNESS WHEREOF**, Red House and RAMI have executed this Agreement as of the dates specified below.

| **RED HOUSE**: | **RAMI**: |
|---|---|
| **RED HOUSE HQ, LLC**,<br>an Ohio limited liability company | **RAMI PROPERTIES, LLC**,<br>an Ohio limited liability company |
| By: _____ | By: _____ |
| Name: _____ | Name: _____ |
| Title: _____ | Title: _____ |
| Date _____ | Date _____ |

# STORMWATER MANAGEMENT REPORT

# SCHOEDINGER FUNERAL HOME
# 5980 PERIMETER DRIVE

## CITY OF DUBLIN, FRANKLIN COUNTY, OHIO

Prepared By:

ADVANCED
CIVIL DESIGN

ENGINEERS & SURVEYORS
422 BEECHER ROAD
GAHANNA, OHIO 43230
Ph: 614-428-7750
Fax: 614-428-7755

Date:
**January 20, 2020**

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**APPENDIX B: Soil Survey**
**APPENDIX C: Pre-Developed HydroCAD Watershed Summary Calculations**
**APPENDIX D: Pre-Developed HydroCAD Calculations**
**APPENDIX E: Variance Letter to City Engineer**
**APPENDIX F: Post-Developed HydroCAD Calculations**
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**APPENDIX I: Water Quality Calculations**
**APPENDIX J: Sediment Basin Calculations**
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## Site Summary:

The Schoedinger Funeral Home Development project is located on the north side of Perimeter Drive in the City of Dublin, Franklin County, Ohio. The project site is surrounded by existing commercial development to the west and north, Open Lot property to the east, and Perimeter Drive to the south. The total site is approximately 2.94 acres and consists of an open field with a grouping of trees located in the center of the property that extend to the northern property line. The project consists of a primary building with a Porte Cochere, carports, a covered Terrace and associated parking.

## Design Methodology:

Stormwater management calculations within this report follow the guidance of the City of Dublin, Stormwater Management Design Manual (Interim Update: dated January, 2019), for the water quantity and water quality requirements. Hydrology and hydraulics were modeled with the HydroCAD software suite using TR-55 methodology and a Type-II rainfall distribution. Pond routing for the project will be performed using the storage indication method. Located in the City of Dublin, Stormwater Management Design Manual, are the precipitation frequencies for the 1, 2, 5, 10, 25, 50, and 100 year storm events used to evaluate rainfall and runoff.

| **Design Event** (yr) | **1** | **2** | **5** | **10** | **25** | **50** | **100** |
|---|---|---|---|---|---|---|---|
| **Rainfall Depth** (in) | 2.20 | 2.63 | 3.24 | 3.74 | 4.44 | 5.02 | 5.63 |

**Table 1 - Design Storm Rainfall Depths**

## Pre-Developed Conditions:

A review of the Franklin County soil maps show that this site is underlain predominately by Kokomo silty clay-loam and Lewisburg-Crosby Complex with a small fraction of Crosby silt-loam. These soils are classified within hydrologic group “D”. The site is located within the South Fork Indian Run Watershed. The site predominately (2.595 ac.) is located within Sub-basin 1220 with a small portion (0.021 ac.) of the site is located in Sub-Basin 1200 and a portion (0.321 ac.) in the Sub-Basin 1310, not including the Right-of-Way. Table 2 below is a summary of the onsite Sub-Basin areas analyzed I this report.

| | **Area** | **CN** | **1-yr, 24 hr runoff volume** |
|---|---|---|---|
| **Sub-Basin** | (acres) | | (ac-ft) |
| 1200 (Detained) | 0.021 | 80 | 0.001 |
| 1220 (Detained) | 2.305 | 80 | 0.131 |
| 1220 (Undetained) | 0.293 | 80 | 0.017 |
| 1310 | 0.321 | 80 | 0.018 |

**Table 2 – Onsite Pre-Developed Hydrology Summary**

## Post-Construction Conditions:

The development consists of a primary building, along with a porte cochere, carports, a covered terrace and associated parking. Grading will direct surface runoff into the onsite storm sewers and convey the flow into the stormwater management basin. Runoff volumes in excess of the storm sewer capacity will flood route through the site into stormwater management basin. The proposed site layout and grading, raises the eastern edge of the parking lot approximately 3’± above the eastern property line. The proposed grass area between the back of curb and the property line that slopes down to meet the existing grade runs undetained due to storm sewer constraints. A letter requesting variance from the City of Dublin Stormwater Management Design Manual has been submitted to the City Engineer for approval. A copy of the letter is provided in Appendix E for reference.

Table 3 below, provides a summary of the post-development areas being analyzed for the stormwater management system detention and water quality volumes.

| | Area | CN | Impervious Area | 1-yr, 24 hr runoff volume |
|---|---|---|---|---|
| **Sub-Basin** | (acres) | | (acres) | (ac-ft) |
| 1200 (Detained) | 0.021 | 80 | - | 0.001 |
| 1220 (Detained) | 2.305 | 92 | 1.51 | 0.272 |
| 1220 (Undetained) | 0.293 | 80 | - | 0.017 |
| 1310 | 0.321 | 82 | - | 0.021 |

**Table 3 – Onsite Post-Developed Hydrology Summary**

### Critical Storm:

Per the City of Dublin's, Stormwater Management Design Manual, a critical storm event was computed by evaluating the increase in runoff volume created by the development. Using the scs curve number method, runoff depths from a 2.2 inch rainfall event (1-yr) were calculated.

[(0.311 – 0.167) / 0.167] * 100 = 86%

**Critical Storm = 10-yr strom**

**25-yr Critical Storm will be used to match the regional public storm sewer system**

### Allowable Release Rates:

The allowable release is based on the City of Dublin's Stormwater Master Plan Release Rates and the critical storm. Table 5 below summarizes the release rate requirements per Dublin's Master Stormwater Plan and the critical storm calculated above.

| | 1 | 2 | 5 | 10 | 25 | 50 | 100 |
|---|---|---|---|---|---|---|---|
| | (cfs/ac) | (cfs/ac) | (cfs/ac) | (cfs/ac) | (cfs/ac) | (cfs/ac) | (cfs/ac) |
| Master Plan Sub-Basin 1200 (Detained) | 1.40 | 1.80 | 2.40 | 3.00 | 3.80 | 4.80 | 5.70 |
| *Critical Storm Sub-Basin 1200 (Detained)* | *1.40* | *1.40* | *1.40* | *1.40* | *1.40* | *4.80* | *5.70* |
| **Allowable Discharge Rate 1200 (Detained)** | **0.029** | **0.029** | **0.029** | **0.029** | **0.029** | **0.101** | **0.120** |
| Master Plan Sub-Basin 1220 (Detained) | 0.01 | 0.01 | 0.10 | 0.20 | 0.40 | 0.70 | 1.10 |
| *Critical Storm Sub-Basin 1220 (Detained)* | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* | *0.70* | *1.10* |
| **Allowable Discharge Rate 1220 (Detained)** | **0.023** | **0.023** | **0.023** | **0.023** | **0.023** | **1.613** | **2.535** |
| Master Plan Sub-Basin 1220 (Undetained) | 0.01 | 0.01 | 0.10 | 0.20 | 0.40 | 0.70 | 1.10 |
| *Critical Storm Sub-Basin 1220 (Undetained)* | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* | *0.70* | *1.10* |
| **Allowable Discharge Rate 1220 (Undetained)** | **0.003** | **0.003** | **0.003** | **0.003** | **0.003** | **0.205** | **0.322** |
| Master Plan Sub-Basin 1310 | 0.20 | 0.30 | 0.40 | 0.50 | 0.60 | 0.90 | 1.20 |
| *Critical Storm Sub-Basin 1310* | *0.20* | *0.20* | *0.20* | *0.20* | *0.20* | *0.90* | *1.20* |
| **Allowable Discharge Rate 1310** | **0.064** | **0.064** | **0.064** | **0.064** | **0.064** | **0.289** | **0.385** |

**Table 4 – Allowable Release Rate Summary**

### Stormwater Quantity Control:

Storm sewers will convey the onsite stormwater runoff through the site into the stormwater management basin onsite. Overland flood routing will convey larger storm events through the site into the detention facility. A permanent outlet control device will be placed within the stormwater management basin, designed to restrict discharges at or below the allowable peak rates of runoff and

provide the required water quality treatment. Table 5 below provides the detained site stormwater runoff summary and Table 6 below provides a summary of the ponding, storage and peak discharge rates of the stormwater management detention facility. Refer to variance request regarding the undetained discharge, attached herein Appendix E.

| | **1** | **2** | **5** | **10** | **25** | **50** | **100** |
|---|---|---|---|---|---|---|---|
| Pre-Developed Q (cfs) Sub-Basin 1200 | 0.03 | 0.04 | 0.05 | 0.07 | 0.09 | 0.11 | 0.13 |
| Critical Storm Allowable Discharge (cfs) | 1.40 | 1.40 | 1.40 | 1.40 | 1.40 | 4.80 | 5.70 |
| Allowable (on-site) Discharge (cfs) per 0.021 acres tributary area | 0.029 | 0.029 | 0.029 | 0.029 | 0.029 | 0.101 | 0.120 |
| Pre-Developed Q (cfs) Sub-Basin 1220 | 1.77 | 2.60 | 3.86 | 4.96 | 6.55 | 7.90 | 9.34 |
| Critical Storm Allowable Discharge (cfs) | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.70 | 1.10 |
| Allowable (on-site) Discharge (cfs) per 2.305 acres tributary area | 0.023 | 0.023 | 0.023 | 0.023 | 0.023 | 1.613 | 2.535 |
| Pre-Developed Q (cfs) Sub-Basin 1310 | 0.32 | 0.47 | 0.70 | 0.89 | 1.17 | 1.41 | 1.66 |
| Critical Storm Allowable Discharge (cfs) | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.90 | 1.20 |
| Allowable (on-site) Discharge (cfs) per 0.321 acres tributary area | 0.064 | 0.064 | 0.064 | 0.064 | 0.064 | 0.289 | 0.385 |
| ****Allowable Release (cfs) - Composite*** | ***0.116*** | ***0.116*** | ***0.116*** | ***0.116*** | ***0.116*** | ***2.003*** | ***3.040*** |
| Peak Basin Inflow (cfs) | 4.88 | 6.25 | 8.19 | 9.80 | 12.04 | 13.89 | 15.84 |
| **Peak Discharge Rate (cfs)** | **0.06** | **0.07** | **0.08** | **0.09** | **0.10** | **0.11** | **0.44** |

**Table 5 – Detained Site Stormwater Runoff Summary**
***Composite does not include the calculated allowable rates for the undetained areas**

**Proposed Control Structure**

- 1st stage – One (1) 1.6-inch Vertical WQ orifice, invert Elev. = 900.00
- 2nd stage – Neenah grate, top of casting at 902.70
- Primary Outlet – 18" pipe @ 0.22%, invert Elev. = 899.95
- Spillway to Access Drive – broad-crested weir, crest Elev. = 903.50
- Major Flood Routing to Right-of-Way via Access Drive Entrance – crest Elev. = 903.60

| **Storm Event** (yr) | **Allowable Basin Peak Discharge** (cfs) | **Basin Peak Inflow** (cfs) | **Basin Peak Discharge** (cfs) | **Peak Water Surface Elev.** (ft) | **Ponding Storage Volume** ($ft^3$) |
|---|---|---|---|---|---|
| 1 | 0.116 | 4.88 | 0.06 | 900.90 | 10,167 |
| 2 | 0.116 | 6.25 | 0.07 | 901.17 | 13,413 |
| 5 | 0.116 | 8.19 | 0.08 | 901.56 | 18,242 |
| 10 | 0.116 | 9.80 | 0.09 | 901.88 | 22,328 |
| 25 | 0.116 | 12.04 | 0.10 | 902.31 | 28,86 |
| 50 | 2.003 | 13.89 | 0.11 | 902.67 | 33,131 |
| 100 | 3.040 | 15.84 | 0.44 | 902.72 | 33,878 |

**Table 6 – Ponding, Storage and Peak Discharge Rate Summary**

A Bioretention swale is proposed along the northeast property corner to mitigate effects of ponding that may occur due to minimum slopes in the grading. The minimum slopes are set by the existing grades along the northern and eastern property lines.

## Stormwater Quality Control:

Per the Ohio EPA General Construction Permit, a stormwater best management practice (BMP) is required to treat the first flush runoff volume produced by a 0.9" rainfall event. The water quality volume was calculated using the equation below with runoff coefficients from the Ohio EPA's General Construction Permit. That water quality volume will be detained in the basin for a minimum period of 24 hours, releasing less than half of the volume in the first 8 hours. Drawdown of the water quality volumes will be accomplished utilizing the above mentioned WQ feature within the outlet structure. Detailed calculations and drawdown curves are included in Appendix I of this report. A summary of the water quality data is shown in Table 7.

$$WQv = Rv * P * A / 12$$

| BMP | Tributary Area (acres) | WQv Required ($ft^3$) | 20% Sediment Storage Required ($ft^3$) | Total WQv Required ($ft^3$) | WQv Provided ($ft^3$) | WQ Elevation (ft) |
|---|---|---|---|---|---|---|
| Wet Basin | 2.94 | 4,920 | 984 | 5,904 | 6,649 | 900.60 |

**Table 7 - Water Quality Volume Summary**

Per City of Dublin's Stormwater Design Manual, each inlet into the basin shall include a forebay. The forebay was designed following the ODNR, Chapter 2, Page 31, Section 3, Forebay(s) guidance. Since the basin is design to provide 20% additional storage above normal pool for sediment storage, each forebay is sized at 10 percent of the WQv (591 cu. ft.). A summary of the forebay volumes are listed in Table 8.

| BMP | Forebay #1 (HW-1) | Permanent Pool |
|---|---|---|
| Required Volume (cu. ft.) | 591 | 5,904 |
| Provided Volume (cu. ft.) | 2,340 | 25,942 |

**Table 8 - Forebay & Permanent Pool Volume Summary**

**Permanent Pool Surface Area = 10,696 sq. ft.**

## Erosion and Sediment Control:

The proposed basin will be utilized to meet the Ohio EPA requirements that during construction a site must provide means by which to control the sediment laden runoff from the construction site. For each acre of drainage area that is tributary to the sediment basin, a drawdown volume of 67 cu. yd. must be provided. The basin will additionally need to provide a settling volume of 37 cu. yd. for each acre of disturbed area tributary to the basin.

The basin will utilize a skimmer connected to the permanent outlet structure to provide the proper 48-hour drawdown. The permanent outlet structures will need to be temporarily modified during construction to ensure that the basin has the proper settling and water drawdown volumes as well as meet the drawdown requirement. See Appendix J for Sediment Basin Calculations and Skimmer Sizing.

| BMP | Tributary Area (acres) | Disturbed Area (acres) | Dewatering Zone Required (cu. yd.) | Sediment Storage Required (cu. yd.) | Dewatering Zone Provided (cu. yd.) | Sediment Storage Provided (cu. yd.) | Skimmer Orifice Size (inches) |
|---|---|---|---|---|---|---|---|
| Wet Basin | 2.608 | 2.608 | 175 | 96 | 211 @ Elev. 900.80 | 121 @ Elev. 900.30 | 1.8 |

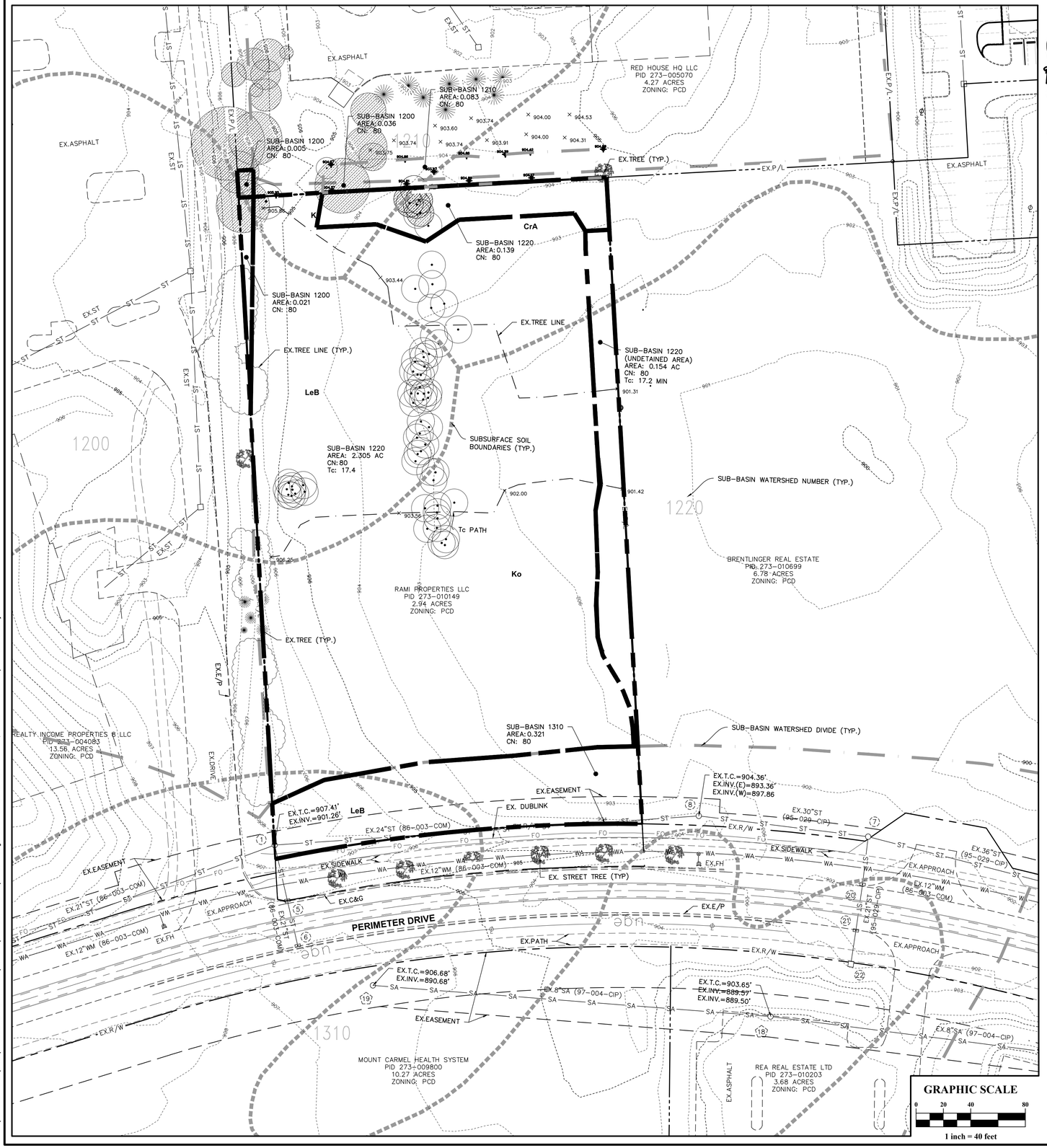
**Table 9 – Sediment Control Summary**

## Conclusion:

The Schoedinger Perimeter Drive site improvements provide surface and subsurface stormwater conveyances to carry runoff safely through the development into the stormwater management system. The stormwater management system is controlled by an outlet structure within the basin. The proposed system provides peak flow rate control and extended drawdown of captured stormwater to comply with the City of Dublin's Stormwater Design Manual and Ohio EPA's water quality regulations.

**APPENDIX A**

# TRIBUTARY MAP




## LEGEND

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING SOILS LINE
- STORMWATER MASTER PLAN SUB-BASIN WATERSHED DIVIDE
- EXISTING WATER MAIN (FIRE HYDRANT, VALVE, WATER METER)
- EXISTING SANITARY SEWER (MANHOLE)
- EXISTING STORM SEWER (MANHOLE, CATCH BASIN, CURB INLET)
- EXISTING FIBER OPTIC LINE

## MAP UNIT LEGEND

| MAP UNIT SYMBOL | SOIL NAME / HYDROLOGIC RATING |
|---|---|
| CrA | CROSBY SILT LOAM, SOUTHERN OHIO TILL PLAIN, 0 TO 2 PERCENT SLOPES |
| Ko | KOKOMO SILTY CLAY LOAM, 0 TO 2 PERCENT SLOPES |
| LeB | LEWSBURG-CROSBY COMPLEX, 2 TO 6 PERCENT SLOPES |

## FLOODPLAIN

THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) SHOWS THAT THE SUBJECT PROPERTY IS LOCATED WITHIN AN AREA DESIGNATED AS ZONE X. ZONE X IS DEFINED AS: AREAS DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN AS SHOWN ON FLOOD INSURANCE RATE MAPS (FIRM); FRANKLIN COUNTY, OHIO, PANEL 39049C0132K, EFFECTIVE DATE: JUNE 16, 2008.

## REFERENCES

1. SOILS INFORMATION IS PER USDA WEB SOIL SURVEY, ACCESSED AUGUST 2018.
2. EXISTING UTILITIES SHOWN ARE BASED OFF FIELD SURVEY INFORMATION AND RECORD PLANS PROVIDED BY THE CITY OF DUBLIN.

## SITE ZONING INFORMATION

| | |
|---|---|
| ZONING DISTRICT: | PUD: PLANNED UNIT DEVELOPMENT DISTRICT |
| PROPOSED USE: | FUNERAL HOME |
| OWNER: | RAMI PROPERTIES LLC |
| TAX DISTRICT: | CITY OF DUBLIN-WASH TWP |
| PARCEL NUMBER: | 273-010149 |
| LAND AREA: | 2.94 ACRES |

PLAN PREPARED BY:
ADVANCED CIVIL DESIGN
ENGINEERS | SURVEYORS
422 Beecher Road
Gahanna, Ohio 43230
ph. 614.428.7750
fax. 614.428.7755

PLAN PREPARED FOR:
SCHOEDINGER FUNERAL AND CREMATION SERVICES
1740 ZOLLINGER ROAD
COLUMBUS, OHIO 43221
ATTN: RANDY SCHOEDINGER
PH: 614-429-5755

DUBLIN, FRANKLIN COUNTY, OHIO

# FINAL DEVELOPMENT PLAN FOR SCHOEDINGER FUNERAL HOME PERIMETER DRIVE DEVELOPMENT

## PRE-DEVELOPMENT TRIB MAP

Issue Dates:

Date: 01/20/2020
Scale: 1" = 40'

| Drawn By: | Checked By: |
|---|---|
| CLE | TMW |

Project Number: 18-0001-918

Drawing Number: 1 / 1

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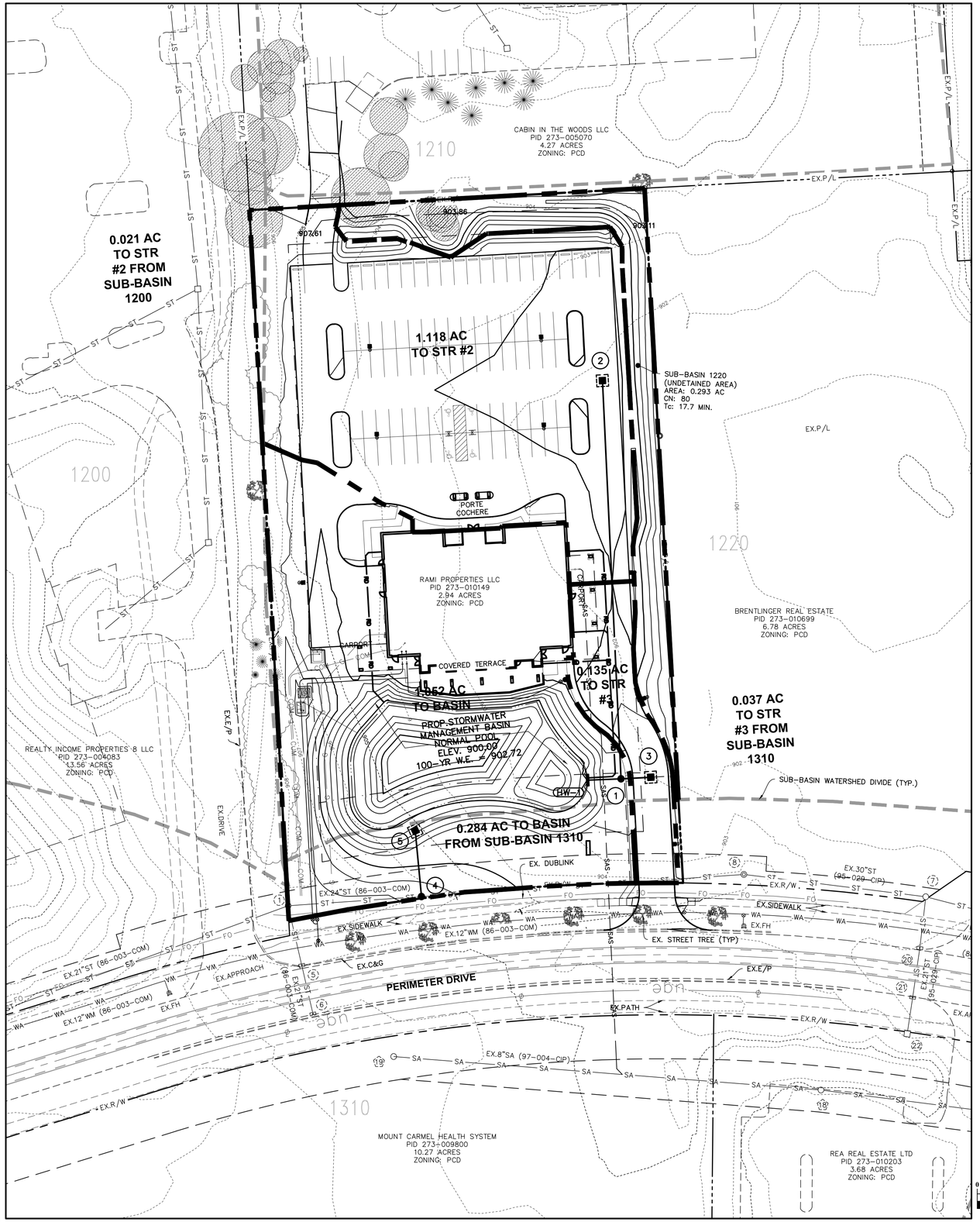


## LEGEND

| | |
|---|---|
| 921 | EXISTING MINOR CONTOUR |
| 920 | EXISTING MAJOR CONTOUR |
| 921 | PROPOSED MINOR CONTOUR |
| 920 | PROPOSED MAJOR CONTOUR |
| TC=795.20 | TOP OF CASTING ELEVATION |
| X TC 795.20 | TOP OF CURB ELEVATION |
| X 795.20 | TOP OF PAVEMENT OR SURFACE ELEVATION |
| x Ex.795.20 | EXISTING TOP OF PAVEMENT OR SURFACE ELEVATION |
| | FLOOD ROUTING |
| | FLOW ARROW |
| | LIMITS OF GRADING |
| 15" STM | PROPOSED STORM SEWER |
| WS | PROPOSED WATER SERVICE |
| SAS | PROPOSED SANITARY SERVICE |
| ST | EXISTING STORM SEWER |
| SA | EXISTING SANITARY SEWER |
| WA | EXISTING WATER MAIN |
| G | EXISTING GAS MAIN |
| * | LIMITS OF PAVEMENT FLUSH WITH CURB |
| (TBRE) | TO BE RELOCATED |

## STORMWATER MANAGEMENT SUMMARY

| DISCHARGE | | | | | | | |
|---|---|---|---|---|---|---|---|
| STORM EVENT | 1 | 2 | 5 | 10 | 25 | 50 | 100 |
| MASTER PLAN ALLOWABLE DISCHARGE (CFS) PER ACRE (SUB-BASIN 1200) | 1.400 | 1.800 | 2.400 | 3.000 | 3.800 | 4.800 | 5.700 |
| CRITICAL STORM ALLOWABLE DISCHARGE (CFS) PER ACRE (SUB-BASIN 1200) | 1.400 | 1.400 | 1.400 | 1.400 | 1.400 | 4.800 | 5.700 |
| ALLOWABLE (ON-SITE) DISCHARGE (CFS) PER 0.021 ACRES TRIBUTARY AREA | 0.029 | 0.029 | 0.029 | 0.029 | 0.029 | 0.101 | 0.120 |
| MASTER PLAN ALLOWABLE DISCHARGE (CFS) PER ACRE (SUB-BASIN 1220) | 0.010 | 0.010 | 0.100 | 0.200 | 0.400 | 0.700 | 1.100 |
| CRITICAL STORM ALLOWABLE DISCHARGE (CFS) PER ACRE (SUB-BASIN 1220) | 0.010 | 0.010 | 0.010 | 0.010 | 0.010 | 0.700 | 1.100 |
| ALLOWABLE (ON-SITE) DISCHARGE (CFS) PER 2.305 ACRES TRIBUTARY AREA | 0.023 | 0.023 | 0.023 | 0.023 | 0.023 | 1.613 | 2.535 |
| MASTER PLAN ALLOWABLE DISCHARGE (CFS) PER ACRE (SUB-BASIN 1310) | 0.200 | 0.300 | 0.400 | 0.500 | 0.600 | 0.900 | 1.200 |
| CRITICAL STORM ALLOWABLE DISCHARGE (CFS) PER ACRE (SUB-BASIN 1310) | 0.200 | 0.200 | 0.200 | 0.200 | 0.200 | 0.900 | 1.200 |
| ALLOWABLE (ON-SITE) DISCHARGE (CFS) PER 0.321 ACRES TRIBUTARY AREA | 0.064 | 0.064 | 0.064 | 0.064 | 0.064 | 0.289 | 0.385 |
| *COMPOSITE ALLOWABLE (ON-SITE) DISCHARGE (CFS) | 0.116 | 0.116 | 0.116 | 0.116 | 0.116 | 2.003 | 3.040 |
| ACTUAL (ON-SITE) DETAINED DISCHARGE (CFS) | 0.060 | 0.070 | 0.080 | 0.090 | 0.100 | 0.110 | 0.440 |

DISCHARGE RATES ARE BASED ON LIMITS FOR RUNOFF DEFINED BY THE CITY OF DUBLIN STORMWATER MASTER PLAN FOR THE SOUTH FORK INDIAN RUN WATERSHED

CRITICAL STORM: 25-YR EVENT

* = COMPOSITE DOES NOT INCLUDE THE CALCULATED ALLOWABLE RATES FOR THE UNDETAINED AREAS.

**SITE PONDING & STORAGE (100-YR STORM EVENT)**

| LOCATION | PONDING VOLUMES AVAILABLE (CF) | PONDING VOLUME REQUIRED (CF) | STRUCTURE TOP OF CASTING | PONDING ELEVATION | PONDING DEPTH (FT) | PONDING AREA (SF) | OUTLET CONTROL |
|---|---|---|---|---|---|---|---|
| STORMWATER BASIN | 47,014 | 33,878 | 902.70 | 902.72 | 2.72 | 10,696 | STR #5 |

**GRAPHIC SCALE**

0 20 40 80

1 inch = 40 feet


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ADVANCED CIVIL DESIGN ENGINEERS SURVEYORS
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PLAN PREPARED FOR:
SCHOEDINGER FUNERAL AND CREMATION SERVICES
1740 ZOLLINGER ROAD
COLUMBUS, OHIO 43221
ATTN: RANDY SCHOEDINGER
PH: 614-429-5755

DUBLIN, FRANKLIN COUNTY, OHIO

# FINAL DEVELOPMENT PLAN FOR SCHOEDINGER FUNERAL HOME PERIMETER DRIVE DEVELOPMENT

## POST-DEVELOPMENT TRIB MAP

Issue Dates:

Date: 01/20/2020
Scale: AS NOTED

Drawn By: CLE
Checked By: TMW

Project Number: 18-0001-918

Drawing Number: 1 / 1

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**APPENDIX B**

# SOIL SURVEY

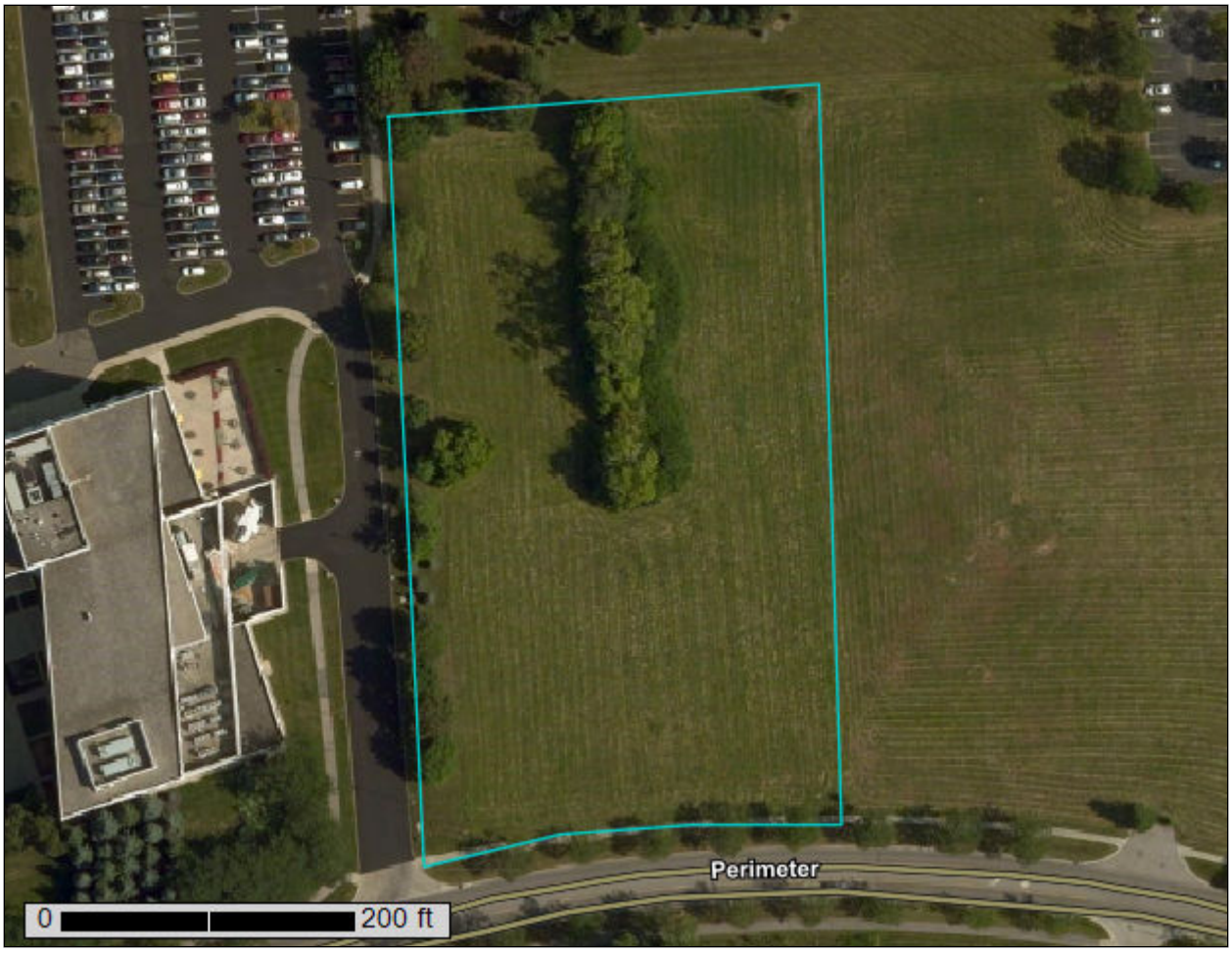
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

# Custom Soil Resource Report for Franklin County, Ohio




April 29, 2019

# Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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# How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

# Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

# Custom Soil Resource Report
## Soil Map

Map Scale: 1:945 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 10 20 40 60

Feet: 0 45 90 180 270

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

## MAP LEGEND

**Area of Interest (AOI)**
- Area of Interest (AOI)

**Soils**
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

**Special Point Features**
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

**Water Features**
- Streams and Canals

**Transportation**
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

**Background**
- Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Franklin County, Ohio
Survey Area Data: Version 17, Jan 30, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 4, 2014—Aug 27, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

# Map Unit Legend

| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI |
|---|---|---|---|
| CrA | Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes | 0.5 | 15.2% |
| Ko | Kokomo silty clay loam, 0 to 2 percent slopes | 1.9 | 58.2% |
| LeB | Lewisburg-Crosby complex, 2 to 6 percent slopes | 0.9 | 26.6% |
| **Totals for Area of Interest** | | **3.3** | **100.0%** |

# Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

# Franklin County, Ohio

## CrA—Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes

### Map Unit Setting

*National map unit symbol:* 2thy7
*Elevation:* 520 to 1,550 feet
*Mean annual precipitation:* 36 to 44 inches
*Mean annual air temperature:* 48 to 54 degrees F
*Frost-free period:* 145 to 180 days
*Farmland classification:* Prime farmland if drained

### Map Unit Composition

*Crosby and similar soils:* 90 percent
*Minor components:* 10 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Crosby

#### Setting

*Landform:* Water-lain moraines, ground moraines, recessionial moraines
*Landform position (two-dimensional):* Footslope, summit, backslope
*Landform position (three-dimensional):* Interfluve, rise
*Down-slope shape:* Convex
*Across-slope shape:* Linear
*Parent material:* Silty material or loess over loamy till

#### Typical profile

*Ap - 0 to 8 inches:* silt loam
*BE - 8 to 11 inches:* silt loam
*Bt1 - 11 to 14 inches:* silt loam
*2Bt2 - 14 to 28 inches:* silty clay loam
*2BCt - 28 to 36 inches:* loam
*2Cd - 36 to 79 inches:* loam

#### Properties and qualities

*Slope:* 0 to 2 percent
*Depth to restrictive feature:* 24 to 40 inches to densic material
*Natural drainage class:* Somewhat poorly drained
*Runoff class:* Medium
*Capacity of the most limiting layer to transmit water (Ksat):* Low to moderately high (0.01 to 0.20 in/hr)
*Depth to water table:* About 6 to 24 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Calcium carbonate, maximum in profile:* 50 percent
*Salinity, maximum in profile:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
*Available water storage in profile:* Low (about 5.7 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 2w
*Hydrologic Soil Group:* C/D
*Hydric soil rating:* No

**Minor Components**

**Kokomo, drained**

*Percent of map unit:* 5 percent
*Landform:* Depressions, water-lain moraines, swales
*Landform position (two-dimensional):* Toeslope, footslope
*Landform position (three-dimensional):* Base slope, dip
*Down-slope shape:* Linear
*Across-slope shape:* Concave
*Hydric soil rating:* Yes

**Celina, eroded**

*Percent of map unit:* 4 percent
*Landform:* Water-lain moraines, ground moraines, recessionial moraines
*Landform position (two-dimensional):* Backslope, shoulder, summit
*Landform position (three-dimensional):* Side slope, crest, head slope, nose slope, rise
*Down-slope shape:* Convex, linear
*Across-slope shape:* Linear, convex
*Hydric soil rating:* No

**Miamian, eroded**

*Percent of map unit:* 1 percent
*Landform:* Water-lain moraines, ground moraines, recessionial moraines
*Landform position (two-dimensional):* Backslope, shoulder, summit
*Landform position (three-dimensional):* Side slope, crest, head slope, nose slope, rise
*Down-slope shape:* Convex, linear
*Across-slope shape:* Linear, convex
*Hydric soil rating:* No

## Ko—Kokomo silty clay loam, 0 to 2 percent slopes

**Map Unit Setting**

*National map unit symbol:* 2rwj8
*Elevation:* 820 to 1,140 feet
*Mean annual precipitation:* 37 to 46 inches
*Mean annual air temperature:* 48 to 55 degrees F
*Frost-free period:* 145 to 180 days
*Farmland classification:* Prime farmland if drained

**Map Unit Composition**

*Kokomo and similar soils:* 90 percent
*Minor components:* 10 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Kokomo**

**Setting**

*Landform:* Depressions on till plains

*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Dip
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Parent material:* Loamy glaciofluvial deposits derived from sedimentary rock over loamy till derived from limestone and dolomite

**Typical profile**

*Ap - 0 to 11 inches:* silty clay loam
*Btg - 11 to 41 inches:* clay loam
*Bt - 41 to 64 inches:* clay loam
*2C - 64 to 79 inches:* loam

**Properties and qualities**

*Slope:* 0 to 2 percent
*Depth to restrictive feature:* More than 80 inches
*Natural drainage class:* Very poorly drained
*Runoff class:* Negligible
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)
*Depth to water table:* About 0 to 6 inches
*Frequency of flooding:* None
*Frequency of ponding:* Frequent
*Calcium carbonate, maximum in profile:* 35 percent
*Salinity, maximum in profile:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
*Available water storage in profile:* High (about 9.0 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 2w
*Hydrologic Soil Group:* C/D
*Hydric soil rating:* Yes

**Minor Components**

**Celina**

*Percent of map unit:* 5 percent
*Landform:* Till plains
*Landform position (two-dimensional):* Summit
*Landform position (three-dimensional):* Rise
*Down-slope shape:* Convex
*Across-slope shape:* Convex
*Hydric soil rating:* No

**Crosby**

*Percent of map unit:* 5 percent
*Landform:* Till plains
*Landform position (two-dimensional):* Footslope
*Landform position (three-dimensional):* Interfluve
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Hydric soil rating:* No

## LeB—Lewisburg-Crosby complex, 2 to 6 percent slopes

### Map Unit Setting

*National map unit symbol:* 5mqh
*Elevation:* 600 to 1,200 feet
*Mean annual precipitation:* 33 to 45 inches
*Mean annual air temperature:* 50 to 55 degrees F
*Frost-free period:* 140 to 195 days
*Farmland classification:* All areas are prime farmland

### Map Unit Composition

*Lewisburg and similar soils:* 45 percent
*Crosby and similar soils:* 40 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Lewisburg

#### Setting

*Landform:* Till plains
*Landform position (two-dimensional):* Summit
*Landform position (three-dimensional):* Interfluve
*Down-slope shape:* Convex
*Across-slope shape:* Linear
*Parent material:* Loamy till

#### Typical profile

*H1 - 0 to 6 inches:* silt loam
*H2 - 6 to 16 inches:* silty clay loam
*H3 - 16 to 70 inches:* loam

#### Properties and qualities

*Slope:* 2 to 6 percent
*Depth to restrictive feature:* More than 80 inches
*Natural drainage class:* Moderately well drained
*Runoff class:* High
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)
*Depth to water table:* About 24 to 48 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Calcium carbonate, maximum in profile:* 47 percent
*Available water storage in profile:* Moderate (about 7.0 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 2e
*Hydrologic Soil Group:* D
*Hydric soil rating:* No

## Description of Crosby

### Setting

*Landform:* Till plains
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Parent material:* Loamy till

### Typical profile

*H1 - 0 to 9 inches:* silt loam
*H2 - 9 to 31 inches:* silty clay loam
*H3 - 31 to 70 inches:* loam

### Properties and qualities

*Slope:* 2 to 6 percent
*Depth to restrictive feature:* More than 80 inches
*Natural drainage class:* Somewhat poorly drained
*Runoff class:* High
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)
*Depth to water table:* About 12 to 36 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Calcium carbonate, maximum in profile:* 40 percent
*Available water storage in profile:* High (about 9.4 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 2e
*Hydrologic Soil Group:* D
*Forage suitability group:* Unnamed (G111AYC-1OH)
*Hydric soil rating:* No

## Minor Components

### Kokomo

*Percent of map unit:* 15 percent
*Landform:* Depressions
*Hydric soil rating:* Yes

### Eroded areas with a clay loam surface layer

*Percent of map unit:*

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**APPENDIX C**

# PRE-DEVELOPMENT HYDROCAD WATERSHED SUMMARY CALCULATIONS

## Summary for Subcatchment 1: Pre-Dev 1200 (Detained)

Runoff = 0.03 cfs @ 11.97 hrs, Volume= 0.001 af, Depth> 0.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 001 Rainfall=2.20"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 0.021 | 80 | Grass |
| | 0.021 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, Storm Sewer Minimum** |

## Summary for Subcatchment 3: Pre-Dev 1220 (Detained)

Runoff = 1.80 cfs @ 12.11 hrs, Volume= 0.131 af, Depth> 0.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 001 Rainfall=2.20"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 2.305 | 80 | Grass |
| | 2.305 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 14.2 | 100 | 0.0260 | 0.12 | | **Sheet Flow, Sheet Flow**<br>Grass: Dense n= 0.240 P2= 2.63" |
| 2.1 | 87 | 0.0184 | 0.68 | | **Shallow Concentrated Flow, Shallow Concentrated Flow**<br>Woodland Kv= 5.0 fps |
| 1.1 | 85 | 0.0070 | 1.25 | | **Shallow Concentrated Flow, Shallow Concentrated Flow**<br>Grassed Waterway Kv= 15.0 fps |
| 17.4 | 272 | Total | | | |

## Summary for Subcatchment 4: Pre-Dev 1220 (Undetained)

Runoff = 0.23 cfs @ 12.11 hrs, Volume= 0.017 af, Depth> 0.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 001 Rainfall=2.20"

| Area (ac) | CN | Description |
|---|---|---|
| 0.293 | 80 | >75% Grass cover, Good, HSG D |
| 0.293 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 14.4 | 100 | 0.0250 | 0.12 | | **Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.63" |
| 2.8 | 240 | 0.0088 | 1.41 | | **Shallow Concentrated Flow, Shallow Concentrated Flow** Grassed Waterway Kv= 15.0 fps |
| 17.2 | 340 | Total | | | |

## Summary for Subcatchment 5: Pre-Dev 1310 (Not Including R/W)

Runoff = 0.32 cfs @ 12.03 hrs, Volume= 0.018 af, Depth> 0.69"

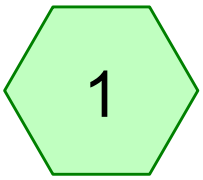
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 001 Rainfall=2.20"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 0.321 | 80 | Grass |
| | 0.321 | | 100.00% Pervious Area |

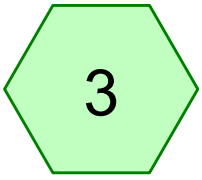
| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | | | | | **Direct Entry, Storm Sewer Minimum** |

**APPENDIX D**

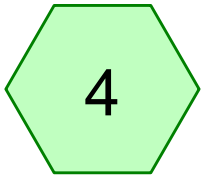
# PRE-DEVELOPMENT HYDROCAD CALCULATIONS



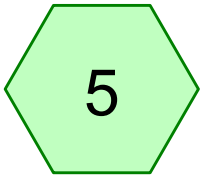

Pre-Dev 1200
(Detained)



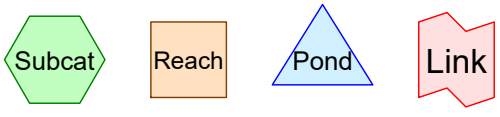

Pre-Dev 1220
(Detained)




Pre-Dev 1220
(Undetained)




Pre-Dev 1310 (Not
Including R/W)




**Routing Diagram for Schoedinger Final Eng.Rev 1**
Prepared by Advanced Civil Design, Printed 1/20/2020
HydroCAD® 10.00-20 s/n 09322 © 2017 HydroCAD Software Solutions LLC

## Summary for Subcatchment 1: Pre-Dev 1200 (Detained)

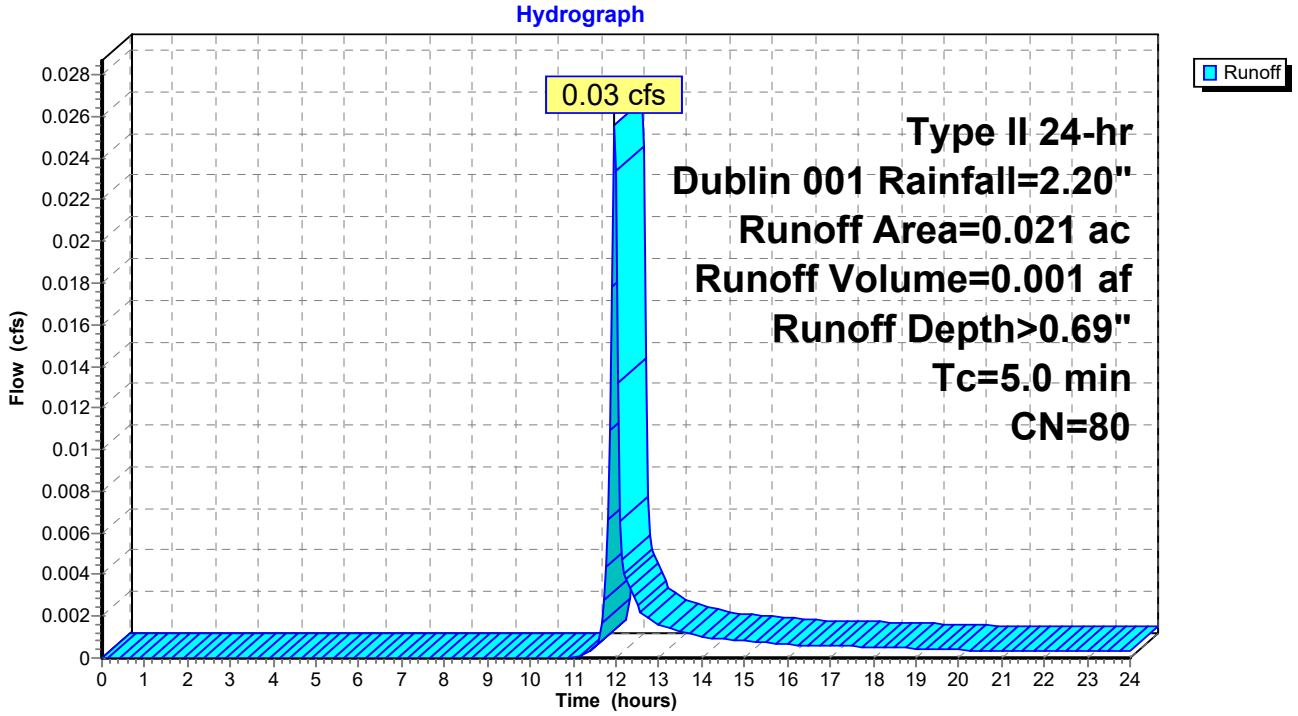
Runoff = 0.03 cfs @ 11.97 hrs, Volume= 0.001 af, Depth> 0.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 001 Rainfall=2.20"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 0.021 | 80 | Grass |
| | 0.021 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, Storm Sewer Minimum** |

## Subcatchment 1: Pre-Dev 1200 (Detained)



## Summary for Subcatchment 3: Pre-Dev 1220 (Detained)

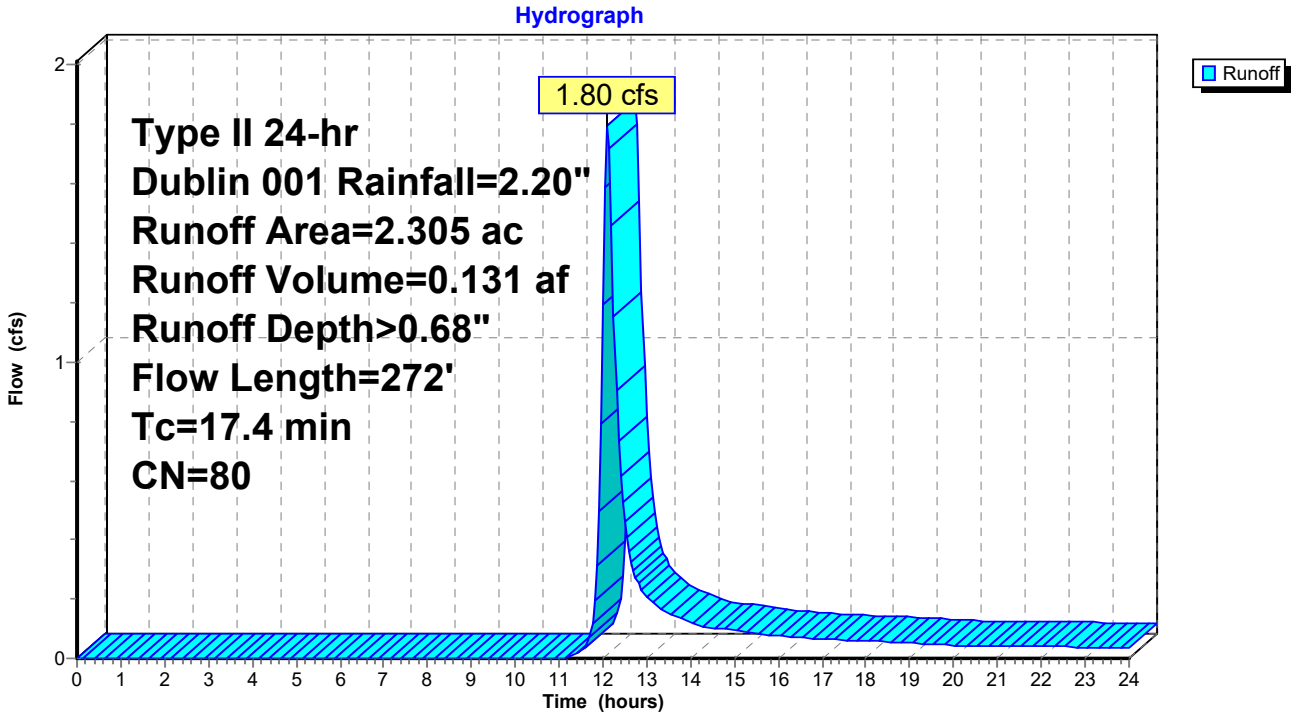
Runoff = 1.80 cfs @ 12.11 hrs, Volume= 0.131 af, Depth> 0.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 001 Rainfall=2.20"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 2.305 | 80 | Grass |
| | 2.305 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 14.2 | 100 | 0.0260 | 0.12 | | **Sheet Flow, Sheet Flow**<br>Grass: Dense n= 0.240 P2= 2.63" |
| 2.1 | 87 | 0.0184 | 0.68 | | **Shallow Concentrated Flow, Shallow Concentrated Flow**<br>Woodland Kv= 5.0 fps |
| 1.1 | 85 | 0.0070 | 1.25 | | **Shallow Concentrated Flow, Shallow Concentrated Flow**<br>Grassed Waterway Kv= 15.0 fps |
| 17.4 | 272 | Total | | | |

## Subcatchment 3: Pre-Dev 1220 (Detained)



## Summary for Subcatchment 4: Pre-Dev 1220 (Undetained)

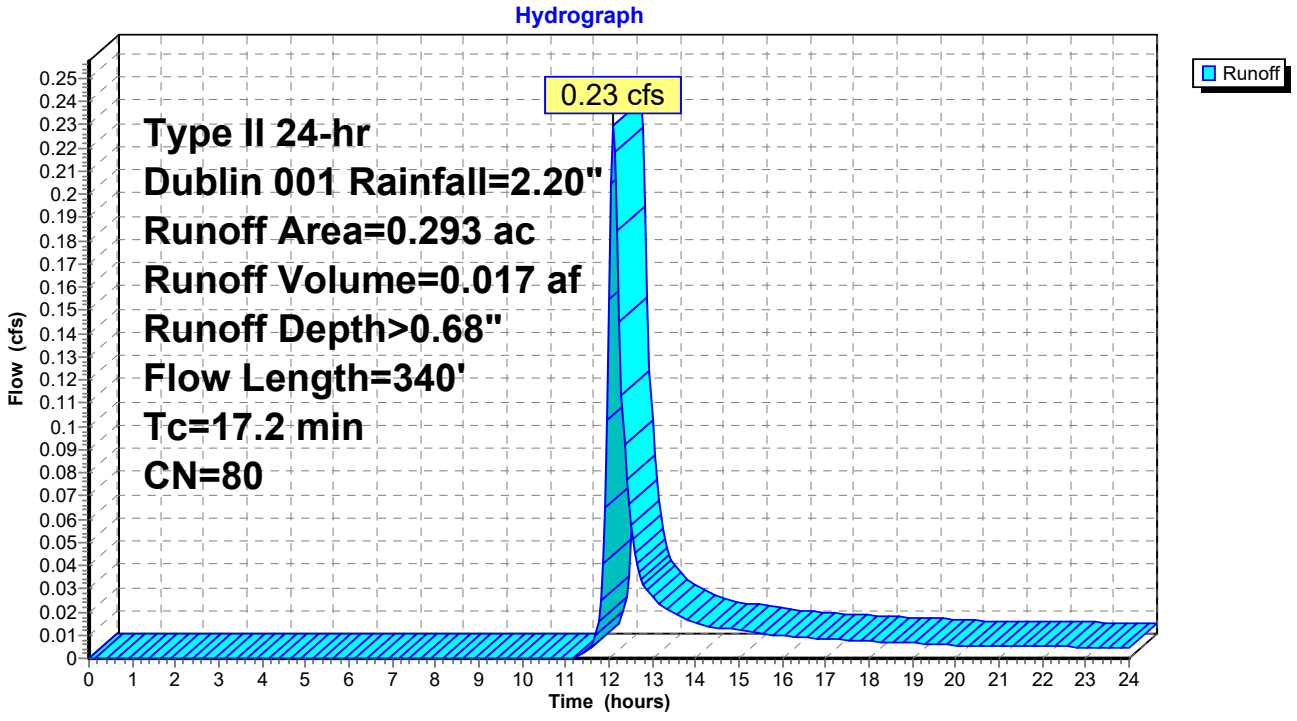
Runoff = 0.23 cfs @ 12.11 hrs, Volume= 0.017 af, Depth> 0.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 001 Rainfall=2.20"

| Area (ac) | CN | Description |
|---|---|---|
| 0.293 | 80 | >75% Grass cover, Good, HSG D |
| 0.293 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 14.4 | 100 | 0.0250 | 0.12 | | **Sheet Flow, Sheet Flow**<br>Grass: Dense n= 0.240 P2= 2.63" |
| 2.8 | 240 | 0.0088 | 1.41 | | **Shallow Concentrated Flow, Shallow Concentrated Flow**<br>Grassed Waterway Kv= 15.0 fps |
| 17.2 | 340 | Total | | | |

## Subcatchment 4: Pre-Dev 1220 (Undetained)



## Summary for Subcatchment 5: Pre-Dev 1310 (Not Including R/W)

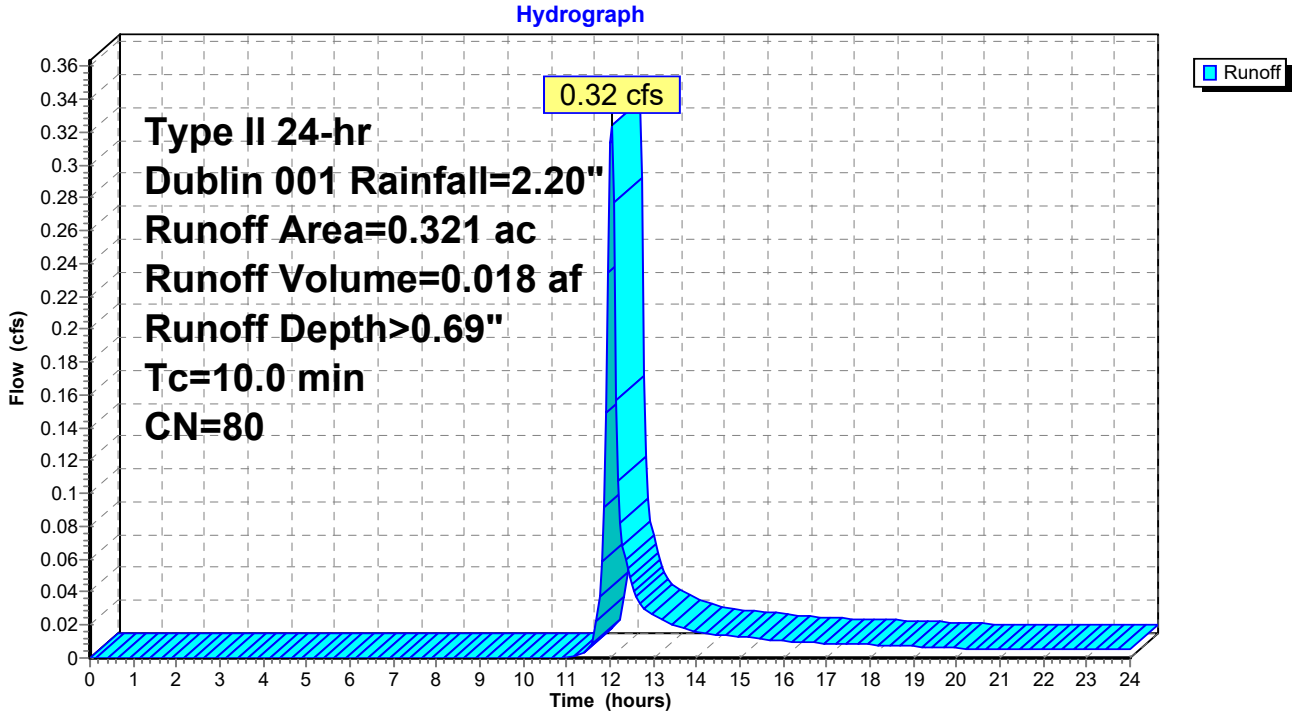
Runoff = 0.32 cfs @ 12.03 hrs, Volume= 0.018 af, Depth> 0.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 001 Rainfall=2.20"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 0.321 | 80 | Grass |
| | 0.321 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | | | | | **Direct Entry, Storm Sewer Minimum** |

## Subcatchment 5: Pre-Dev 1310 (Not Including R/W)



## Summary for Subcatchment 1: Pre-Dev 1200 (Detained)

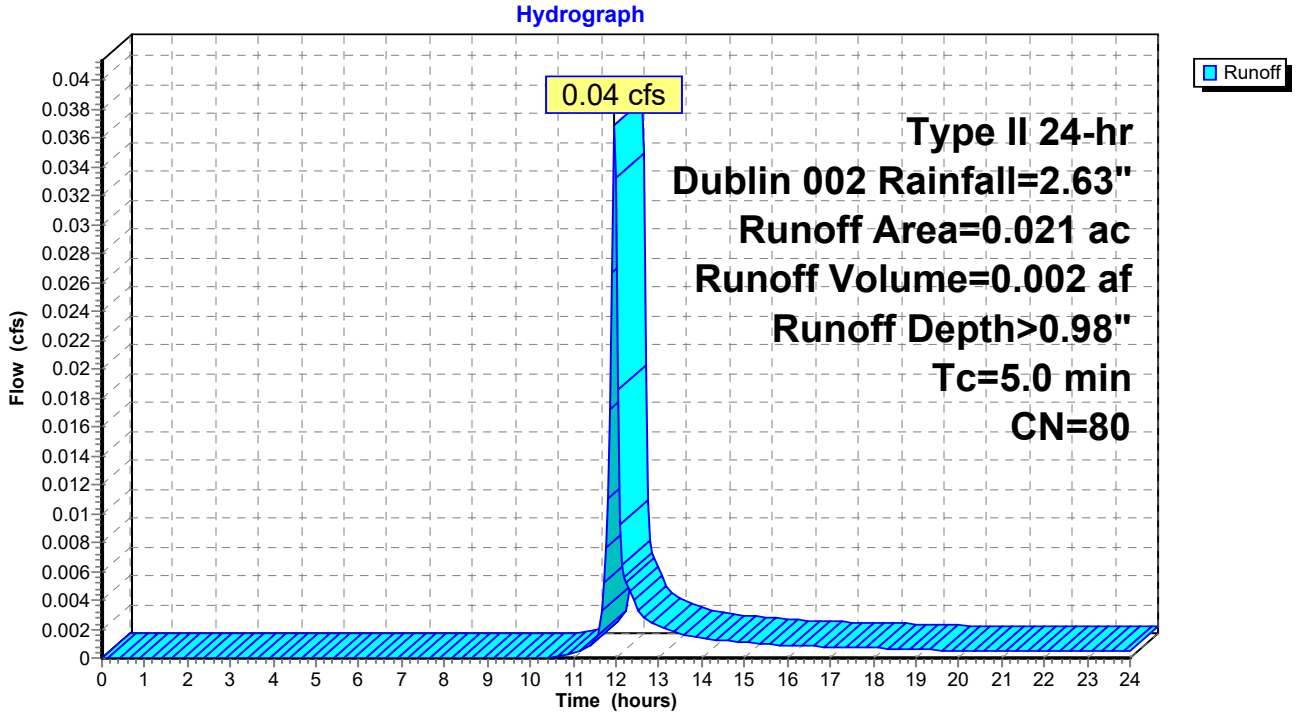
Runoff = 0.04 cfs @ 11.96 hrs, Volume= 0.002 af, Depth> 0.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 002 Rainfall=2.63"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 0.021 | 80 | Grass |
| | 0.021 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, Storm Sewer Minimum** |

## Subcatchment 1: Pre-Dev 1200 (Detained)



## Summary for Subcatchment 3: Pre-Dev 1220 (Detained)

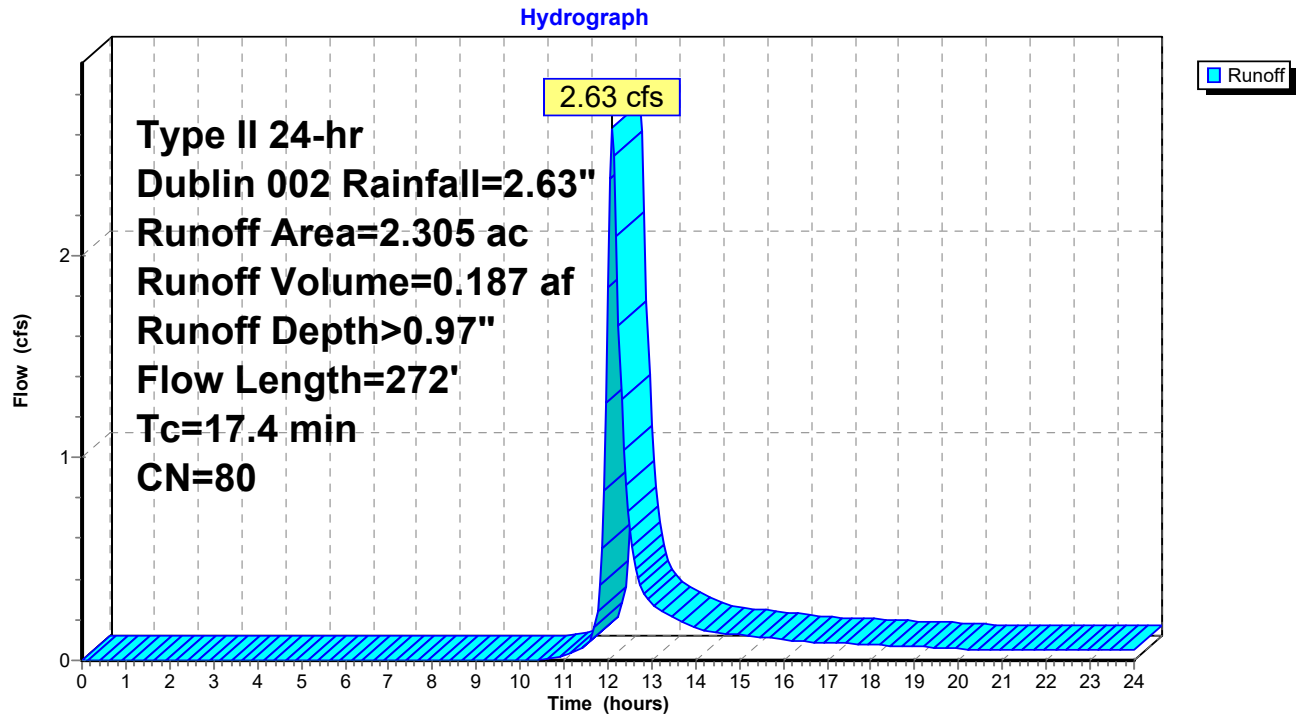
Runoff = 2.63 cfs @ 12.11 hrs, Volume= 0.187 af, Depth> 0.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 002 Rainfall=2.63"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 2.305 | 80 | Grass |
| | 2.305 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 14.2 | 100 | 0.0260 | 0.12 | | **Sheet Flow, Sheet Flow**<br>Grass: Dense n= 0.240 P2= 2.63" |
| 2.1 | 87 | 0.0184 | 0.68 | | **Shallow Concentrated Flow, Shallow Concentrated Flow**<br>Woodland Kv= 5.0 fps |
| 1.1 | 85 | 0.0070 | 1.25 | | **Shallow Concentrated Flow, Shallow Concentrated Flow**<br>Grassed Waterway Kv= 15.0 fps |
| 17.4 | 272 | Total | | | |

## Subcatchment 3: Pre-Dev 1220 (Detained)



## Summary for Subcatchment 4: Pre-Dev 1220 (Undetained)

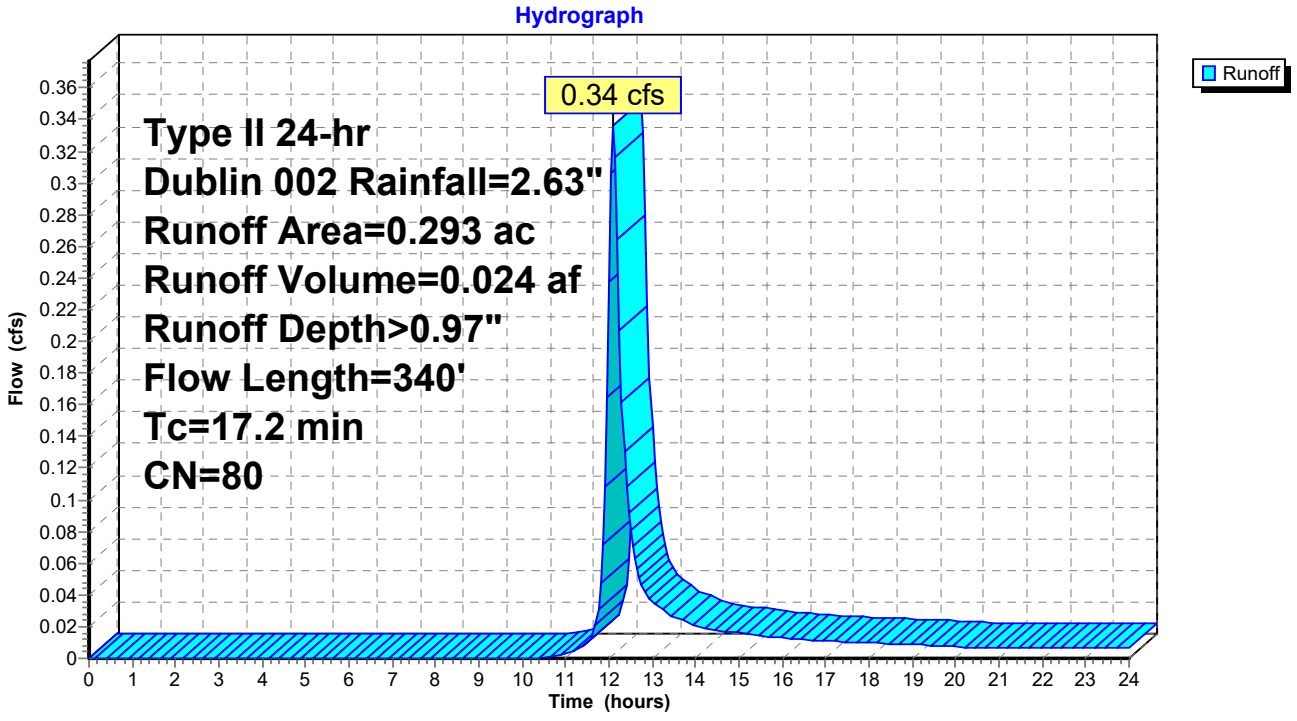
Runoff = 0.34 cfs @ 12.11 hrs, Volume= 0.024 af, Depth> 0.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 002 Rainfall=2.63"

| Area (ac) | CN | Description |
|---|---|---|
| 0.293 | 80 | >75% Grass cover, Good, HSG D |
| 0.293 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 14.4 | 100 | 0.0250 | 0.12 | | **Sheet Flow, Sheet Flow**<br>Grass: Dense n= 0.240 P2= 2.63" |
| 2.8 | 240 | 0.0088 | 1.41 | | **Shallow Concentrated Flow, Shallow Concentrated Flow**<br>Grassed Waterway Kv= 15.0 fps |
| 17.2 | 340 | Total | | | |

## Subcatchment 4: Pre-Dev 1220 (Undetained)



## Summary for Subcatchment 5: Pre-Dev 1310 (Not Including R/W)

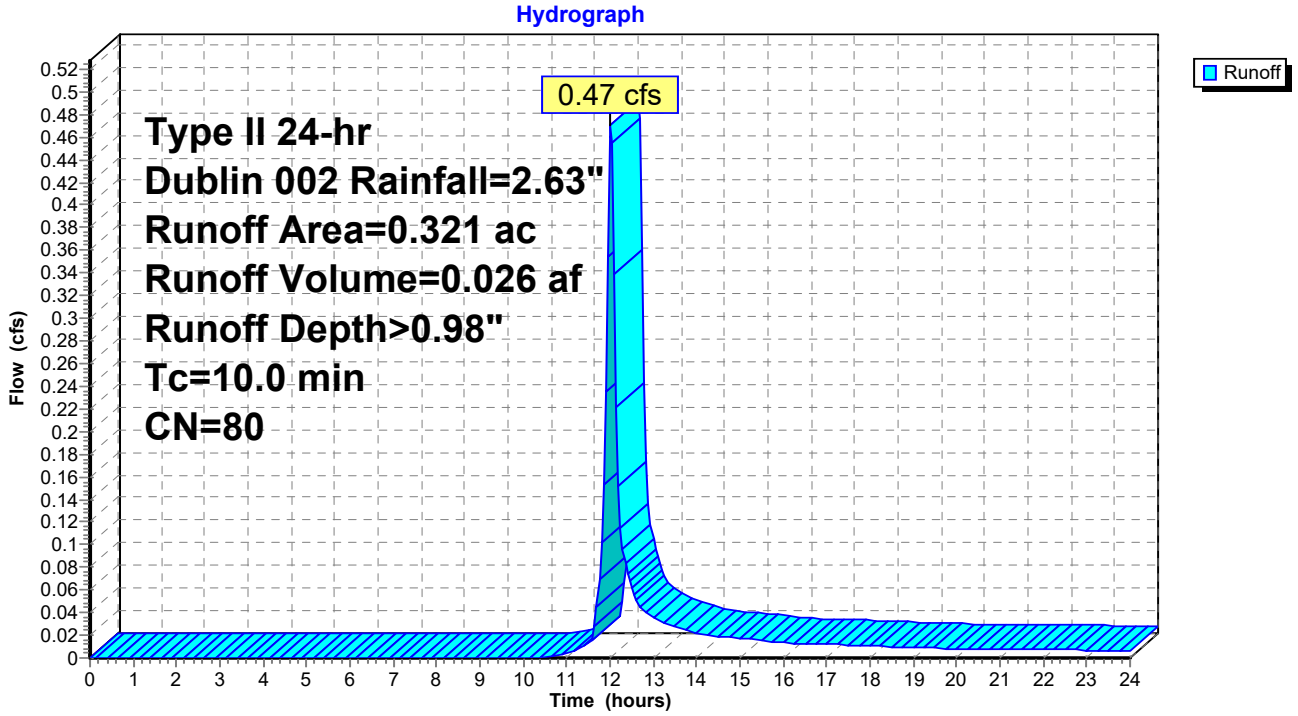
Runoff = 0.47 cfs @ 12.02 hrs, Volume= 0.026 af, Depth> 0.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 002 Rainfall=2.63"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 0.321 | 80 | Grass |
| | 0.321 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | | | | | **Direct Entry, Storm Sewer Minimum** |

## Subcatchment 5: Pre-Dev 1310 (Not Including R/W)



## Summary for Subcatchment 1: Pre-Dev 1200 (Detained)

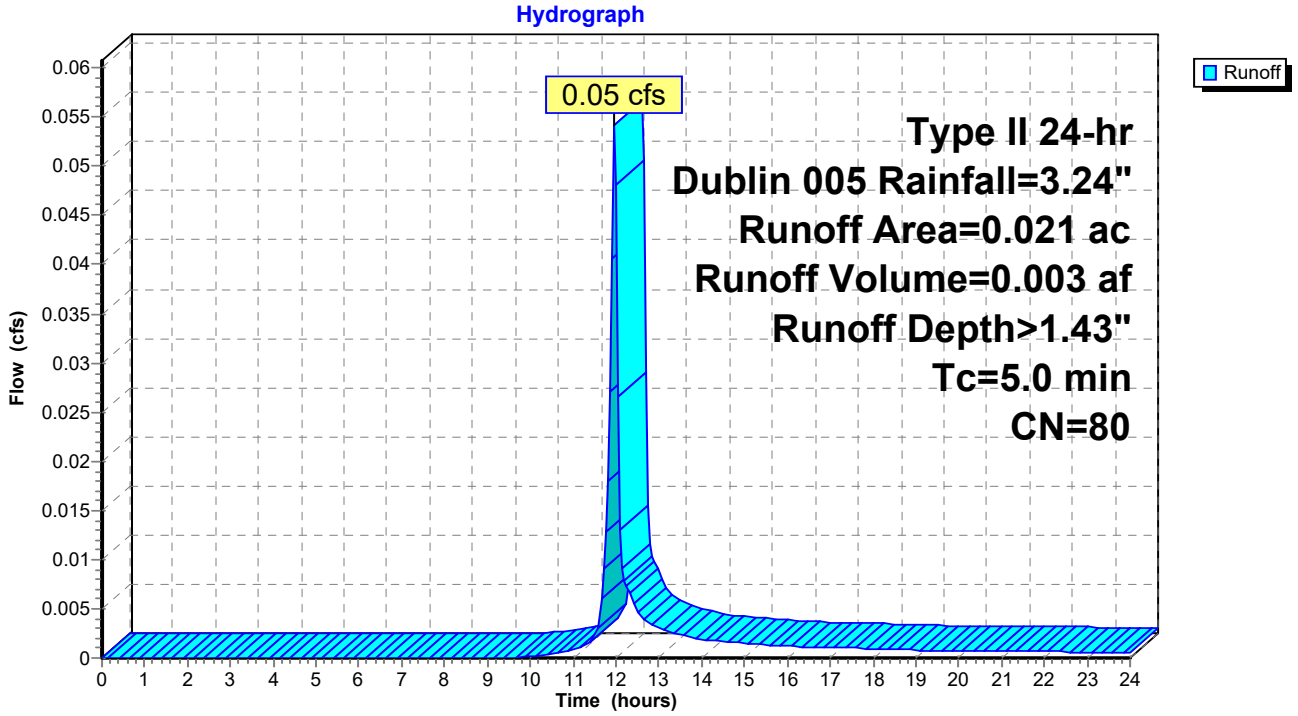
Runoff = 0.05 cfs @ 11.96 hrs, Volume= 0.003 af, Depth> 1.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 005 Rainfall=3.24"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 0.021 | 80 | Grass |
| | 0.021 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, Storm Sewer Minimum** |

## Subcatchment 1: Pre-Dev 1200 (Detained)



## Summary for Subcatchment 3: Pre-Dev 1220 (Detained)

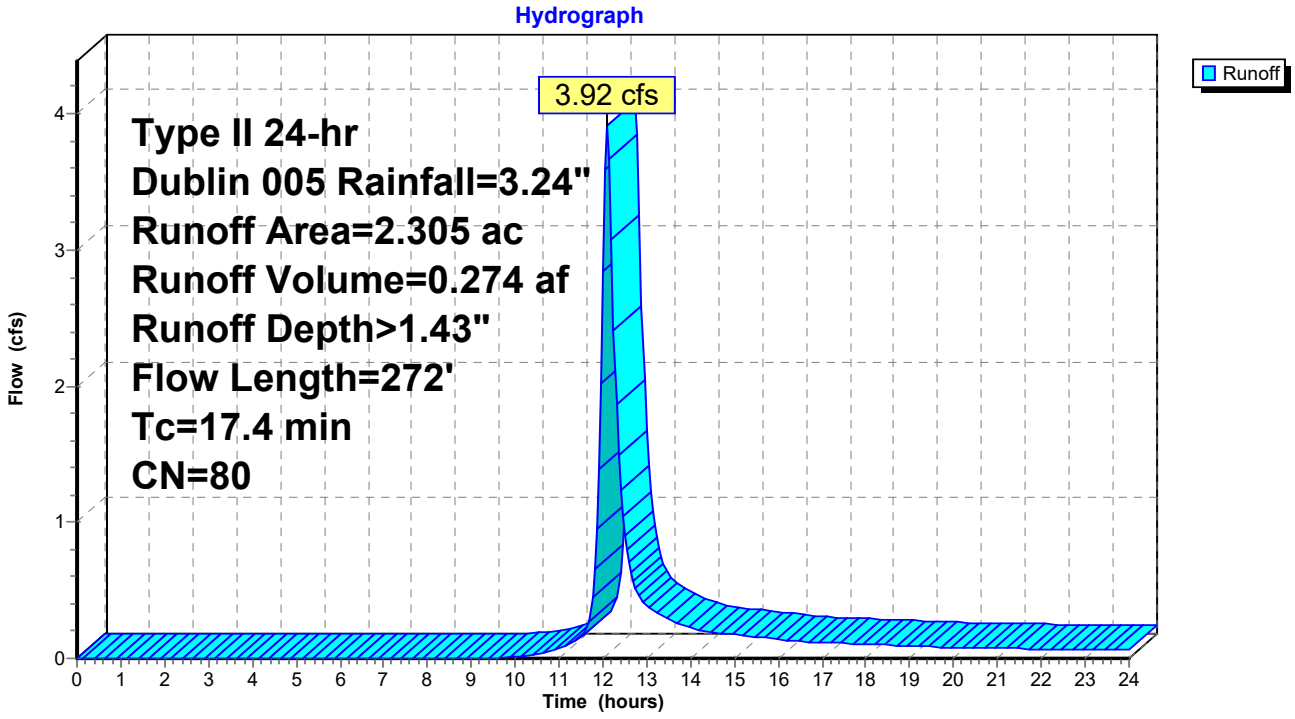
Runoff = 3.92 cfs @ 12.10 hrs, Volume= 0.274 af, Depth> 1.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 005 Rainfall=3.24"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 2.305 | 80 | Grass |
| | 2.305 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 14.2 | 100 | 0.0260 | 0.12 | | **Sheet Flow, Sheet Flow**<br>Grass: Dense n= 0.240 P2= 2.63" |
| 2.1 | 87 | 0.0184 | 0.68 | | **Shallow Concentrated Flow, Shallow Concentrated Flow**<br>Woodland Kv= 5.0 fps |
| 1.1 | 85 | 0.0070 | 1.25 | | **Shallow Concentrated Flow, Shallow Concentrated Flow**<br>Grassed Waterway Kv= 15.0 fps |
| 17.4 | 272 | Total | | | |

## Subcatchment 3: Pre-Dev 1220 (Detained)



## Summary for Subcatchment 4: Pre-Dev 1220 (Undetained)

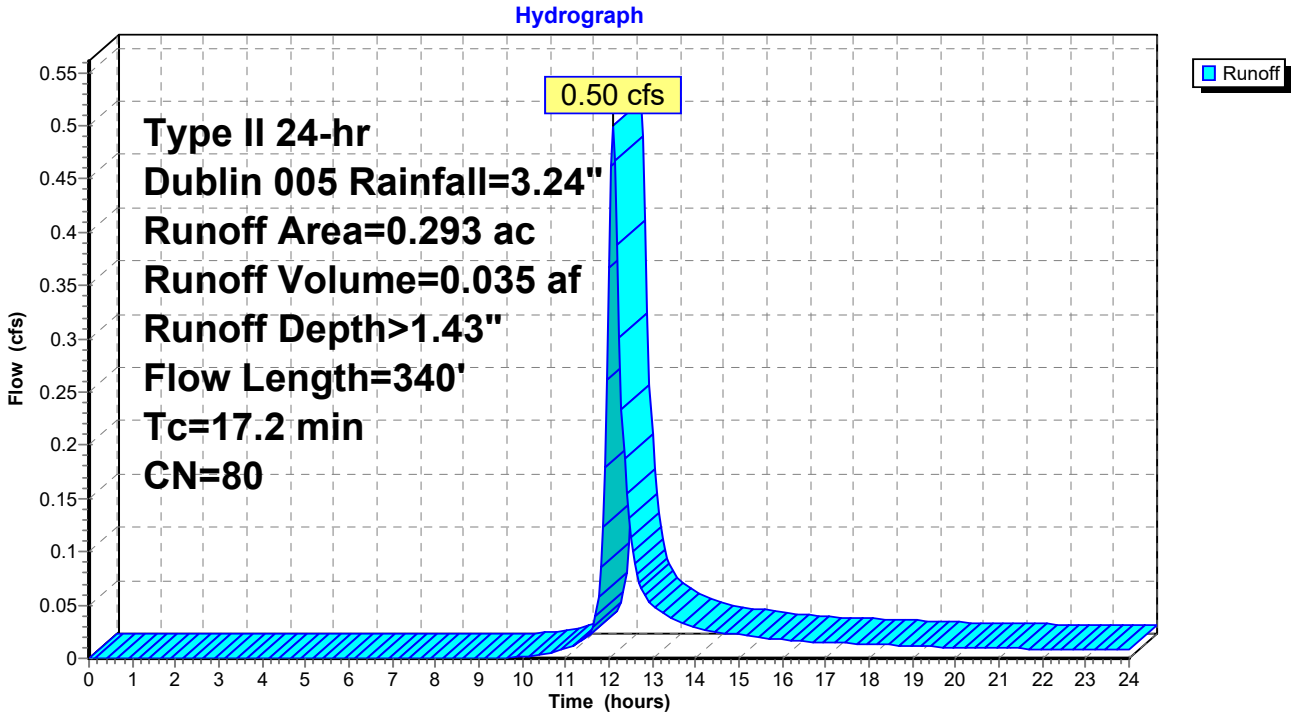
Runoff = 0.50 cfs @ 12.10 hrs, Volume= 0.035 af, Depth> 1.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 005 Rainfall=3.24"

| Area (ac) | CN | Description |
|---|---|---|
| 0.293 | 80 | >75% Grass cover, Good, HSG D |
| 0.293 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 14.4 | 100 | 0.0250 | 0.12 | | **Sheet Flow, Sheet Flow**<br>Grass: Dense n= 0.240 P2= 2.63" |
| 2.8 | 240 | 0.0088 | 1.41 | | **Shallow Concentrated Flow, Shallow Concentrated Flow**<br>Grassed Waterway Kv= 15.0 fps |
| 17.2 | 340 | Total | | | |

## Subcatchment 4: Pre-Dev 1220 (Undetained)



## Summary for Subcatchment 5: Pre-Dev 1310 (Not Including R/W)

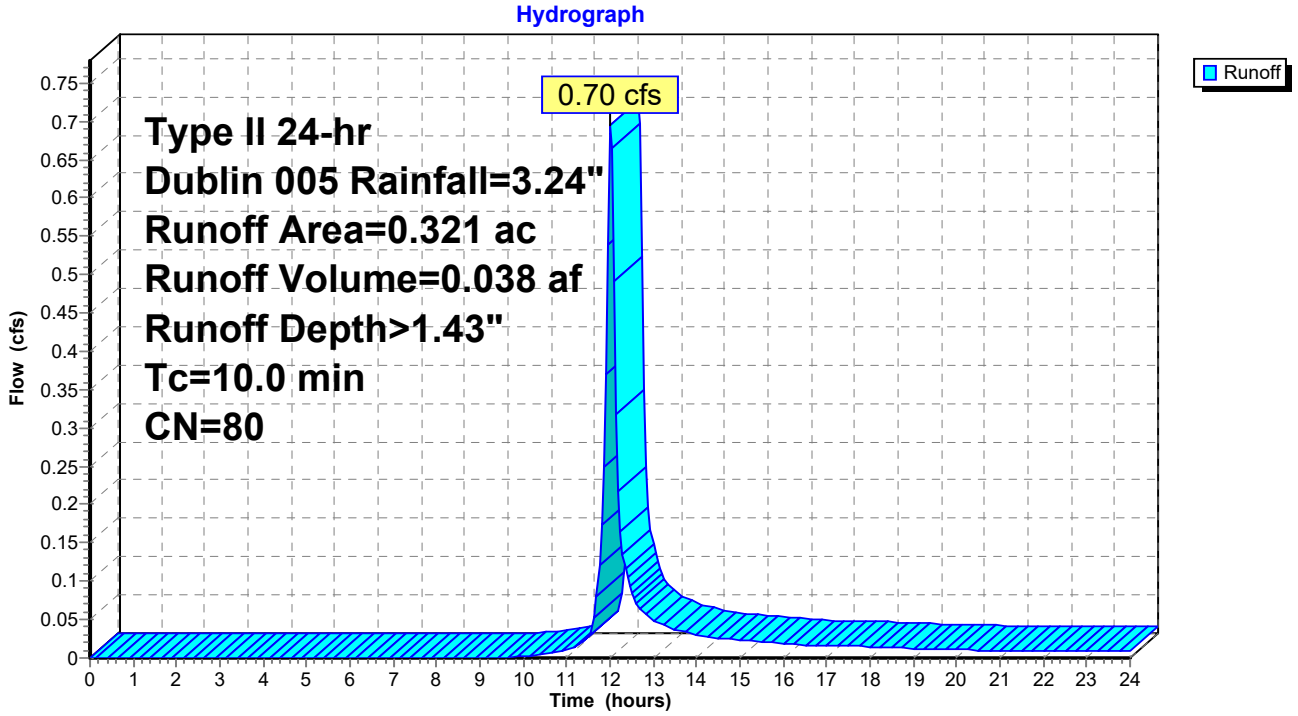
Runoff = 0.70 cfs @ 12.02 hrs, Volume= 0.038 af, Depth> 1.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 005 Rainfall=3.24"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 0.321 | 80 | Grass |
| | 0.321 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | | | | | **Direct Entry, Storm Sewer Minimum** |

## Subcatchment 5: Pre-Dev 1310 (Not Including R/W)



## Summary for Subcatchment 1: Pre-Dev 1200 (Detained)

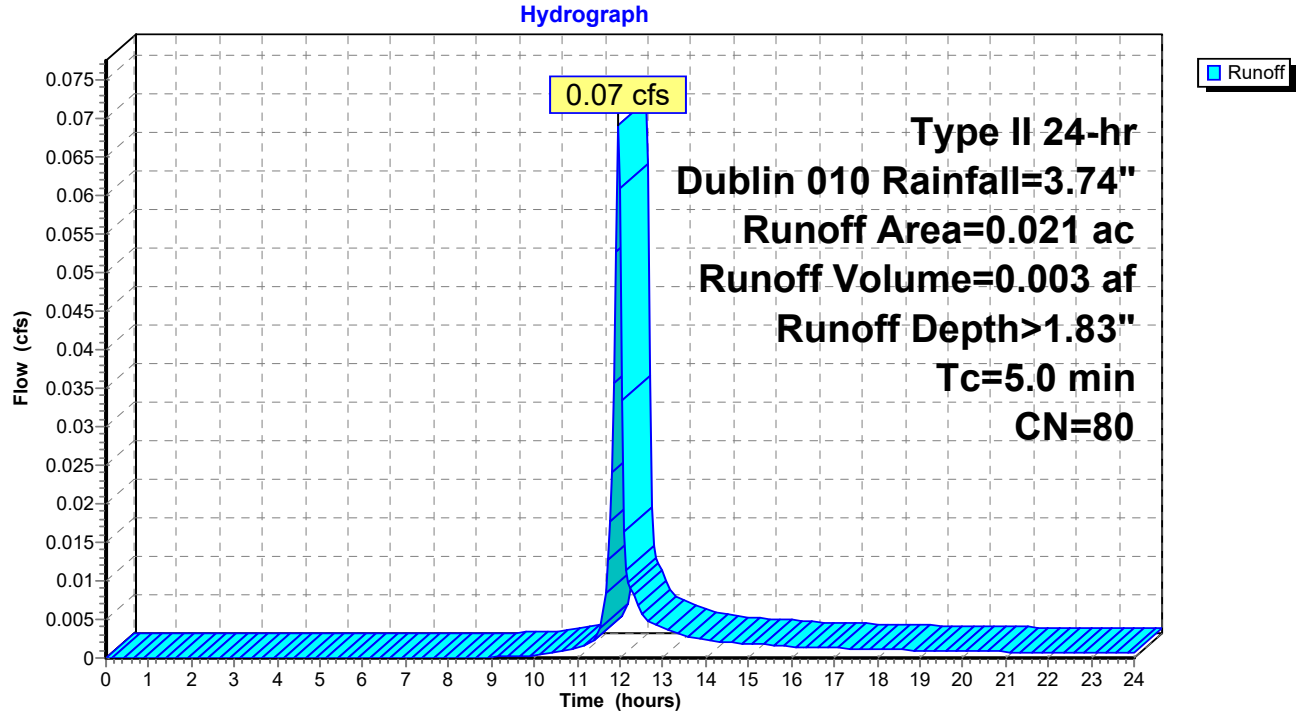
Runoff = 0.07 cfs @ 11.96 hrs, Volume= 0.003 af, Depth> 1.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 010 Rainfall=3.74"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 0.021 | 80 | Grass |
| | 0.021 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, Storm Sewer Minimum** |

## Subcatchment 1: Pre-Dev 1200 (Detained)



## Summary for Subcatchment 3: Pre-Dev 1220 (Detained)

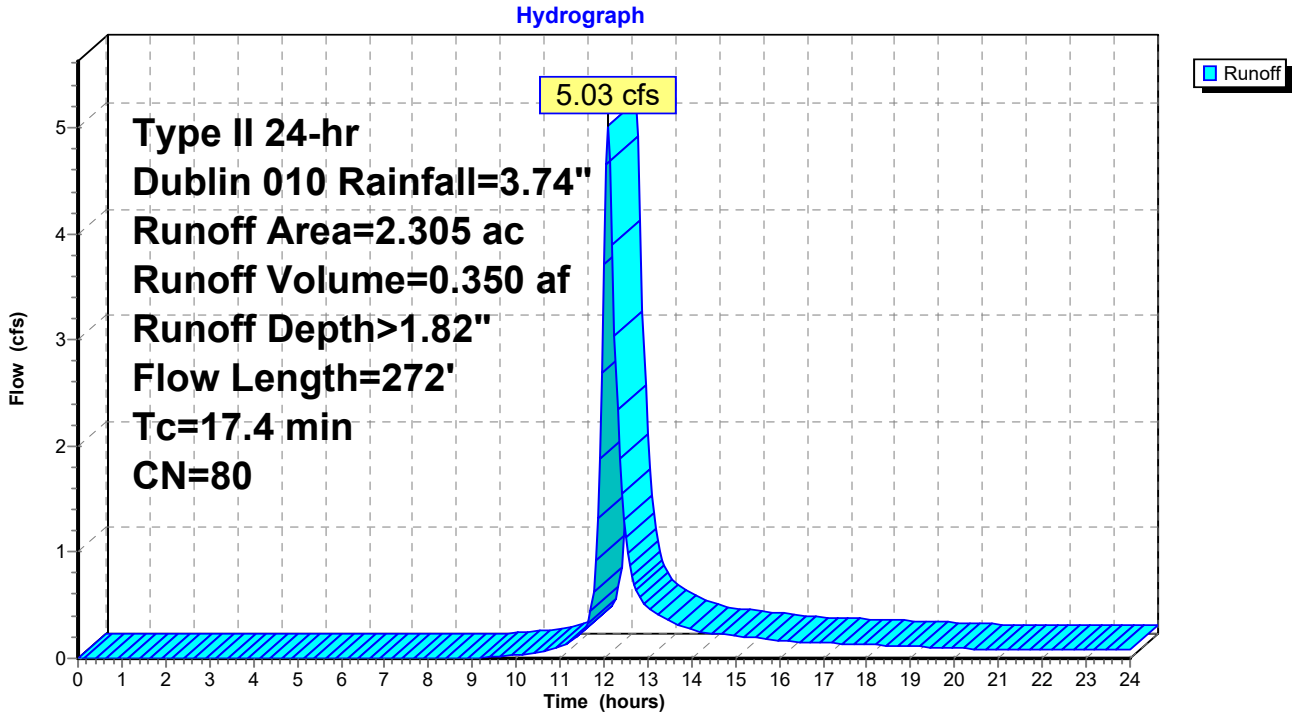
Runoff = 5.03 cfs @ 12.10 hrs, Volume= 0.350 af, Depth> 1.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 010 Rainfall=3.74"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 2.305 | 80 | Grass |
| | 2.305 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 14.2 | 100 | 0.0260 | 0.12 | | **Sheet Flow, Sheet Flow**<br>Grass: Dense n= 0.240 P2= 2.63" |
| 2.1 | 87 | 0.0184 | 0.68 | | **Shallow Concentrated Flow, Shallow Concentrated Flow**<br>Woodland Kv= 5.0 fps |
| 1.1 | 85 | 0.0070 | 1.25 | | **Shallow Concentrated Flow, Shallow Concentrated Flow**<br>Grassed Waterway Kv= 15.0 fps |
| 17.4 | 272 | Total | | | |

## Subcatchment 3: Pre-Dev 1220 (Detained)



## Summary for Subcatchment 4: Pre-Dev 1220 (Undetained)

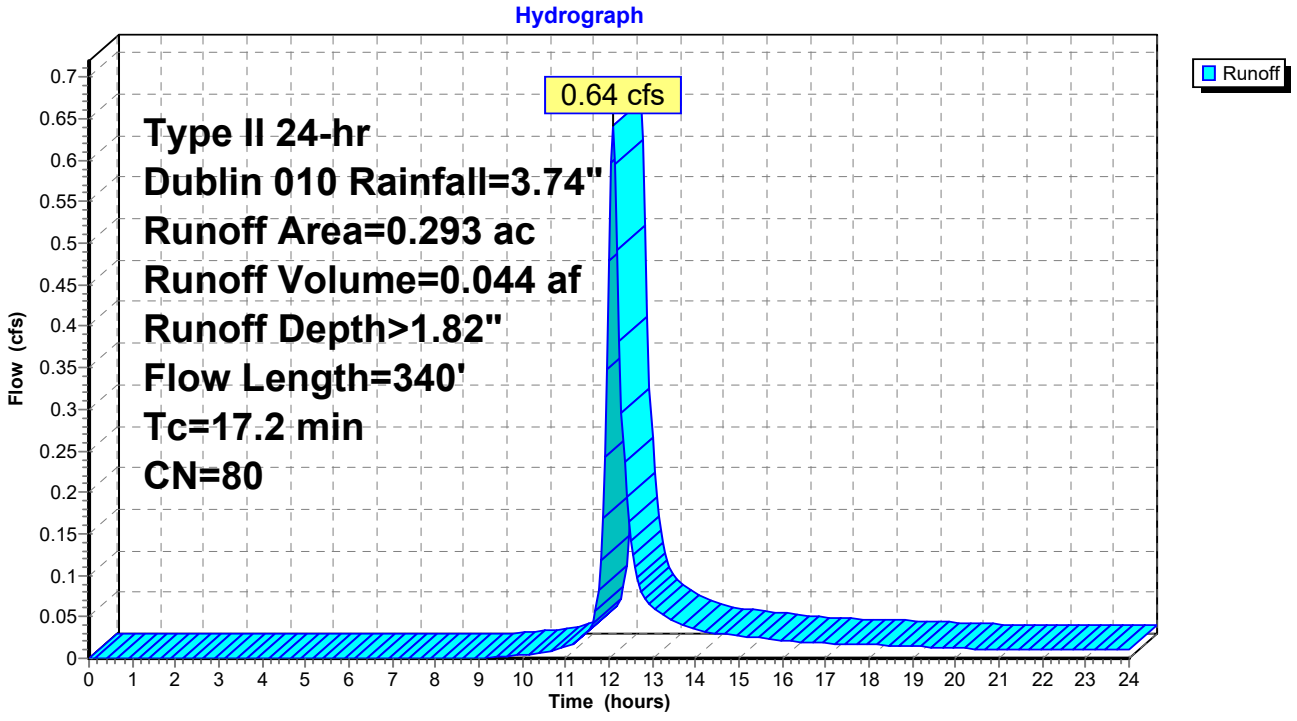
Runoff = 0.64 cfs @ 12.10 hrs, Volume= 0.044 af, Depth> 1.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 010 Rainfall=3.74"

| Area (ac) | CN | Description |
|---|---|---|
| 0.293 | 80 | >75% Grass cover, Good, HSG D |
| 0.293 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 14.4 | 100 | 0.0250 | 0.12 | | **Sheet Flow, Sheet Flow**<br>Grass: Dense n= 0.240 P2= 2.63" |
| 2.8 | 240 | 0.0088 | 1.41 | | **Shallow Concentrated Flow, Shallow Concentrated Flow**<br>Grassed Waterway Kv= 15.0 fps |
| 17.2 | 340 | Total | | | |

## Subcatchment 4: Pre-Dev 1220 (Undetained)



## Summary for Subcatchment 5: Pre-Dev 1310 (Not Including R/W)

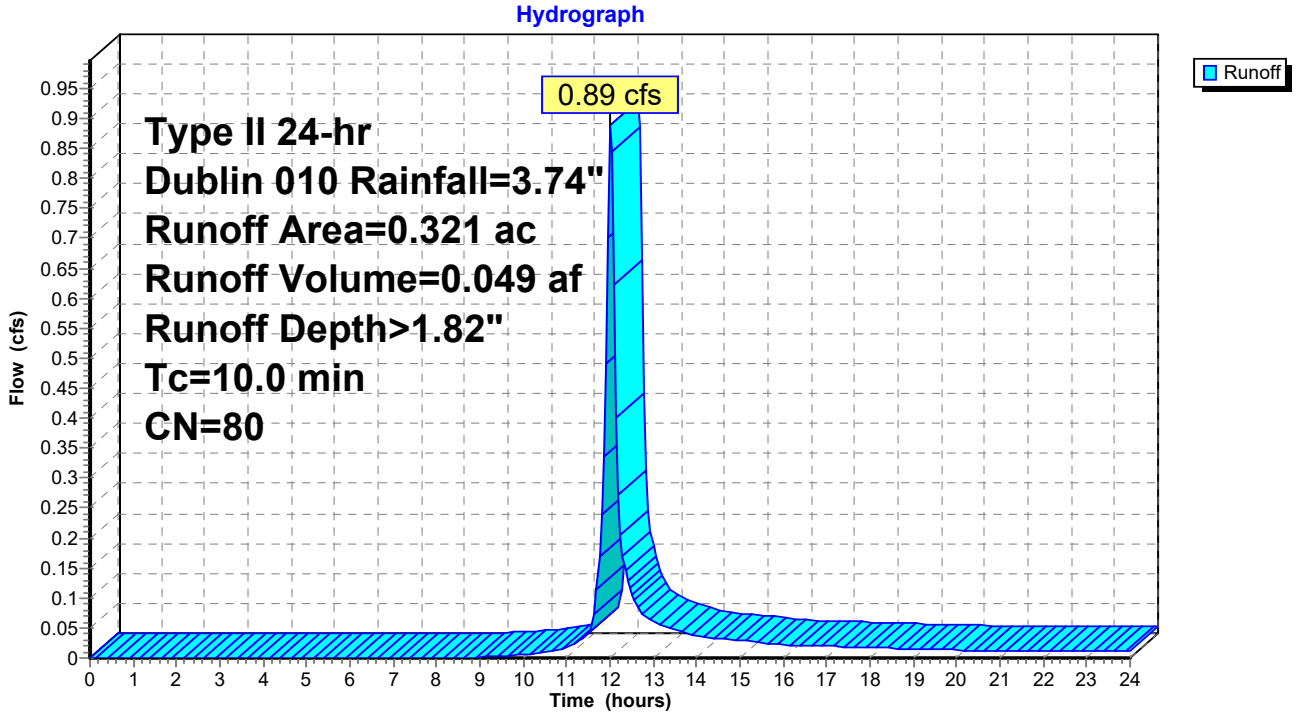
Runoff = 0.89 cfs @ 12.02 hrs, Volume= 0.049 af, Depth> 1.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 010 Rainfall=3.74"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 0.321 | 80 | Grass |
| | 0.321 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | | | | | **Direct Entry, Storm Sewer Minimum** |

## Subcatchment 5: Pre-Dev 1310 (Not Including R/W)



## Summary for Subcatchment 1: Pre-Dev 1200 (Detained)

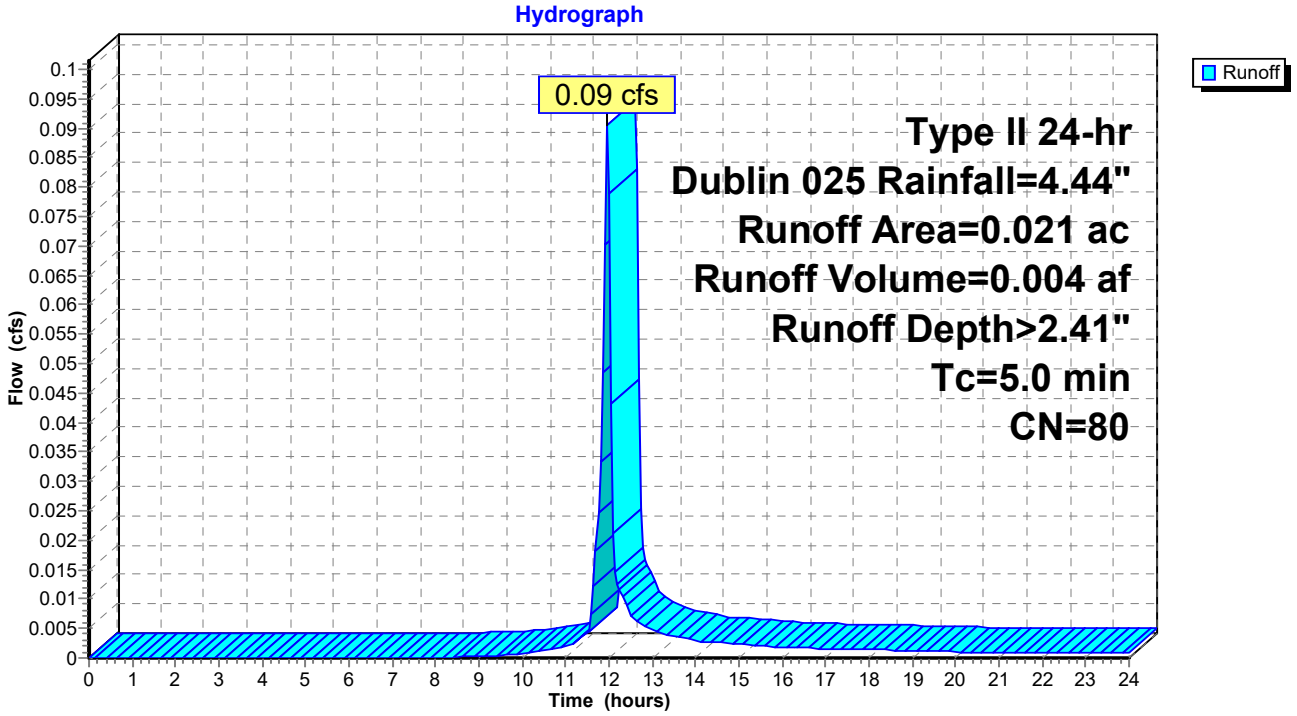
Runoff = 0.09 cfs @ 11.96 hrs, Volume= 0.004 af, Depth> 2.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 025 Rainfall=4.44"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 0.021 | 80 | Grass |
| | 0.021 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, Storm Sewer Minimum** |

## Subcatchment 1: Pre-Dev 1200 (Detained)



## Summary for Subcatchment 3: Pre-Dev 1220 (Detained)

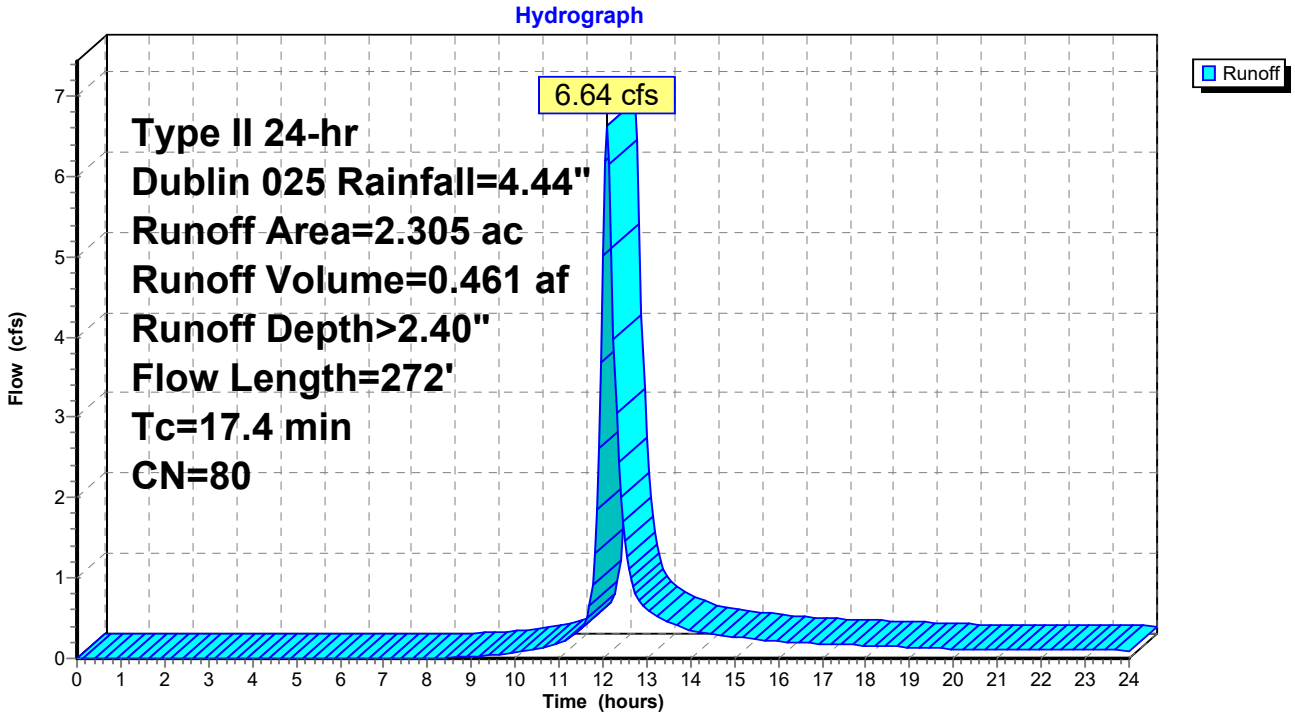
Runoff = 6.64 cfs @ 12.10 hrs, Volume= 0.461 af, Depth> 2.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 025 Rainfall=4.44"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 2.305 | 80 | Grass |
| | 2.305 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 14.2 | 100 | 0.0260 | 0.12 | | **Sheet Flow, Sheet Flow**<br>Grass: Dense n= 0.240 P2= 2.63" |
| 2.1 | 87 | 0.0184 | 0.68 | | **Shallow Concentrated Flow, Shallow Concentrated Flow**<br>Woodland Kv= 5.0 fps |
| 1.1 | 85 | 0.0070 | 1.25 | | **Shallow Concentrated Flow, Shallow Concentrated Flow**<br>Grassed Waterway Kv= 15.0 fps |
| 17.4 | 272 | Total | | | |

## Subcatchment 3: Pre-Dev 1220 (Detained)



## Summary for Subcatchment 4: Pre-Dev 1220 (Undetained)

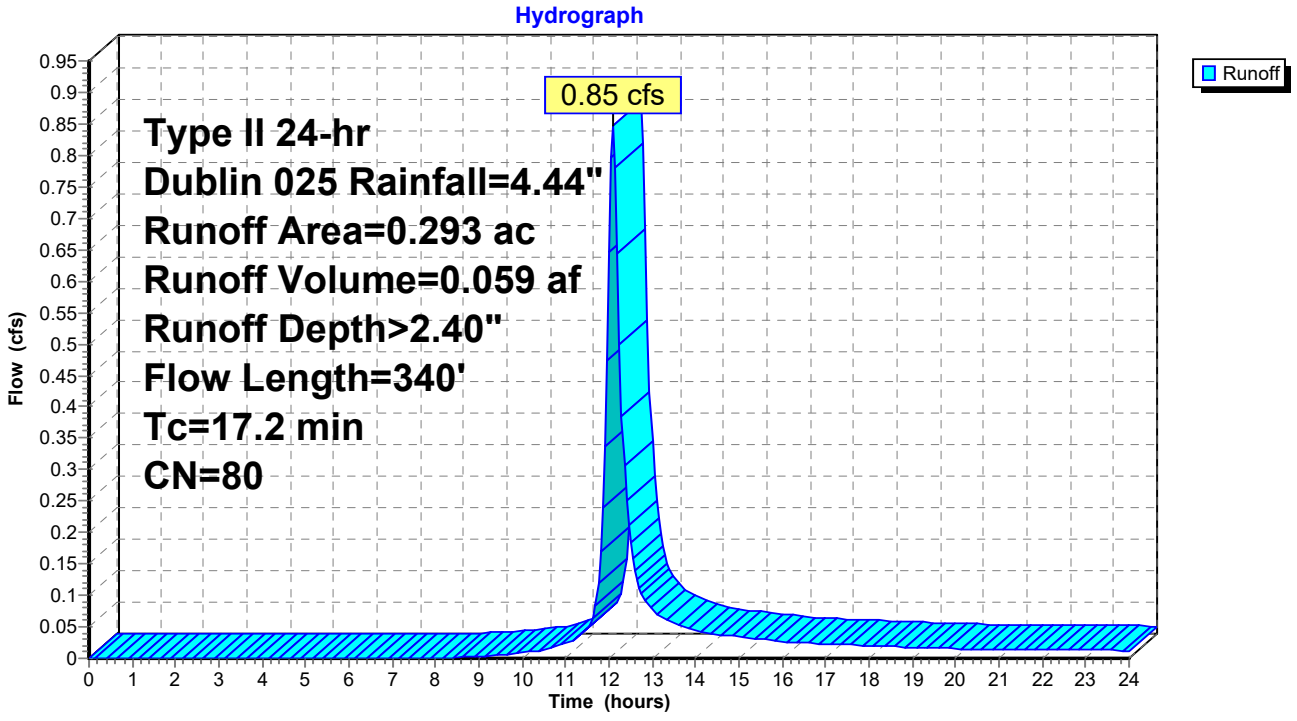
Runoff = 0.85 cfs @ 12.10 hrs, Volume= 0.059 af, Depth> 2.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 025 Rainfall=4.44"

| Area (ac) | CN | Description |
|---|---|---|
| 0.293 | 80 | >75% Grass cover, Good, HSG D |
| 0.293 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 14.4 | 100 | 0.0250 | 0.12 | | **Sheet Flow, Sheet Flow**<br>Grass: Dense n= 0.240 P2= 2.63" |
| 2.8 | 240 | 0.0088 | 1.41 | | **Shallow Concentrated Flow, Shallow Concentrated Flow**<br>Grassed Waterway Kv= 15.0 fps |
| 17.2 | 340 | Total | | | |

## Subcatchment 4: Pre-Dev 1220 (Undetained)



## Summary for Subcatchment 5: Pre-Dev 1310 (Not Including R/W)

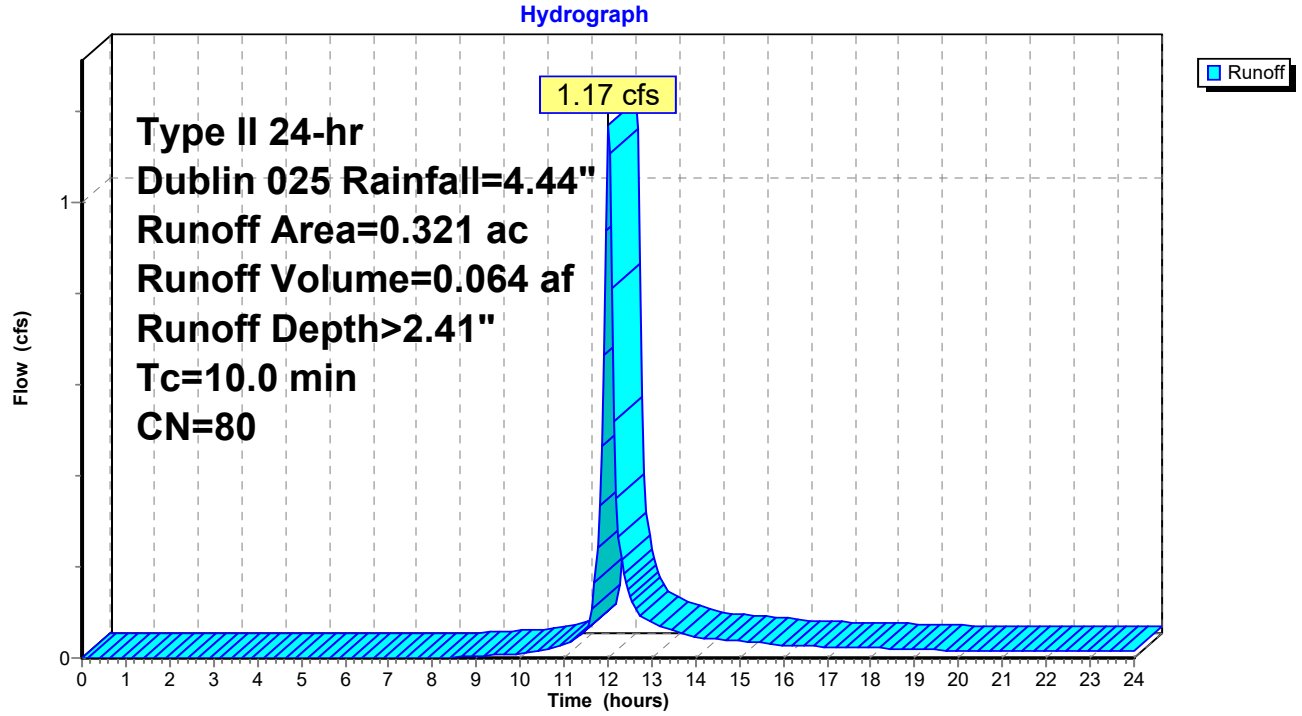
Runoff = 1.17 cfs @ 12.02 hrs, Volume= 0.064 af, Depth> 2.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 025 Rainfall=4.44"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 0.321 | 80 | Grass |
| | 0.321 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | | | | | **Direct Entry, Storm Sewer Minimum** |

## Subcatchment 5: Pre-Dev 1310 (Not Including R/W)



## Summary for Subcatchment 1: Pre-Dev 1200 (Detained)

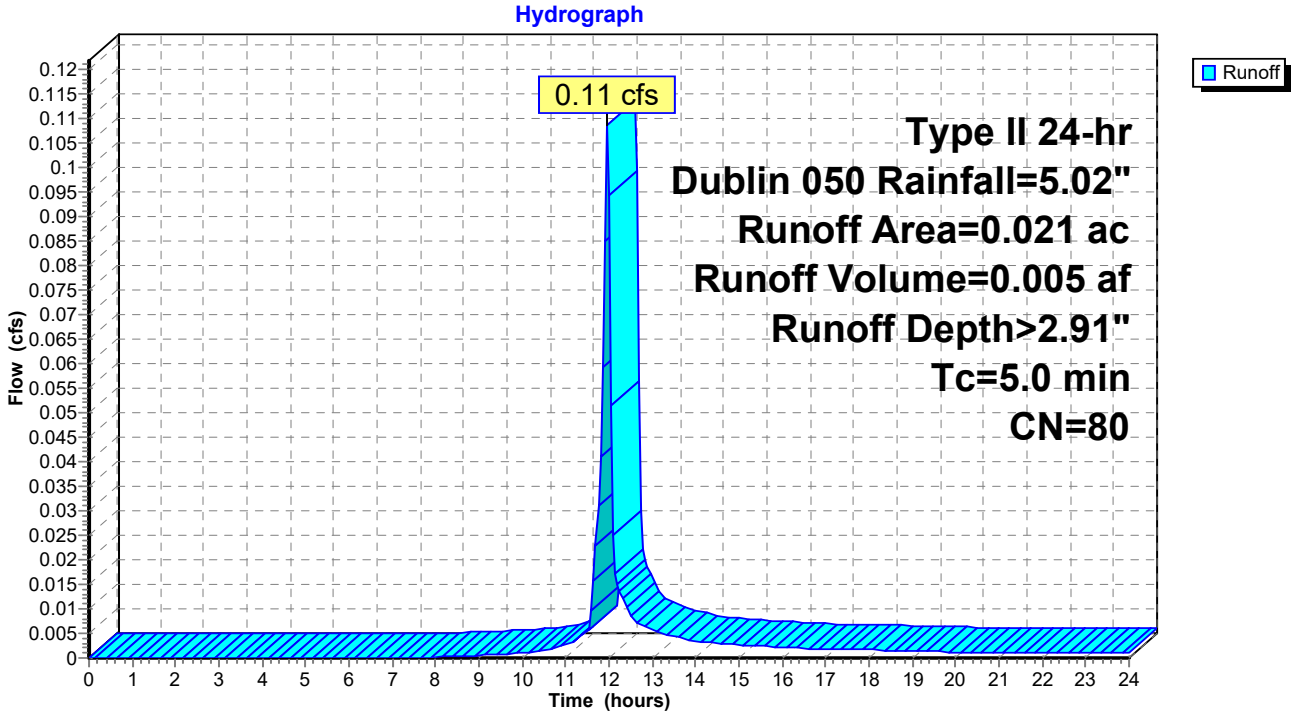
Runoff = 0.11 cfs @ 11.96 hrs, Volume= 0.005 af, Depth> 2.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 050 Rainfall=5.02"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 0.021 | 80 | Grass |
| | 0.021 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, Storm Sewer Minimum** |

## Subcatchment 1: Pre-Dev 1200 (Detained)



## Summary for Subcatchment 3: Pre-Dev 1220 (Detained)

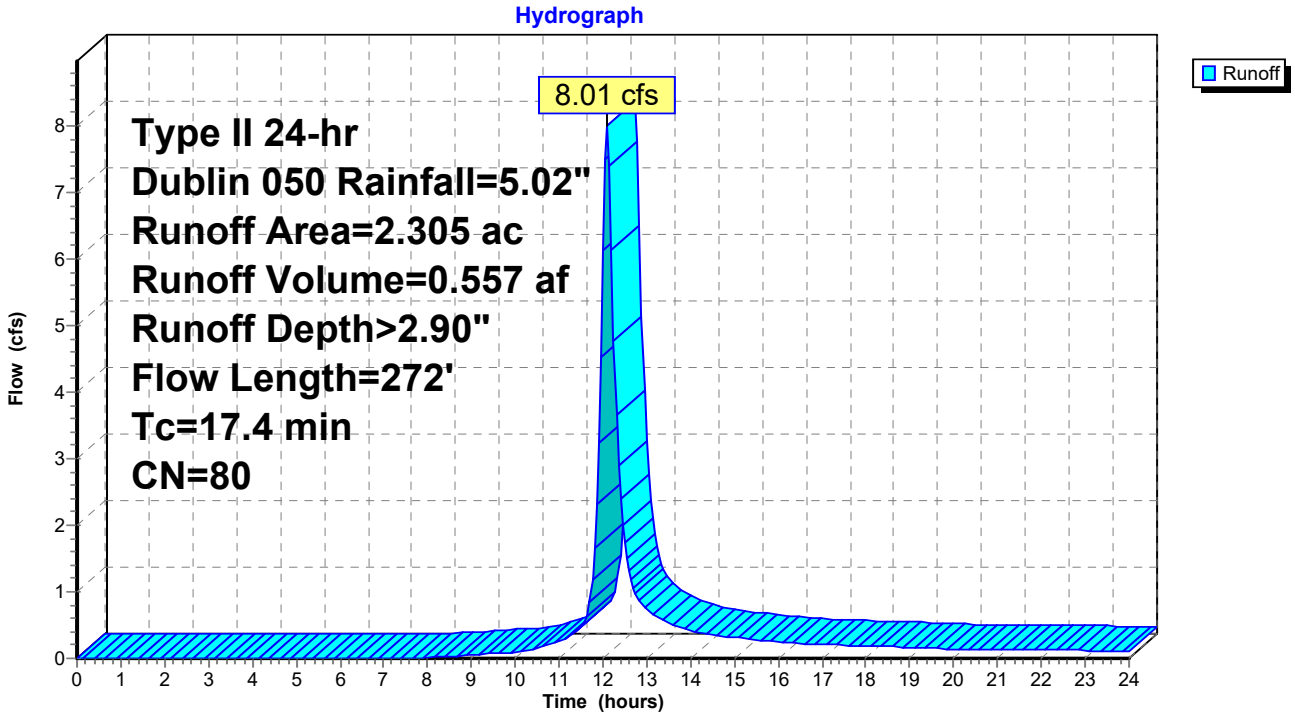
Runoff = 8.01 cfs @ 12.10 hrs, Volume= 0.557 af, Depth> 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 050 Rainfall=5.02"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 2.305 | 80 | Grass |
| | 2.305 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 14.2 | 100 | 0.0260 | 0.12 | | **Sheet Flow, Sheet Flow**<br>Grass: Dense n= 0.240 P2= 2.63" |
| 2.1 | 87 | 0.0184 | 0.68 | | **Shallow Concentrated Flow, Shallow Concentrated Flow**<br>Woodland Kv= 5.0 fps |
| 1.1 | 85 | 0.0070 | 1.25 | | **Shallow Concentrated Flow, Shallow Concentrated Flow**<br>Grassed Waterway Kv= 15.0 fps |
| 17.4 | 272 | Total | | | |

## Subcatchment 3: Pre-Dev 1220 (Detained)



## Summary for Subcatchment 4: Pre-Dev 1220 (Undetained)

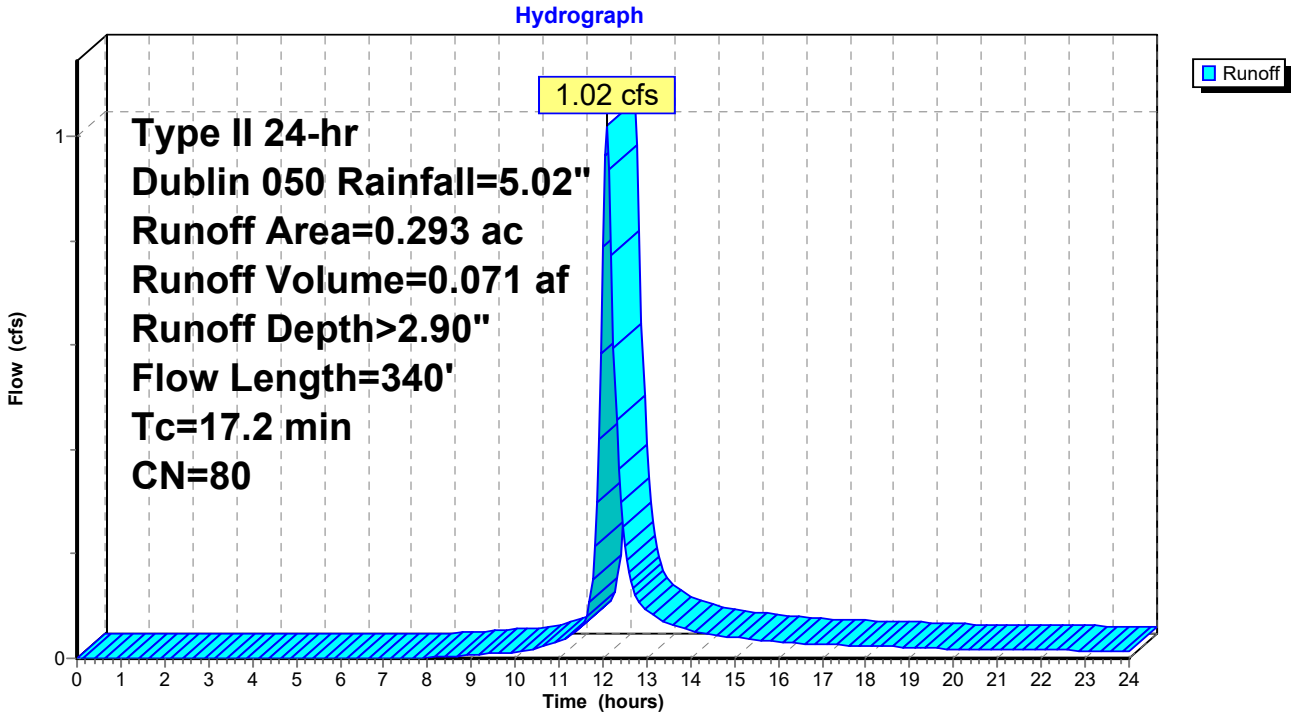
Runoff = 1.02 cfs @ 12.10 hrs, Volume= 0.071 af, Depth> 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 050 Rainfall=5.02"

| Area (ac) | CN | Description |
|---|---|---|
| 0.293 | 80 | >75% Grass cover, Good, HSG D |
| 0.293 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 14.4 | 100 | 0.0250 | 0.12 | | **Sheet Flow, Sheet Flow**<br>Grass: Dense n= 0.240 P2= 2.63" |
| 2.8 | 240 | 0.0088 | 1.41 | | **Shallow Concentrated Flow, Shallow Concentrated Flow**<br>Grassed Waterway Kv= 15.0 fps |
| 17.2 | 340 | Total | | | |

## Subcatchment 4: Pre-Dev 1220 (Undetained)



## Summary for Subcatchment 5: Pre-Dev 1310 (Not Including R/W)

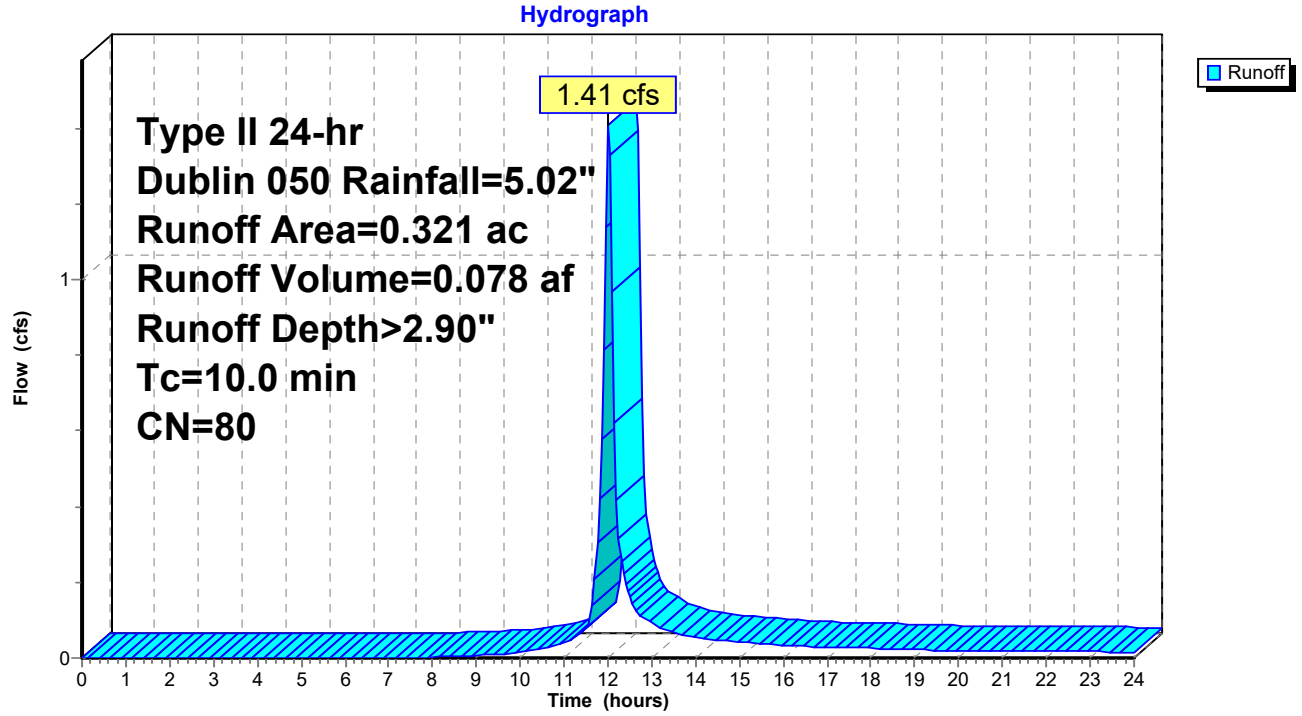
Runoff = 1.41 cfs @ 12.01 hrs, Volume= 0.078 af, Depth> 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 050 Rainfall=5.02"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 0.321 | 80 | Grass |
| | 0.321 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | | | | | **Direct Entry, Storm Sewer Minimum** |

## Subcatchment 5: Pre-Dev 1310 (Not Including R/W)



## Summary for Subcatchment 1: Pre-Dev 1200 (Detained)

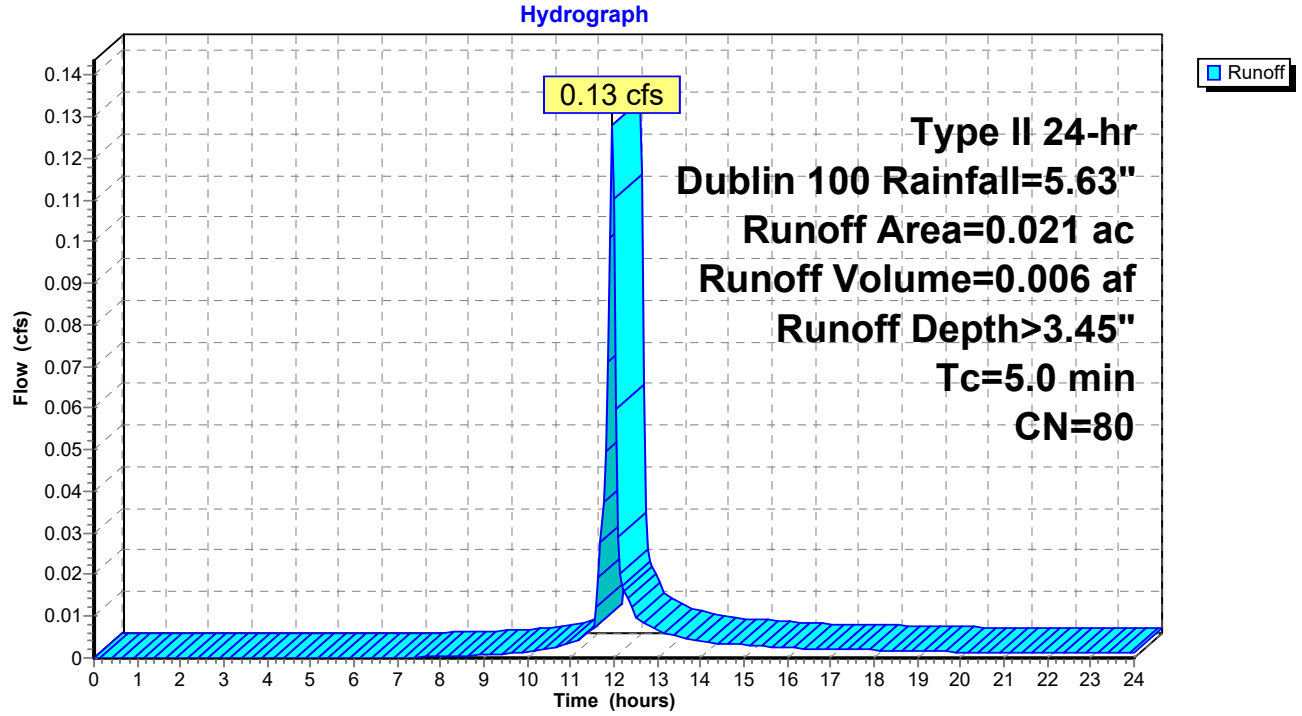
Runoff = 0.13 cfs @ 11.96 hrs, Volume= 0.006 af, Depth> 3.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 100 Rainfall=5.63"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 0.021 | 80 | Grass |
| | 0.021 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, Storm Sewer Minimum** |

## Subcatchment 1: Pre-Dev 1200 (Detained)



## Summary for Subcatchment 3: Pre-Dev 1220 (Detained)

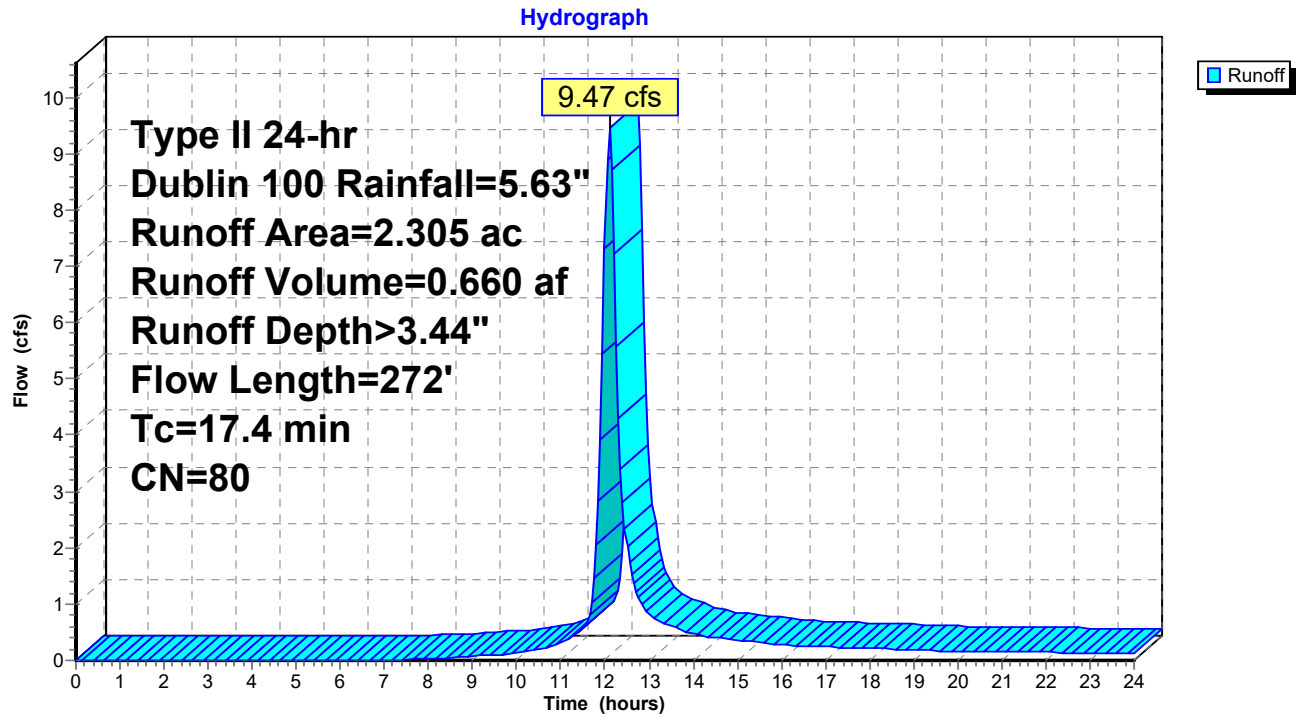
Runoff = 9.47 cfs @ 12.10 hrs, Volume= 0.660 af, Depth> 3.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 100 Rainfall=5.63"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 2.305 | 80 | Grass |
| | 2.305 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 14.2 | 100 | 0.0260 | 0.12 | | **Sheet Flow, Sheet Flow**<br>Grass: Dense n= 0.240 P2= 2.63" |
| 2.1 | 87 | 0.0184 | 0.68 | | **Shallow Concentrated Flow, Shallow Concentrated Flow**<br>Woodland Kv= 5.0 fps |
| 1.1 | 85 | 0.0070 | 1.25 | | **Shallow Concentrated Flow, Shallow Concentrated Flow**<br>Grassed Waterway Kv= 15.0 fps |
| 17.4 | 272 | Total | | | |

## Subcatchment 3: Pre-Dev 1220 (Detained)



## Summary for Subcatchment 4: Pre-Dev 1220 (Undetained)

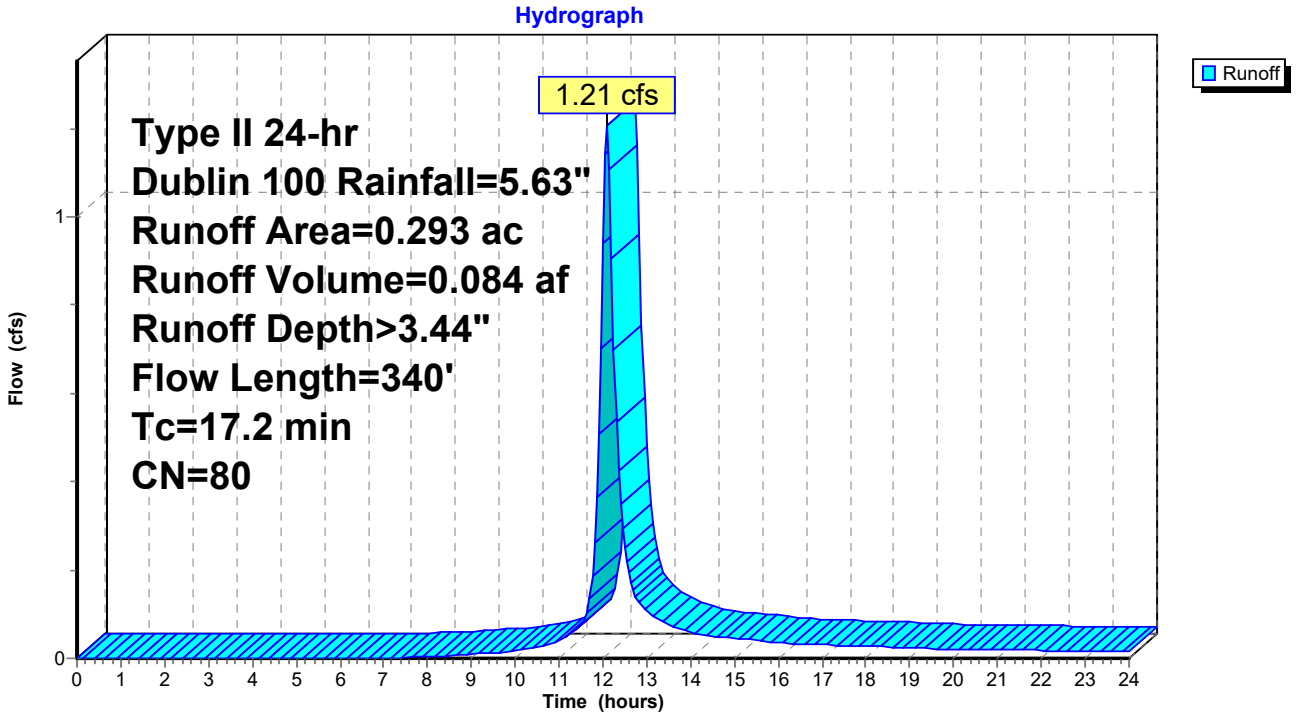
Runoff = 1.21 cfs @ 12.09 hrs, Volume= 0.084 af, Depth> 3.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 100 Rainfall=5.63"

| Area (ac) | CN | Description |
|---|---|---|
| 0.293 | 80 | >75% Grass cover, Good, HSG D |
| 0.293 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 14.4 | 100 | 0.0250 | 0.12 | | **Sheet Flow, Sheet Flow**<br>Grass: Dense n= 0.240 P2= 2.63" |
| 2.8 | 240 | 0.0088 | 1.41 | | **Shallow Concentrated Flow, Shallow Concentrated Flow**<br>Grassed Waterway Kv= 15.0 fps |
| 17.2 | 340 | Total | | | |

## Subcatchment 4: Pre-Dev 1220 (Undetained)



## Summary for Subcatchment 5: Pre-Dev 1310 (Not Including R/W)

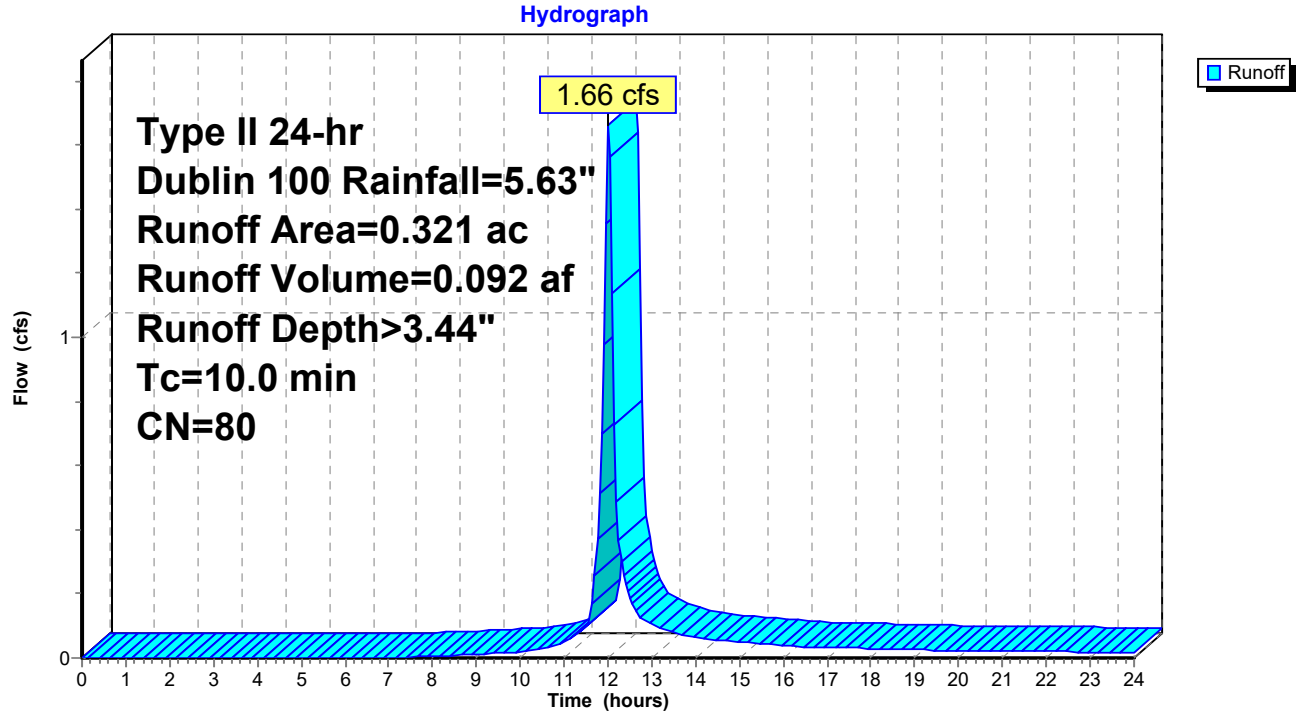
Runoff = 1.66 cfs @ 12.01 hrs, Volume= 0.092 af, Depth> 3.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 100 Rainfall=5.63"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 0.321 | 80 | Grass |
| | 0.321 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | | | | | **Direct Entry, Storm Sewer Minimum** |

## Subcatchment 5: Pre-Dev 1310 (Not Including R/W)



**APPENDIX E**

# VARIANCE LETTER TO CITY ENGINEER

ADVANCED
CIVIL DESIGN
ENGINEERS SURVEYORS

422 Beecher Road
Gahanna, Ohio 43230
ph 614.428.7750
fax 614.428.7755

18-0001-918

January 20, 2020

Mr. Paul Hammersmith, P.E.
City Engineer, City of Dublin
6555 Shier Rings Road
Dublin, Ohio 43016

Re: Schoedinger Development – Perimeter Drive
Stormwater Variance Request

Mr. Hammersmith,

The Schoedinger Funeral Home Perimeter Drive Development project is located along the north side of Perimeter Drive, east of Discovery Blvd. The scope of this project is to develop an existing empty grass field into a commercial use facility. Based on the City of Dublin Master Stormwater Plan, the site is located in the South Fork Indian Run Watershed. The majority of the site is located in Sub Basin 1220. Per the City of Dublin Master Stormwater Plan the allowable release rates are listed below.

| | 1 | 2 | 5 | 10 | 25 | 50 | 100 |
|---|---|---|---|---|---|---|---|
| Sub-Basin 1220 (cfs/ac) | 0.01 | 0.01 | 0.10 | 0.2 | 0.4 | 0.7 | 1.1 |

**Table 1 – City of Dublin Stormwater Master Plan Rates**

The critical storm determination is a 25-yr storm event limiting the site release rates to the following rates listed in the table below.

| | 1 | 2 | 5 | 10 | 25 | 50 | 100 |
|---|---|---|---|---|---|---|---|
| Sub-Basin 1220 (cfs/ac) | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.7 | 1.1 |

**Table 2 – City of Dublin Stormwater Master Plan Critical Storm Rates**

The site slopes from west to east and the elevation difference from the west property line to the east property line is approximately 6 feet. The proposed site layout and grading raises the eastern portion of the development, and creates a proposed grass area between the back of curb and the property line that slopes down to meet the existing grade. This area is proposed to be undetained runoff from the site as the total 0.293 acres is currently grass pre-development condition and proposed to be re-established as grass post-development condition. Therefore, the runoff is not increased from pre to post-development. We understand that this may not fully meet the intent of the Stormwater Management Design Manual; however, attempting to capture this area into the stormwater management system creates two issues. First, the addition of this area into the allowable release rate calculations and then subtracting the actual undetained runoff rate creates a negative allowable release rate.

The addition of the 0.293 acres to the allowable release rate calculations are shown in the tables below. Due to the constraints of the City of Dublin Master Plan Rates, the undetained rate then creates a negative allowable release rate when undetained rate is subtracted from the composite allowable release rate.

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Gahanna, Ohio 43230
ph 614.428.7750
fax 614.428.7755

| | 1 | 2 | 5 | 10 | 25 | 50 | 100 |
|---|---|---|---|---|---|---|---|
| *Critical Storm Rates 1200* | *1.40* | *1.40* | *1.40* | *1.40* | *1.40* | *4.80* | *5.70* |
| *Critical Storm Rates 1220* | *0.01* | *0.01* | *0.01* | *0.01* | *0.01* | *0.70* | *1.10* |
| *Critical Storm Rates 1310* | *0.20* | *0.20* | *0.20* | *0.20* | *0.20* | *0.90* | *1.20* |
| Allowable Q (cfs) 1200 Detained | 0.029 | 0.029 | 0.029 | 0.029 | 0.029 | 0.101 | 0.120 |
| Allowable Q (cfs) 1220 Detained | 0.023 | 0.023 | 0.023 | 0.023 | 0.023 | 1.613 | 2.535 |
| Allowable Q (cfs) 1220 Undetained | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 | 0.205 | 0.322 |
| Allowable Q (cfs) 1310 | 0.064 | 0.064 | 0.064 | 0.064 | 0.064 | 0.289 | 0.385 |
| **Composite Allowable Release Rate** | **0.119** | **0.119** | **0.119** | **0.119** | **0.119** | **2.208** | **3.362** |

**Table 3 – City of Dublin Master Plan Release Rate Requirements**

| | 1 | 2 | 5 | 10 | 25 | 50 | 100 |
|---|---|---|---|---|---|---|---|
| Pre-developed Q (cfs) 1220 Undetained | 0.23 | 0.34 | 0.50 | 0.64 | 0.85 | 1.02 | 1.21 |
| ***Composite Allowable Release Rate (cfs) -*** | ***0.119*** | ***0.119*** | ***0.119*** | ***0.119*** | ***0.119*** | ***2.208*** | ***3.362*** |
| Post-developed Q (cfs) Undetained | 0.23 | 0.33 | 0.49 | 0.63 | 0.84 | 1.01 | 1.19 |
| **Adjusted Allowable Release Rate (cfs)** | **- 0.111** | **- 0.211** | **- 0.371** | **- 0.511** | **- 0.721** | **1.198** | **2.172** |
| **Proposed Basin Release Rate (cfs)** | **0.06** | **0.07** | **0.08** | **0.09** | **0.10** | **0.11** | **0.44** |

**Table 4 – Sub-Basin 1220 Stormwater Release Rate Summary**

Second, extending a storm sewer to the eastern property line to collect the potential undetained runoff would mean the catch basin top of casting would have to be below the existing property line elevation of 902. It provides the opportunity for the stormwater basin to back out of the top of casting of any catch basin below the basin water levels. The proposed system currently has a 25-yr water level of 902.28 and a 100-yr water elevation is at 902.72. This would then cause the water to start flood routing onto the eastern property.

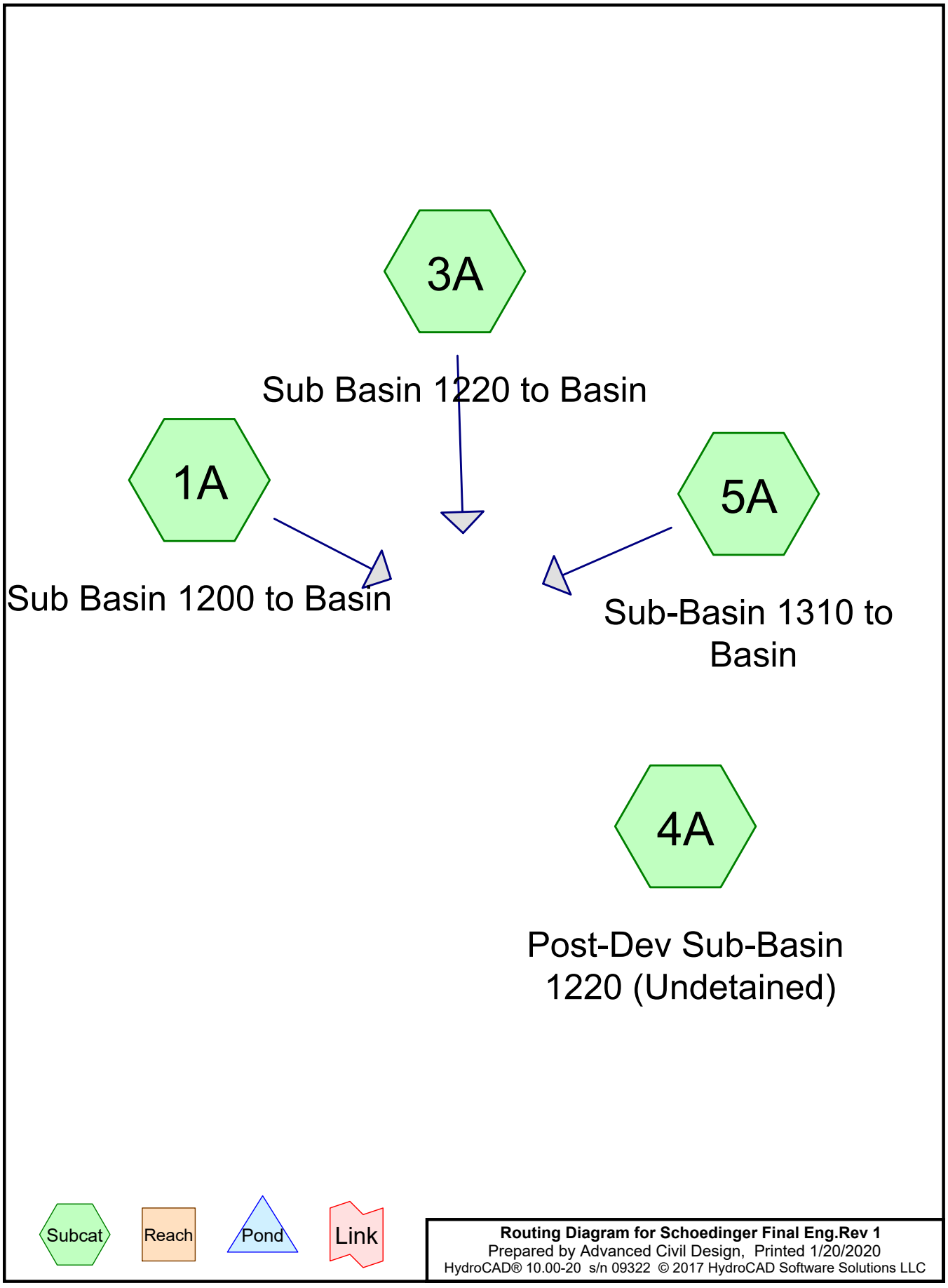
We would like to request a variance from the Stormwater Design Manual, to allow this grass area of 0.325 acres to flow undetained in the pattern of the current watershed onto the eastern property without further restricting the release rate or causing the stormwater system to flood route onto the eastern property. An analysis was conducted to see if a storm sewer could be extended from the existing 24" mainline to collect the undetained runoff. Due to minimum pipe slopes and the length of pipe, there would be less than the minimum cover required over the pipe and therefore is not reasonable.

Sincerely,
ADVANCED CIVIL DESIGN

Curtis Echelberry
Project Manager

**APPENDIX F**

# POST-DEVELOPMENT HYDROCAD CALCULATION




**Routing Diagram for Schoedinger Final Eng.Rev 1**
Prepared by Advanced Civil Design, Printed 1/20/2020
HydroCAD® 10.00-20 s/n 09322 © 2017 HydroCAD Software Solutions LLC

## Summary for Subcatchment 1A: Sub Basin 1200 to Basin

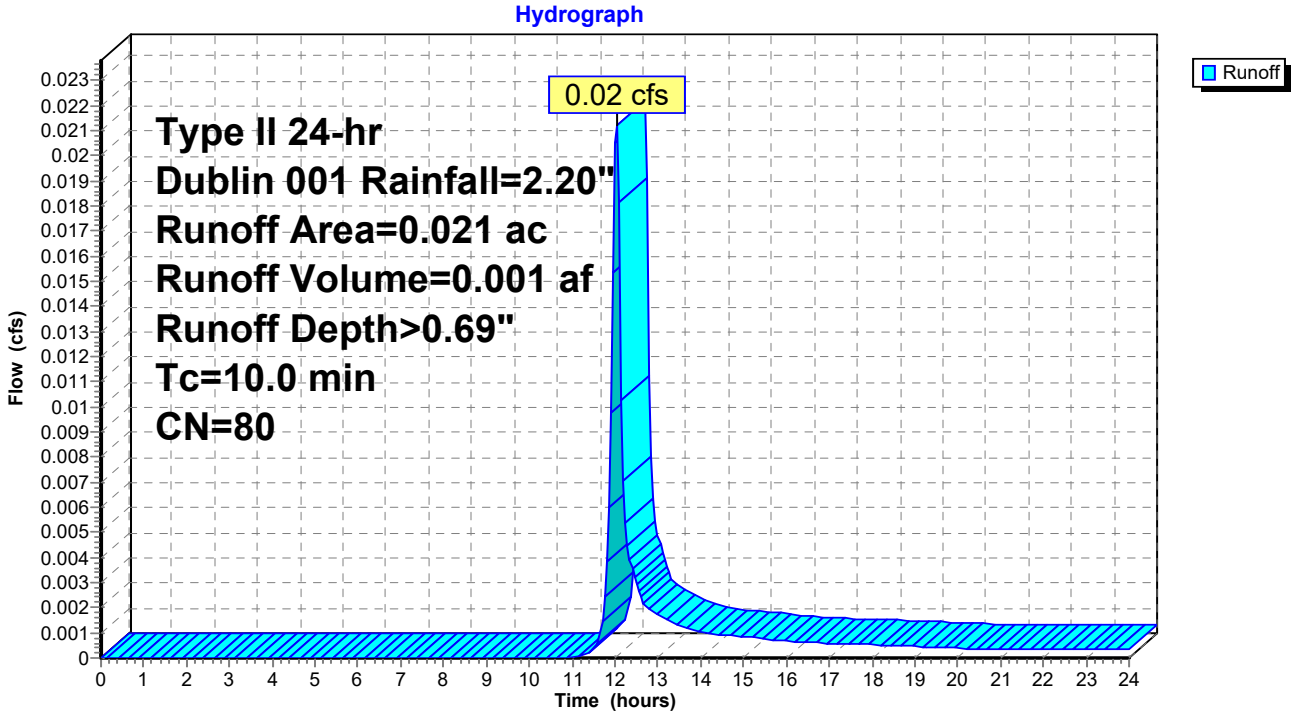
Runoff = 0.02 cfs @ 12.03 hrs, Volume= 0.001 af, Depth> 0.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 001 Rainfall=2.20"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 0.021 | 80 | |
| | 0.021 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | | | | | **Direct Entry, Storm Sewer Min** |

## Subcatchment 1A: Sub Basin 1200 to Basin



## Summary for Subcatchment 3A: Sub Basin 1220 to Basin

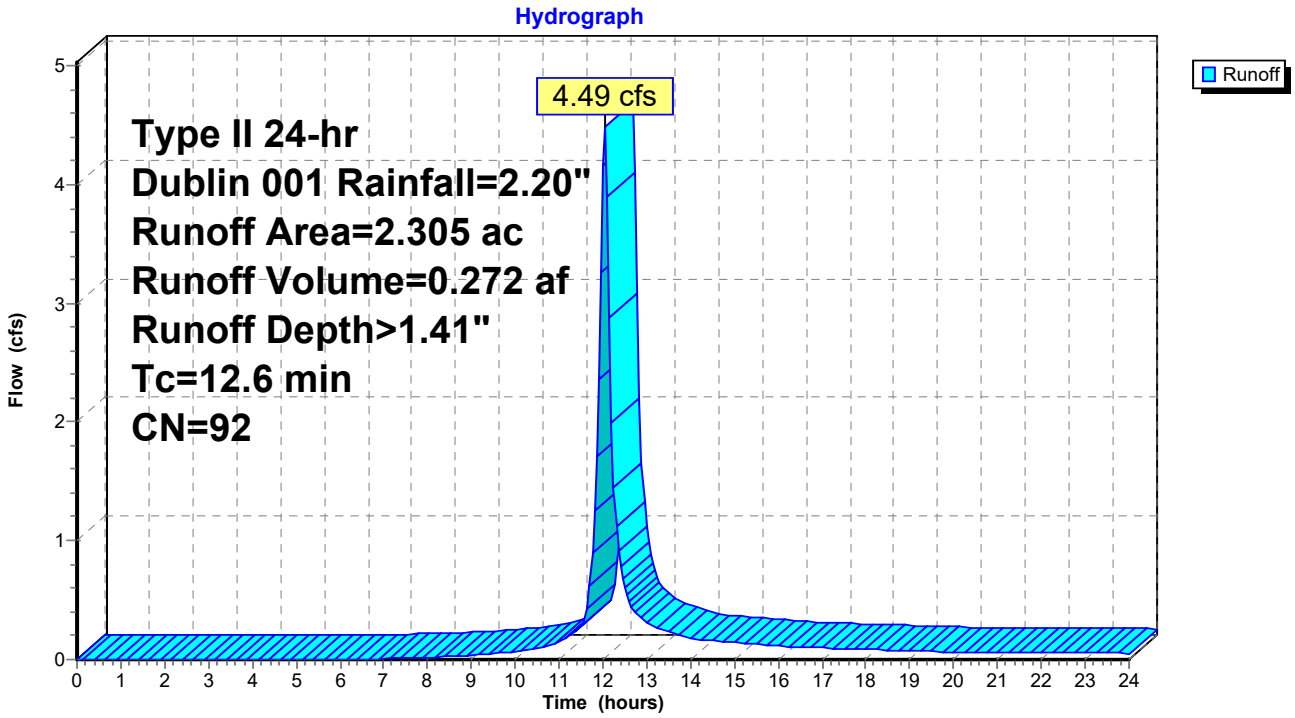
Runoff = 4.49 cfs @ 12.04 hrs, Volume= 0.272 af, Depth> 1.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 001 Rainfall=2.20"

| Area (ac) | CN | Description |
|---|---|---|
| 1.528 | 98 | Paved parking, HSG C |
| 0.777 | 80 | >75% Grass cover, Good, HSG D |
| 2.305 | 92 | Weighted Average |
| 0.777 | | 33.71% Pervious Area |
| 1.528 | | 66.29% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 12.6 | | | | | **Direct Entry, Storm Sewer Calculations** |

## Subcatchment 3A: Sub Basin 1220 to Basin



## Summary for Subcatchment 4A: Post-Dev Sub-Basin 1220 (Undetained)

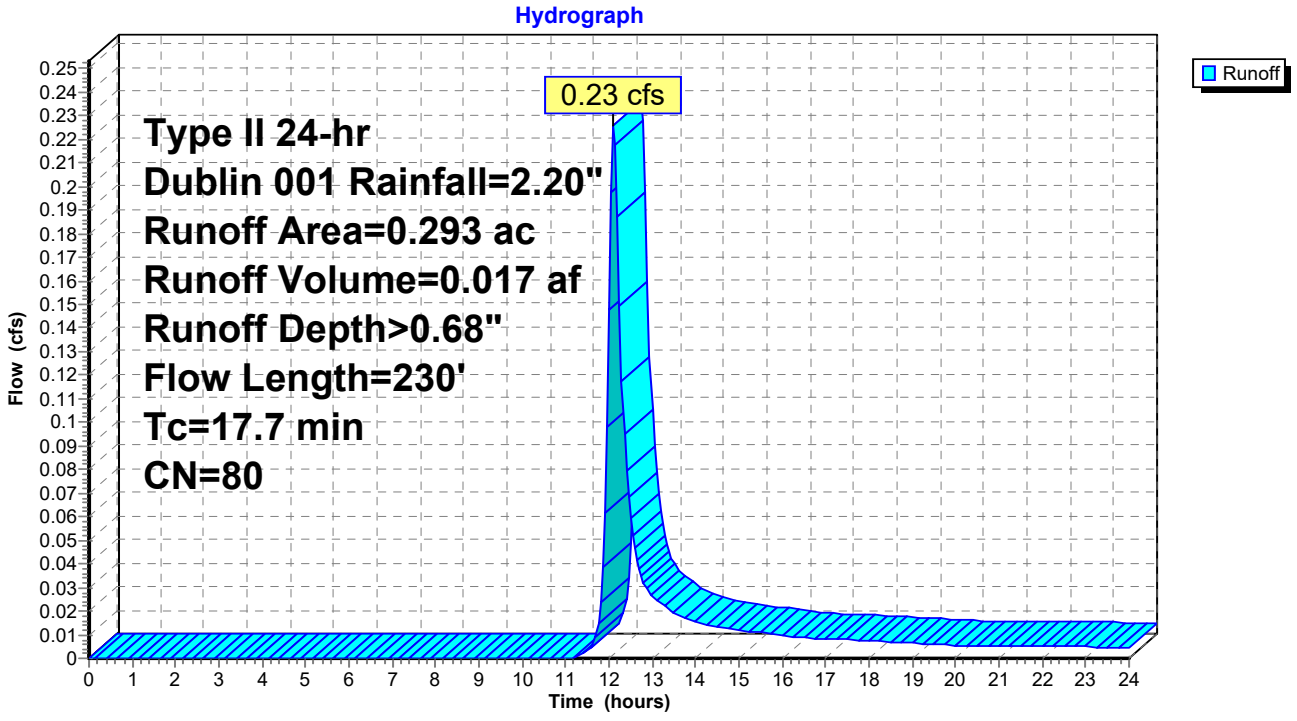
Runoff = 0.23 cfs @ 12.12 hrs, Volume= 0.017 af, Depth> 0.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 001 Rainfall=2.20"

| Area (ac) | CN | Description |
|---|---|---|
| 0.293 | 80 | >75% Grass cover, Good, HSG D |
| 0.293 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 15.3 | 100 | 0.0214 | 0.11 | | **Sheet Flow, Sheet Flow**<br>Grass: Dense n= 0.240 P2= 2.63" |
| 2.4 | 130 | 0.0037 | 0.91 | | **Shallow Concentrated Flow, Shallow Concentrated Flow**<br>Grassed Waterway Kv= 15.0 fps |
| 17.7 | 230 | Total | | | |

## Subcatchment 4A: Post-Dev Sub-Basin 1220 (Undetained)



## Summary for Subcatchment 5A: Sub-Basin 1310 to Basin

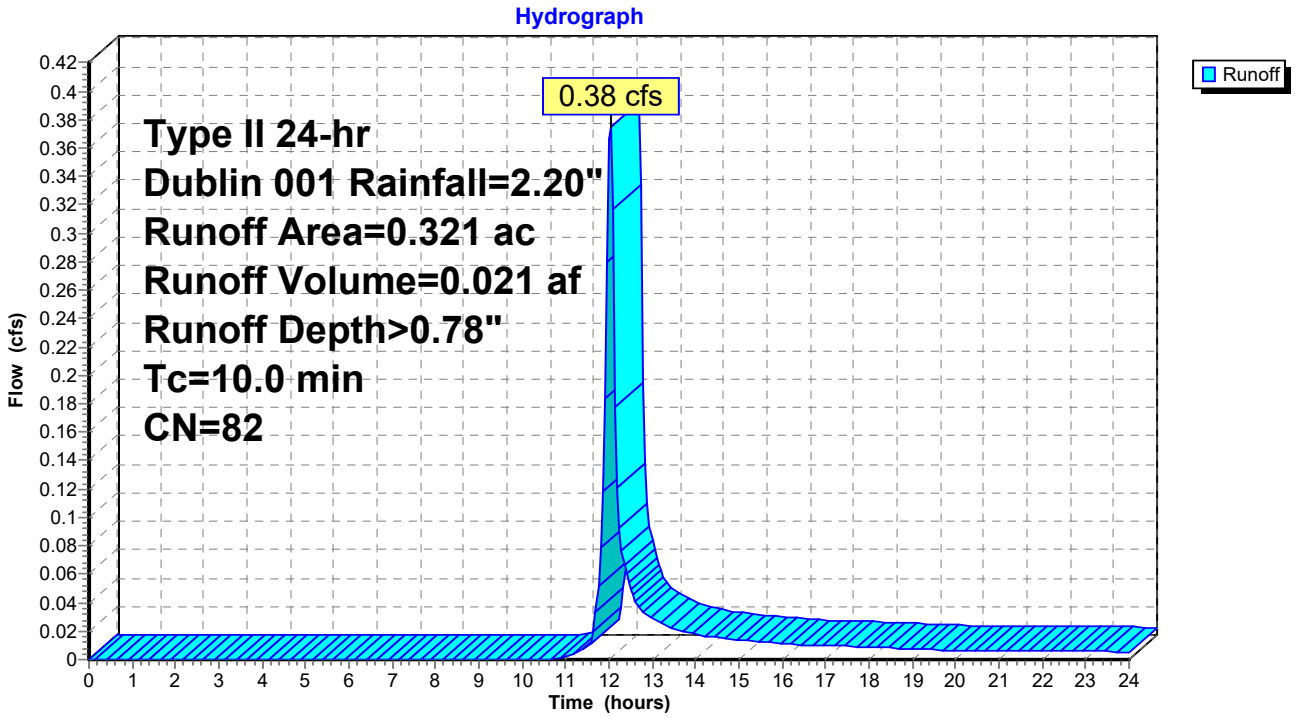
Runoff = 0.38 cfs @ 12.02 hrs, Volume= 0.021 af, Depth> 0.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 001 Rainfall=2.20"

| Area (ac) | CN | Description |
|---|---|---|
| 0.284 | 80 | >75% Grass cover, Good, HSG D |
| 0.037 | 98 | Paved roads w/curbs & sewers, HSG D |
| 0.321 | 82 | Weighted Average |
| 0.284 | | 88.47% Pervious Area |
| 0.037 | | 11.53% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | | | | | **Direct Entry, Min Tc** |

## Subcatchment 5A: Sub-Basin 1310 to Basin



## Summary for Subcatchment 1A: Sub Basin 1200 to Basin

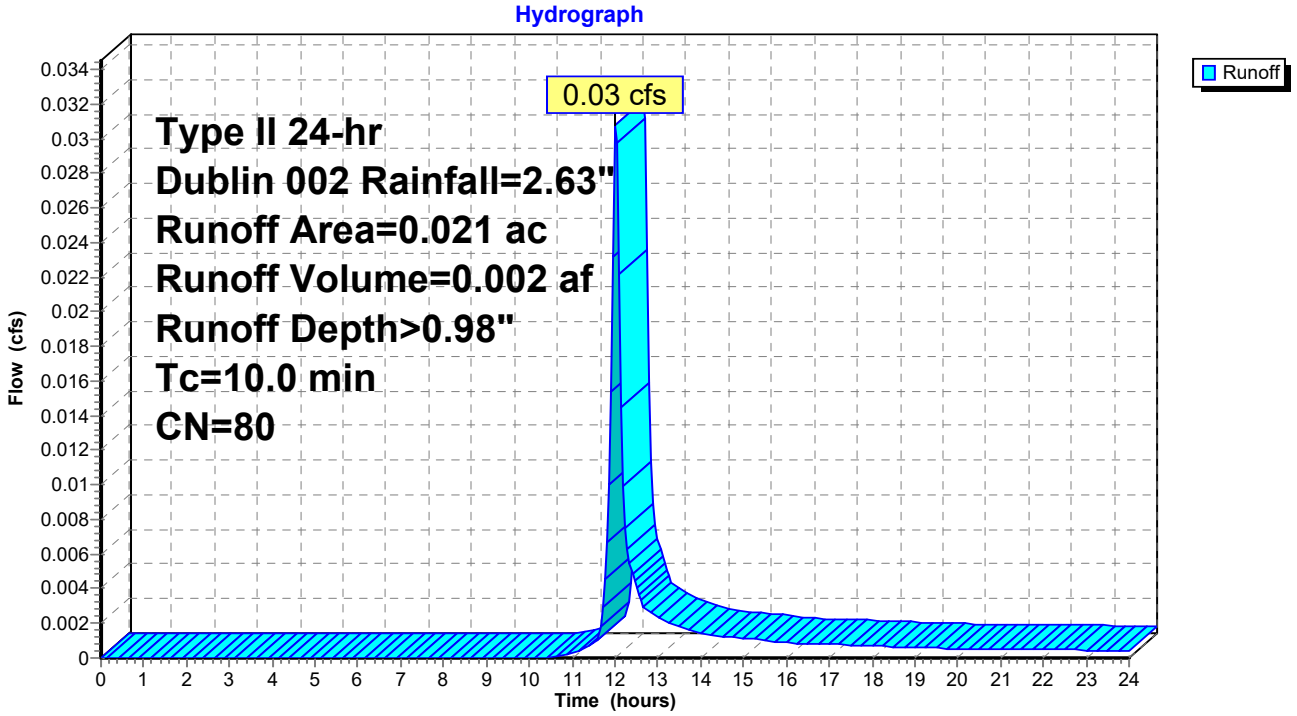
Runoff = 0.03 cfs @ 12.02 hrs, Volume= 0.002 af, Depth> 0.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 002 Rainfall=2.63"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 0.021 | 80 | |
| | 0.021 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | | | | | **Direct Entry, Storm Sewer Min** |

## Subcatchment 1A: Sub Basin 1200 to Basin



## Summary for Subcatchment 3A: Sub Basin 1220 to Basin

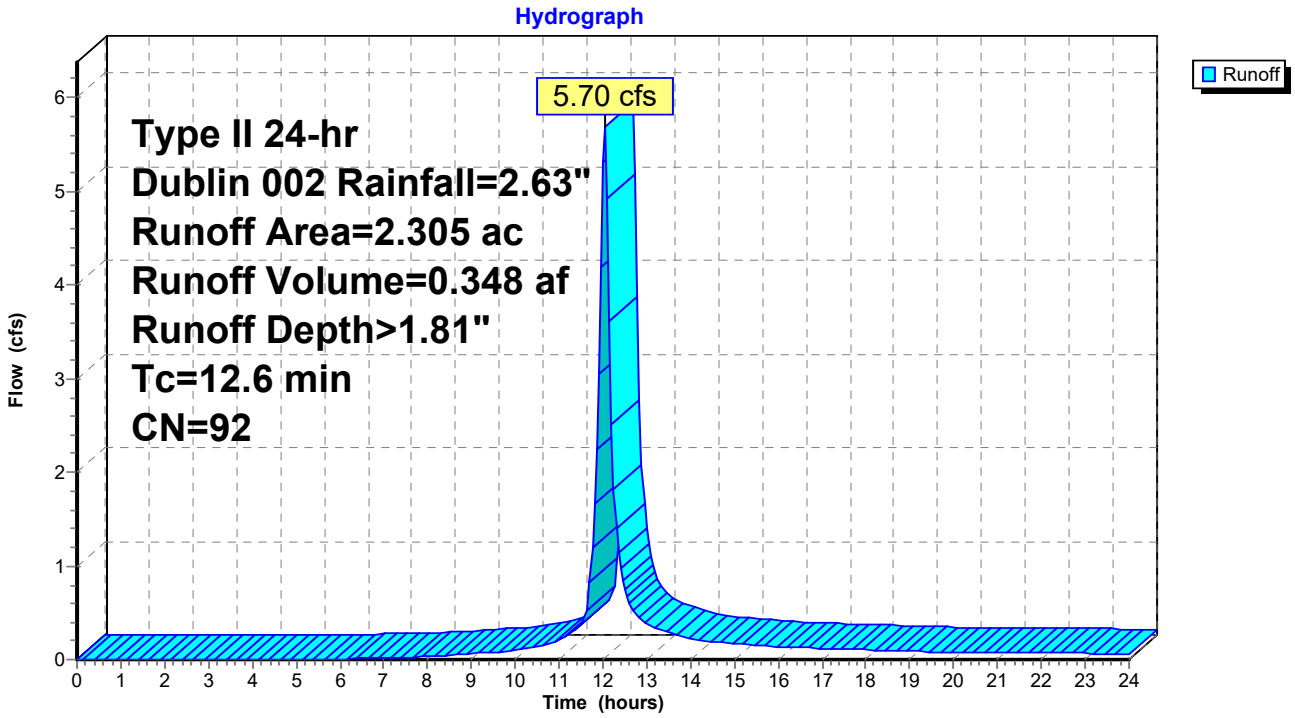
Runoff = 5.70 cfs @ 12.04 hrs, Volume= 0.348 af, Depth> 1.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 002 Rainfall=2.63"

| Area (ac) | CN | Description |
|---|---|---|
| 1.528 | 98 | Paved parking, HSG C |
| 0.777 | 80 | >75% Grass cover, Good, HSG D |
| 2.305 | 92 | Weighted Average |
| 0.777 | | 33.71% Pervious Area |
| 1.528 | | 66.29% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 12.6 | | | | | **Direct Entry, Storm Sewer Calculations** |

## Subcatchment 3A: Sub Basin 1220 to Basin



## Summary for Subcatchment 4A: Post-Dev Sub-Basin 1220 (Undetained)

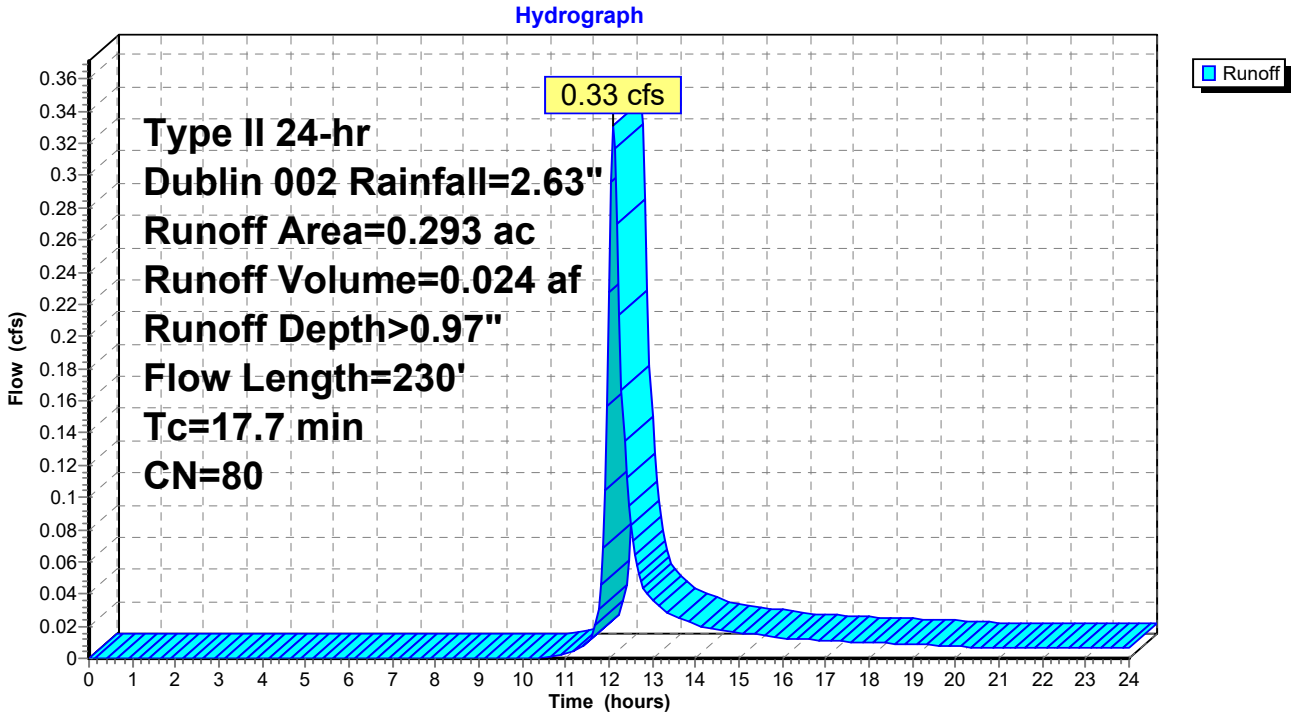
Runoff = 0.33 cfs @ 12.11 hrs, Volume= 0.024 af, Depth> 0.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 002 Rainfall=2.63"

| Area (ac) | CN | Description |
|---|---|---|
| 0.293 | 80 | >75% Grass cover, Good, HSG D |
| 0.293 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 15.3 | 100 | 0.0214 | 0.11 | | **Sheet Flow, Sheet Flow**<br>Grass: Dense n= 0.240 P2= 2.63" |
| 2.4 | 130 | 0.0037 | 0.91 | | **Shallow Concentrated Flow, Shallow Concentrated Flow**<br>Grassed Waterway Kv= 15.0 fps |
| 17.7 | 230 | Total | | | |

## Subcatchment 4A: Post-Dev Sub-Basin 1220 (Undetained)



## Summary for Subcatchment 5A: Sub-Basin 1310 to Basin

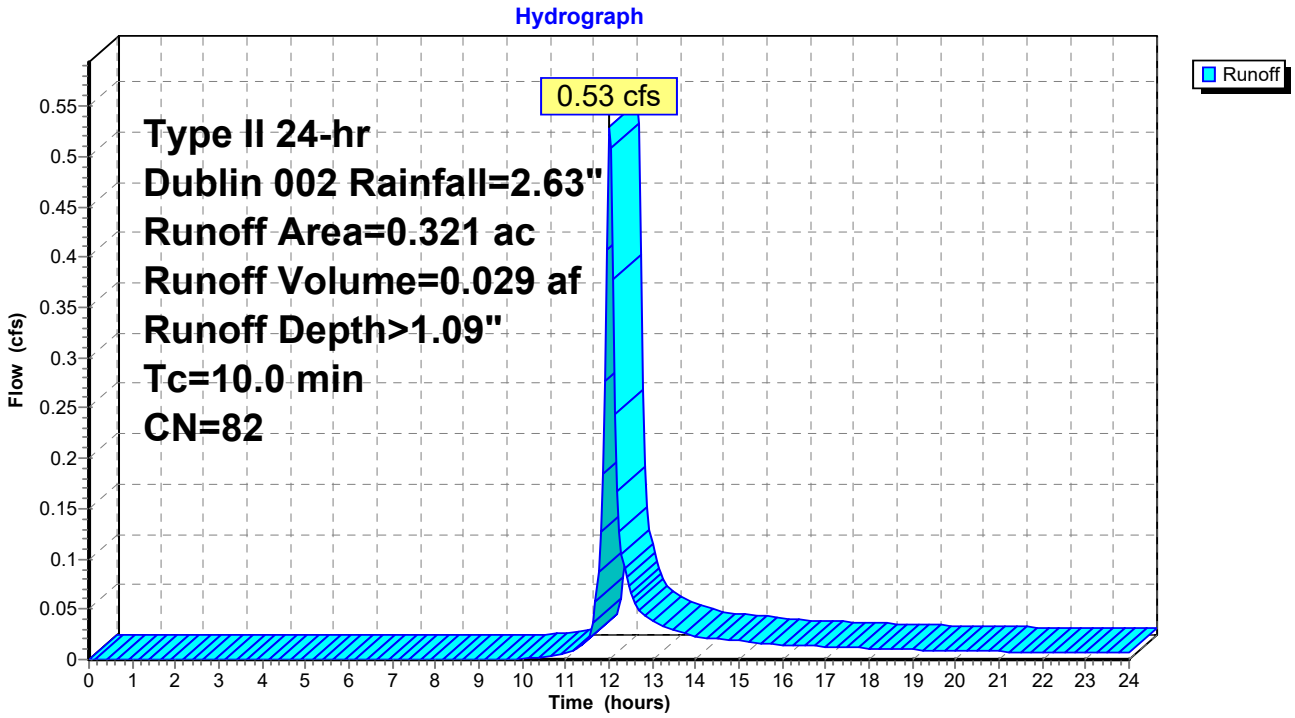
Runoff = 0.53 cfs @ 12.02 hrs, Volume= 0.029 af, Depth> 1.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 002 Rainfall=2.63"

| Area (ac) | CN | Description |
|---|---|---|
| 0.284 | 80 | >75% Grass cover, Good, HSG D |
| 0.037 | 98 | Paved roads w/curbs & sewers, HSG D |
| 0.321 | 82 | Weighted Average |
| 0.284 | | 88.47% Pervious Area |
| 0.037 | | 11.53% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | | | | | **Direct Entry, Min Tc** |

### Subcatchment 5A: Sub-Basin 1310 to Basin



## Summary for Subcatchment 1A: Sub Basin 1200 to Basin

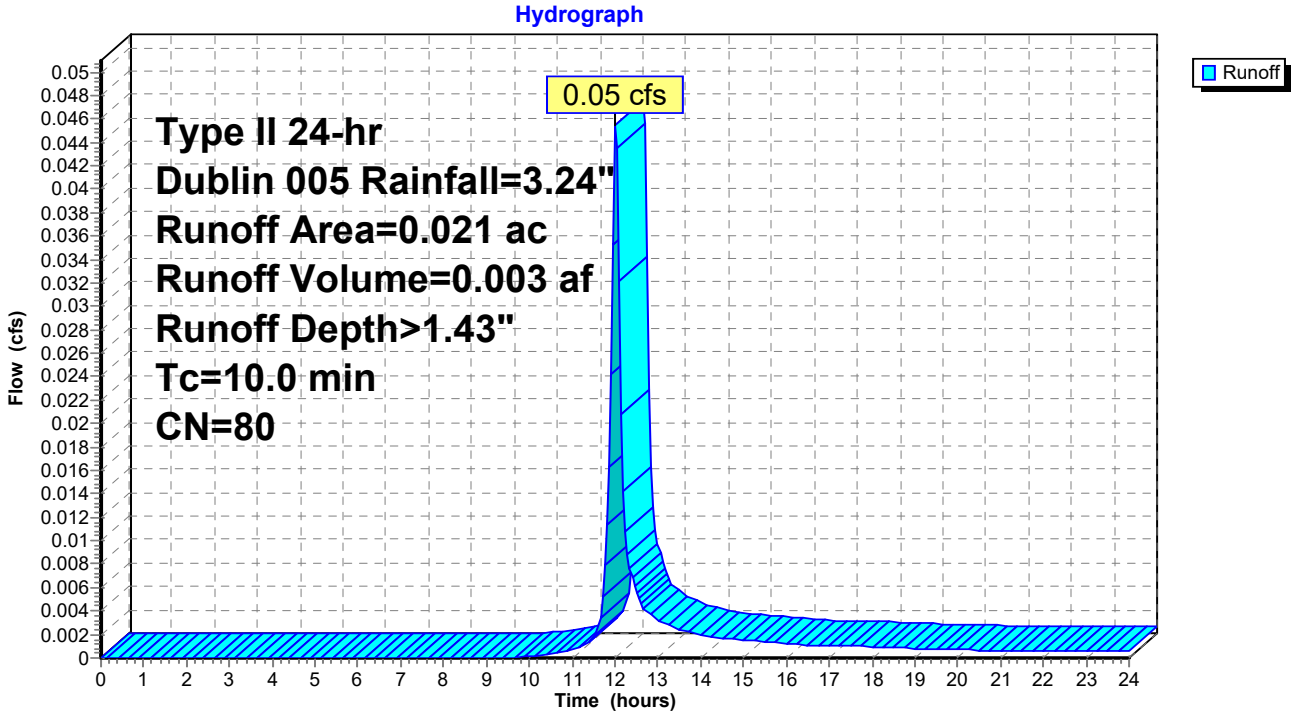
Runoff = 0.05 cfs @ 12.02 hrs, Volume= 0.003 af, Depth> 1.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 005 Rainfall=3.24"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 0.021 | 80 | |
| | 0.021 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | | | | | **Direct Entry, Storm Sewer Min** |

## Subcatchment 1A: Sub Basin 1200 to Basin



## Summary for Subcatchment 3A: Sub Basin 1220 to Basin

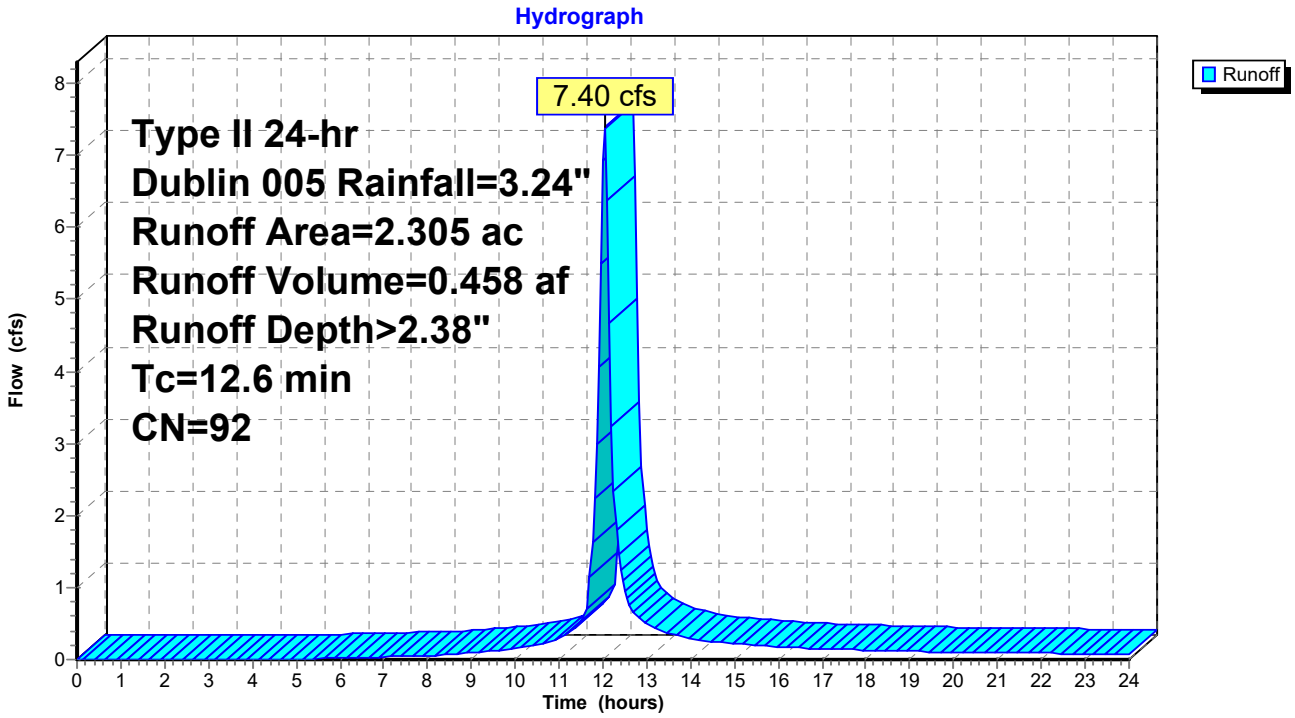
Runoff = 7.40 cfs @ 12.04 hrs, Volume= 0.458 af, Depth> 2.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 005 Rainfall=3.24"

| Area (ac) | CN | Description |
|---|---|---|
| 1.528 | 98 | Paved parking, HSG C |
| 0.777 | 80 | >75% Grass cover, Good, HSG D |
| 2.305 | 92 | Weighted Average |
| 0.777 | | 33.71% Pervious Area |
| 1.528 | | 66.29% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 12.6 | | | | | **Direct Entry, Storm Sewer Calculations** |

## Subcatchment 3A: Sub Basin 1220 to Basin



## Summary for Subcatchment 4A: Post-Dev Sub-Basin 1220 (Undetained)

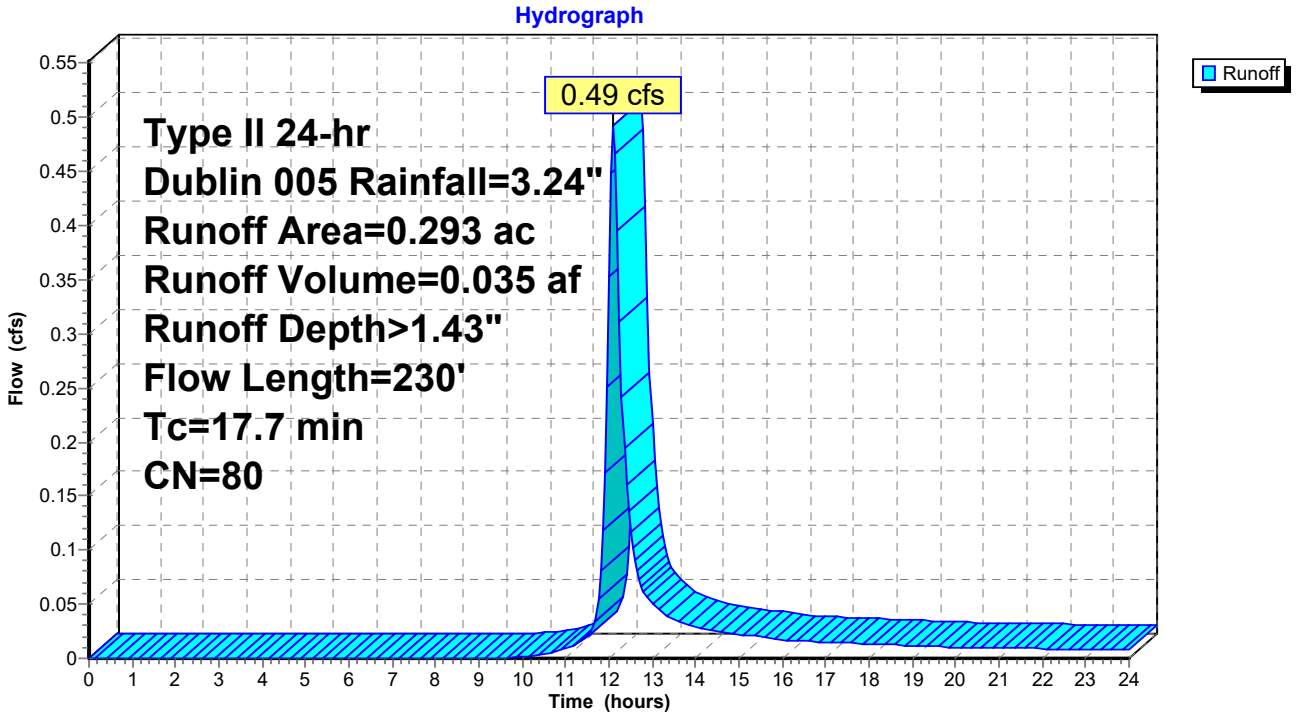
Runoff = 0.49 cfs @ 12.11 hrs, Volume= 0.035 af, Depth> 1.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 005 Rainfall=3.24"

| Area (ac) | CN | Description |
|---|---|---|
| 0.293 | 80 | >75% Grass cover, Good, HSG D |
| 0.293 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 15.3 | 100 | 0.0214 | 0.11 | | **Sheet Flow, Sheet Flow**<br>Grass: Dense n= 0.240 P2= 2.63" |
| 2.4 | 130 | 0.0037 | 0.91 | | **Shallow Concentrated Flow, Shallow Concentrated Flow**<br>Grassed Waterway Kv= 15.0 fps |
| 17.7 | 230 | Total | | | |

## Subcatchment 4A: Post-Dev Sub-Basin 1220 (Undetained)



## Summary for Subcatchment 5A: Sub-Basin 1310 to Basin

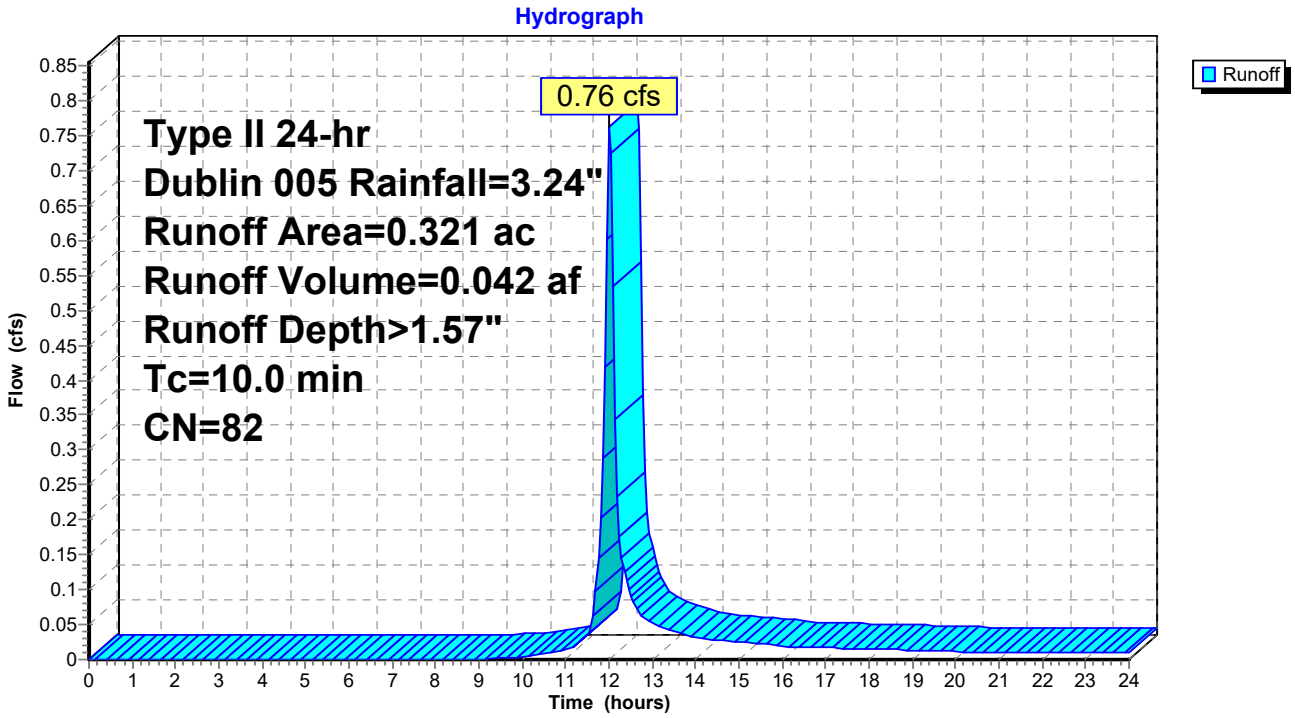
Runoff = 0.76 cfs @ 12.02 hrs, Volume= 0.042 af, Depth> 1.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 005 Rainfall=3.24"

| Area (ac) | CN | Description |
|---|---|---|
| 0.284 | 80 | >75% Grass cover, Good, HSG D |
| 0.037 | 98 | Paved roads w/curbs & sewers, HSG D |
| 0.321 | 82 | Weighted Average |
| 0.284 | | 88.47% Pervious Area |
| 0.037 | | 11.53% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | | | | | **Direct Entry, Min Tc** |

### Subcatchment 5A: Sub-Basin 1310 to Basin



## Summary for Subcatchment 1A: Sub Basin 1200 to Basin

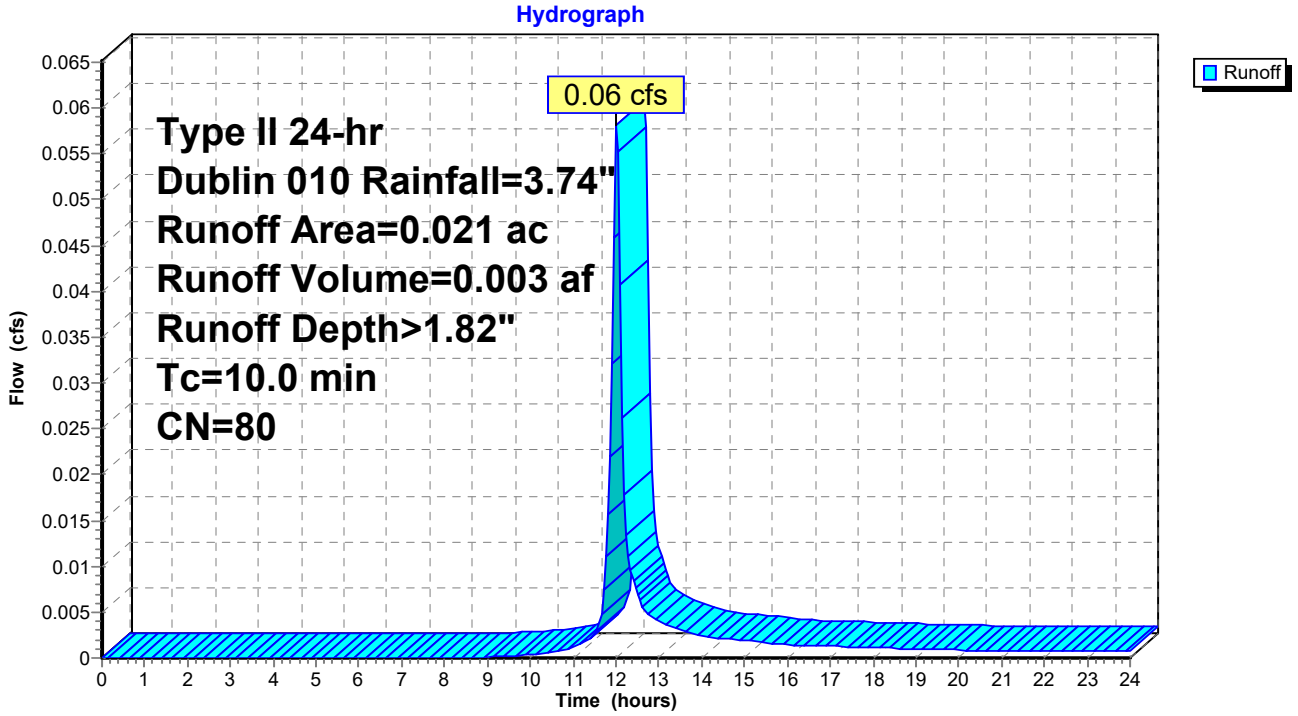
Runoff = 0.06 cfs @ 12.02 hrs, Volume= 0.003 af, Depth> 1.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 010 Rainfall=3.74"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 0.021 | 80 | |
| | 0.021 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | | | | | **Direct Entry, Storm Sewer Min** |

## Subcatchment 1A: Sub Basin 1200 to Basin



## Summary for Subcatchment 3A: Sub Basin 1220 to Basin

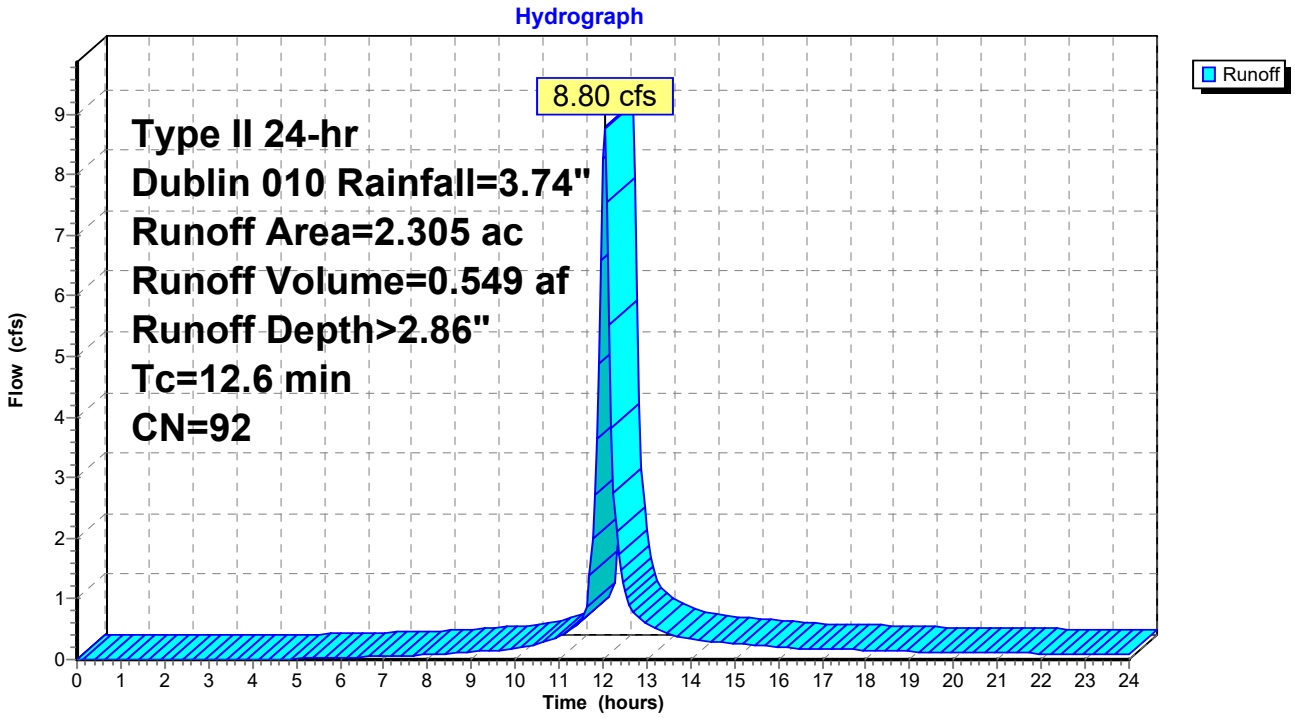
Runoff = 8.80 cfs @ 12.04 hrs, Volume= 0.549 af, Depth> 2.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 010 Rainfall=3.74"

| Area (ac) | CN | Description |
|---|---|---|
| 1.528 | 98 | Paved parking, HSG C |
| 0.777 | 80 | >75% Grass cover, Good, HSG D |
| 2.305 | 92 | Weighted Average |
| 0.777 | | 33.71% Pervious Area |
| 1.528 | | 66.29% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 12.6 | | | | | **Direct Entry, Storm Sewer Calculations** |

## Subcatchment 3A: Sub Basin 1220 to Basin



## Summary for Subcatchment 4A: Post-Dev Sub-Basin 1220 (Undetained)

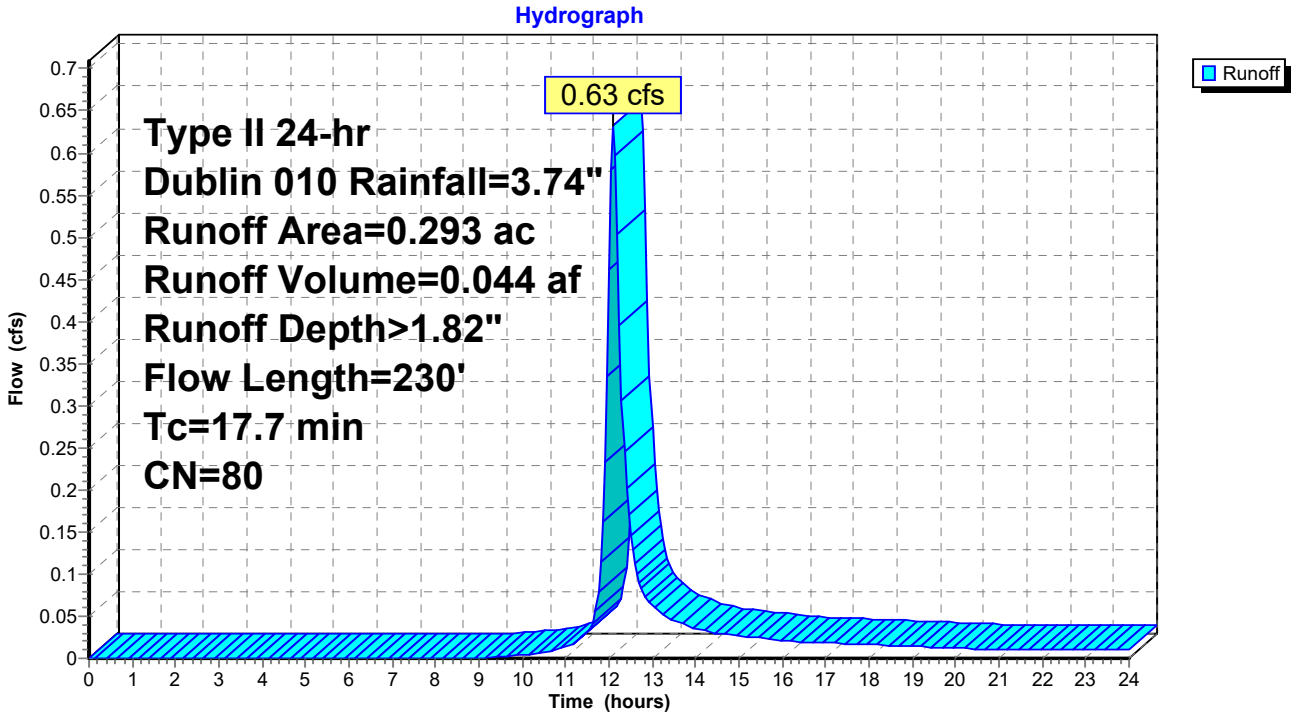
Runoff = 0.63 cfs @ 12.10 hrs, Volume= 0.044 af, Depth> 1.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 010 Rainfall=3.74"

| Area (ac) | CN | Description |
|---|---|---|
| 0.293 | 80 | >75% Grass cover, Good, HSG D |
| 0.293 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 15.3 | 100 | 0.0214 | 0.11 | | **Sheet Flow, Sheet Flow**<br>Grass: Dense n= 0.240 P2= 2.63" |
| 2.4 | 130 | 0.0037 | 0.91 | | **Shallow Concentrated Flow, Shallow Concentrated Flow**<br>Grassed Waterway Kv= 15.0 fps |
| 17.7 | 230 | Total | | | |

## Subcatchment 4A: Post-Dev Sub-Basin 1220 (Undetained)



## Summary for Subcatchment 5A: Sub-Basin 1310 to Basin

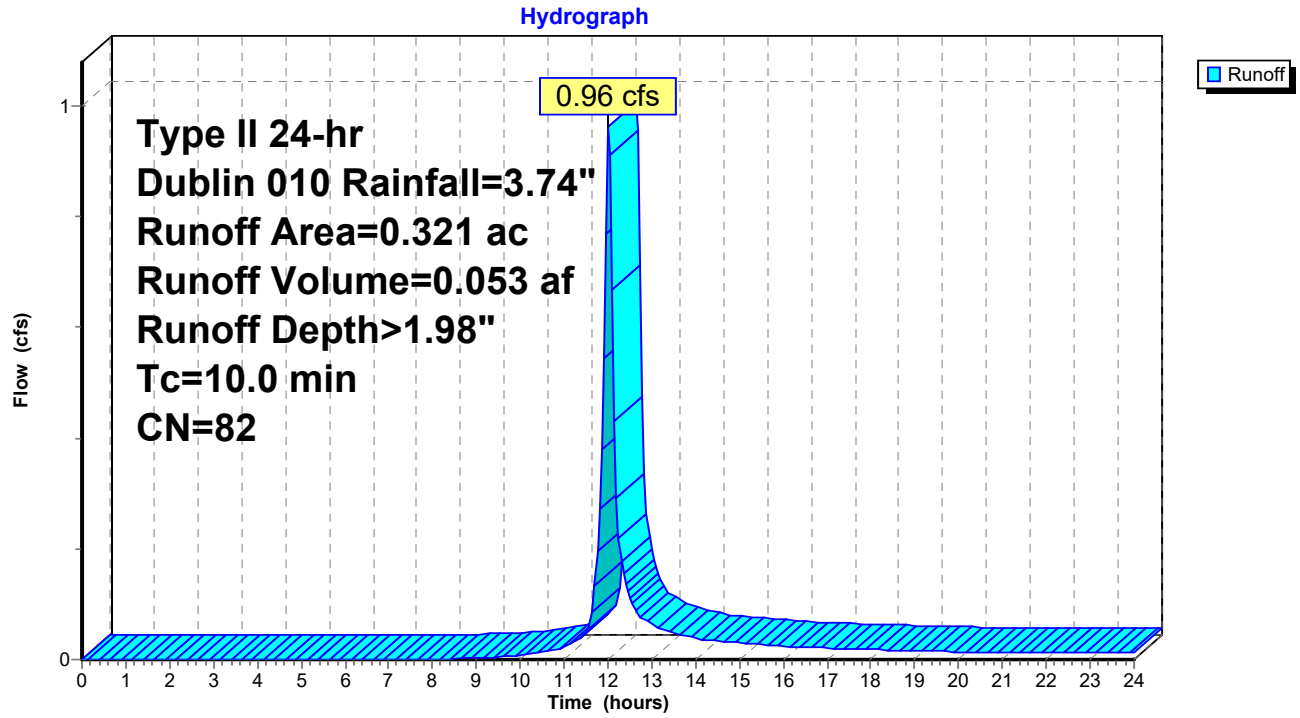
Runoff = 0.96 cfs @ 12.02 hrs, Volume= 0.053 af, Depth> 1.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 010 Rainfall=3.74"

| Area (ac) | CN | Description |
|---|---|---|
| 0.284 | 80 | >75% Grass cover, Good, HSG D |
| 0.037 | 98 | Paved roads w/curbs & sewers, HSG D |
| 0.321 | 82 | Weighted Average |
| 0.284 | | 88.47% Pervious Area |
| 0.037 | | 11.53% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | | | | | **Direct Entry, Min Tc** |

### Subcatchment 5A: Sub-Basin 1310 to Basin



## Summary for Subcatchment 1A: Sub Basin 1200 to Basin

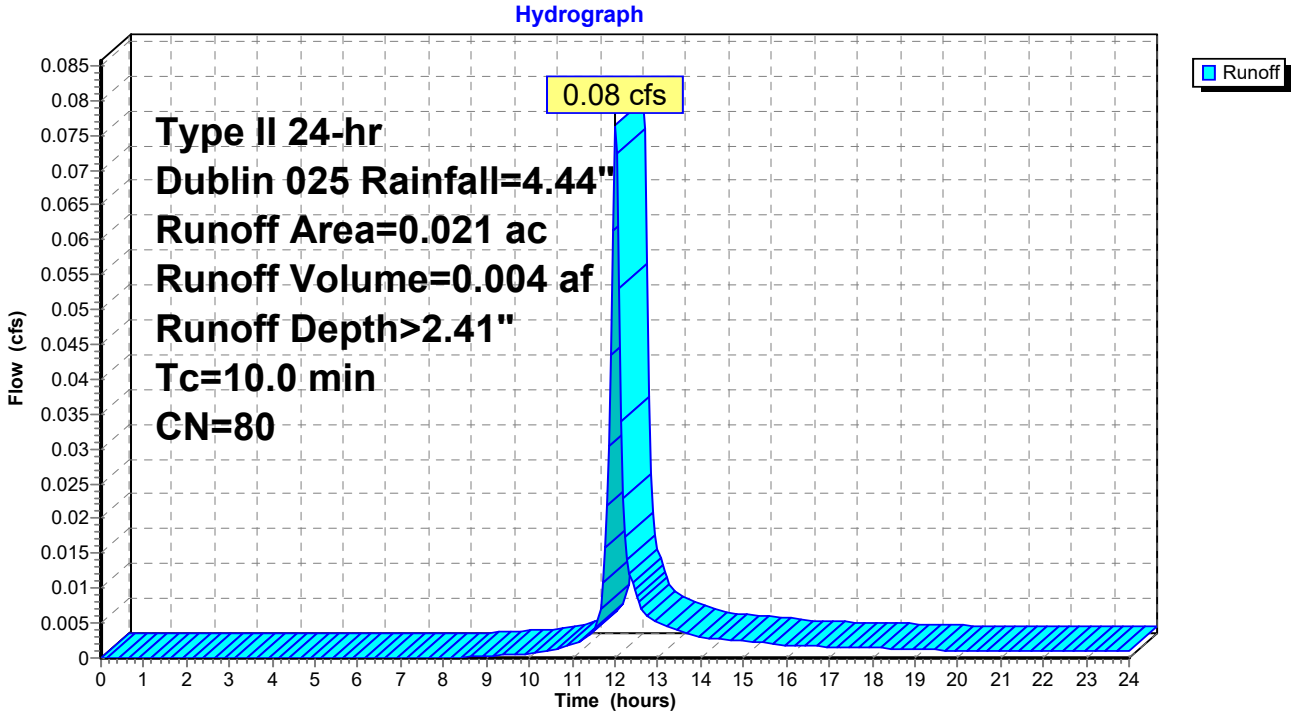
Runoff = 0.08 cfs @ 12.02 hrs, Volume= 0.004 af, Depth> 2.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 025 Rainfall=4.44"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 0.021 | 80 | |
| | 0.021 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | | | | | **Direct Entry, Storm Sewer Min** |

## Subcatchment 1A: Sub Basin 1200 to Basin



## Summary for Subcatchment 3A: Sub Basin 1220 to Basin

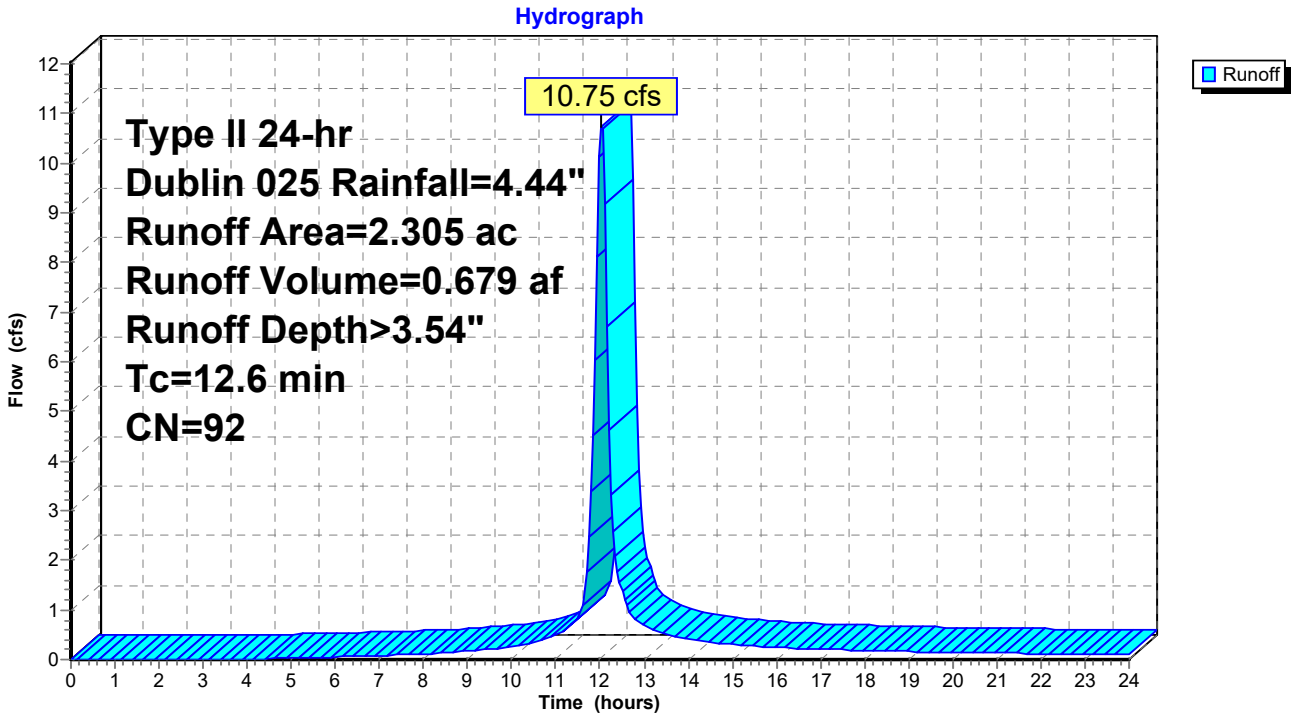
Runoff = 10.75 cfs @ 12.04 hrs, Volume= 0.679 af, Depth> 3.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 025 Rainfall=4.44"

| Area (ac) | CN | Description |
|---|---|---|
| 1.528 | 98 | Paved parking, HSG C |
| 0.777 | 80 | >75% Grass cover, Good, HSG D |
| 2.305 | 92 | Weighted Average |
| 0.777 | | 33.71% Pervious Area |
| 1.528 | | 66.29% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 12.6 | | | | | **Direct Entry, Storm Sewer Calculations** |

## Subcatchment 3A: Sub Basin 1220 to Basin



## Summary for Subcatchment 4A: Post-Dev Sub-Basin 1220 (Undetained)

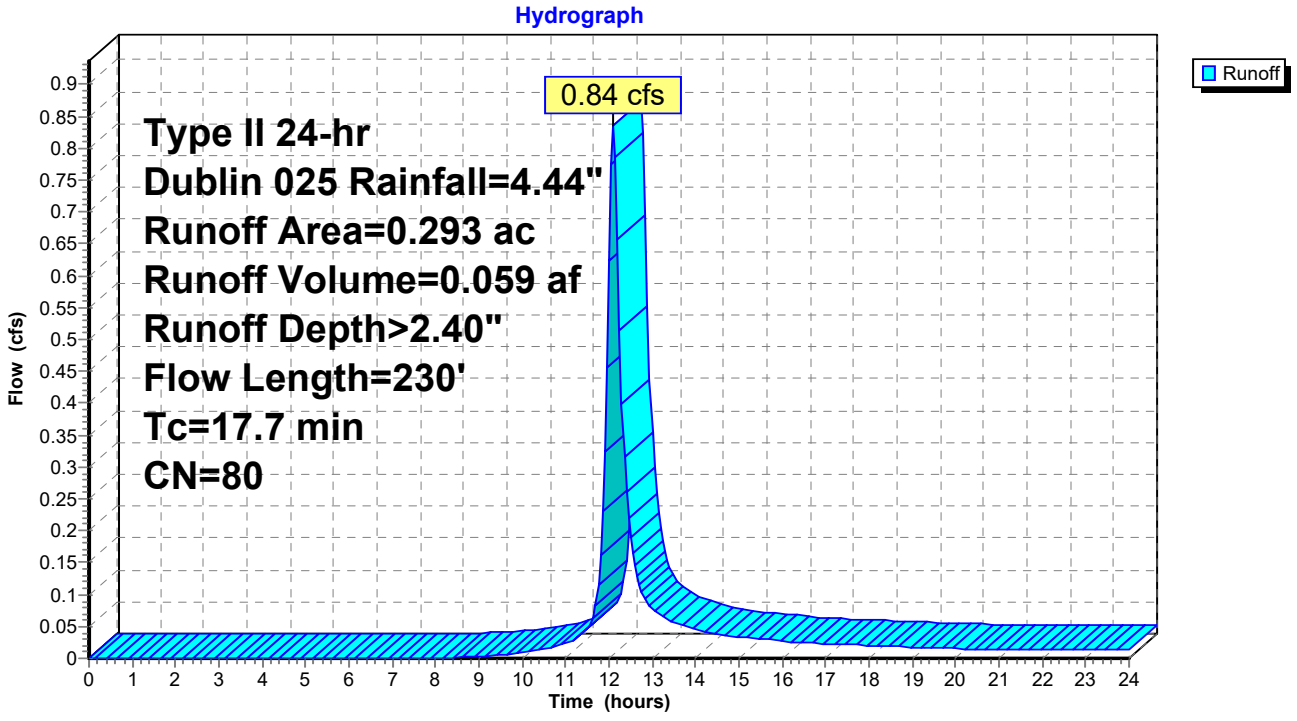
Runoff = 0.84 cfs @ 12.10 hrs, Volume= 0.059 af, Depth> 2.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 025 Rainfall=4.44"

| Area (ac) | CN | Description |
|---|---|---|
| 0.293 | 80 | >75% Grass cover, Good, HSG D |
| 0.293 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 15.3 | 100 | 0.0214 | 0.11 | | **Sheet Flow, Sheet Flow**<br>Grass: Dense n= 0.240 P2= 2.63" |
| 2.4 | 130 | 0.0037 | 0.91 | | **Shallow Concentrated Flow, Shallow Concentrated Flow**<br>Grassed Waterway Kv= 15.0 fps |
| 17.7 | 230 | Total | | | |

## Subcatchment 4A: Post-Dev Sub-Basin 1220 (Undetained)



## Summary for Subcatchment 5A: Sub-Basin 1310 to Basin

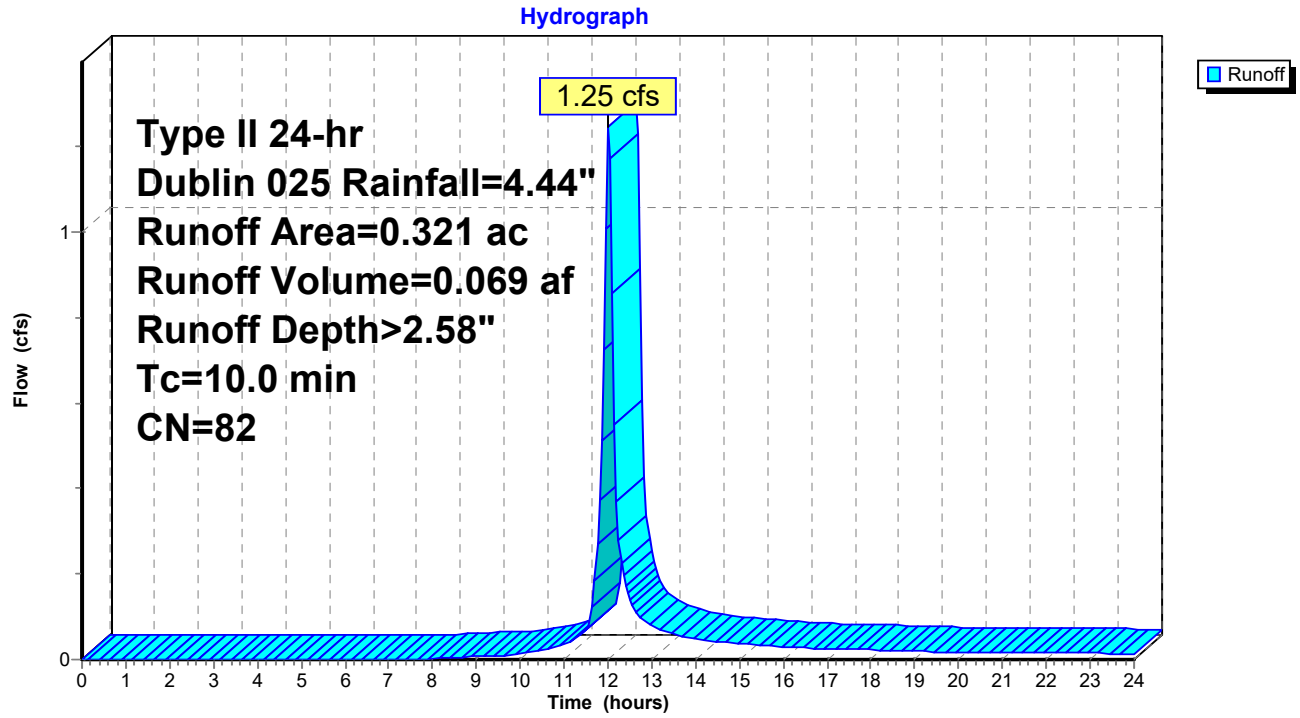
Runoff = 1.25 cfs @ 12.01 hrs, Volume= 0.069 af, Depth> 2.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 025 Rainfall=4.44"

| Area (ac) | CN | Description |
|---|---|---|
| 0.284 | 80 | >75% Grass cover, Good, HSG D |
| 0.037 | 98 | Paved roads w/curbs & sewers, HSG D |
| 0.321 | 82 | Weighted Average |
| 0.284 | | 88.47% Pervious Area |
| 0.037 | | 11.53% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | | | | | **Direct Entry, Min Tc** |

## Subcatchment 5A: Sub-Basin 1310 to Basin



## Summary for Subcatchment 1A: Sub Basin 1200 to Basin

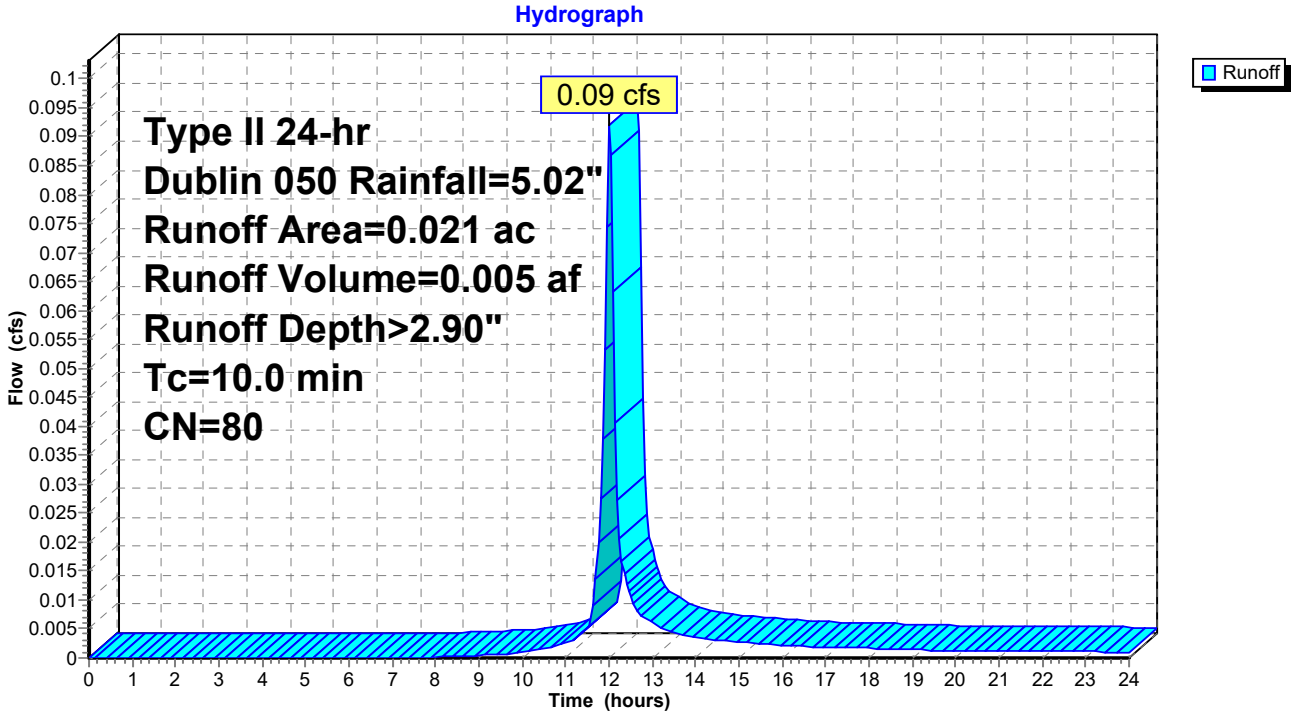
Runoff = 0.09 cfs @ 12.01 hrs, Volume= 0.005 af, Depth> 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 050 Rainfall=5.02"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 0.021 | 80 | |
| | 0.021 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | | | | | **Direct Entry, Storm Sewer Min** |

## Subcatchment 1A: Sub Basin 1200 to Basin



## Summary for Subcatchment 3A: Sub Basin 1220 to Basin

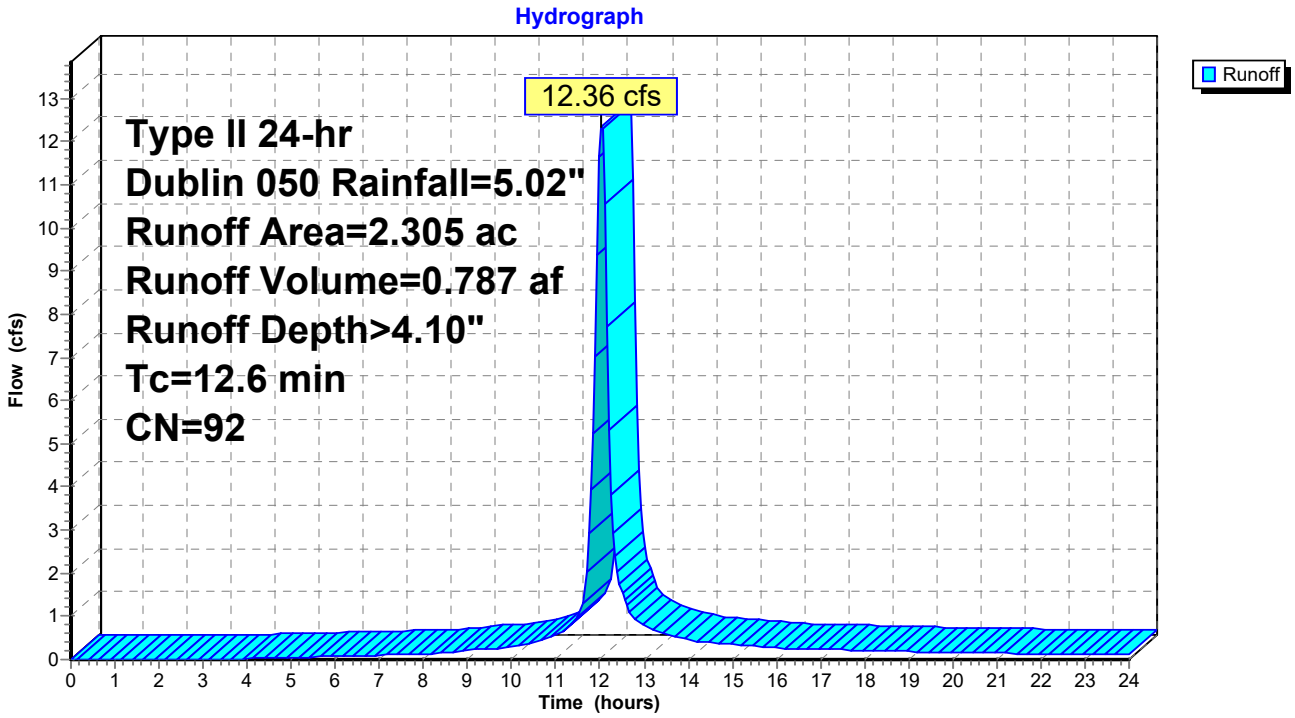
Runoff = 12.36 cfs @ 12.04 hrs, Volume= 0.787 af, Depth> 4.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 050 Rainfall=5.02"

| Area (ac) | CN | Description |
|---|---|---|
| 1.528 | 98 | Paved parking, HSG C |
| 0.777 | 80 | >75% Grass cover, Good, HSG D |
| 2.305 | 92 | Weighted Average |
| 0.777 | | 33.71% Pervious Area |
| 1.528 | | 66.29% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 12.6 | | | | | **Direct Entry, Storm Sewer Calculations** |

## Subcatchment 3A: Sub Basin 1220 to Basin



## Summary for Subcatchment 4A: Post-Dev Sub-Basin 1220 (Undetained)

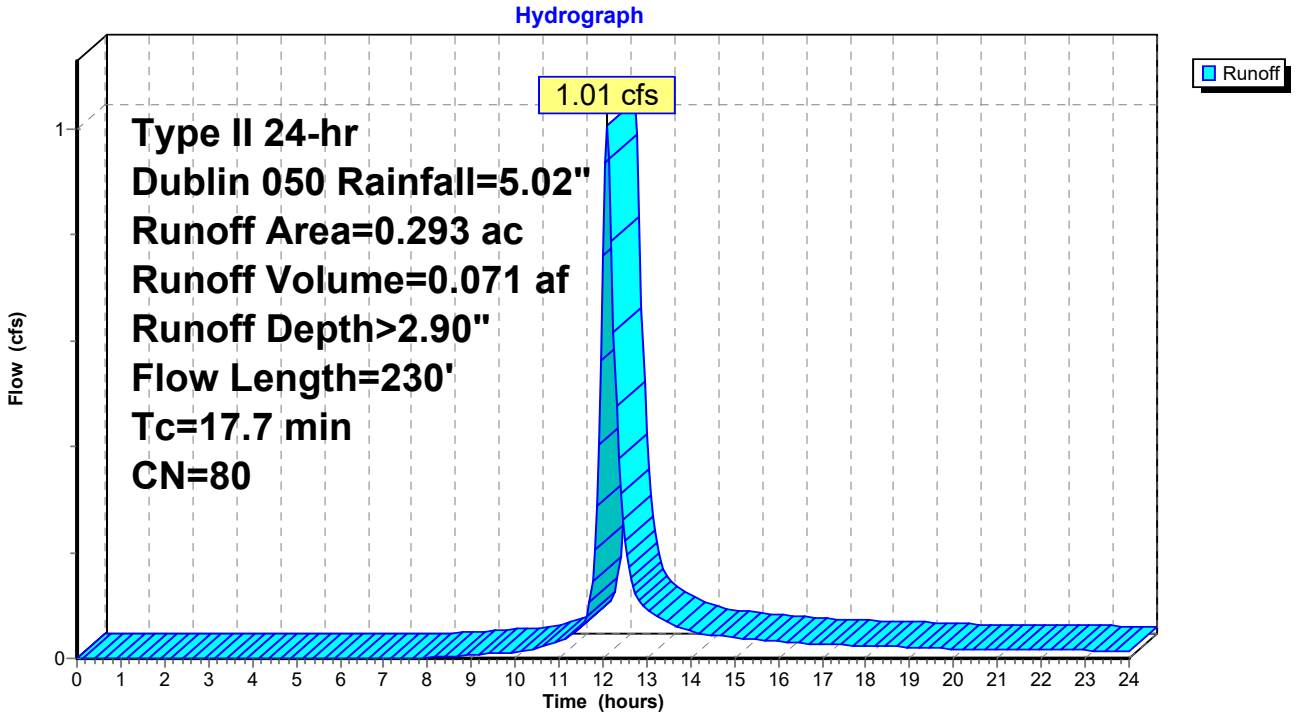
Runoff = 1.01 cfs @ 12.10 hrs, Volume= 0.071 af, Depth> 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 050 Rainfall=5.02"

| Area (ac) | CN | Description |
|---|---|---|
| 0.293 | 80 | >75% Grass cover, Good, HSG D |
| 0.293 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 15.3 | 100 | 0.0214 | 0.11 | | **Sheet Flow, Sheet Flow**<br>Grass: Dense n= 0.240 P2= 2.63" |
| 2.4 | 130 | 0.0037 | 0.91 | | **Shallow Concentrated Flow, Shallow Concentrated Flow**<br>Grassed Waterway Kv= 15.0 fps |
| 17.7 | 230 | Total | | | |

## Subcatchment 4A: Post-Dev Sub-Basin 1220 (Undetained)



## Summary for Subcatchment 5A: Sub-Basin 1310 to Basin

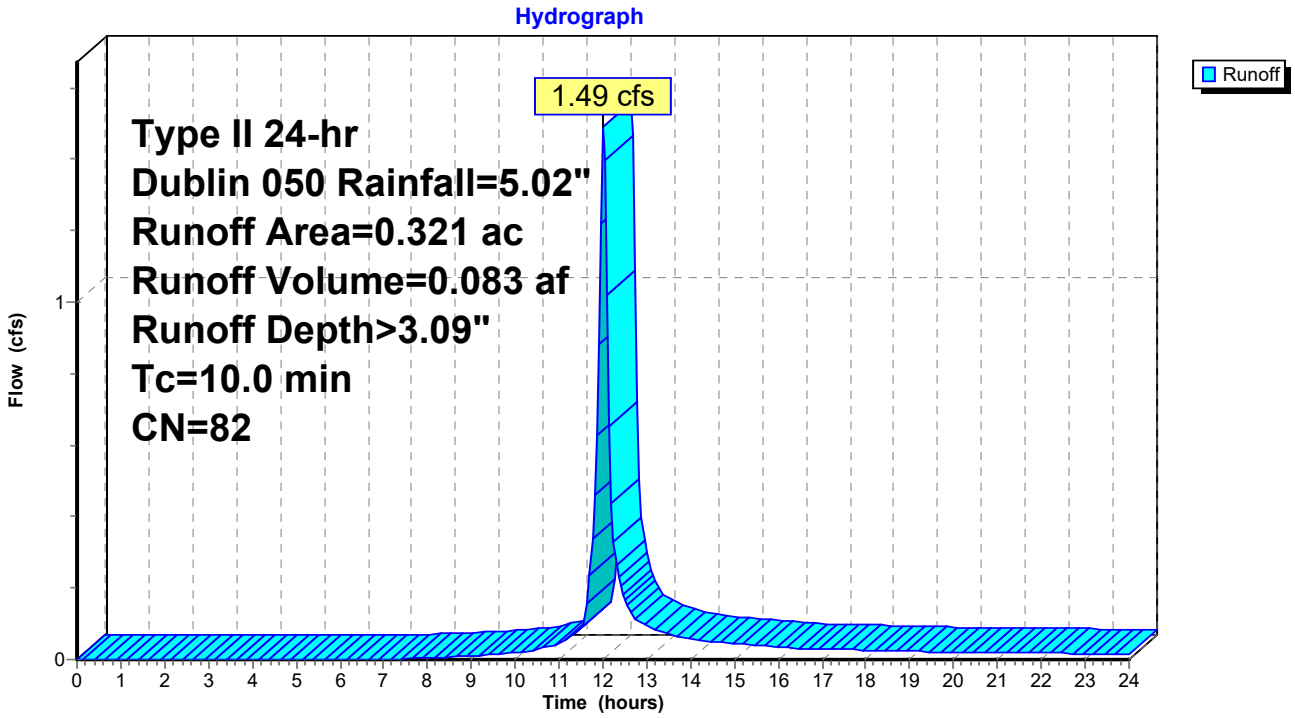
Runoff = 1.49 cfs @ 12.01 hrs, Volume= 0.083 af, Depth> 3.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 050 Rainfall=5.02"

| Area (ac) | CN | Description |
|---|---|---|
| 0.284 | 80 | >75% Grass cover, Good, HSG D |
| 0.037 | 98 | Paved roads w/curbs & sewers, HSG D |
| 0.321 | 82 | Weighted Average |
| 0.284 | | 88.47% Pervious Area |
| 0.037 | | 11.53% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | | | | | **Direct Entry, Min Tc** |

## Subcatchment 5A: Sub-Basin 1310 to Basin



## Summary for Subcatchment 1A: Sub Basin 1200 to Basin

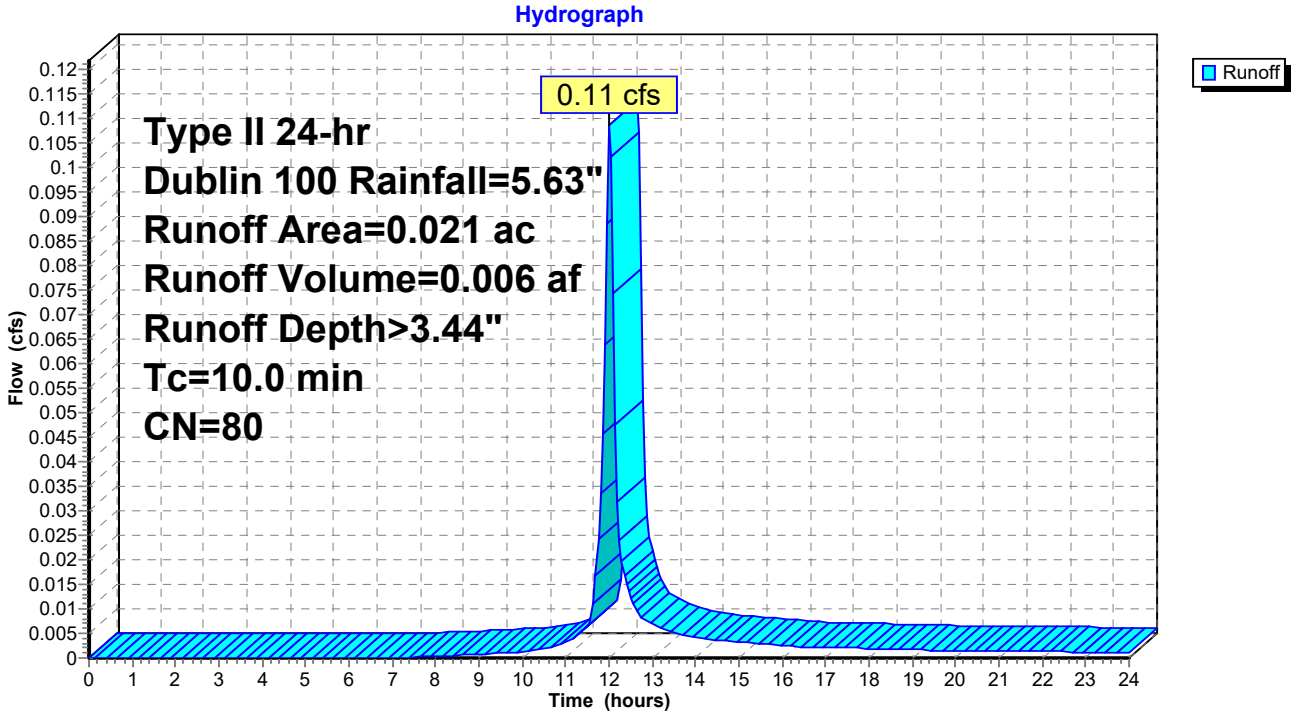
Runoff = 0.11 cfs @ 12.01 hrs, Volume= 0.006 af, Depth> 3.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 100 Rainfall=5.63"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 0.021 | 80 | |
| | 0.021 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | | | | | **Direct Entry, Storm Sewer Min** |

## Subcatchment 1A: Sub Basin 1200 to Basin



## Summary for Subcatchment 3A: Sub Basin 1220 to Basin

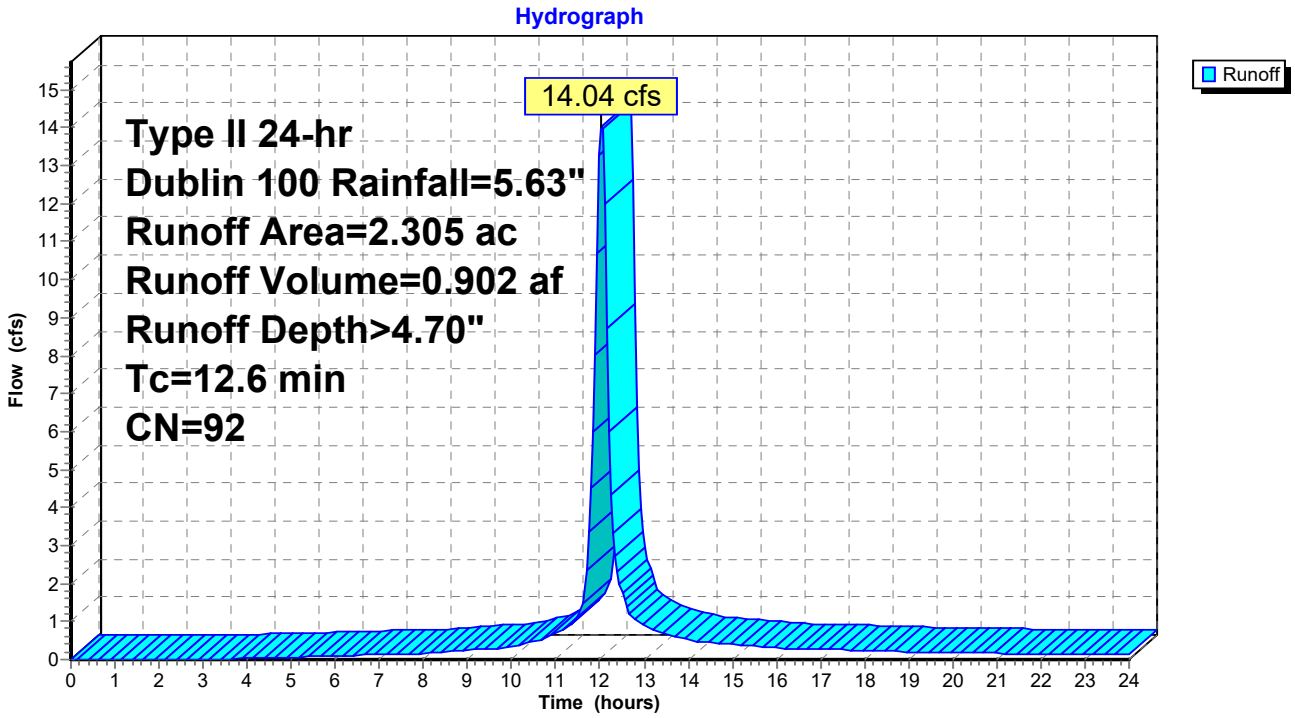
Runoff = 14.04 cfs @ 12.04 hrs, Volume= 0.902 af, Depth> 4.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 100 Rainfall=5.63"

| Area (ac) | CN | Description |
|---|---|---|
| 1.528 | 98 | Paved parking, HSG C |
| 0.777 | 80 | >75% Grass cover, Good, HSG D |
| 2.305 | 92 | Weighted Average |
| 0.777 | | 33.71% Pervious Area |
| 1.528 | | 66.29% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 12.6 | | | | | **Direct Entry, Storm Sewer Calculations** |

## Subcatchment 3A: Sub Basin 1220 to Basin



## Summary for Subcatchment 4A: Post-Dev Sub-Basin 1220 (Undetained)

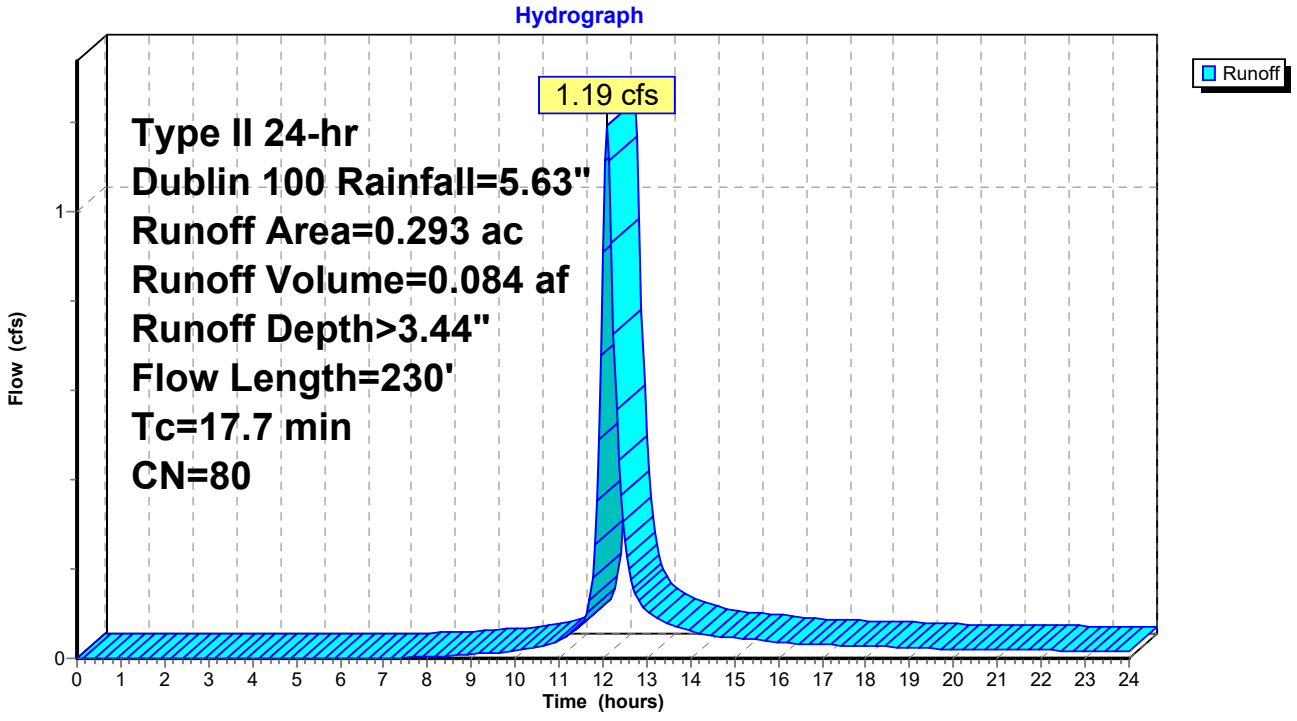
Runoff = 1.19 cfs @ 12.10 hrs, Volume= 0.084 af, Depth> 3.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 100 Rainfall=5.63"

| Area (ac) | CN | Description |
|---|---|---|
| 0.293 | 80 | >75% Grass cover, Good, HSG D |
| 0.293 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 15.3 | 100 | 0.0214 | 0.11 | | **Sheet Flow, Sheet Flow**<br>Grass: Dense n= 0.240 P2= 2.63" |
| 2.4 | 130 | 0.0037 | 0.91 | | **Shallow Concentrated Flow, Shallow Concentrated Flow**<br>Grassed Waterway Kv= 15.0 fps |
| 17.7 | 230 | Total | | | |

## Subcatchment 4A: Post-Dev Sub-Basin 1220 (Undetained)



## Summary for Subcatchment 5A: Sub-Basin 1310 to Basin

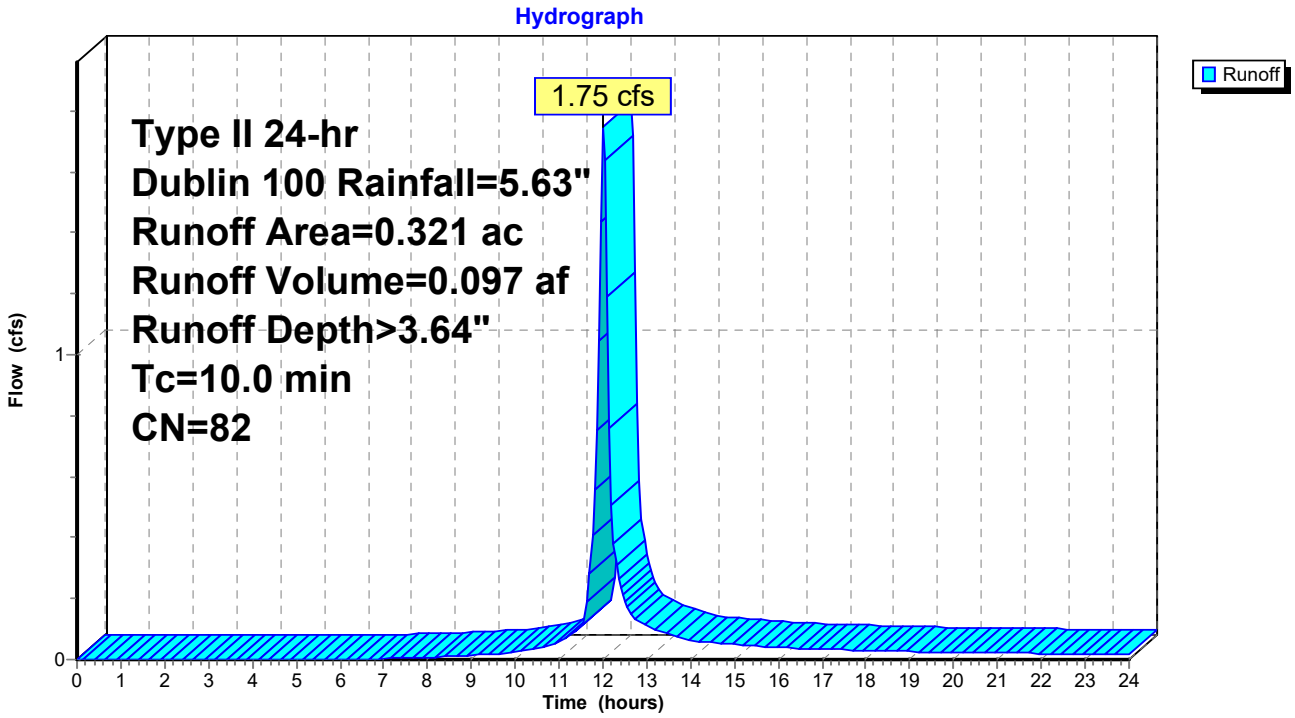
Runoff = 1.75 cfs @ 12.01 hrs, Volume= 0.097 af, Depth> 3.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 100 Rainfall=5.63"

| Area (ac) | CN | Description |
|---|---|---|
| 0.284 | 80 | >75% Grass cover, Good, HSG D |
| 0.037 | 98 | Paved roads w/curbs & sewers, HSG D |
| 0.321 | 82 | Weighted Average |
| 0.284 | | 88.47% Pervious Area |
| 0.037 | | 11.53% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | | | | | **Direct Entry, Min Tc** |

### Subcatchment 5A: Sub-Basin 1310 to Basin



**APPENDIX G**

# CRITICAL STORM CALCULATIONS

## Summary for Subcatchment 1A: Sub Basin 1200 to Basin

Runoff = 0.02 cfs @ 12.03 hrs, Volume= 0.001 af, Depth> 0.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 001 Rainfall=2.20"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 0.021 | 80 | |
| | 0.021 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | | | | | **Direct Entry, Storm Sewer Min** |

## Summary for Subcatchment 3A: Sub Basin 1220 to Basin

Runoff = 4.49 cfs @ 12.04 hrs, Volume= 0.272 af, Depth> 1.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 001 Rainfall=2.20"

| Area (ac) | CN | Description |
|---|---|---|
| 1.528 | 98 | Paved parking, HSG C |
| 0.777 | 80 | >75% Grass cover, Good, HSG D |
| 2.305 | 92 | Weighted Average |
| 0.777 | | 33.71% Pervious Area |
| 1.528 | | 66.29% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 12.6 | | | | | **Direct Entry, Storm Sewer Calculations** |

## Summary for Subcatchment 4A: Post-Dev Sub-Basin 1220 (Undetained)

Runoff = 0.23 cfs @ 12.12 hrs, Volume= 0.017 af, Depth> 0.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 001 Rainfall=2.20"

| Area (ac) | CN | Description |
|---|---|---|
| 0.293 | 80 | >75% Grass cover, Good, HSG D |
| 0.293 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 15.3 | 100 | 0.0214 | 0.11 | | **Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 2.63" |
| 2.4 | 130 | 0.0037 | 0.91 | | **Shallow Concentrated Flow, Shallow Concentrated Flow** Grassed Waterway Kv= 15.0 fps |
| 17.7 | 230 | Total | | | |

## Summary for Subcatchment 5A: Sub-Basin 1310 to Basin

Runoff = 0.38 cfs @ 12.02 hrs, Volume= 0.021 af, Depth> 0.78"

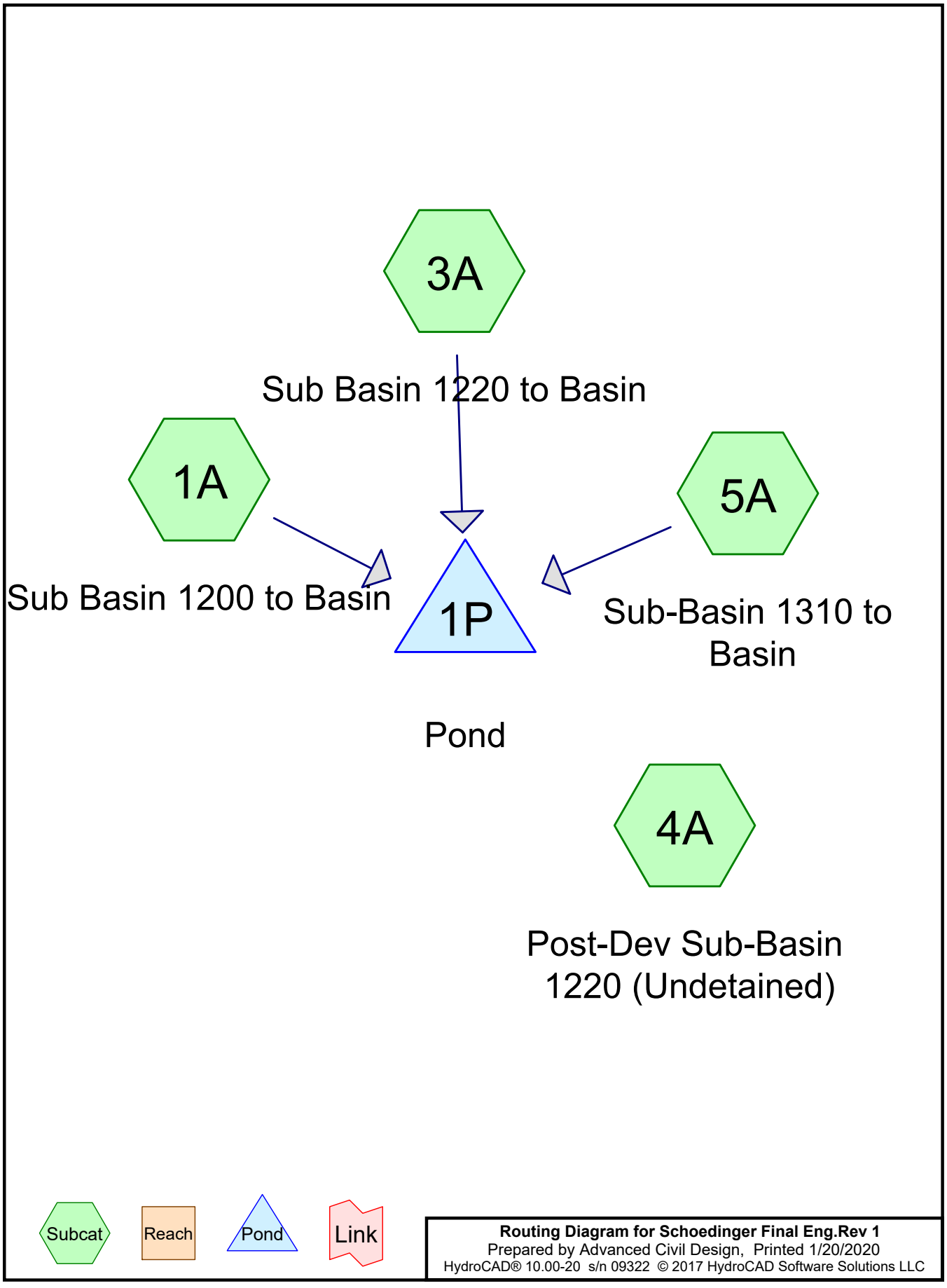
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 001 Rainfall=2.20"

| Area (ac) | CN | Description |
|---|---|---|
| 0.284 | 80 | >75% Grass cover, Good, HSG D |
| 0.037 | 98 | Paved roads w/curbs & sewers, HSG D |
| 0.321 | 82 | Weighted Average |
| 0.284 | | 88.47% Pervious Area |
| 0.037 | | 11.53% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | | | | | **Direct Entry, Min Tc** |

**APPENDIX H**

# POST-DEVELOPMENT HYDROCAD QUANTITY CONTROL CALCULATIONS




**Routing Diagram for Schoedinger Final Eng.Rev 1**
Prepared by Advanced Civil Design, Printed 1/20/2020
HydroCAD® 10.00-20 s/n 09322 © 2017 HydroCAD Software Solutions LLC

## Summary for Subcatchment 1A: Sub Basin 1200 to Basin

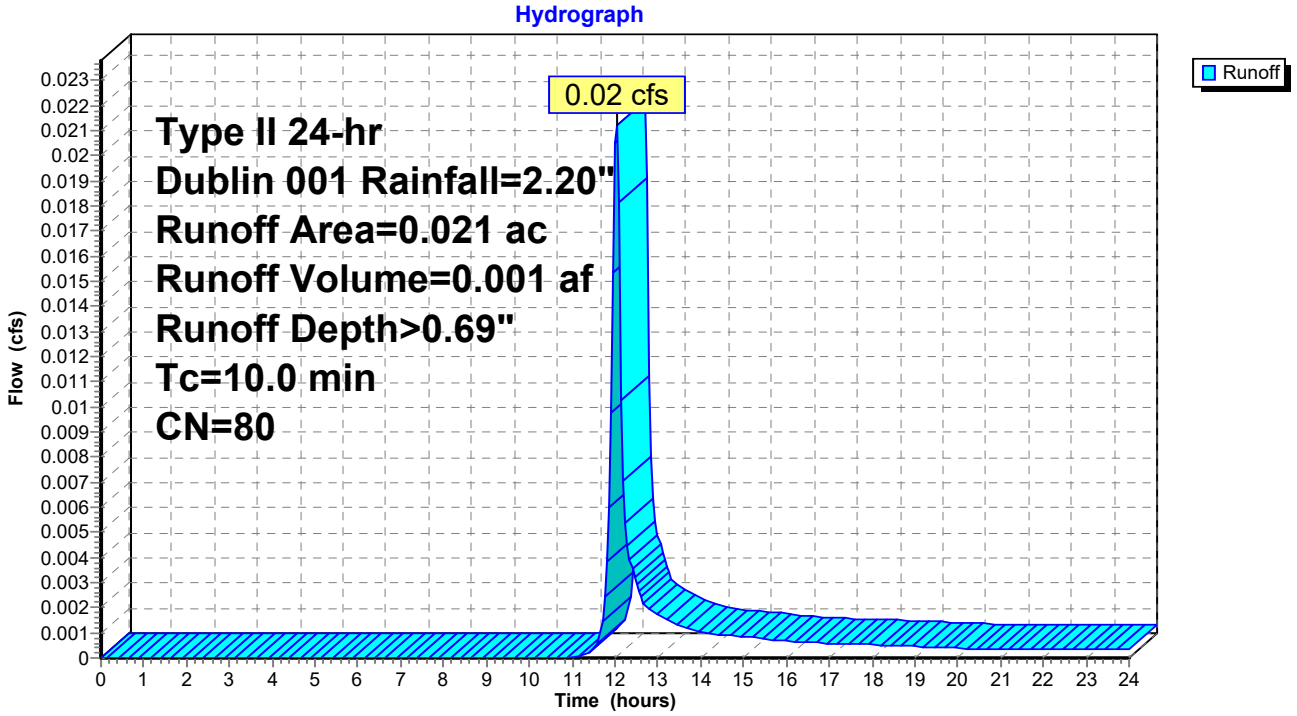
Runoff = 0.02 cfs @ 12.03 hrs, Volume= 0.001 af, Depth> 0.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 001 Rainfall=2.20"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 0.021 | 80 | |
| | 0.021 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | | | | | **Direct Entry, Storm Sewer Min** |

## Subcatchment 1A: Sub Basin 1200 to Basin



## Summary for Pond 1P: Pond

Inflow Area = 2.647 ac, 59.12% Impervious, Inflow Depth > 1.33" for Dublin 001 event
Inflow = 4.88 cfs @ 12.04 hrs, Volume= 0.294 af
Outflow = 0.06 cfs @ 22.35 hrs, Volume= 0.061 af, Atten= 99%, Lag= 618.7 min
Primary = 0.06 cfs @ 22.35 hrs, Volume= 0.061 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 Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 900.90' @ 22.35 hrs Surf.Area= 11,853 sf Storage= 10,167 cf

Plug-Flow detention time= 407.4 min calculated for 0.060 af (21% of inflow)
Center-of-Mass det. time= 262.7 min ( 1,079.3 - 816.5 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 900.00' | 47,014 cf | **Large Pond (Prismatic)**Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 900.00 | 10,696 | 0 | 0 |
| 903.50 | 15,186 | 45,294 | 45,294 |
| 903.60 | 19,216 | 1,720 | 47,014 |

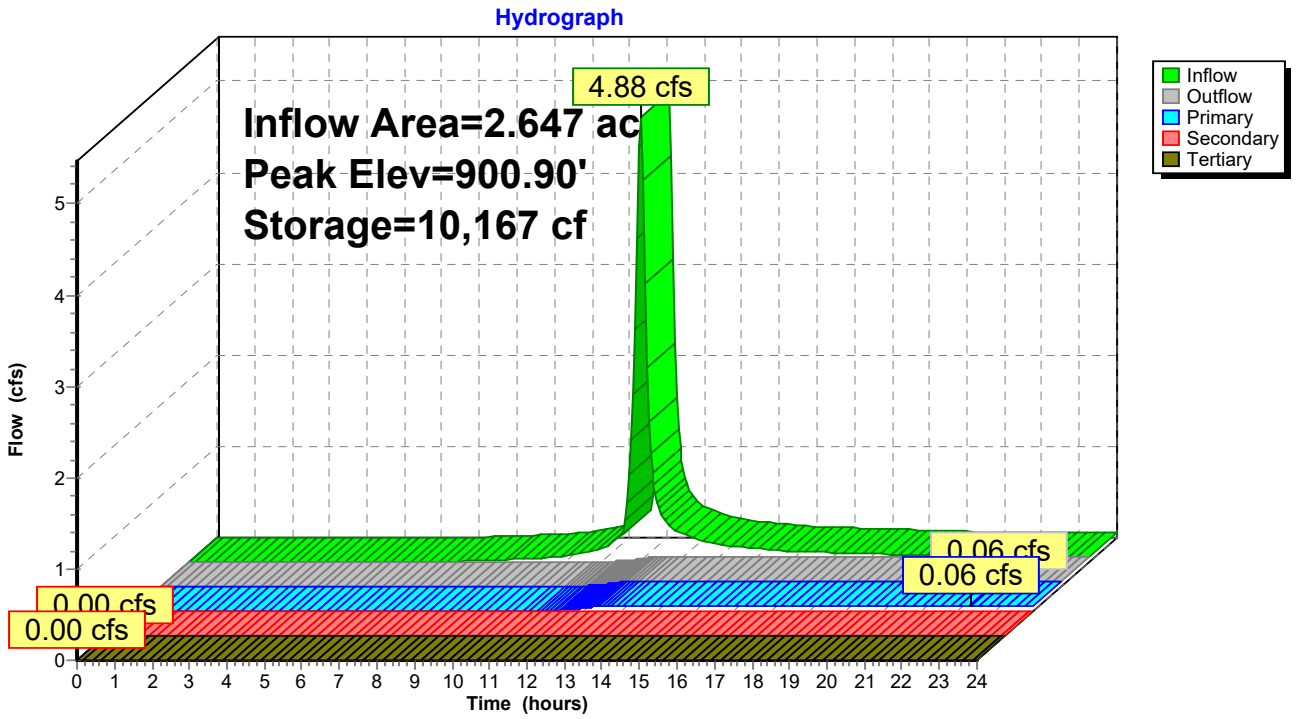
| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 899.95' | **18.0" Round Culvert**<br>L= 45.0' RCP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 899.95' / 899.85' S= 0.0022 '/' Cc= 0.900<br>n= 0.012, Flow Area= 1.77 sf |
| #2 | Device 1 | 900.00' | **1.6" Vert. WQ Orifice** C= 0.600 |
| #3 | Device 1 | 902.70' | **1.5" x 5.0" Horiz. Grate X 9.00 columns** X 3 rows C= 0.600<br>Limited to weir flow at low heads |
| #4 | Secondary | 903.50' | **5.0' long x 5.0' breadth Broad-Crested Rectangular Weir**<br>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<br>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 | 903.60' | **5.0' long x 1.0' breadth Broad-Crested Rectangular Weir**<br>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<br>Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32 |

**Primary OutFlow** Max=0.06 cfs @ 22.35 hrs HW=900.90' (Free Discharge)
└─**1=Culvert** (Passes 0.06 cfs of 2.59 cfs potential flow)
└─**2=WQ Orifice** (Orifice Controls 0.06 cfs @ 4.40 fps)
└─**3=Grate** ( Controls 0.00 cfs)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=900.00' (Free Discharge)
└─**4=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

**Tertiary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=900.00' (Free Discharge)
└─**5=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Pond 1P: Pond



## Summary for Subcatchment 3A: Sub Basin 1220 to Basin

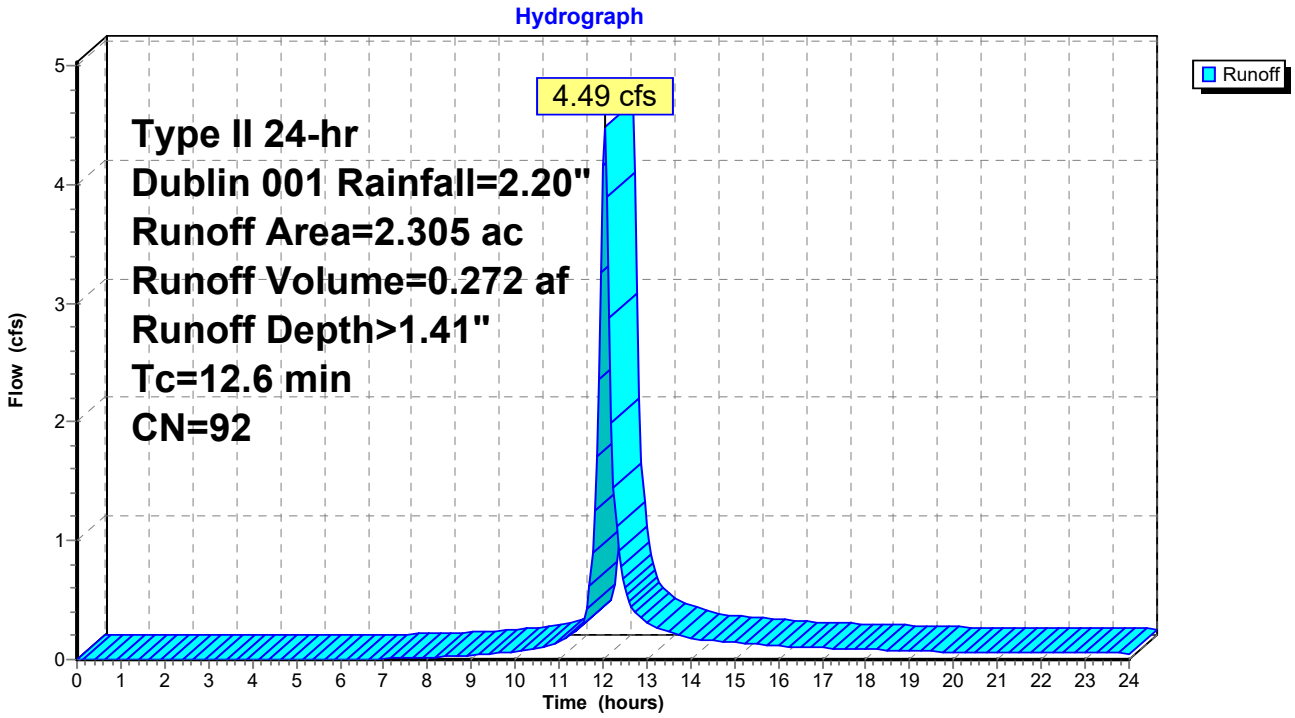
Runoff = 4.49 cfs @ 12.04 hrs, Volume= 0.272 af, Depth> 1.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 001 Rainfall=2.20"

| Area (ac) | CN | Description |
|---|---|---|
| 1.528 | 98 | Paved parking, HSG C |
| 0.777 | 80 | >75% Grass cover, Good, HSG D |
| 2.305 | 92 | Weighted Average |
| 0.777 | | 33.71% Pervious Area |
| 1.528 | | 66.29% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 12.6 | | | | | **Direct Entry, Storm Sewer Calculations** |

## Subcatchment 3A: Sub Basin 1220 to Basin



## Summary for Subcatchment 4A: Post-Dev Sub-Basin 1220 (Undetained)

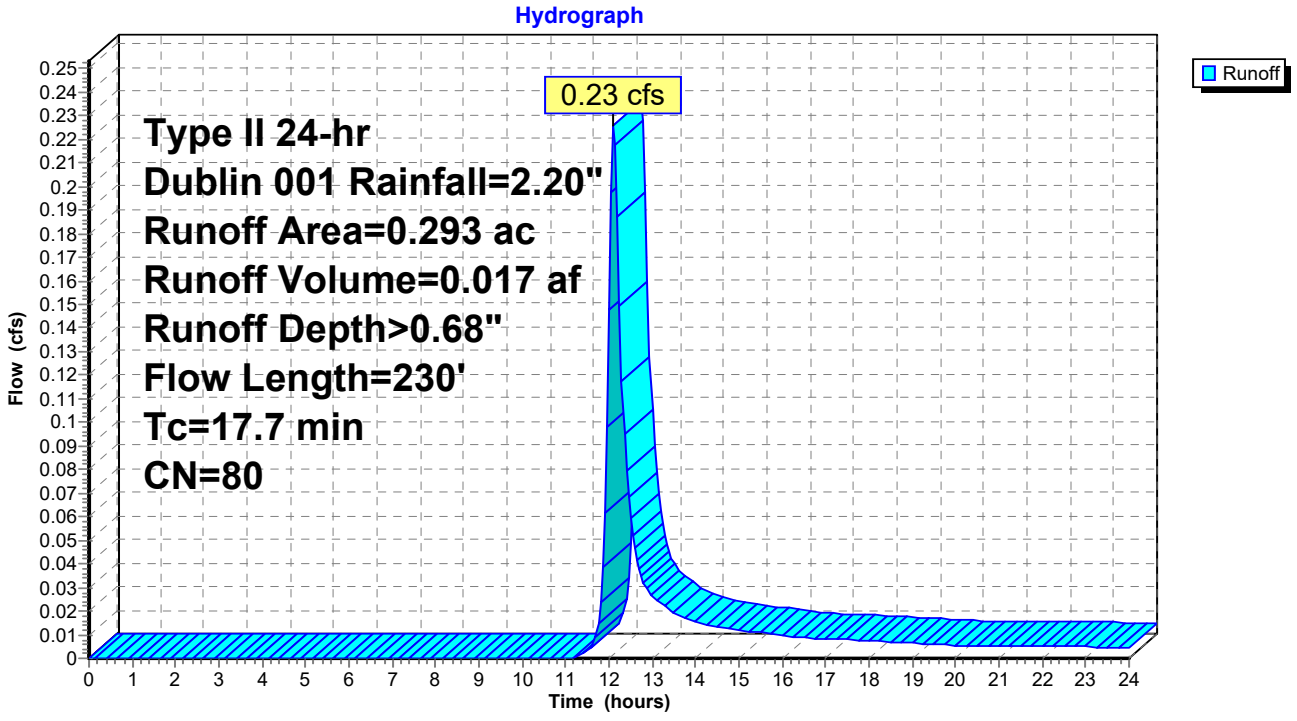
Runoff = 0.23 cfs @ 12.12 hrs, Volume= 0.017 af, Depth> 0.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 001 Rainfall=2.20"

| Area (ac) | CN | Description |
|---|---|---|
| 0.293 | 80 | >75% Grass cover, Good, HSG D |
| 0.293 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 15.3 | 100 | 0.0214 | 0.11 | | **Sheet Flow, Sheet Flow**<br>Grass: Dense n= 0.240 P2= 2.63" |
| 2.4 | 130 | 0.0037 | 0.91 | | **Shallow Concentrated Flow, Shallow Concentrated Flow**<br>Grassed Waterway Kv= 15.0 fps |
| 17.7 | 230 | Total | | | |

## Subcatchment 4A: Post-Dev Sub-Basin 1220 (Undetained)



## Summary for Subcatchment 5A: Sub-Basin 1310 to Basin

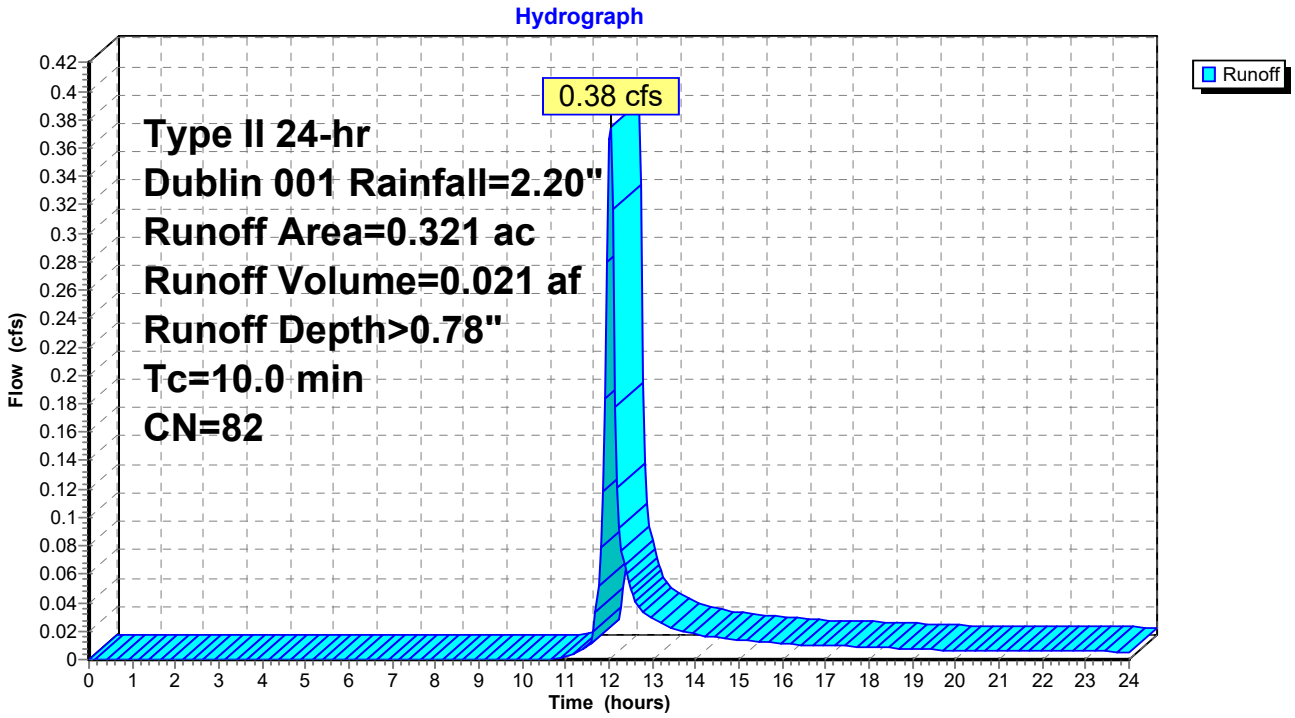
Runoff = 0.38 cfs @ 12.02 hrs, Volume= 0.021 af, Depth> 0.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 001 Rainfall=2.20"

| Area (ac) | CN | Description |
|---|---|---|
| 0.284 | 80 | >75% Grass cover, Good, HSG D |
| 0.037 | 98 | Paved roads w/curbs & sewers, HSG D |
| 0.321 | 82 | Weighted Average |
| 0.284 | | 88.47% Pervious Area |
| 0.037 | | 11.53% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | | | | | **Direct Entry, Min Tc** |

### Subcatchment 5A: Sub-Basin 1310 to Basin



## Summary for Subcatchment 1A: Sub Basin 1200 to Basin

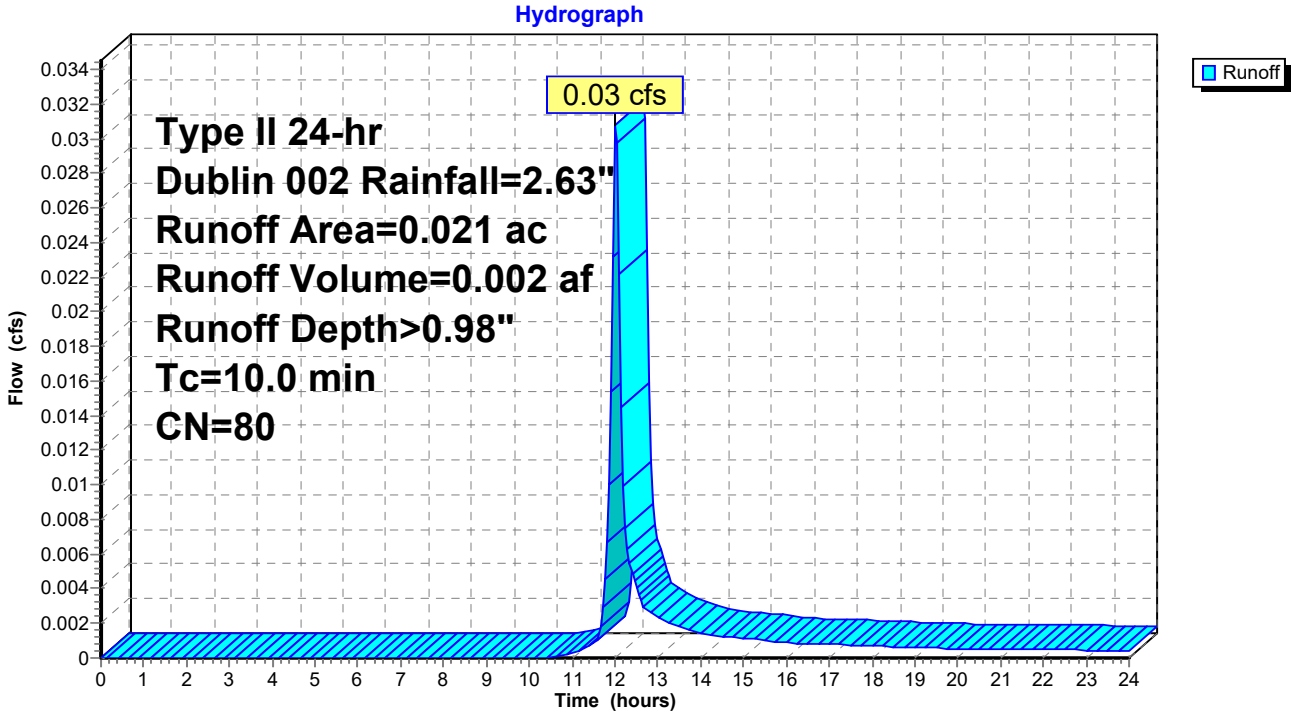
Runoff = 0.03 cfs @ 12.02 hrs, Volume= 0.002 af, Depth> 0.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 002 Rainfall=2.63"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 0.021 | 80 | |
| | 0.021 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | | | | | **Direct Entry, Storm Sewer Min** |

## Subcatchment 1A: Sub Basin 1200 to Basin



## Summary for Pond 1P: Pond

Inflow Area = 2.647 ac, 59.12% Impervious, Inflow Depth > 1.72" for Dublin 002 event
Inflow = 6.25 cfs @ 12.04 hrs, Volume= 0.378 af
Outflow = 0.07 cfs @ 24.00 hrs, Volume= 0.071 af, Atten= 99%, Lag= 717.6 min
Primary = 0.07 cfs @ 24.00 hrs, Volume= 0.071 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 Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 901.17' @ 24.00 hrs Surf.Area= 12,199 sf Storage= 13,413 cf

Plug-Flow detention time= 419.7 min calculated for 0.070 af (19% of inflow)
Center-of-Mass det. time= 264.0 min ( 1,073.6 - 809.6 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 900.00' | 47,014 cf | **Large Pond (Prismatic)**Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 900.00 | 10,696 | 0 | 0 |
| 903.50 | 15,186 | 45,294 | 45,294 |
| 903.60 | 19,216 | 1,720 | 47,014 |

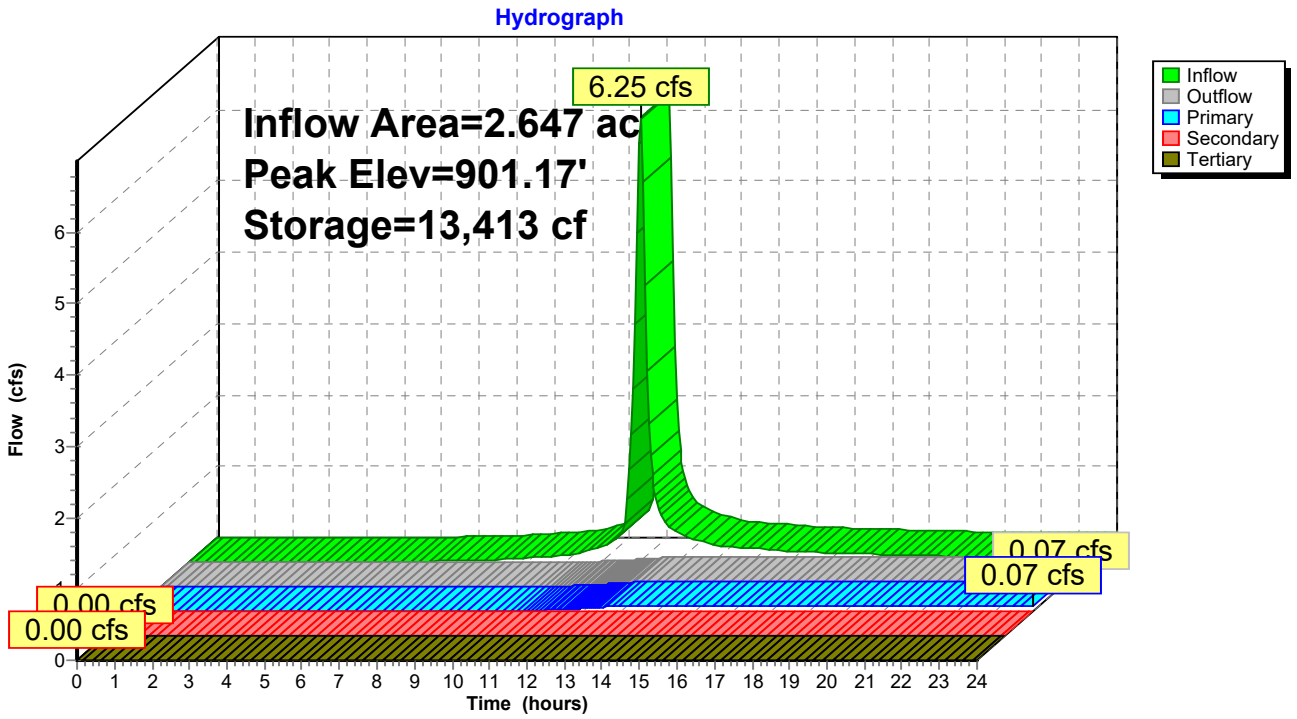
| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 899.95' | **18.0" Round Culvert**<br>L= 45.0' RCP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 899.95' / 899.85' S= 0.0022 '/' Cc= 0.900<br>n= 0.012, Flow Area= 1.77 sf |
| #2 | Device 1 | 900.00' | **1.6" Vert. WQ Orifice** C= 0.600 |
| #3 | Device 1 | 902.70' | **1.5" x 5.0" Horiz. Grate X 9.00 columns** X 3 rows C= 0.600<br>Limited to weir flow at low heads |
| #4 | Secondary | 903.50' | **5.0' long x 5.0' breadth Broad-Crested Rectangular Weir**<br>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<br>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 | 903.60' | **5.0' long x 1.0' breadth Broad-Crested Rectangular Weir**<br>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<br>Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32 |

**Primary OutFlow** Max=0.07 cfs @ 24.00 hrs HW=901.17' (Free Discharge)
└─**1=Culvert** (Passes 0.07 cfs of 3.99 cfs potential flow)
└─**2=WQ Orifice** (Orifice Controls 0.07 cfs @ 5.06 fps)
└─**3=Grate** ( Controls 0.00 cfs)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=900.00' (Free Discharge)
└─**4=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

**Tertiary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=900.00' (Free Discharge)
└─**5=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Pond 1P: Pond



## Summary for Subcatchment 3A: Sub Basin 1220 to Basin

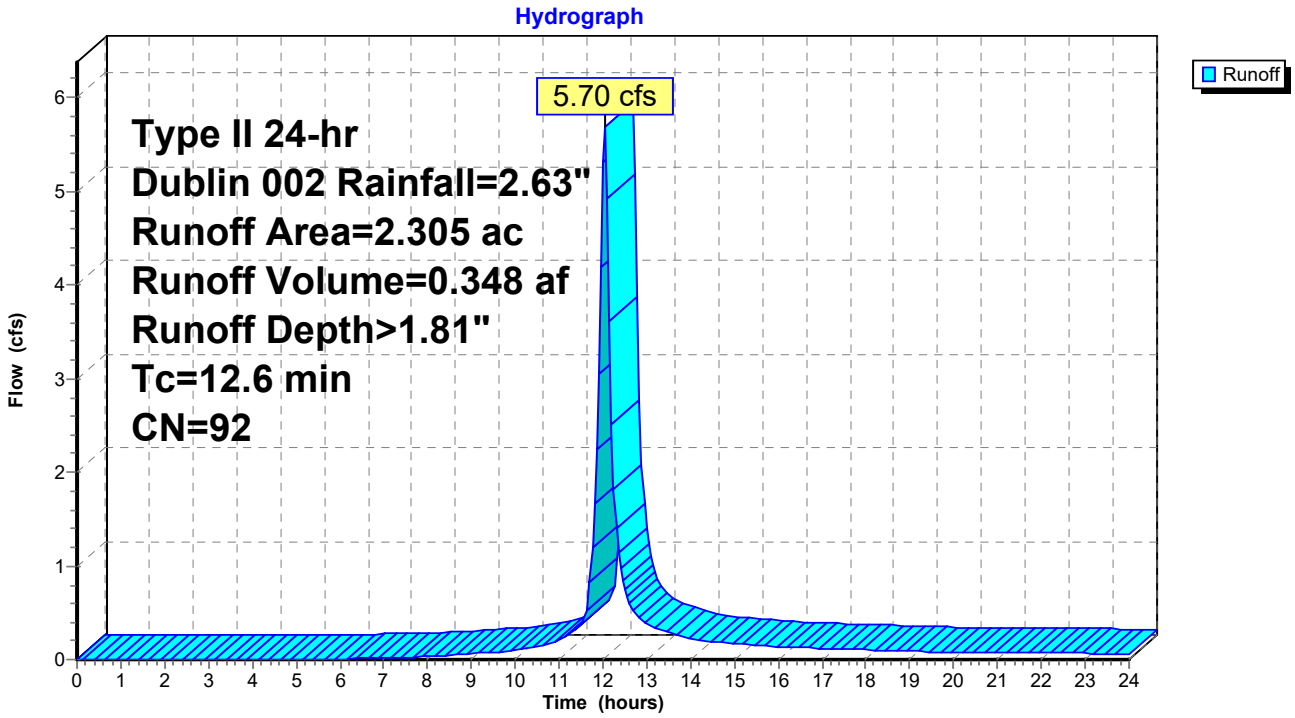
Runoff = 5.70 cfs @ 12.04 hrs, Volume= 0.348 af, Depth> 1.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 002 Rainfall=2.63"

| Area (ac) | CN | Description |
|---|---|---|
| 1.528 | 98 | Paved parking, HSG C |
| 0.777 | 80 | >75% Grass cover, Good, HSG D |
| 2.305 | 92 | Weighted Average |
| 0.777 | | 33.71% Pervious Area |
| 1.528 | | 66.29% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 12.6 | | | | | **Direct Entry, Storm Sewer Calculations** |

## Subcatchment 3A: Sub Basin 1220 to Basin



## Summary for Subcatchment 4A: Post-Dev Sub-Basin 1220 (Undetained)

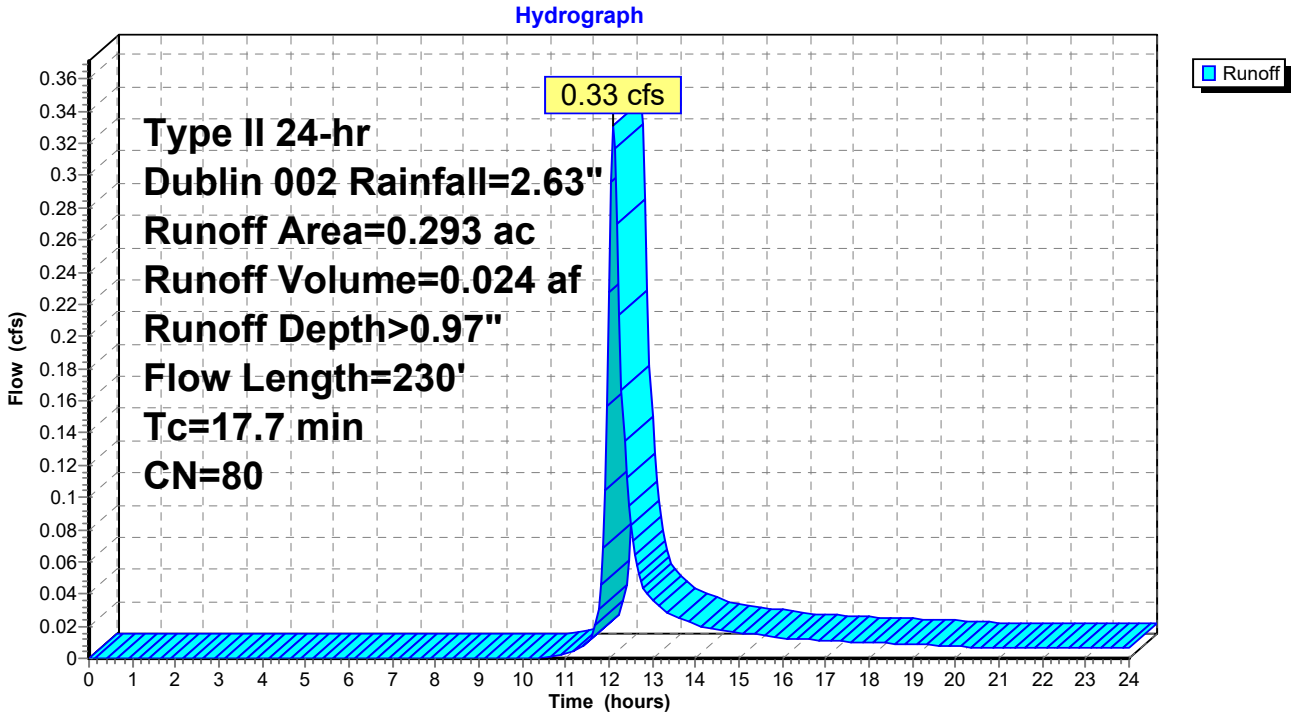
Runoff = 0.33 cfs @ 12.11 hrs, Volume= 0.024 af, Depth> 0.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 002 Rainfall=2.63"

| Area (ac) | CN | Description |
|---|---|---|
| 0.293 | 80 | >75% Grass cover, Good, HSG D |
| 0.293 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 15.3 | 100 | 0.0214 | 0.11 | | **Sheet Flow, Sheet Flow**<br>Grass: Dense n= 0.240 P2= 2.63" |
| 2.4 | 130 | 0.0037 | 0.91 | | **Shallow Concentrated Flow, Shallow Concentrated Flow**<br>Grassed Waterway Kv= 15.0 fps |
| 17.7 | 230 | Total | | | |

## Subcatchment 4A: Post-Dev Sub-Basin 1220 (Undetained)



## Summary for Subcatchment 5A: Sub-Basin 1310 to Basin

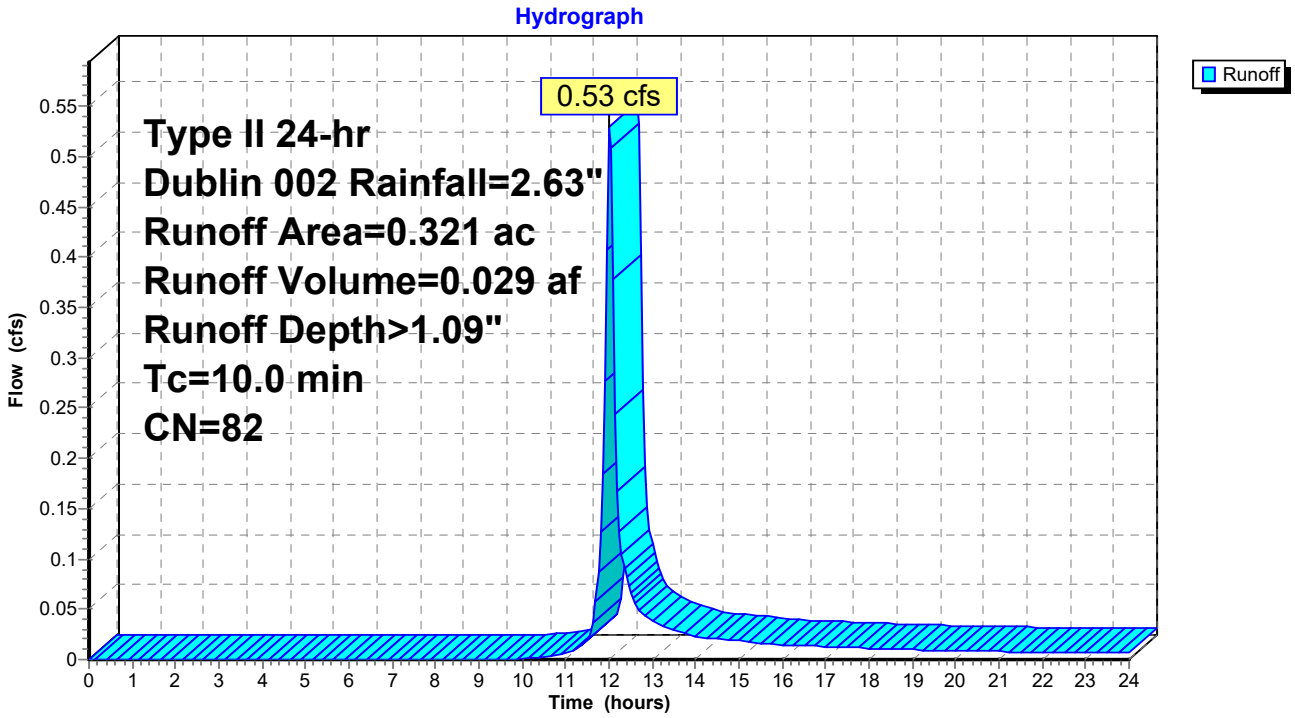
Runoff = 0.53 cfs @ 12.02 hrs, Volume= 0.029 af, Depth> 1.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 002 Rainfall=2.63"

| Area (ac) | CN | Description |
|---|---|---|
| 0.284 | 80 | >75% Grass cover, Good, HSG D |
| 0.037 | 98 | Paved roads w/curbs & sewers, HSG D |
| 0.321 | 82 | Weighted Average |
| 0.284 | | 88.47% Pervious Area |
| 0.037 | | 11.53% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | | | | | **Direct Entry, Min Tc** |

## Subcatchment 5A: Sub-Basin 1310 to Basin



## Summary for Subcatchment 1A: Sub Basin 1200 to Basin

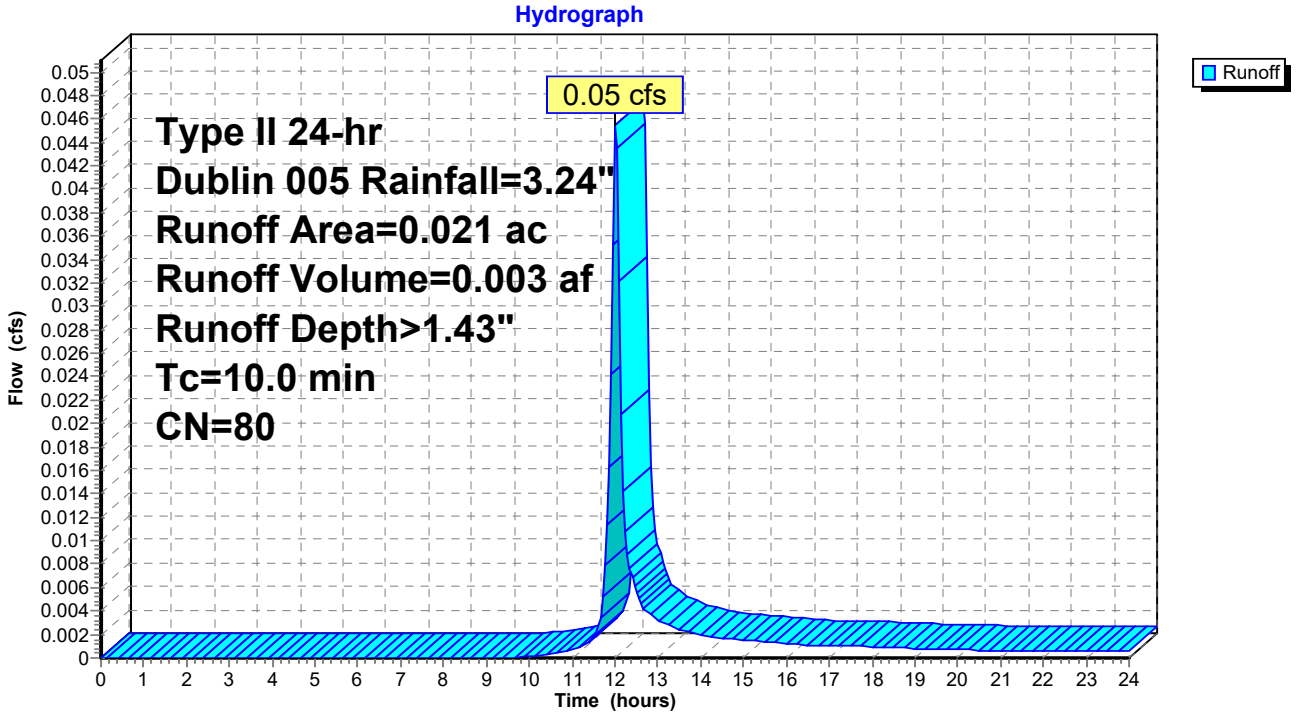
Runoff = 0.05 cfs @ 12.02 hrs, Volume= 0.003 af, Depth> 1.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 005 Rainfall=3.24"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 0.021 | 80 | |
| | 0.021 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | | | | | **Direct Entry, Storm Sewer Min** |

## Subcatchment 1A: Sub Basin 1200 to Basin



## Summary for Pond 1P: Pond

Inflow Area = 2.647 ac, 59.12% Impervious, Inflow Depth > 2.28" for Dublin 005 event
Inflow = 8.19 cfs @ 12.04 hrs, Volume= 0.502 af
Outflow = 0.08 cfs @ 24.00 hrs, Volume= 0.083 af, Atten= 99%, Lag= 717.7 min
Primary = 0.08 cfs @ 24.00 hrs, Volume= 0.083 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 Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 901.56' @ 24.00 hrs Surf.Area= 12,697 sf Storage= 18,242 cf

Plug-Flow detention time= 437.9 min calculated for 0.083 af (17% of inflow)
Center-of-Mass det. time= 263.4 min ( 1,065.3 - 801.9 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 900.00' | 47,014 cf | **Large Pond (Prismatic)**Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 900.00 | 10,696 | 0 | 0 |
| 903.50 | 15,186 | 45,294 | 45,294 |
| 903.60 | 19,216 | 1,720 | 47,014 |

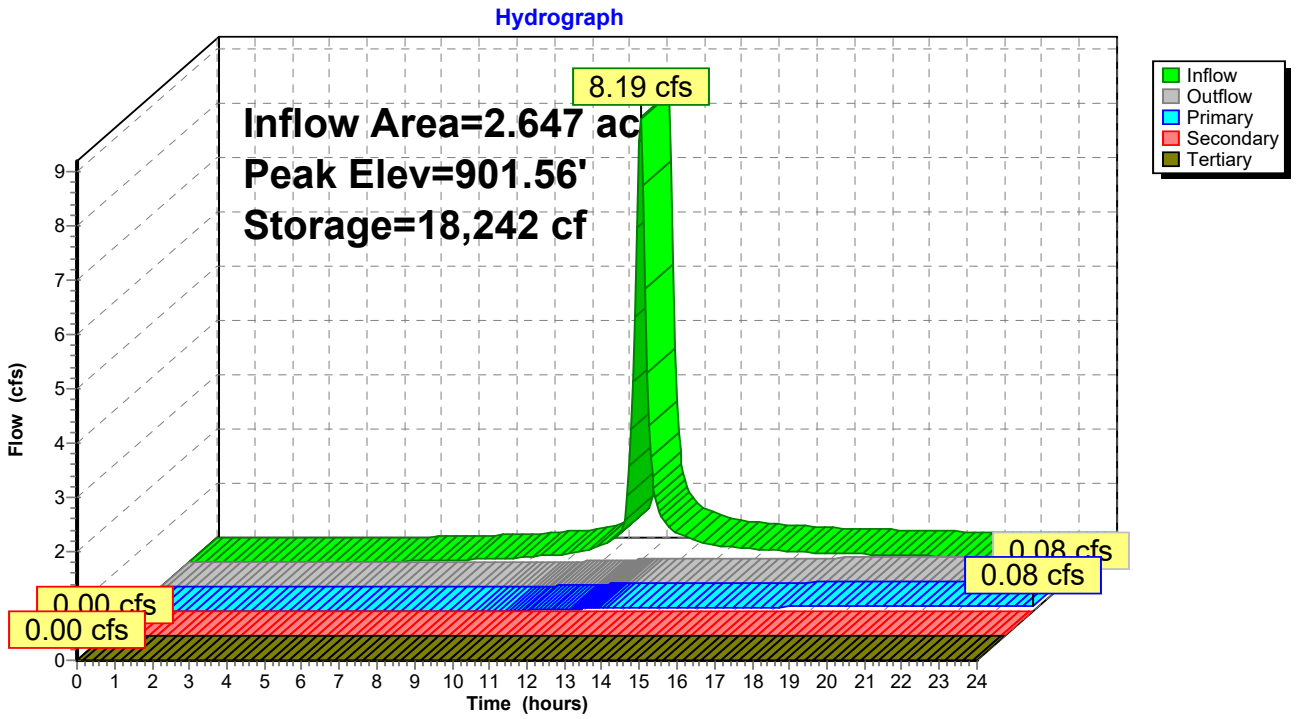
| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 899.95' | **18.0" Round Culvert**<br>L= 45.0' RCP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 899.95' / 899.85' S= 0.0022 '/' Cc= 0.900<br>n= 0.012, Flow Area= 1.77 sf |
| #2 | Device 1 | 900.00' | **1.6" Vert. WQ Orifice** C= 0.600 |
| #3 | Device 1 | 902.70' | **1.5" x 5.0" Horiz. Grate X 9.00 columns** X 3 rows C= 0.600<br>Limited to weir flow at low heads |
| #4 | Secondary | 903.50' | **5.0' long x 5.0' breadth Broad-Crested Rectangular Weir**<br>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<br>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 | 903.60' | **5.0' long x 1.0' breadth Broad-Crested Rectangular Weir**<br>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<br>Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32 |

**Primary OutFlow** Max=0.08 cfs @ 24.00 hrs HW=901.56' (Free Discharge)
└─**1=Culvert** (Passes 0.08 cfs of 6.07 cfs potential flow)
└─**2=WQ Orifice** (Orifice Controls 0.08 cfs @ 5.88 fps)
└─**3=Grate** ( Controls 0.00 cfs)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=900.00' (Free Discharge)
└─**4=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

**Tertiary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=900.00' (Free Discharge)
└─**5=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Pond 1P: Pond



## Summary for Subcatchment 3A: Sub Basin 1220 to Basin

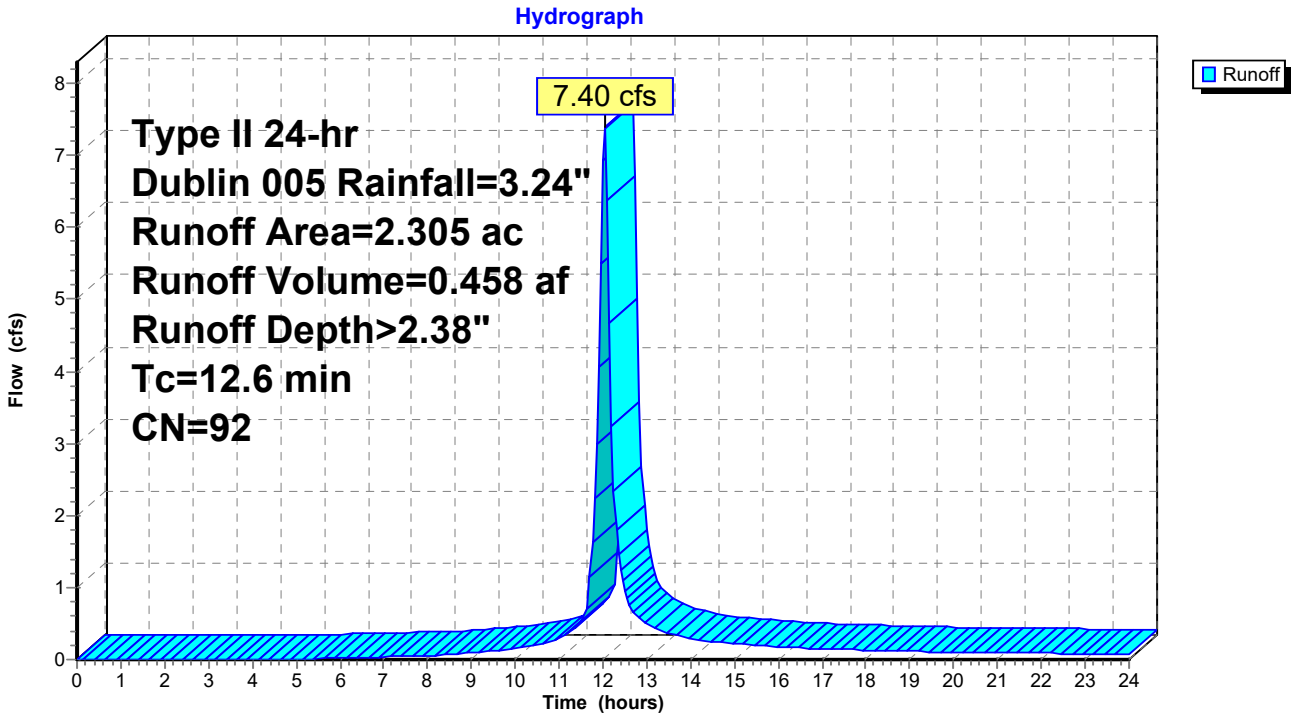
Runoff = 7.40 cfs @ 12.04 hrs, Volume= 0.458 af, Depth> 2.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 005 Rainfall=3.24"

| Area (ac) | CN | Description |
|---|---|---|
| 1.528 | 98 | Paved parking, HSG C |
| 0.777 | 80 | >75% Grass cover, Good, HSG D |
| 2.305 | 92 | Weighted Average |
| 0.777 | | 33.71% Pervious Area |
| 1.528 | | 66.29% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 12.6 | | | | | **Direct Entry, Storm Sewer Calculations** |

## Subcatchment 3A: Sub Basin 1220 to Basin



## Summary for Subcatchment 4A: Post-Dev Sub-Basin 1220 (Undetained)

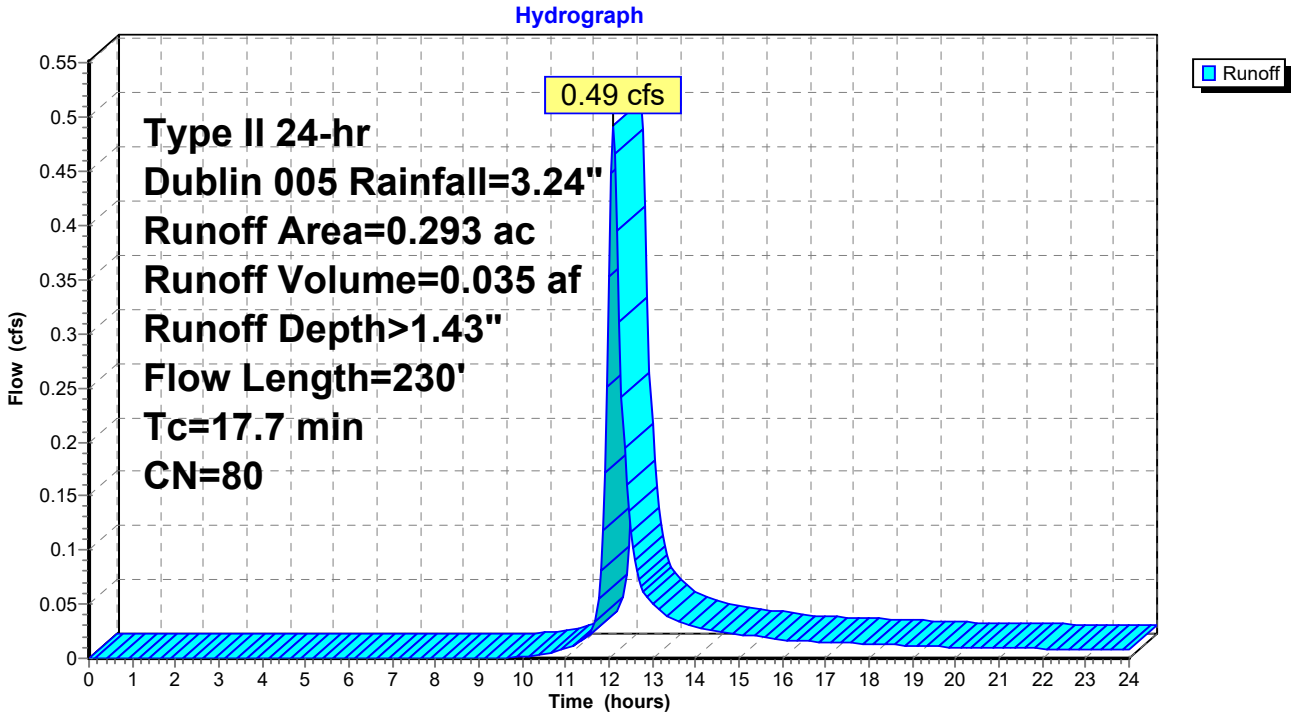
Runoff = 0.49 cfs @ 12.11 hrs, Volume= 0.035 af, Depth> 1.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 005 Rainfall=3.24"

| Area (ac) | CN | Description |
|---|---|---|
| 0.293 | 80 | >75% Grass cover, Good, HSG D |
| 0.293 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 15.3 | 100 | 0.0214 | 0.11 | | **Sheet Flow, Sheet Flow**<br>Grass: Dense n= 0.240 P2= 2.63" |
| 2.4 | 130 | 0.0037 | 0.91 | | **Shallow Concentrated Flow, Shallow Concentrated Flow**<br>Grassed Waterway Kv= 15.0 fps |
| 17.7 | 230 | Total | | | |

## Subcatchment 4A: Post-Dev Sub-Basin 1220 (Undetained)



## Summary for Subcatchment 5A: Sub-Basin 1310 to Basin

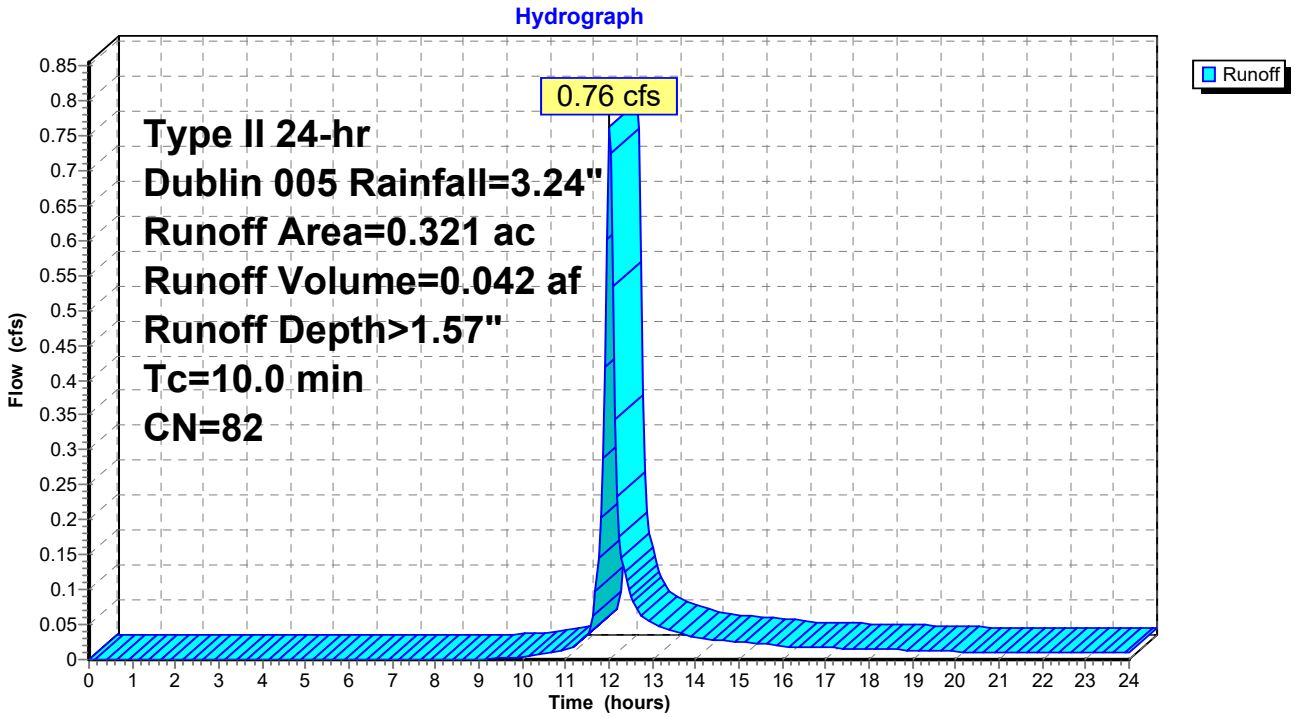
Runoff = 0.76 cfs @ 12.02 hrs, Volume= 0.042 af, Depth> 1.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 005 Rainfall=3.24"

| Area (ac) | CN | Description |
|---|---|---|
| 0.284 | 80 | >75% Grass cover, Good, HSG D |
| 0.037 | 98 | Paved roads w/curbs & sewers, HSG D |
| 0.321 | 82 | Weighted Average |
| 0.284 | | 88.47% Pervious Area |
| 0.037 | | 11.53% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | | | | | **Direct Entry, Min Tc** |

### Subcatchment 5A: Sub-Basin 1310 to Basin



## Summary for Subcatchment 1A: Sub Basin 1200 to Basin

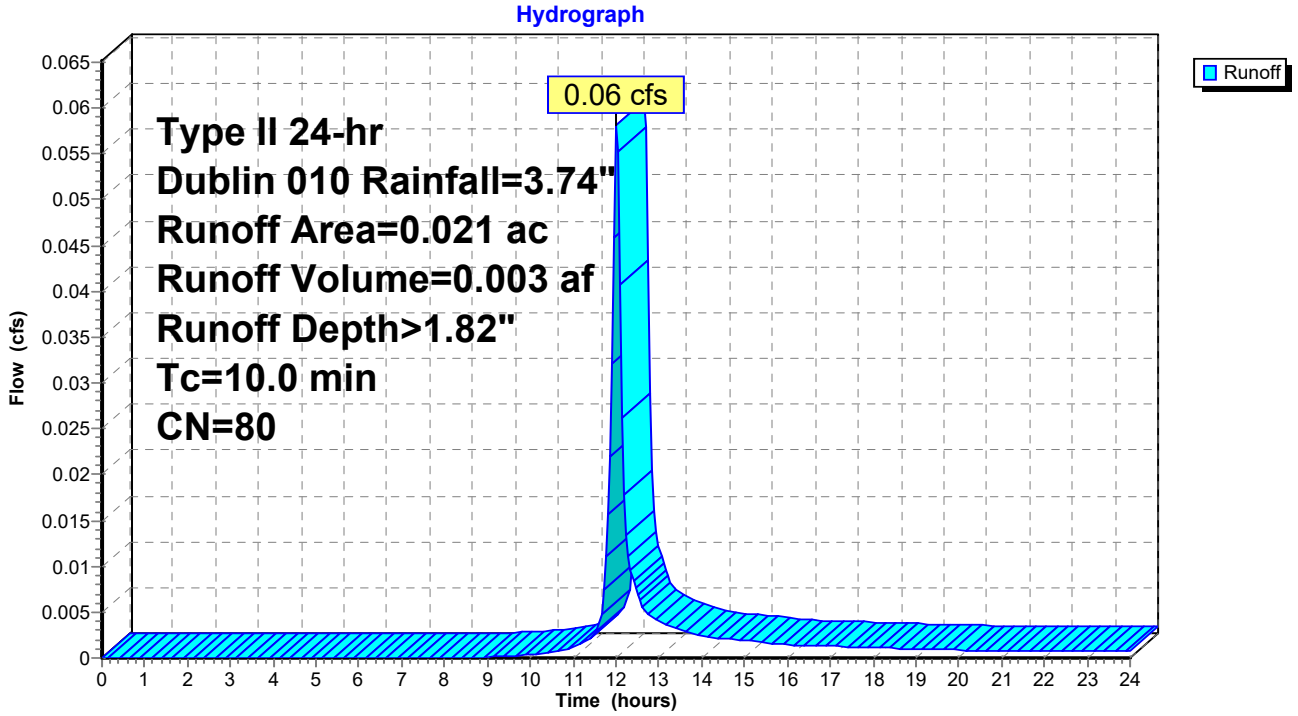
Runoff = 0.06 cfs @ 12.02 hrs, Volume= 0.003 af, Depth> 1.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 010 Rainfall=3.74"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 0.021 | 80 | |
| | 0.021 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | | | | | **Direct Entry, Storm Sewer Min** |

## Subcatchment 1A: Sub Basin 1200 to Basin



## Summary for Pond 1P: Pond

Inflow Area = 2.647 ac, 59.12% Impervious, Inflow Depth > 2.75" for Dublin 010 event
Inflow = 9.80 cfs @ 12.04 hrs, Volume= 0.606 af
Outflow = 0.09 cfs @ 24.00 hrs, Volume= 0.093 af, Atten= 99%, Lag= 717.8 min
Primary = 0.09 cfs @ 24.00 hrs, Volume= 0.093 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 Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 901.88' @ 24.00 hrs Surf.Area= 13,103 sf Storage= 22,328 cf

Plug-Flow detention time= 452.3 min calculated for 0.093 af (15% of inflow)
Center-of-Mass det. time= 261.9 min ( 1,058.8 - 796.9 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 900.00' | 47,014 cf | **Large Pond (Prismatic)**Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 900.00 | 10,696 | 0 | 0 |
| 903.50 | 15,186 | 45,294 | 45,294 |
| 903.60 | 19,216 | 1,720 | 47,014 |

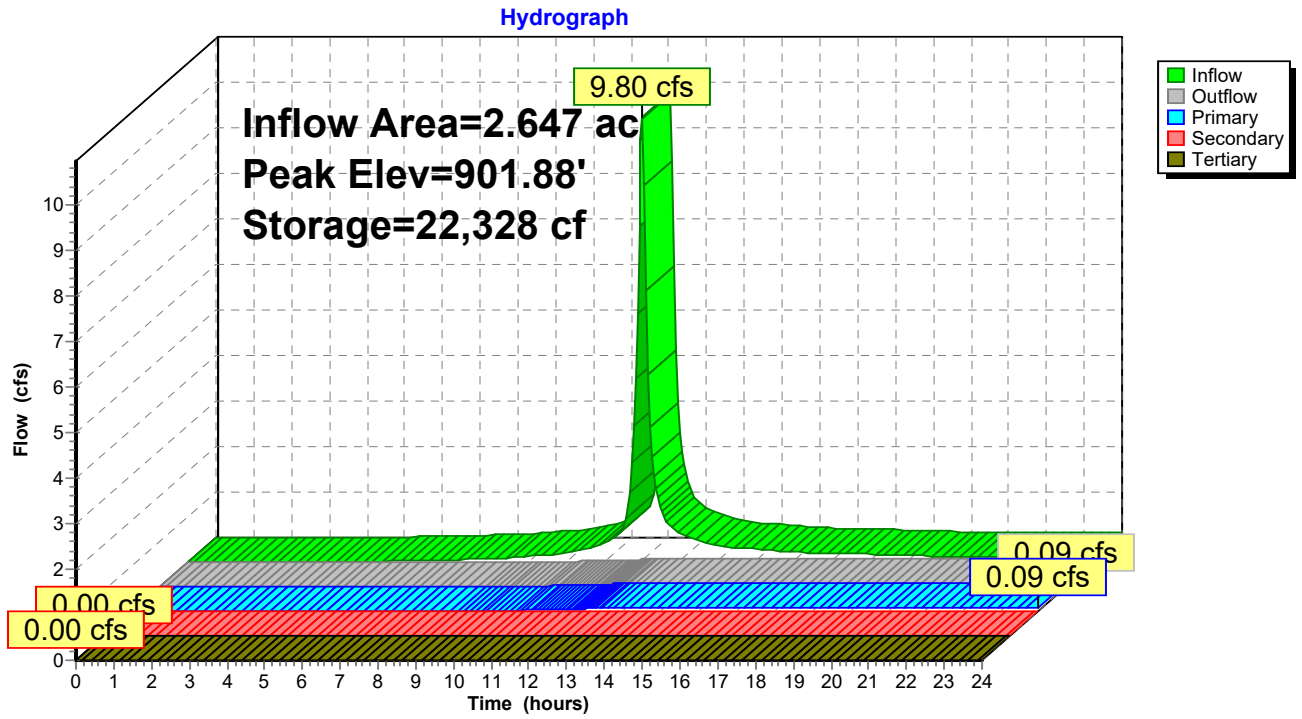
| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 899.95' | **18.0" Round Culvert**<br>L= 45.0' RCP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 899.95' / 899.85' S= 0.0022 '/' Cc= 0.900<br>n= 0.012, Flow Area= 1.77 sf |
| #2 | Device 1 | 900.00' | **1.6" Vert. WQ Orifice** C= 0.600 |
| #3 | Device 1 | 902.70' | **1.5" x 5.0" Horiz. Grate X 9.00 columns** X 3 rows C= 0.600<br>Limited to weir flow at low heads |
| #4 | Secondary | 903.50' | **5.0' long x 5.0' breadth Broad-Crested Rectangular Weir**<br>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<br>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 | 903.60' | **5.0' long x 1.0' breadth Broad-Crested Rectangular Weir**<br>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<br>Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32 |

**Primary OutFlow** Max=0.09 cfs @ 24.00 hrs HW=901.88' (Free Discharge)
└**1=Culvert** (Passes 0.09 cfs of 7.38 cfs potential flow)
└**2=WQ Orifice** (Orifice Controls 0.09 cfs @ 6.48 fps)
└**3=Grate** ( Controls 0.00 cfs)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=900.00' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

**Tertiary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=900.00' (Free Discharge)
└**5=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Pond 1P: Pond



## Summary for Subcatchment 3A: Sub Basin 1220 to Basin

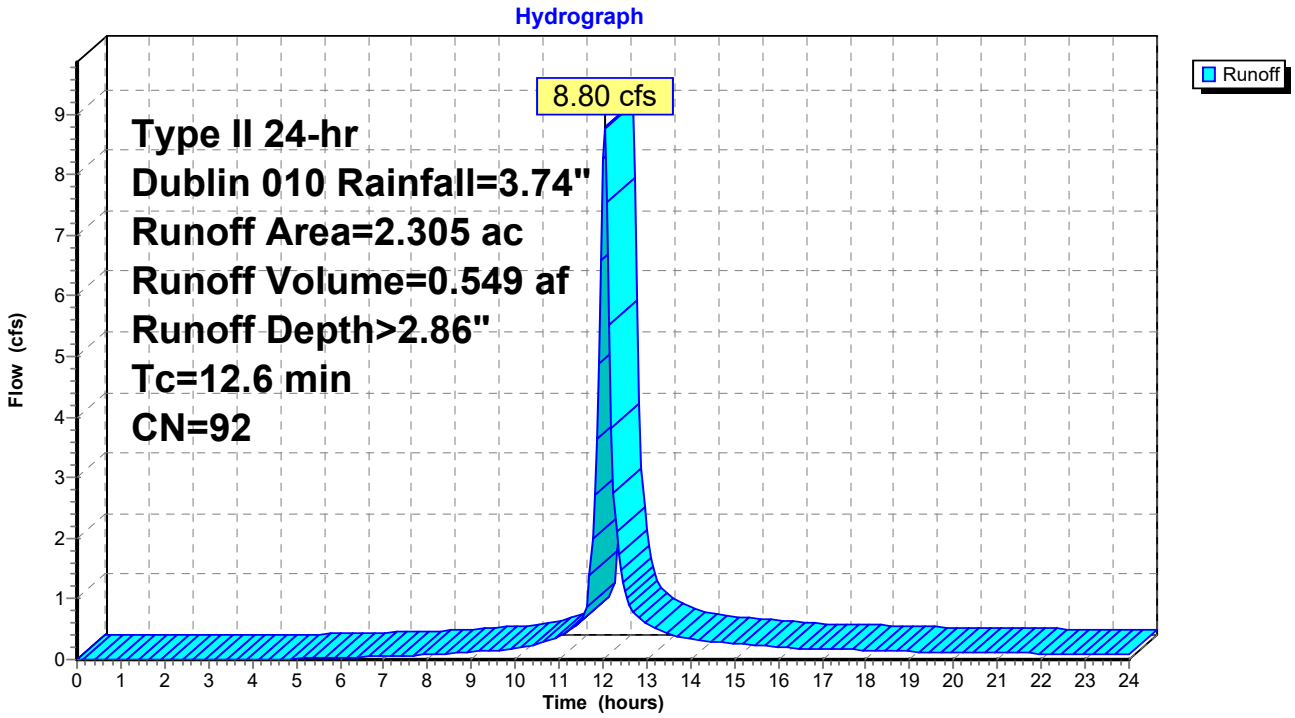
Runoff = 8.80 cfs @ 12.04 hrs, Volume= 0.549 af, Depth> 2.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 010 Rainfall=3.74"

| Area (ac) | CN | Description |
|---|---|---|
| 1.528 | 98 | Paved parking, HSG C |
| 0.777 | 80 | >75% Grass cover, Good, HSG D |
| 2.305 | 92 | Weighted Average |
| 0.777 | | 33.71% Pervious Area |
| 1.528 | | 66.29% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 12.6 | | | | | **Direct Entry, Storm Sewer Calculations** |

## Subcatchment 3A: Sub Basin 1220 to Basin



## Summary for Subcatchment 4A: Post-Dev Sub-Basin 1220 (Undetained)

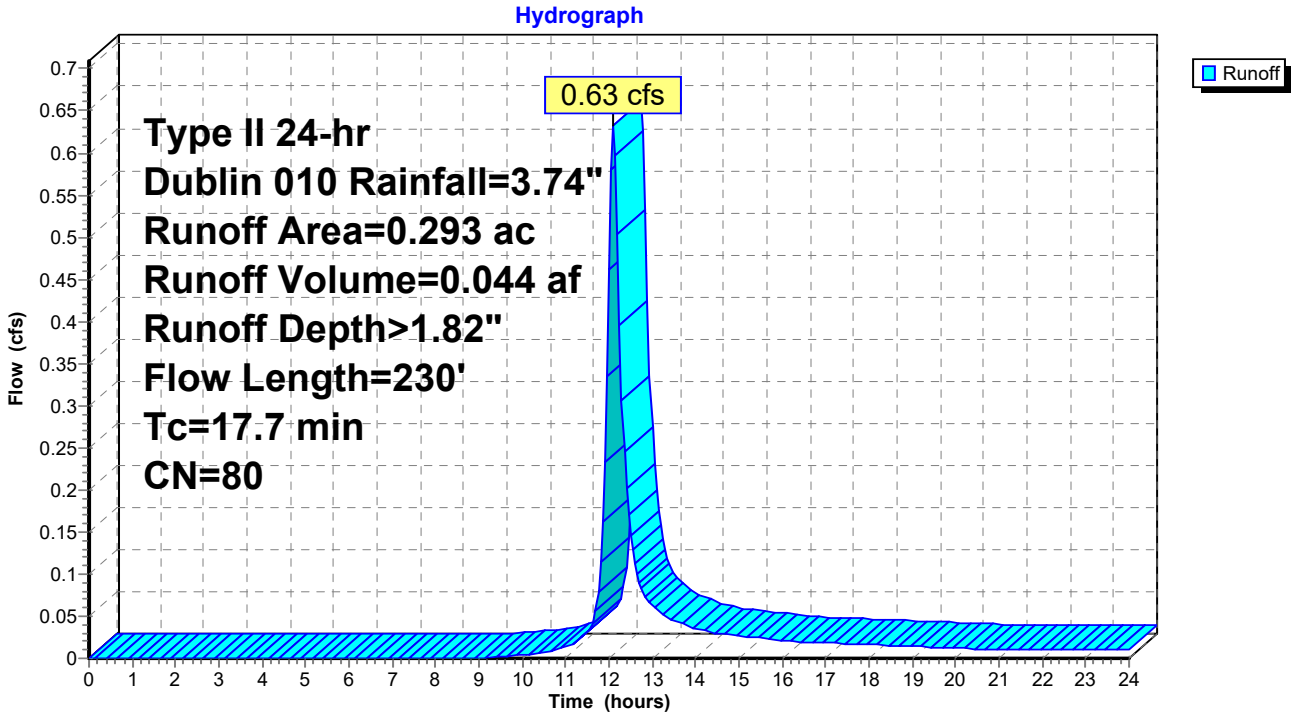
Runoff = 0.63 cfs @ 12.10 hrs, Volume= 0.044 af, Depth> 1.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 010 Rainfall=3.74"

| Area (ac) | CN | Description |
|---|---|---|
| 0.293 | 80 | >75% Grass cover, Good, HSG D |
| 0.293 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 15.3 | 100 | 0.0214 | 0.11 | | **Sheet Flow, Sheet Flow**<br>Grass: Dense n= 0.240 P2= 2.63" |
| 2.4 | 130 | 0.0037 | 0.91 | | **Shallow Concentrated Flow, Shallow Concentrated Flow**<br>Grassed Waterway Kv= 15.0 fps |
| 17.7 | 230 | Total | | | |

## Subcatchment 4A: Post-Dev Sub-Basin 1220 (Undetained)



## Summary for Subcatchment 5A: Sub-Basin 1310 to Basin

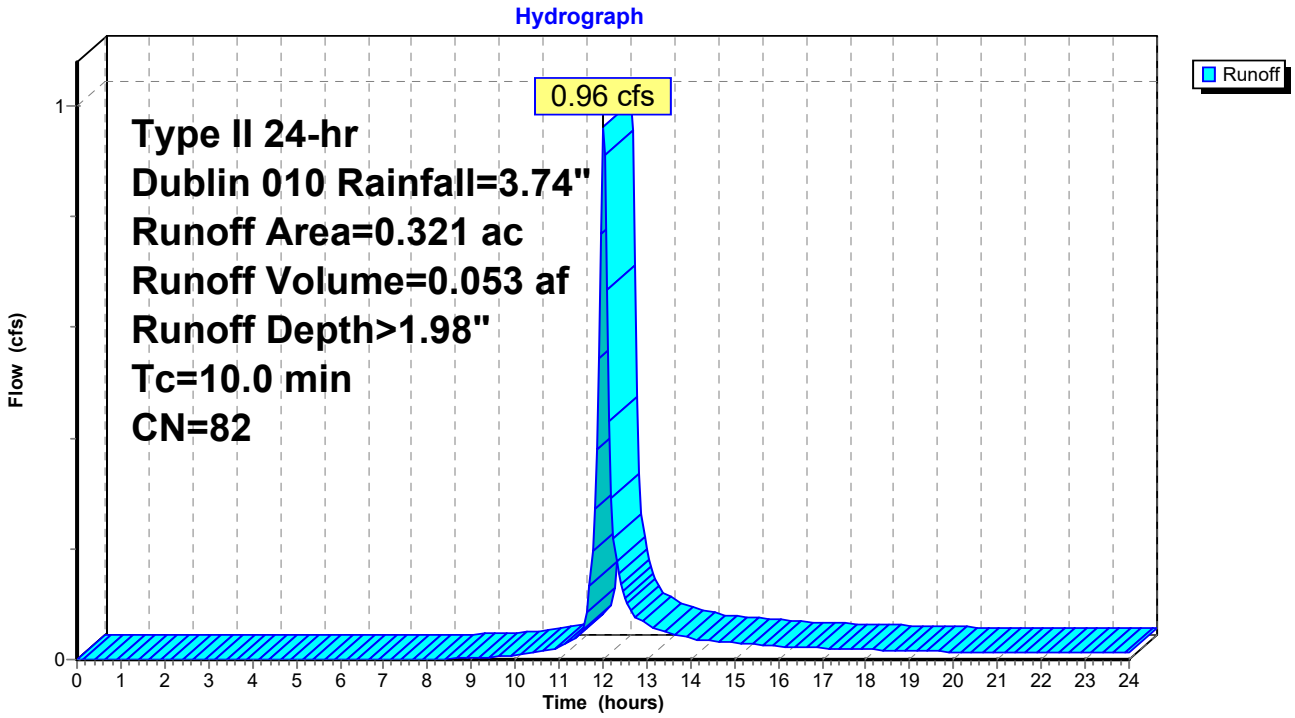
Runoff = 0.96 cfs @ 12.02 hrs, Volume= 0.053 af, Depth> 1.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 010 Rainfall=3.74"

| Area (ac) | CN | Description |
|---|---|---|
| 0.284 | 80 | >75% Grass cover, Good, HSG D |
| 0.037 | 98 | Paved roads w/curbs & sewers, HSG D |
| 0.321 | 82 | Weighted Average |
| 0.284 | | 88.47% Pervious Area |
| 0.037 | | 11.53% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | | | | | **Direct Entry, Min Tc** |

### Subcatchment 5A: Sub-Basin 1310 to Basin



## Summary for Subcatchment 1A: Sub Basin 1200 to Basin

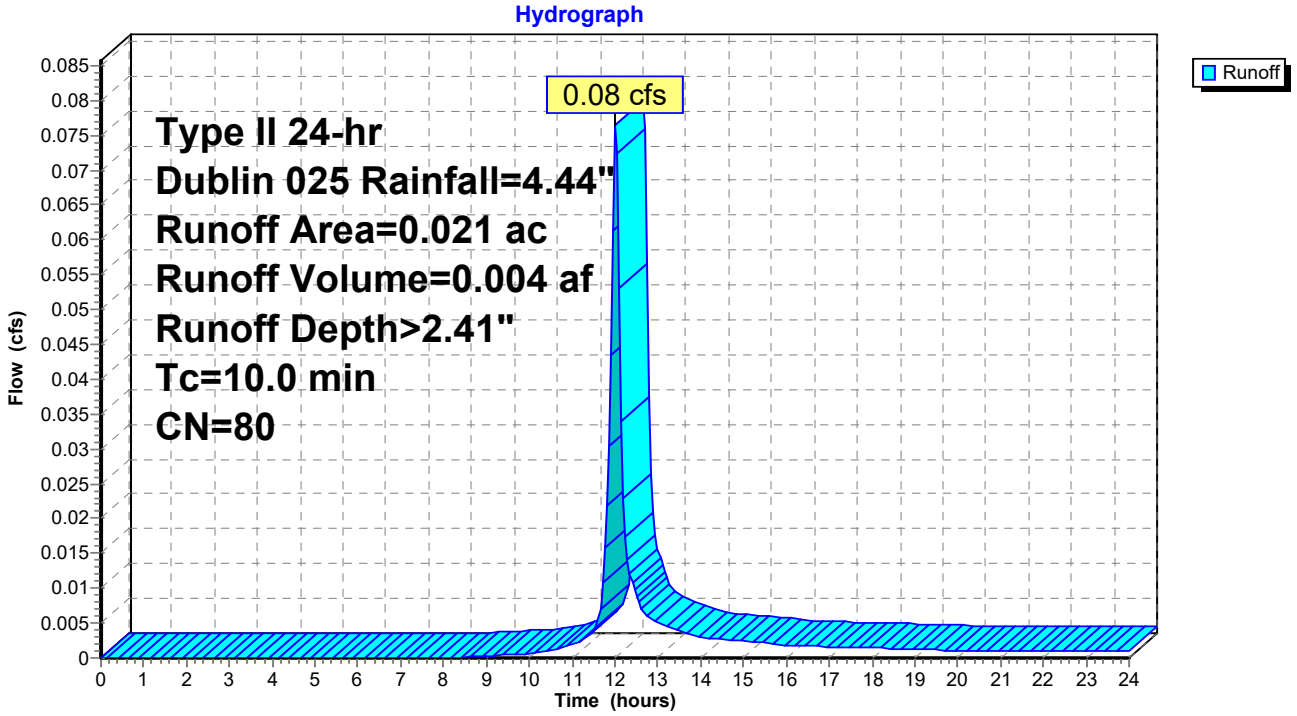
Runoff = 0.08 cfs @ 12.02 hrs, Volume= 0.004 af, Depth> 2.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 025 Rainfall=4.44"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 0.021 | 80 | |
| | 0.021 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | | | | | **Direct Entry, Storm Sewer Min** |

## Subcatchment 1A: Sub Basin 1200 to Basin



## Summary for Pond 1P: Pond

Inflow Area = 2.647 ac, 59.12% Impervious, Inflow Depth > 3.41" for Dublin 025 event
Inflow = 12.04 cfs @ 12.04 hrs, Volume= 0.752 af
Outflow = 0.10 cfs @ 24.00 hrs, Volume= 0.105 af, Atten= 99%, Lag= 717.9 min
Primary = 0.10 cfs @ 24.00 hrs, Volume= 0.105 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 Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 902.31' @ 24.00 hrs Surf.Area= 13,665 sf Storage= 28,186 cf

Plug-Flow detention time= 471.1 min calculated for 0.105 af (14% of inflow)
Center-of-Mass det. time= 259.3 min ( 1,050.4 - 791.1 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 900.00' | 47,014 cf | **Large Pond (Prismatic)**Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 900.00 | 10,696 | 0 | 0 |
| 903.50 | 15,186 | 45,294 | 45,294 |
| 903.60 | 19,216 | 1,720 | 47,014 |

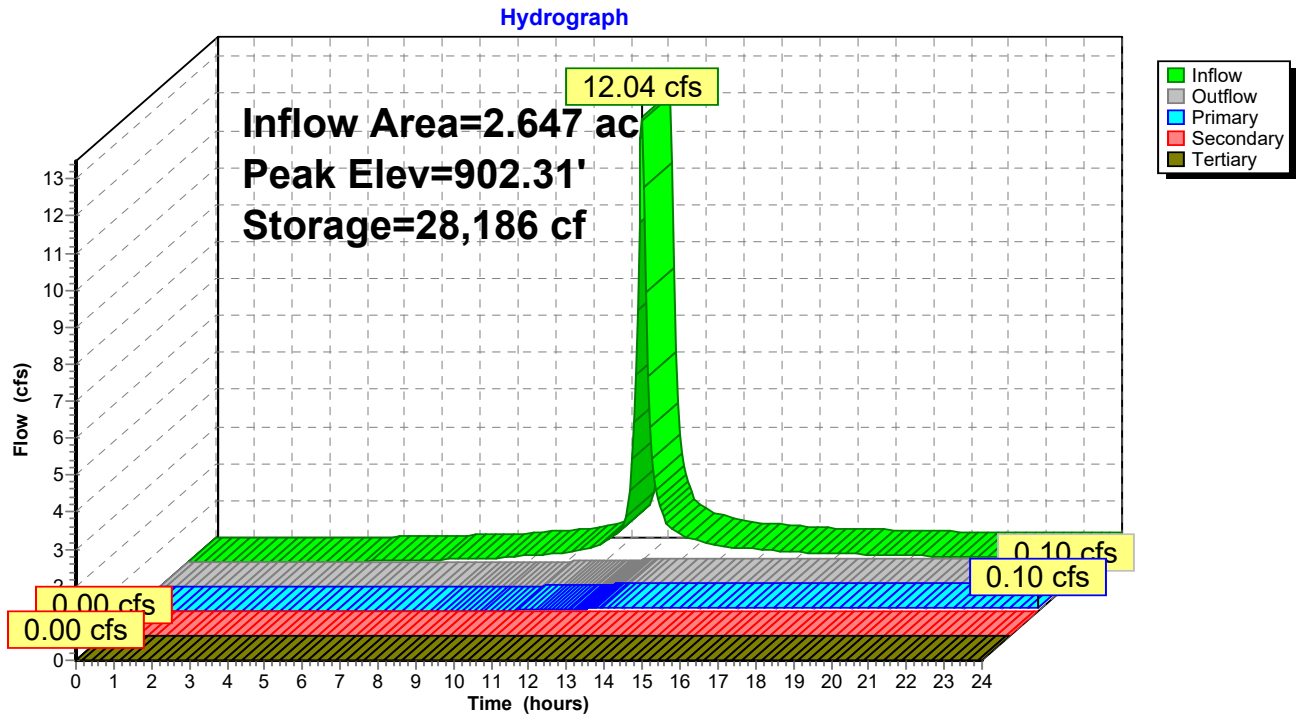
| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 899.95' | **18.0" Round Culvert**<br>L= 45.0' RCP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 899.95' / 899.85' S= 0.0022 '/' Cc= 0.900<br>n= 0.012, Flow Area= 1.77 sf |
| #2 | Device 1 | 900.00' | **1.6" Vert. WQ Orifice** C= 0.600 |
| #3 | Device 1 | 902.70' | **1.5" x 5.0" Horiz. Grate X 9.00 columns** X 3 rows C= 0.600<br>Limited to weir flow at low heads |
| #4 | Secondary | 903.50' | **5.0' long x 5.0' breadth Broad-Crested Rectangular Weir**<br>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<br>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 | 903.60' | **5.0' long x 1.0' breadth Broad-Crested Rectangular Weir**<br>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<br>Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32 |

**Primary OutFlow** Max=0.10 cfs @ 24.00 hrs HW=902.31' (Free Discharge)
└─**1=Culvert** (Passes 0.10 cfs of 9.39 cfs potential flow)
└─**2=WQ Orifice** (Orifice Controls 0.10 cfs @ 7.22 fps)
└─**3=Grate** ( Controls 0.00 cfs)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=900.00' (Free Discharge)
└─**4=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

**Tertiary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=900.00' (Free Discharge)
└─**5=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Pond 1P: Pond



## Summary for Subcatchment 3A: Sub Basin 1220 to Basin

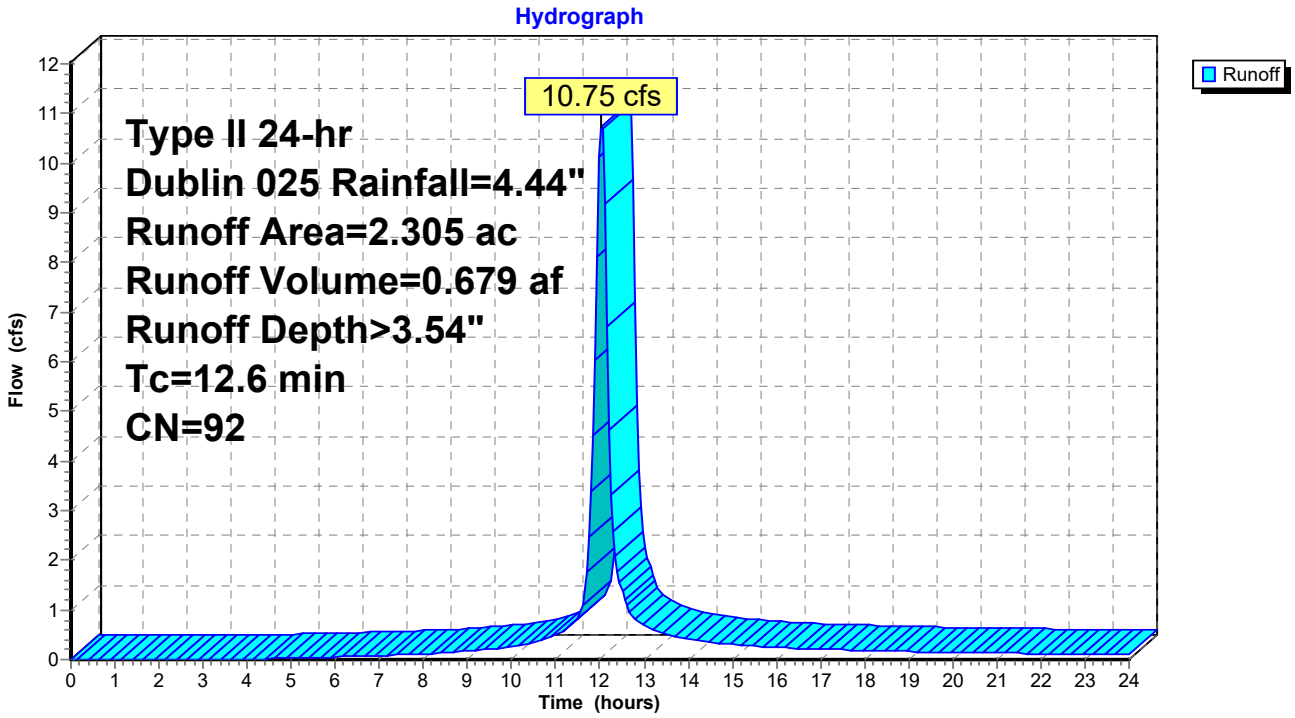
Runoff = 10.75 cfs @ 12.04 hrs, Volume= 0.679 af, Depth> 3.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 025 Rainfall=4.44"

| Area (ac) | CN | Description |
|---|---|---|
| 1.528 | 98 | Paved parking, HSG C |
| 0.777 | 80 | >75% Grass cover, Good, HSG D |
| 2.305 | 92 | Weighted Average |
| 0.777 | | 33.71% Pervious Area |
| 1.528 | | 66.29% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 12.6 | | | | | **Direct Entry, Storm Sewer Calculations** |

## Subcatchment 3A: Sub Basin 1220 to Basin



## Summary for Subcatchment 4A: Post-Dev Sub-Basin 1220 (Undetained)

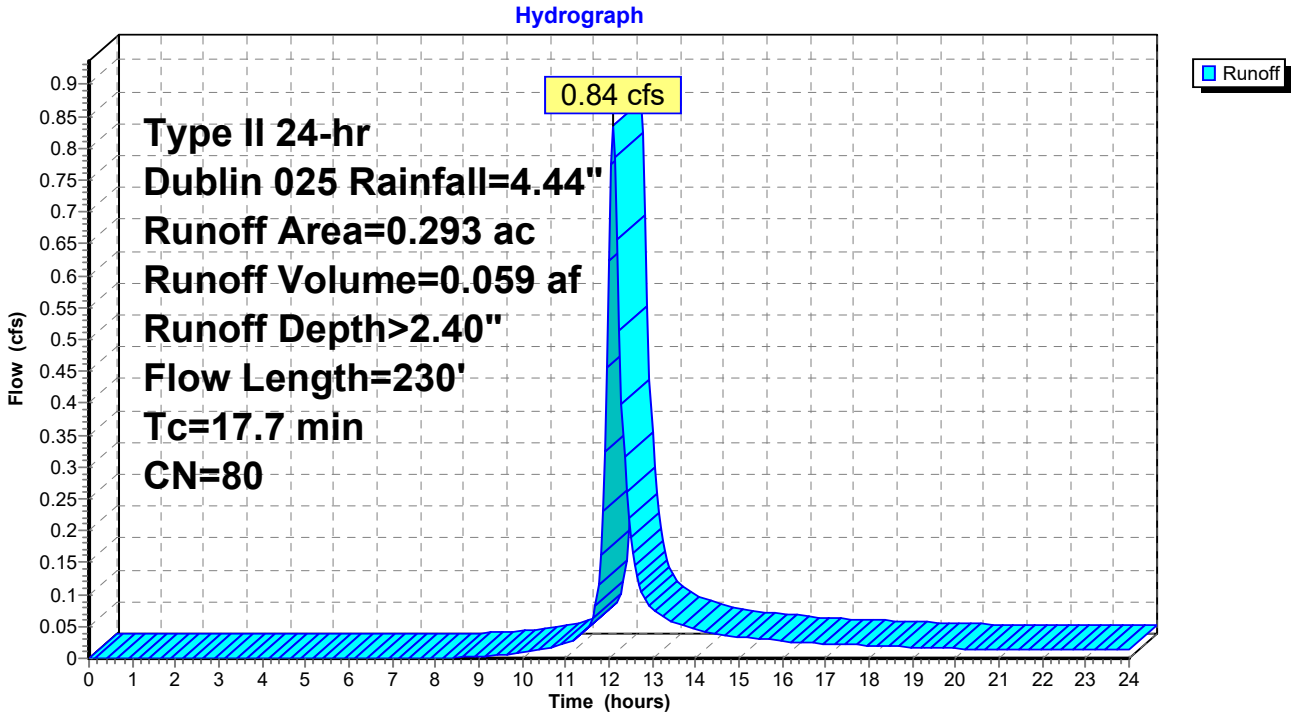
Runoff = 0.84 cfs @ 12.10 hrs, Volume= 0.059 af, Depth> 2.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 025 Rainfall=4.44"

| Area (ac) | CN | Description |
|---|---|---|
| 0.293 | 80 | >75% Grass cover, Good, HSG D |
| 0.293 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 15.3 | 100 | 0.0214 | 0.11 | | **Sheet Flow, Sheet Flow**<br>Grass: Dense n= 0.240 P2= 2.63" |
| 2.4 | 130 | 0.0037 | 0.91 | | **Shallow Concentrated Flow, Shallow Concentrated Flow**<br>Grassed Waterway Kv= 15.0 fps |
| 17.7 | 230 | Total | | | |

## Subcatchment 4A: Post-Dev Sub-Basin 1220 (Undetained)



## Summary for Subcatchment 5A: Sub-Basin 1310 to Basin

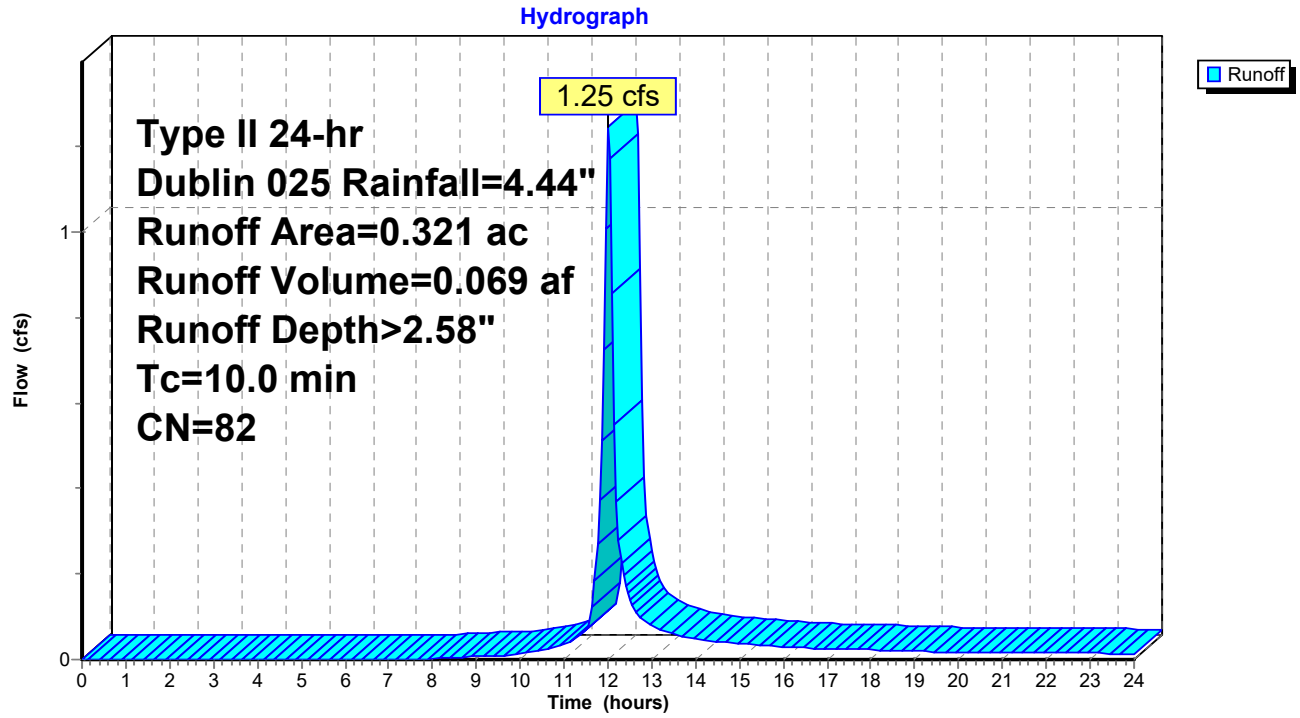
Runoff = 1.25 cfs @ 12.01 hrs, Volume= 0.069 af, Depth> 2.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 025 Rainfall=4.44"

| Area (ac) | CN | Description |
|---|---|---|
| 0.284 | 80 | >75% Grass cover, Good, HSG D |
| 0.037 | 98 | Paved roads w/curbs & sewers, HSG D |
| 0.321 | 82 | Weighted Average |
| 0.284 | | 88.47% Pervious Area |
| 0.037 | | 11.53% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | | | | | **Direct Entry, Min Tc** |

### Subcatchment 5A: Sub-Basin 1310 to Basin



## Summary for Subcatchment 1A: Sub Basin 1200 to Basin

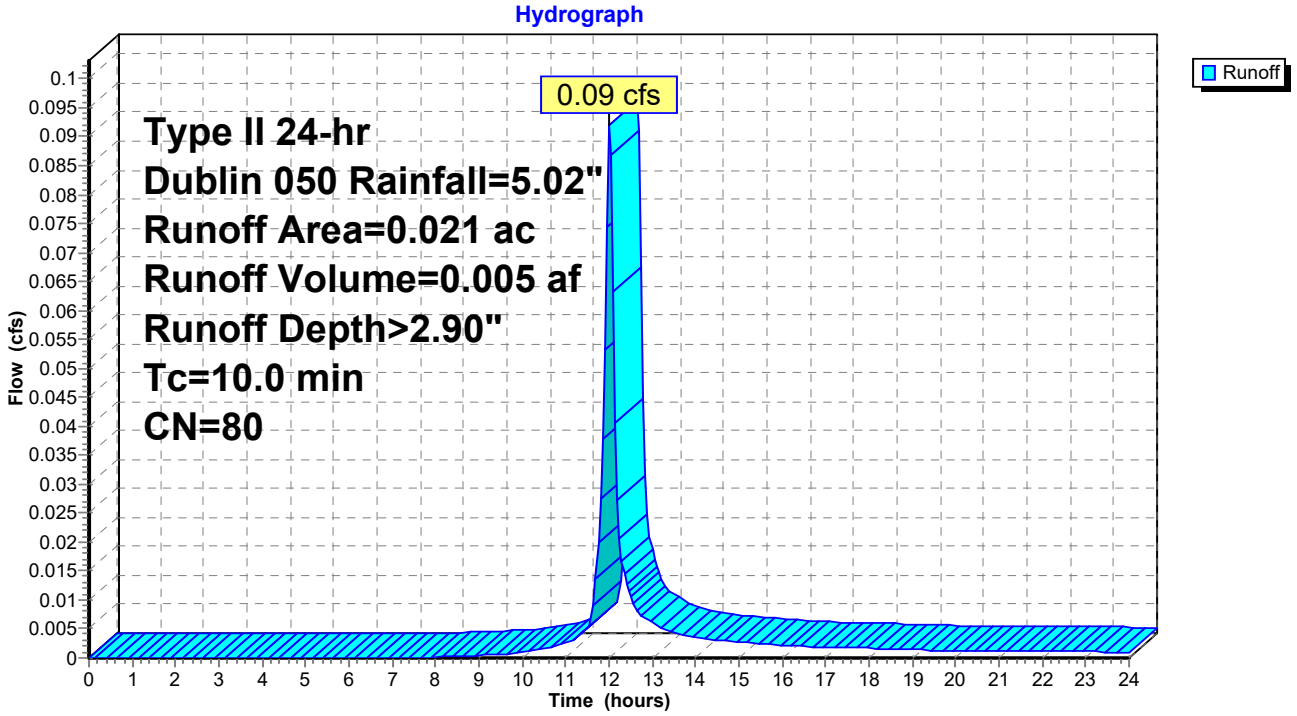
Runoff = 0.09 cfs @ 12.01 hrs, Volume= 0.005 af, Depth> 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 050 Rainfall=5.02"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 0.021 | 80 | |
| | 0.021 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | | | | | **Direct Entry, Storm Sewer Min** |

## Subcatchment 1A: Sub Basin 1200 to Basin



## Summary for Pond 1P: Pond

Inflow Area = 2.647 ac, 59.12% Impervious, Inflow Depth > 3.97" for Dublin 050 event
Inflow = 13.89 cfs @ 12.04 hrs, Volume= 0.875 af
Outflow = 0.11 cfs @ 24.00 hrs, Volume= 0.115 af, Atten= 99%, Lag= 717.9 min
Primary = 0.11 cfs @ 24.00 hrs, Volume= 0.115 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 Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 902.67' @ 24.00 hrs Surf.Area= 14,121 sf Storage= 33,131 cf

Plug-Flow detention time= 486.0 min calculated for 0.114 af (13% of inflow)
Center-of-Mass det. time= 256.9 min ( 1,044.0 - 787.1 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 900.00' | 47,014 cf | **Large Pond (Prismatic)**Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 900.00 | 10,696 | 0 | 0 |
| 903.50 | 15,186 | 45,294 | 45,294 |
| 903.60 | 19,216 | 1,720 | 47,014 |

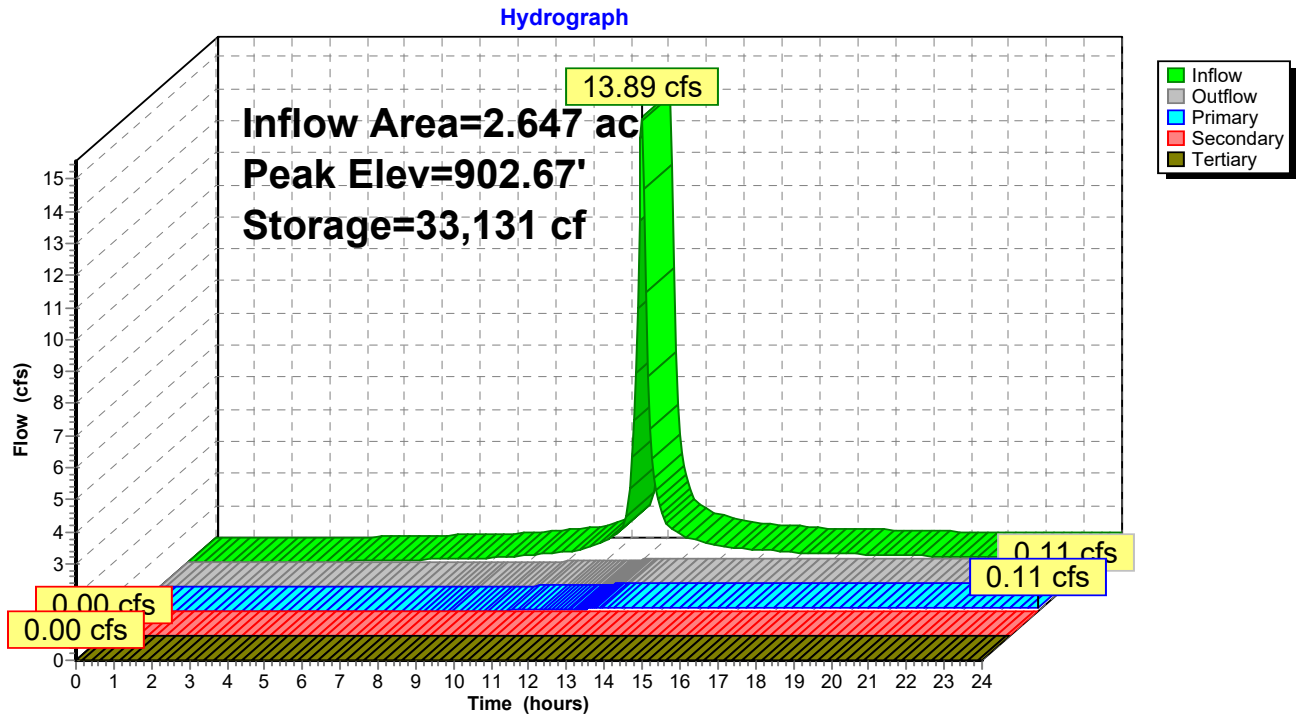
| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 899.95' | **18.0" Round Culvert**<br>L= 45.0' RCP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 899.95' / 899.85' S= 0.0022 '/' Cc= 0.900<br>n= 0.012, Flow Area= 1.77 sf |
| #2 | Device 1 | 900.00' | **1.6" Vert. WQ Orifice** C= 0.600 |
| #3 | Device 1 | 902.70' | **1.5" x 5.0" Horiz. Grate X 9.00 columns** X 3 rows C= 0.600<br>Limited to weir flow at low heads |
| #4 | Secondary | 903.50' | **5.0' long x 5.0' breadth Broad-Crested Rectangular Weir**<br>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<br>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 | 903.60' | **5.0' long x 1.0' breadth Broad-Crested Rectangular Weir**<br>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<br>Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32 |

**Primary OutFlow** Max=0.11 cfs @ 24.00 hrs HW=902.67' (Free Discharge)
└─**1=Culvert** (Passes 0.11 cfs of 10.98 cfs potential flow)
└─**2=WQ Orifice** (Orifice Controls 0.11 cfs @ 7.77 fps)
└─**3=Grate** ( Controls 0.00 cfs)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=900.00' (Free Discharge)
└─**4=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

**Tertiary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=900.00' (Free Discharge)
└─**5=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Pond 1P: Pond



## Summary for Subcatchment 3A: Sub Basin 1220 to Basin

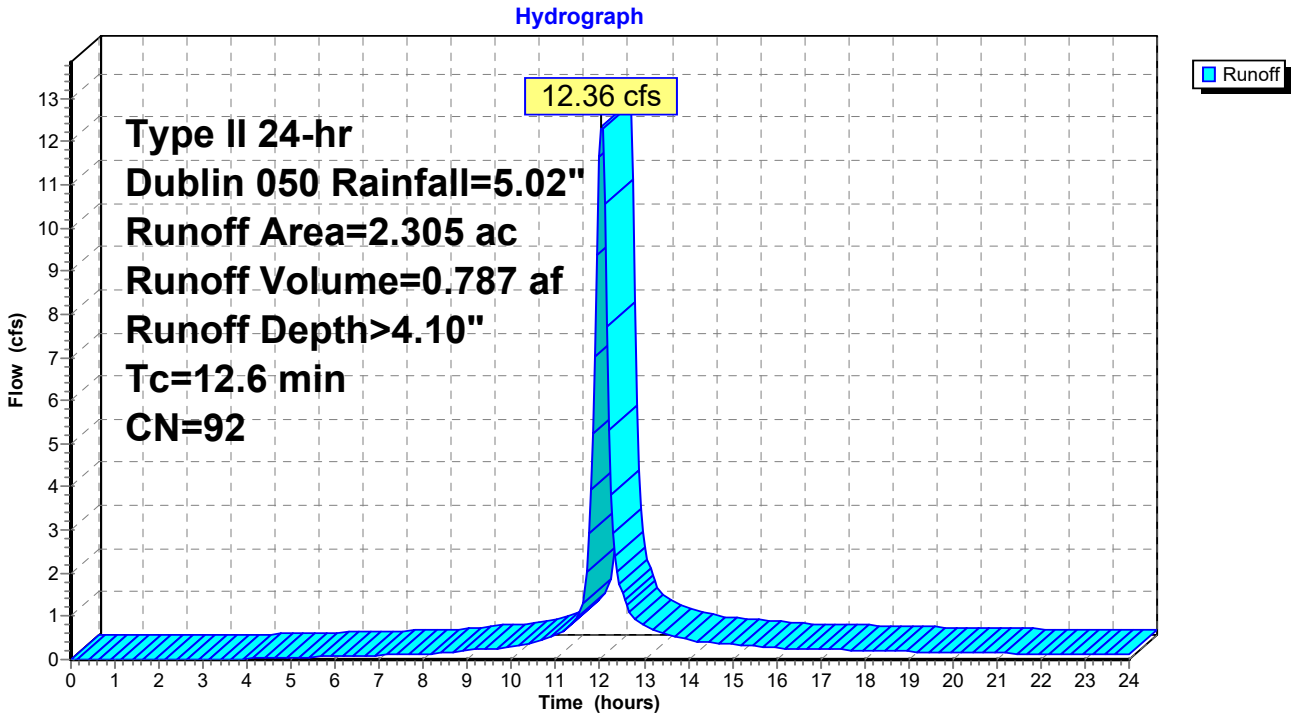
Runoff = 12.36 cfs @ 12.04 hrs, Volume= 0.787 af, Depth> 4.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 050 Rainfall=5.02"

| Area (ac) | CN | Description |
|---|---|---|
| 1.528 | 98 | Paved parking, HSG C |
| 0.777 | 80 | >75% Grass cover, Good, HSG D |
| 2.305 | 92 | Weighted Average |
| 0.777 | | 33.71% Pervious Area |
| 1.528 | | 66.29% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 12.6 | | | | | **Direct Entry, Storm Sewer Calculations** |

## Subcatchment 3A: Sub Basin 1220 to Basin



## Summary for Subcatchment 4A: Post-Dev Sub-Basin 1220 (Undetained)

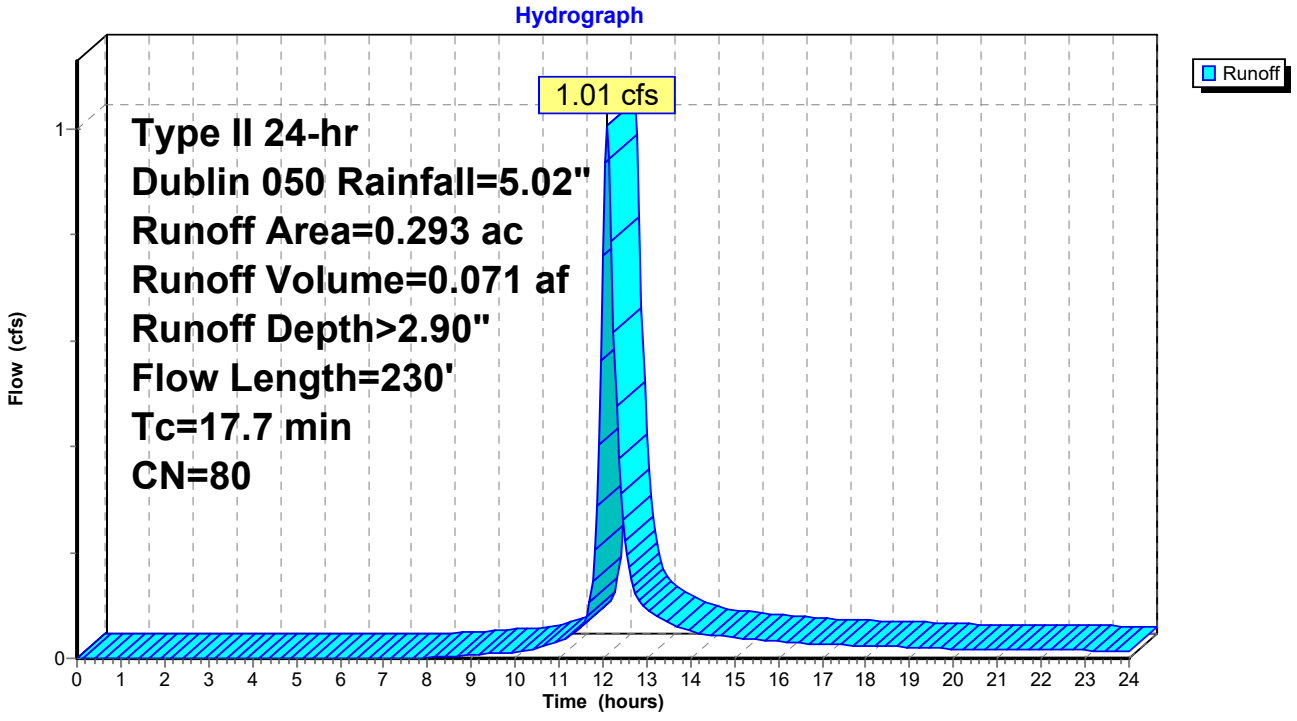
Runoff = 1.01 cfs @ 12.10 hrs, Volume= 0.071 af, Depth> 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 050 Rainfall=5.02"

| Area (ac) | CN | Description |
|---|---|---|
| 0.293 | 80 | >75% Grass cover, Good, HSG D |
| 0.293 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 15.3 | 100 | 0.0214 | 0.11 | | **Sheet Flow, Sheet Flow**<br>Grass: Dense n= 0.240 P2= 2.63" |
| 2.4 | 130 | 0.0037 | 0.91 | | **Shallow Concentrated Flow, Shallow Concentrated Flow**<br>Grassed Waterway Kv= 15.0 fps |
| 17.7 | 230 | Total | | | |

## Subcatchment 4A: Post-Dev Sub-Basin 1220 (Undetained)



## Summary for Subcatchment 5A: Sub-Basin 1310 to Basin

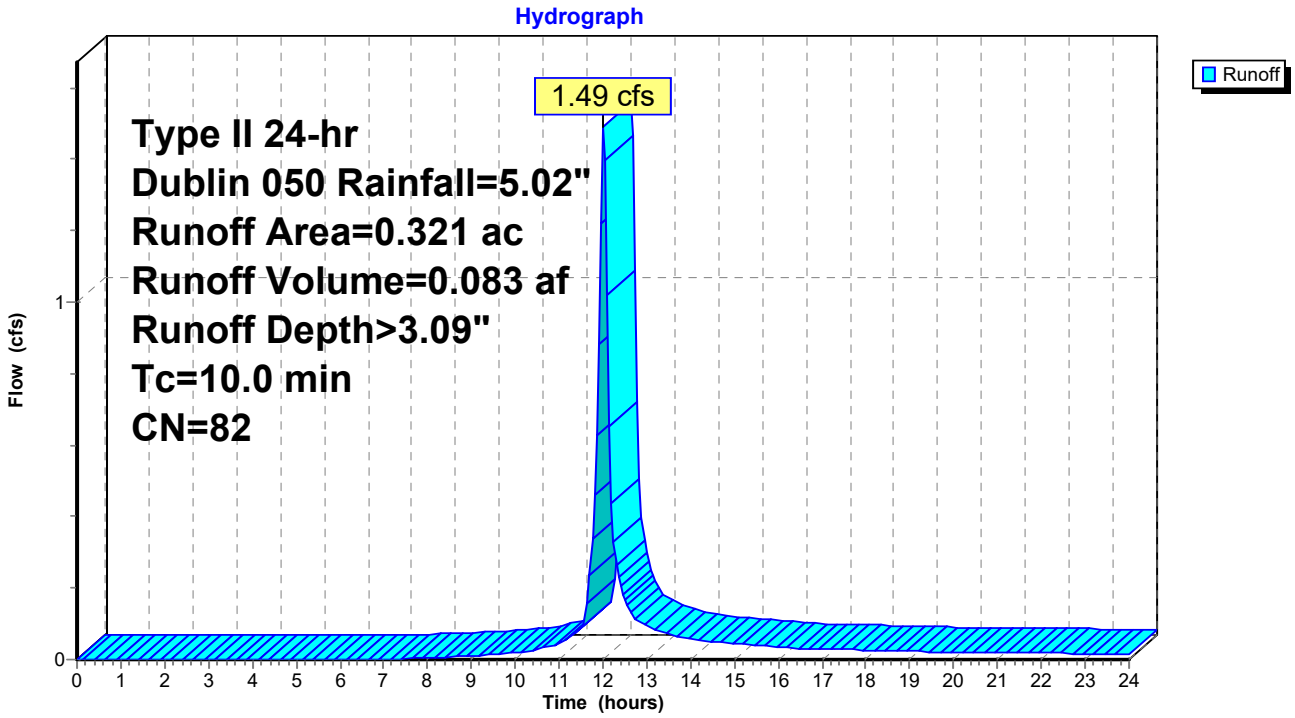
Runoff = 1.49 cfs @ 12.01 hrs, Volume= 0.083 af, Depth> 3.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 050 Rainfall=5.02"

| Area (ac) | CN | Description |
|---|---|---|
| 0.284 | 80 | >75% Grass cover, Good, HSG D |
| 0.037 | 98 | Paved roads w/curbs & sewers, HSG D |
| 0.321 | 82 | Weighted Average |
| 0.284 | | 88.47% Pervious Area |
| 0.037 | | 11.53% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | | | | | **Direct Entry, Min Tc** |

### Subcatchment 5A: Sub-Basin 1310 to Basin



## Summary for Subcatchment 1A: Sub Basin 1200 to Basin

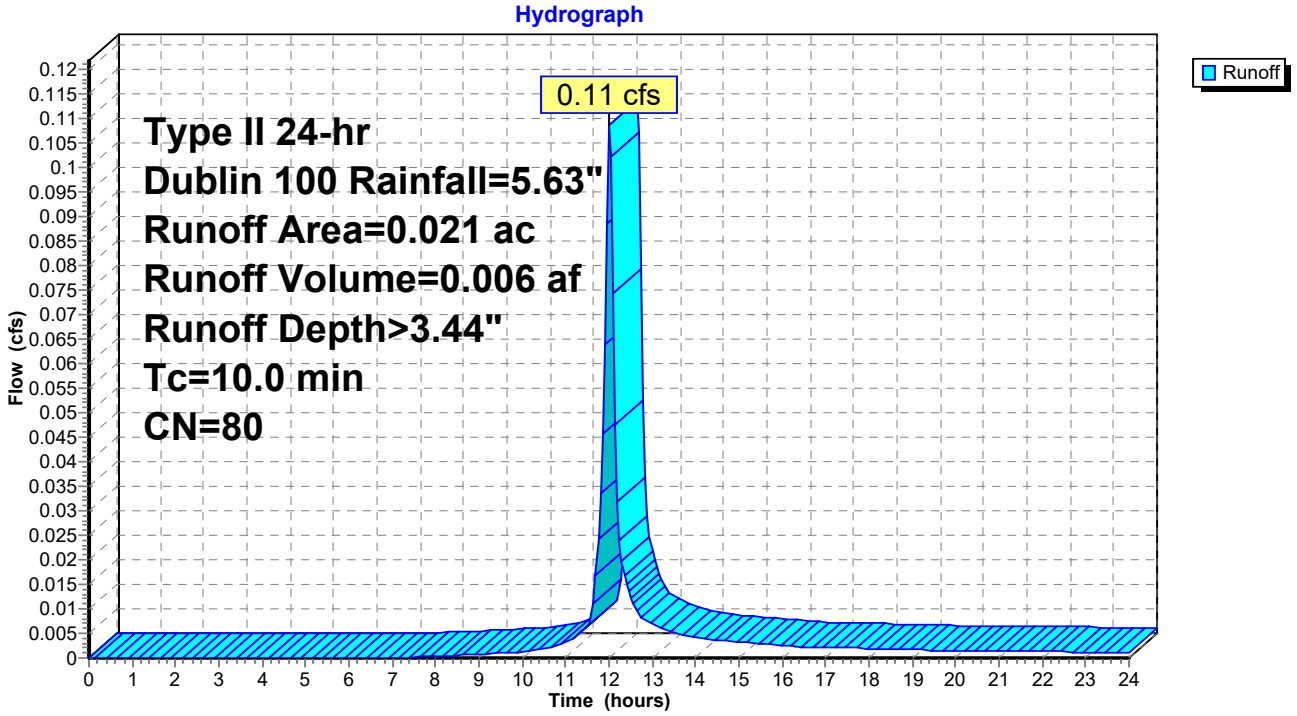
Runoff = 0.11 cfs @ 12.01 hrs, Volume= 0.006 af, Depth> 3.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 100 Rainfall=5.63"

| | Area (ac) | CN | Description |
|---|---|---|---|
| * | 0.021 | 80 | |
| | 0.021 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | | | | | **Direct Entry, Storm Sewer Min** |

## Subcatchment 1A: Sub Basin 1200 to Basin



## Summary for Pond 1P: Pond

Inflow Area = 2.647 ac, 59.12% Impervious, Inflow Depth > 4.56" for Dublin 100 event
Inflow = 15.84 cfs @ 12.03 hrs, Volume= 1.005 af
Outflow = 0.44 cfs @ 15.16 hrs, Volume= 0.233 af, Atten= 97%, Lag= 187.6 min
Primary = 0.44 cfs @ 15.16 hrs, Volume= 0.233 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 Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 902.72' @ 15.16 hrs Surf.Area= 14,189 sf Storage= 33,878 cf

Plug-Flow detention time= 440.7 min calculated for 0.233 af (23% of inflow)
Center-of-Mass det. time= 268.0 min ( 1,051.4 - 783.5 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 900.00' | 47,014 cf | **Large Pond (Prismatic)**Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 900.00 | 10,696 | 0 | 0 |
| 903.50 | 15,186 | 45,294 | 45,294 |
| 903.60 | 19,216 | 1,720 | 47,014 |

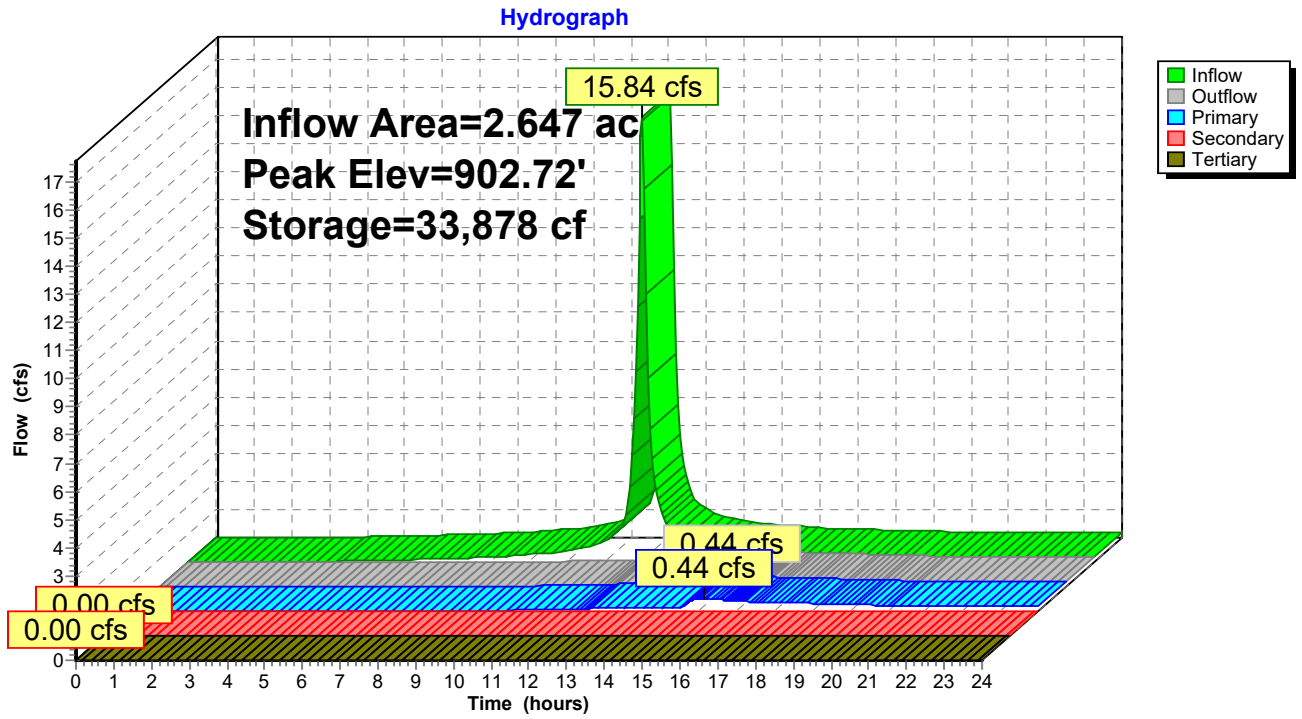
| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 899.95' | **18.0" Round Culvert**<br>L= 45.0' RCP, square edge headwall, Ke= 0.500<br>Inlet / Outlet Invert= 899.95' / 899.85' S= 0.0022 '/' Cc= 0.900<br>n= 0.012, Flow Area= 1.77 sf |
| #2 | Device 1 | 900.00' | **1.6" Vert. WQ Orifice** C= 0.600 |
| #3 | Device 1 | 902.70' | **1.5" x 5.0" Horiz. Grate X 9.00 columns** X 3 rows C= 0.600<br>Limited to weir flow at low heads |
| #4 | Secondary | 903.50' | **5.0' long x 5.0' breadth Broad-Crested Rectangular Weir**<br>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<br>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 | 903.60' | **5.0' long x 1.0' breadth Broad-Crested Rectangular Weir**<br>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<br>Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32 |

**Primary OutFlow** Max=0.44 cfs @ 15.16 hrs HW=902.72' (Free Discharge)
└─**1=Culvert** (Passes 0.44 cfs of 11.20 cfs potential flow)
└─**2=WQ Orifice** (Orifice Controls 0.11 cfs @ 7.85 fps)
└─**3=Grate** (Weir Controls 0.33 cfs @ 0.49 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=900.00' (Free Discharge)
└─**4=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

**Tertiary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=900.00' (Free Discharge)
└─**5=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Pond 1P: Pond



## Summary for Subcatchment 3A: Sub Basin 1220 to Basin

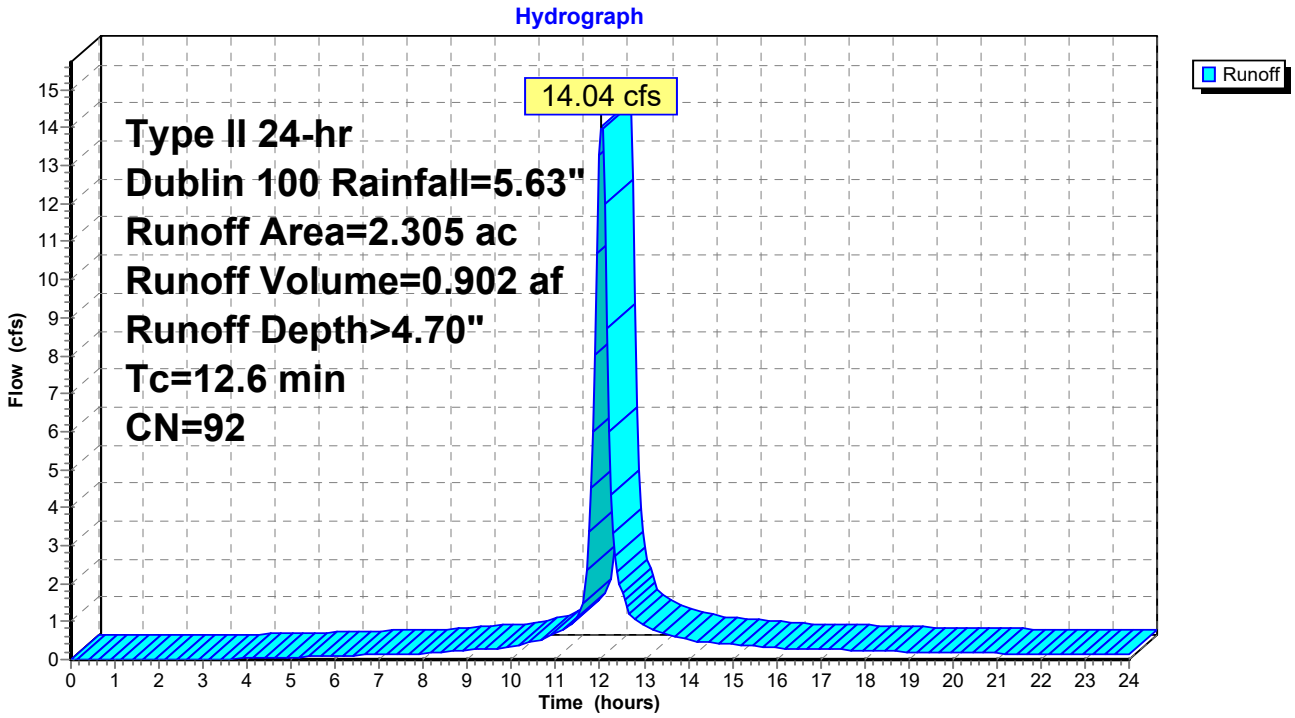
Runoff = 14.04 cfs @ 12.04 hrs, Volume= 0.902 af, Depth> 4.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 100 Rainfall=5.63"

| Area (ac) | CN | Description |
|---|---|---|
| 1.528 | 98 | Paved parking, HSG C |
| 0.777 | 80 | >75% Grass cover, Good, HSG D |
| 2.305 | 92 | Weighted Average |
| 0.777 | | 33.71% Pervious Area |
| 1.528 | | 66.29% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 12.6 | | | | | **Direct Entry, Storm Sewer Calculations** |

## Subcatchment 3A: Sub Basin 1220 to Basin



## Summary for Subcatchment 4A: Post-Dev Sub-Basin 1220 (Undetained)

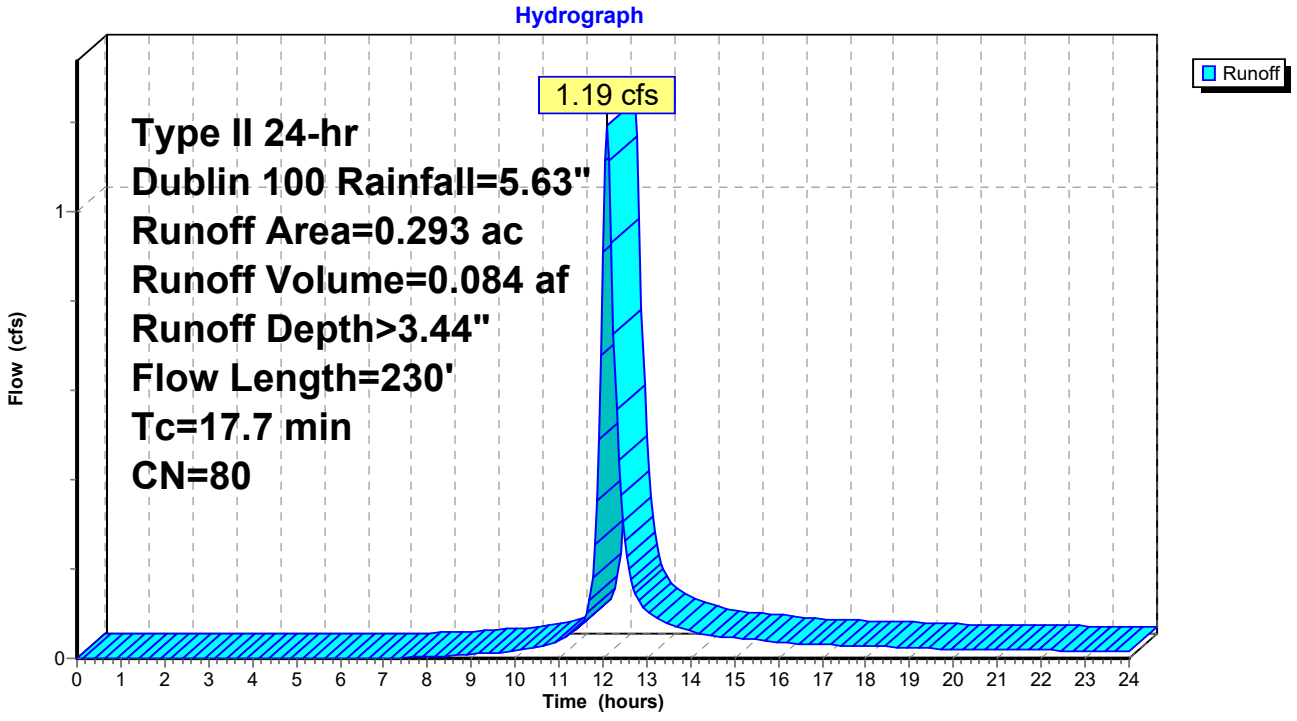
Runoff = 1.19 cfs @ 12.10 hrs, Volume= 0.084 af, Depth> 3.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 100 Rainfall=5.63"

| Area (ac) | CN | Description |
|---|---|---|
| 0.293 | 80 | >75% Grass cover, Good, HSG D |
| 0.293 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 15.3 | 100 | 0.0214 | 0.11 | | **Sheet Flow, Sheet Flow**<br>Grass: Dense n= 0.240 P2= 2.63" |
| 2.4 | 130 | 0.0037 | 0.91 | | **Shallow Concentrated Flow, Shallow Concentrated Flow**<br>Grassed Waterway Kv= 15.0 fps |
| 17.7 | 230 | Total | | | |

## Subcatchment 4A: Post-Dev Sub-Basin 1220 (Undetained)



## Summary for Subcatchment 5A: Sub-Basin 1310 to Basin

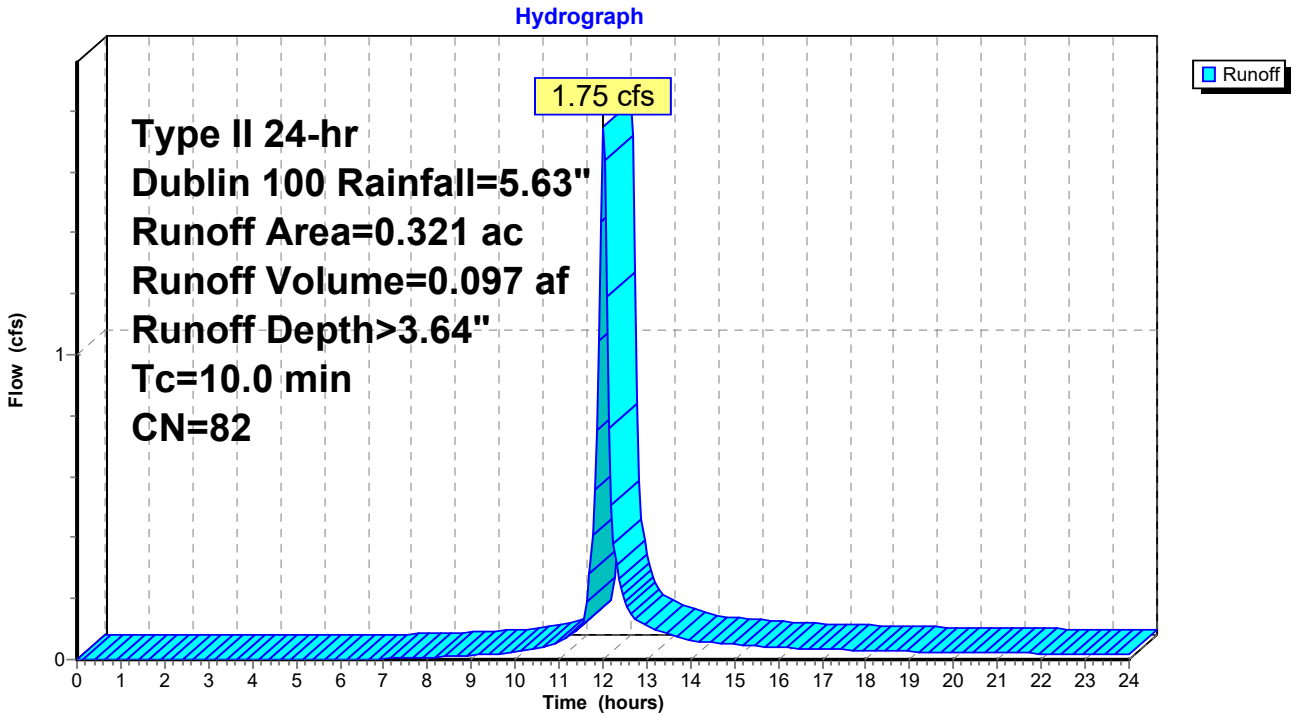
Runoff = 1.75 cfs @ 12.01 hrs, Volume= 0.097 af, Depth> 3.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr Dublin 100 Rainfall=5.63"

| Area (ac) | CN | Description |
|---|---|---|
| 0.284 | 80 | >75% Grass cover, Good, HSG D |
| 0.037 | 98 | Paved roads w/curbs & sewers, HSG D |
| 0.321 | 82 | Weighted Average |
| 0.284 | | 88.47% Pervious Area |
| 0.037 | | 11.53% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | | | | | **Direct Entry, Min Tc** |

## Subcatchment 5A: Sub-Basin 1310 to Basin



**APPENDIX I**

# WATER QUALITY CALCULATIONS

**Schoedinger - Perimeter Drive Dublin**
**NPDES Water Quality Requirements**

WQv = Rv * P * A / 12 (Equation 1)

| 1. Is this project New Development or Redevelopment? | | |
|---|---|---|
| Answer: | New Development | |
| WQv = | Water Quality Volume (ac.ft.) | |
| Rv = | Volumetric Runoff Coefficient | |
| P = | .90-in precipitation depth (inch) | |
| A = | Drainage area (acres) | |

| 2. Determine Percent Impervious | | |
|---|---|---|
| Land Use | Acre | % Total |
| Impervious | 1.51 | 51% |
| Pervious | 1.43 | 49% |
| Total Area | 2.940 | |

| Water Quality Volume | WQv | = | Rv | x | P | x | A | / 12 |
|---|---|---|---|---|---|---|---|---|
| | Volume | | | | in. | | Ac. | |
| ac.ft. | 0.1130 | = | 0.51 | x | 0.90 | x | 2.94 | / 12 |
| **cu. ft.** | **4,920** | | | | | | | |

| 3. Determine Volumetric Runoff Coefficient (Equation 2) |
|---|
| Rv = 0.05 + 0.9 * i |

| Water Quality Volume Required + 20% | | |
|---|---|---|
| **TWQv =** | **5,904** | **CF** |

## Hydrograph for Pond 1P: Pond

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Outflow (cfs) | Primary (cfs) | Secondary (cfs) | Tertiary (cfs) |
|---|---|---|---|---|---|---|---|
| 0.00 | **0.00** | **6,649** | **900.60** | **0.05** | **0.05** | **0.00** | **0.00** |
| 0.50 | 0.00 | 6,560 | 900.59 | 0.05 | 0.05 | 0.00 | 0.00 |
| 1.00 | 0.00 | 6,473 | 900.58 | 0.05 | 0.05 | 0.00 | 0.00 |
| 1.50 | 0.00 | 6,386 | 900.58 | 0.05 | 0.05 | 0.00 | 0.00 |
| 2.00 | 0.00 | 6,300 | 900.57 | 0.05 | 0.05 | 0.00 | 0.00 |
| 2.50 | 0.00 | 6,215 | 900.56 | 0.05 | 0.05 | 0.00 | 0.00 |
| 3.00 | 0.00 | 6,130 | 900.55 | 0.05 | 0.05 | 0.00 | 0.00 |
| 3.50 | 0.00 | 6,046 | 900.55 | 0.05 | 0.05 | 0.00 | 0.00 |
| 4.00 | 0.00 | 5,962 | 900.54 | 0.05 | 0.05 | 0.00 | 0.00 |
| 4.50 | 0.00 | 5,879 | 900.53 | 0.05 | 0.05 | 0.00 | 0.00 |
| 5.00 | 0.00 | 5,797 | 900.53 | 0.05 | 0.05 | 0.00 | 0.00 |
| 5.50 | 0.00 | 5,715 | 900.52 | 0.05 | 0.05 | 0.00 | 0.00 |
| 6.00 | 0.00 | 5,634 | 900.51 | 0.04 | 0.04 | 0.00 | 0.00 |
| 6.50 | 0.00 | 5,554 | 900.50 | 0.04 | 0.04 | 0.00 | 0.00 |
| 7.00 | 0.00 | 5,474 | 900.50 | 0.04 | 0.04 | 0.00 | 0.00 |
| 7.50 | 0.00 | 5,395 | 900.49 | 0.04 | 0.04 | 0.00 | 0.00 |
| 8.00 | 0.00 | 5,317 | 900.48 | 0.04 | 0.04 | 0.00 | 0.00 |
| 8.50 | 0.00 | 5,239 | 900.48 | 0.04 | 0.04 | 0.00 | 0.00 |
| 9.00 | 0.00 | 5,162 | 900.47 | 0.04 | 0.04 | 0.00 | 0.00 |
| 9.50 | 0.00 | 5,085 | 900.46 | 0.04 | 0.04 | 0.00 | 0.00 |
| 10.00 | 0.00 | 5,009 | 900.46 | 0.04 | 0.04 | 0.00 | 0.00 |
| 10.50 | 0.00 | 4,934 | 900.45 | 0.04 | 0.04 | 0.00 | 0.00 |
| 11.00 | 0.00 | 4,860 | 900.44 | 0.04 | 0.04 | 0.00 | 0.00 |
| 11.50 | 0.00 | 4,786 | 900.44 | 0.04 | 0.04 | 0.00 | 0.00 |
| 12.00 | 0.00 | 4,713 | 900.43 | 0.04 | 0.04 | 0.00 | 0.00 |
| 12.50 | 0.00 | 4,640 | 900.42 | 0.04 | 0.04 | 0.00 | 0.00 |
| 13.00 | 0.00 | 4,568 | 900.42 | 0.04 | 0.04 | 0.00 | 0.00 |
| 13.50 | 0.00 | 4,497 | 900.41 | 0.04 | 0.04 | 0.00 | 0.00 |
| 14.00 | 0.00 | 4,426 | 900.40 | 0.04 | 0.04 | 0.00 | 0.00 |
| 14.50 | 0.00 | 4,356 | 900.40 | 0.04 | 0.04 | 0.00 | 0.00 |
| 15.00 | 0.00 | 4,287 | 900.39 | 0.04 | 0.04 | 0.00 | 0.00 |
| 15.50 | 0.00 | 4,218 | 900.39 | 0.04 | 0.04 | 0.00 | 0.00 |
| 16.00 | 0.00 | 4,150 | 900.38 | 0.04 | 0.04 | 0.00 | 0.00 |
| 16.50 | 0.00 | 4,083 | 900.37 | 0.04 | 0.04 | 0.00 | 0.00 |
| 17.00 | 0.00 | 4,016 | 900.37 | 0.04 | 0.04 | 0.00 | 0.00 |
| 17.50 | 0.00 | 3,950 | 900.36 | 0.04 | 0.04 | 0.00 | 0.00 |
| 18.00 | 0.00 | 3,885 | 900.36 | 0.04 | 0.04 | 0.00 | 0.00 |
| 18.50 | 0.00 | 3,820 | 900.35 | 0.04 | 0.04 | 0.00 | 0.00 |
| 19.00 | 0.00 | 3,756 | 900.34 | 0.04 | 0.04 | 0.00 | 0.00 |
| 19.50 | 0.00 | 3,693 | 900.34 | 0.04 | 0.04 | 0.00 | 0.00 |
| 20.00 | 0.00 | 3,630 | 900.33 | 0.03 | 0.03 | 0.00 | 0.00 |
| 20.50 | 0.00 | 3,568 | 900.33 | 0.03 | 0.03 | 0.00 | 0.00 |
| 21.00 | 0.00 | 3,506 | 900.32 | 0.03 | 0.03 | 0.00 | 0.00 |
| 21.50 | 0.00 | 3,446 | 900.32 | 0.03 | 0.03 | 0.00 | 0.00 |
| 22.00 | 0.00 | 3,386 | 900.31 | 0.03 | 0.03 | 0.00 | 0.00 |
| 22.50 | 0.00 | 3,326 | 900.31 | 0.03 | 0.03 | 0.00 | 0.00 |
| 23.00 | 0.00 | 3,267 | 900.30 | 0.03 | 0.03 | 0.00 | 0.00 |
| 23.50 | 0.00 | 3,209 | 900.29 | 0.03 | 0.03 | 0.00 | 0.00 |
| 24.00 | 0.00 | 3,152 | 900.29 | 0.03 | 0.03 | 0.00 | 0.00 |

## Summary for Pond 2P: Provided Permanent Pool Volume

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 893.50' | 25,942 cf | **Normal Pool w/o Forebay (Prismatic)**Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 893.50 | 882 | 0 | 0 |
| 894.00 | 1,292 | 544 | 544 |
| 895.00 | 1,788 | 1,540 | 2,084 |
| 896.00 | 2,468 | 2,128 | 4,212 |
| 897.00 | 3,358 | 2,913 | 7,125 |
| 898.00 | 4,316 | 3,837 | 10,962 |
| 898.50 | 5,879 | 2,549 | 13,510 |
| 900.00 | 10,696 | 12,431 | 25,942 |

## Summary for Pond 3P: Provided Forebay Volume

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 896.50' | 2,340 cf | **Forebay HW-1 (Prismatic)**Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 896.50 | 348 | 0 | 0 |
| 897.00 | 513 | 215 | 215 |
| 898.00 | 939 | 726 | 941 |
| 899.17 | 1,452 | 1,399 | 2,340 |

**APPENDIX J**

# SEDIMENT BASIN CALCULATIONS

**Sediment Basin Calculations**

for

**Schoedinger Perimeter Drive Dublin**

Date: 8/2/2019

By: CLE

Checked By:

| Basin | Trib Area | Disturbed Area | Dewatering Zone | Sediment Storage Zone | Dewatering Zone | Sediment Storage Zone |
|---|---|---|---|---|---|---|
| | (Acre) | (Acre) | (cu-ft) | (cu ft) | (cu-yd) | (cu yd) |
| Wet Basin | 2.608 | 2.608 | **4694** | **2608** | **175** | **96** |
| | | | **0** | **0** | **0** | **0** |
| | | | **0** | **0** | **0** | **0** |
| | | | **0** | **0** | **0** | **0** |
| | | | **0** | **0** | **0** | **0** |
| | | | **0** | **0** | **0** | **0** |
| | | | **0** | **0** | **0** | **0** |

## Stage-Area-Storage for Pond 1P: Pond

| Elevation (feet) | Surface (sq-ft) | Storage (cubic-feet) |
|---|---|---|
| 900.00 | 10,696 | 0 |
| 900.10 | 10,824 | 1,076 |
| 900.20 | 10,953 | 2,165 |
| 900.30 | 11,081 | 3,267 |
| 900.40 | 11,209 | 4,381 |
| 900.50 | 11,337 | 5,508 |
| 900.60 | 11,466 | 6,649 |
| 900.70 | 11,594 | 7,802 |
| 900.80 | 11,722 | 8,967 |
| 900.90 | 11,851 | 10,146 |
| 901.00 | 11,979 | 11,337 |
| 901.10 | 12,107 | 12,542 |
| 901.20 | 12,235 | 13,759 |
| 901.30 | 12,364 | 14,989 |
| 901.40 | 12,492 | 16,232 |
| 901.50 | 12,620 | 17,487 |
| 901.60 | 12,749 | 18,756 |
| 901.70 | 12,877 | 20,037 |
| 901.80 | 13,005 | 21,331 |
| 901.90 | 13,133 | 22,638 |
| 902.00 | 13,262 | 23,958 |
| 902.10 | 13,390 | 25,290 |
| 902.20 | 13,518 | 26,636 |
| 902.30 | 13,647 | 27,994 |
| 902.40 | 13,775 | 29,365 |
| 902.50 | 13,903 | 30,749 |
| 902.60 | 14,031 | 32,146 |
| 902.70 | 14,160 | 33,555 |
| 902.80 | 14,288 | 34,978 |
| 902.90 | 14,416 | 36,413 |
| 903.00 | 14,545 | 37,861 |
| 903.10 | 14,673 | 39,322 |
| 903.20 | 14,801 | 40,795 |
| 903.30 | 14,929 | 42,282 |
| 903.40 | 15,058 | 43,781 |
| 903.50 | 15,186 | 45,294 |
| 903.60 | **19,216** | **47,014** |

## Calculate Skimmer Size

| | | | | | |
|---|---|---|---|---|---|
| **Basin Volume in Cubic Feet** | 5,700 | Cu.Ft | **Skimmer Size** | **2.0** | Inch |
| **Days to Drain*** | 2 | Days | Orifice Radius | **0.9** | Inch[es] |
| | | | Orifice Diameter | **1.8** | Inch[es] |

*In NC assume 3 days to drain

## Estimate Volume of Basin

| | Length | Width | | | | |
|---|---|---|---|---|---|---|
| **Top of water surface in feet** | | | Feet | **VOLUME** | **0** | **Cu. Ft.** |
| **Bottom dimensions in feet** | | | Feet | | | |
| **Depth in feet** | | | Feet | | | |

**APPENDIX K**

# STORM SEWER CALCULATIONS

ADVANCED CIVIL DESIGN

**Storm Sewer Design Sheet**

Project: Schoedinger Dublin | Date: August 13, 2018
Job No.: 18-0001-918 | Revised: June 21, 2019
By: | Revised: August 6, 2019
Revised: January 20, 2020

Page: 1

**2** Yr Design Storm n= **0.012**

| Struc. | Struc. Index | Sta. | Drainage Area Trib | Cumul. | C | Cumul CA | Time Delta t Min. | Sum t Min. | Intensity in/hr | Des Q CFS | Length ft. | Dia. In | Slope% | Vel | Cap. Flowing Full | Status | Drop Default 0.1 or Match Tops | Out | In | TC | Cover |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | MH0 | 2+94.40 | 1.118 | 1.118 | 0.90 | | 10.00 | 10.00 | 3.95 | 3.97 | | | | | | | | | | 904.31 | 1.95 |
| | | | 0.000 | | 0.90 | 1.01 | | | | | 271.64 | 18 | 0.220% | 3.02 | 5.34 | OK | 0.00 | 900.65 | 900.65 | | |
| 1 | MH0 | 0+22.76 | 0.000 | 1.290 | 0.90 | | 1.50 | 11.50 | 3.73 | 4.33 | | | | | | | | | | 903.50 | 1.74 |
| | | | 0.172 | | 0.90 | 1.16 | | | | | 22.76 | 18 | 0.220% | 3.02 | 5.34 | OK | 0.00 | 900.05 | 900.05 | | |
| HW-1 | MH2 | 0+00.00 | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | 0.00 | 900.00 | 900.00 | | |
| 3 | MH0 | 0+20.28 | 0.172 | 0.172 | 0.90 | | 10.00 | 10.00 | 3.95 | 0.61 | | | | | | | | | | 903.00 | 1.70 |
| | | | 0.000 | | 0.90 | 0.15 | | | | | 20.28 | 12 | 0.400% | 3.11 | 2.44 | OK | 0.00 | 900.13 | 900.13 | | |
| 1 | MH0 | 0+00.00 | 0.000 | 1.290 | 0.90 | | 0.11 | 10.11 | 3.93 | 4.56 | | | | | | | | | | 903.50 | 1.74 |
| | | | 1.118 | | 0.90 | 1.16 | | | | | 22.76 | 18 | 0.220% | 3.02 | 5.34 | OK | 0.00 | 900.05 | 900.05 | | |
| 5 | MH0 | 0+45.00 | 0.000 | 0.000 | 0.90 | | 10.00 | 10.00 | 3.95 | 0.07 | | | | | | | | | | 902.70 | |
| | | | 0.000 | | 0.90 | 0.00 | | | | | 45.00 | 18 | 0.220% | 3.02 | 5.34 | OK | 0.00 | 899.95 | 899.95 | | |
| 4 | MH0 | 0+00.00 | 0.000 | 0.000 | 0.90 | | 0.25 | 10.25 | 3.93 | 0.07 | | | | | | | | | | 906.54 | 4.54 |
| | | | 0.000 | | 0.90 | 0.00 | | | | | 220.18 | 24 | 0.940% | 7.57 | 23.77 | OK | 0.10 | 899.75 | 899.85 | | |

ADVANCED CIVIL DESIGN

**Storm Sewer Check Sheet**

| | | | |
|---|---|---|---|
| Project: | Schoedinger Dublin | Date: | August 13, 2018 |
| Job No.: | 18-0001-918 | Revised: | June 21, 2019 |
| By: | | Revised: | August 6, 2019 |
| | | Revised: | January 20, 2020 |



**5** Yr Design Storm

| Struc. | Station | Sum CA | Sum t | Intensity in/hr | Des Q CFS | Pipe Length | Pipe Dia. | Des @ Slope % | Sf % | Sf L ft. | HGL | OR | 0.8D | HW Elev | Crit Elev | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| 2 | 2+94.40 | 1.01 | 10.00 | 4.71 | 4.74 | | | | | | 902.06 | / | 901.85 | 902.06 | 904.31 | |
| | | | | | | 271.64 | 18 | 0.220% | 0.17% | 0.47 | | / | | | | OK |
| | | | | | | | | | | | | / | | | | |
| 1 | 0+22.76 | 1.16 | 11.50 | 4.46 | 5.17 | | | | | | 901.59 | / | 901.25 | 901.59 | 903.50 | |
| | | | | | | 22.76 | 18 | 0.220% | 0.21% | 0.05 | | / | | | | OK |
| | | | | | | | | | | | | / | | | | |
| HW-1 | 0+00.00 | | | | | | | | | | 901.54 | / | 900.00 | 901.54 | 0.00 | |
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| 3 | 0+20.28 | 0.15 | 10.00 | 4.71 | 0.73 | | | | | | 901.59 | / | 900.93 | 901.59 | 903.00 | |
| | | | | | | 20.28 | 12 | 0.400% | 0.04% | 0.01 | | / | | | | OK |
| | | | | | | | | | | | | / | | | | |
| 1 | 0+00.00 | 1.16 | 10.11 | 4.69 | 5.45 | | | | | | 901.59 | / | 901.25 | 901.59 | 903.50 | |
| | | | | | | 22.76 | 18 | 0.220% | 0.23% | 0.05 | | / | | | | OK |
| | | | | | | | | | | | | / | | | | |
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| 5 | 0+45.00 | 0.00 | 10.00 | 4.56 | 0.08 | | | | | | 901.45 | / | 901.15 | 901.45 | 902.70 | |
| | | | | | | 45.00 | 18 | 0.220% | 0.00% | 0.00 | | / | | | | OK |
| | | | | | | | | | | | | / | | | | |
| 4 | 0+00.00 | 0.00 | 10.25 | 4.52 | 0.08 | | | | | | 0.00 | / | 901.45 | 901.45 | 906.54 | |
| | | | | | | 220.18 | 24 | 0.940% | 0.00% | 0.00 | | / | | | | OK |
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