BERNARDS TOWNSHIP ENVIRONMENTAL COMMISSION

Regular Meeting of January 25, 2021-7 pm

The Environmental Commission meeting for January 25, 2021 will be conducted using Zoom Video Conferencing. The public will be able to view the meeting live by clicking on this link at 7:00 PM https://us02web.zoom.us/j/81946801806?pwd=TzZBaSt3bkRrQ2tlTGwvU0ErVzBzUT09

Or by calling 1-646-558-8656 and entering Meeting ID: 819 4680 1806 and Passcode: 486763
Public comment will be accepted via e-mail. Please include your name and address in the e-mail and send comments to kcartoccio@bernards.org. They will be read during the public comment section.

Meeting Agenda

1. **Call to Order**
2. **Open Public Meeting Statement**
3. **Flag Salute**
4. **Roll Call**
5. **Approval of EC meeting minutes regular –December 28, 2020**
6. **Reports and Miscellaneous Correspondence**
   a. **3066 & 3074 Valley Road –LOI**
   b. **Yearend report for 2020**

7. **New Business**
   a. **Applications**
      i. **Rossi-ZB-21-003-14 Culberson Rd-**"C" Coverage Variance for construction of an in-ground pool. Patio & cabana.
      ii. **Maschhoff-ZB-21-004-31 Claivaux Ct**-"C' Variances for in ground pool coverage-Not behind rear building line of adjacent dwelling
      iii. **Fellowship Village-PB-20-005-8000 Fellowship Rd-** Preliminary & final major site plan

8. **Comments by Public**
9. **Comments by Members**
10. **Adjournment**

Kelly Julian, Secretary

Please call (908) 204 - 3000 seventy-two (72) hours in advance if accommodations are required, including assistive listening devices (ALD).

BERNARDS TOWNSHIP ENVIRONMENTAL COMMISSION MINUTES – December 28, 2020 – 7pm

CALL TO ORDER

Chairperson Ann Parsekian called the meeting to order at 7:03 pm via Zoom Conference call in accordance with the Open Public Meeting Act of 1975.

FLAG SALUTE

All those assembled saluted the flag.

ROLL CALL

Present: Joan Bannan, Debra DeWitt, Nancy Cook, Jane Conklin, John Crane, James LaMaire, Ann Parsekian, Alice Smyk
Absent: Mahwish Mustafa
Also Present: Kaitlin Cartoccio – Recording Secretary, Todd Edelstein - Resident

APPROVAL OF MEETING MINUTES

Motion to approve the November 23, 2020 minutes made by Alice Smyk seconded by Nancy Cook. All in favor, motion carried.

REPORTS & MISCELLANEOUS CORRESPONDENCE

a. **Social Media Outreach Project**
Pumpkin Smashing – not sure about participation. Recycle Coach app for phones. Future posts could include disposing masks and cutting ear strings which helps protect wildlife. Discussion of where and how to post environmental tips. Look into Constant Contact or RAVE/Smart 911.

b. **2021 Meeting Dates**

NEW BUSINESS

a. **Shaw – ZB-20-021 490 South Maple Ave** – Minor Subdivisions use variance bulk variance

Debra DeWitt recused herself at 7:33 pm. In regard to this application, pool water discharge may result from backwashing of filters, or from the draining of swimming pools at the end of season, or during maintenance. This water often contains pool treatment chemicals that can cause damage to the receiving environment in the form of non-point source pollution. Therefore, the Environmental Commission wants township residents to use the best management practices available when discharging pool water. Additionally, the Commission would like the applicant to make sure silt fencing is maintained properly considering its proximity to the Passaic River. The Commission would also like the applicant to consult with the tree and shrub list on the Environmental Commission's page and avoid planting Norway Spruce which is an invasive species. The applicant should also consider the number of trees when replacing.

Motion by John Crane, seconded by Nancy Cook.

All in favor, motion carried.

1. **Reilly-ZB-20-024 48 Lyons Place –** Pool not located behind the rear building line of an adjacent dwelling

Debra DeWitt returned at 7:47 pm. In regards to this application, **pool water discharge** may result from backwashing of filters, or from the draining of swimming pools at the end of season, or during maintenance. This water often contains pool treatment chemicals that can cause damage to the receiving environment in the form of non-point source pollution. Therefore, the Environmental Commission wants township residents to use the best management practices available when discharging pool water. The Commission would ask the Board to remind the applicants that they are virtually at capacity on **lot coverage** and that any future additions such as patios, sheds, pools or any other impervious surface coverage items would put them over the limit. The Commission suggests they discuss this with the applicant and perhaps the applicant may want to consider reducing the amount of impervious surface coverage. There needs to be a clarification of impervious coverage as 1,326 sq feet is indicated on page 3 while page 4 shows it at a 600 square foot increase after reducing for pool and spa water surface. This is not permitted in Bernards Township so stormwater calculations need to be redone using 1,326 square feet. The Environmental Commission notes the lack of details regarding the **recharge of stormwater** as part of the proposed development. The recharge of stormwater is required when impervious surface is increased by > 1,000 sq ft. Site drainage in general is a concern due to the existing characteristics of the property, for example the presence of poorly drained soil.

Motion by Debra DeWitt, seconded by Jane Conklin.

All in favor, motion carried.

b. Khoshaba – ZB-20-025 44 Old Farm Road – Pool not located behind rear building line of adjacent dwelling

James LaMaire and Nancy Cook left the meeting at 8:01 pm. In regards to this application, **pool water discharge** may result from backwashing of filters, or from the draining of swimming pools at the end of season, or during maintenance. This water often contains pool treatment chemicals that can cause damage to the receiving environment in the form of non-point source pollution. Therefore, the Environmental Commission wants township residents to use the best management practices available when discharging pool water. Only 33% voids are permitted by Bernards Township so the drywell design (which is using 40% voids) needs to be recalculated.

Motion by Alice Smyk, seconded by Debra DeWitt.

All in favor, motion carried.

c. **Keith – ZB-20-026 Eton Place –** Side yard setback relief for pergola to be constructed on existing patio

Was there a previous variance granted, several numerical values need to be clarified regarding lot coverage calculations.

Motion by Debra DeWitt, seconded by Alice Smyk.

All in favor, motion carried.

COMMENTS BY PUBLIC

Todd Edelstein commented about the push to recycle Christmas tree. He indicated there was W9 Social Security number in the packet. He also mentioned some comments from the previous Planning Board meeting.

COMMENTS BY MEMBER

John Crane commented that he will not be on the Environmental Commission in 2021. Several members thanked him for his time on the board.

ADJOURNMENT

Meeting was adjourned at 8:32 pm by John Crane and seconded by Joan Bannan. All in favor, motion carried.

Respectfully submitted,
Kaitlin Cartoccio, Meeting Secretary

Bernards Township Environmental Commission

TO: Zoning Board Chairperson and Members

FROM: Ann Parsekian, Chairperson
Bernards Township Environmental Commission

DATE: December 28, 2020

RE: Applications review

The Environmental Commission reviewed these applications at their December 28, 2020 meeting and forwards the following comments.

Zoning Board

Shaw ZB20-021. 490 South Maple Avenue

The Environmental Commission has reviewed new materials for this application and offers the following comments:

1. The Environmental Commission notes the Applicant proposes to remove trees in connection with development of the new lot. Norway Spruce is listed as a replacement species; however, this species is an invasive species in New Jersey. We recommend that the Applicant consult the Recommended Tree and Shrub List provided on the Environmental Commission webpage: https://www.bernards.org/boards/environmental

The Environmental Commission asks that the Applicant be required to contribute to the Township Tree Fund for any trees they do not plant.

2. The Commission notes that the remainder lot will retain an existing swimming pool. Pool water discharge may result from backwashing of filters, or from the draining of swimming pools at the end of the season, or during maintenance. This water often contains pool treatment chemicals that can cause damage to the receiving environment in the form of non-point source pollution. Therefore, the Commission wants township residents to use the best management practices available when discharging pool water.

3. In light of the close proximity of this property to the Passaic River, the Commission urges the Applicant to carefully maintain the proposed silt fencing during the entire construction period.

Bernards Township Environmental Commission

Reilly ZB20-024 48 Lyons Place

The Environmental Commission has reviewed this application and offers the following comments:

1. With regard to this application, pool water discharge may result from backwashing of filters, or from the draining of swimming pools at the end of season or during maintenance. This water often contains pool treatment chemicals that can cause damage to the receiving environment. Therefore, the Environmental Commission wants township residents to use the best management practices available when discharging pool water.

2. The Commission notes that the Applicant has reduced the total amount of impervious coverage by the amount of pool and spa water surface for storm water calculation purposes, which is not in accordance with Bernard Township ordinance. The Commission asks that the amount of additional impervious coverage be clarified on the submission materials and plans, and that the Applicant address any necessary stormwater requirements.

The Commission finds that note #9 of "Drainage & Grading Notes" on Drawing 4 states: "Existing stormwater drywells may exist on-site as part of previous construction installations, whereas no known locations were discovered during routine topographic property survey." This seems to contradict the existing drywells shown on Drawing 2. The Commission recommends that the Applicant document the existence and location of any existing drywells, and identify stormwater sources for each drywell.

3. The Commission would ask the Board to remind the Applicants that they are virtually at maximum permitted lot coverage and that any future additions or any other impervious surface coverage features (such as additional pavers or similar impervious material on the south side of the pool), would put them over the limit. The Commission suggests discussing this with the Applicant and perhaps the Applicant may want to consider reducing the amount of impervious surface coverage (in addition to removing the circular patio and adjoining walkway as currently proposed).

Bernards Township Environmental Commission

Khoshaba ZB20-025. 44 Old Farm Road

The Environmental Commission has reviewed this application and offers the following comments:

1. With regard to this application, pool water discharge may result from backwashing of filters, or from the draining of swimming pools at the end of season or during maintenance. This water often contains pool treatment chemicals that can cause damage to the receiving environment. Therefore, the Environmental Commission wants township residents to use the best management practices available when discharging pool water.

2. The Commission notes that the Drywell Design calculation on Sheet 4 assumes 40% voids whereas 33% voids is required by Bernards Township.

Keith ZB20-026 34 Eton Place

The Environmental Commission has reviewed this application and offers the following comments:

1. The Commission notes that documentation of either a previous variance or grandfathering for exceeding lot coverage as noted in the Applicant's December 22 letter was apparently not included in the application materials reviewed.

2. The Commission requests clarification of the lot coverage calculations. There appear to be discrepancies between the figures shown on the Applicant's spreadsheet and the lot coverage chart on the 2013 survey.

The Commission notes that the lot coverage appears to currently exceed the permitted maximum. Increased impervious coverage increases the volume (quantity) of stormwater runoff, which can contribute to local and potentially area-wide flooding. Site Drainage is the concern, therefore site features to promote stormwater infiltration should be considered. The New Jersey Department of Environmental Protection Green Infrastructure website is a good reference for "green" stormwater management practices for homeowners. www.nj.gov/dep/gi/

Cc: David Schley, Township Planner
Cyndi Kiefer, Secretary; for distribution to BOA members

ENVIRONMENTAL TECHNOLOGY INC.

Environmental Consultants

CELEBRATING 30 YEARS IN BUSINESS

RECEIVED
JAN 14 2021
BERNARDS TOWNSHIP ENGINEERING

EC

January 12, 2021

SENT VIA CERTIFIED MAIL

To: Property Owner or Interested Party

Re: Application for Freshwater Wetlands Letter of Interpretation-Line Verification & Transition Area Waiver-Averaging Plan
Applicant: Cliff Stanfield, Principal of Braemar Partners
Subject Property: 3066 and 3074 Valley Road
Block 8201, Lots 22 & 23
Bernards Township, Somerset County

Dear Property Owner or Interested Party:

This letter is to provide you with legal notification that an application for a Freshwater Wetlands Letter of Interpretation-Line Verification and Transition Area Waiver-Averaging Plan will be submitted to the New Jersey Department of Environmental Protection, Division of Land Resource Protection for the project shown on the enclosed plans. A brief description of the proposed project follows:

The site is currently developed with two (2) single family dwellings and associated improvements. The proposed project is to remove current structures/improvements, and develop the site with a senior living facility, including associated features such as a parking lot, stormwater detention basin, and passive recreation areas. The Letter of Interpretation-Line Verification is to verify wetland and transition area limits on the project site, while the Transition Area Waiver-Averaging Plan is for reduction of the standard transition area for site grading and general improvements associated with the senior living facility. Transition area compensation of equal or greater square footage and ecological value, will be provided elsewhere on the property.

The complete permit application package can be reviewed at the municipal clerk's office in the municipality in which the site subject to the application is located or by appointment at the Department's Trenton Office. In addition, an electronic copy of the initial application can be provided via an OPRA request by contacting https://www.nj.gov/dep/opra/opraform.html from the Department's Trenton Office. The Department of Environmental Protection welcomes comments and any information that you may provide concerning the proposed development and site. Please submit your comments within 45 calendar days of the receipt of this letter to:

If By Regular Mail:
New Jersey Department of Environmental Protection
Division of Land Resource Protection
P.O. Box 420, Code 501-02A
Trenton, New Jersey 08625
Attn: Bernards Township Supervisor

Property Owner or Interested Party January 12, 2021
Re: Application for Freshwater Wetlands Letter of Interpretation-Line Verification
& Transition Area Waiver-Averaging Plan
Applicant: Cliff Stanfield, Principal of Braemar Partners
Subject Property: 3066 and 3074 Valley Road
Block 8201, Lots 22 & 23
Bernards Township, Somerset County

If by Hand Delivery, Courier Service or Overnight Delivery:
New Jersey Department of Environmental Protection
Division of Land Resource Protection
501 East State Street
5 Station Plaza, 2nd Floor
Trenton, New Jersey 08609
Attn: Bernards Township Supervisor

Please send the undersigned a copy of any comments you submit to the New Jersey Department of Environmental Protection. Please feel free to contact our office regarding this letter and its contents.

Very truly,

ENVIRONMENTAL TECHNOLOGY INC.

David C. Krueger
President

DCK
Enclosures: 11" X 17" Plans
cc: w/encl: Cliff Stanfield, Principal of Braemar Partners
NJDEP
Bernards Township Clerk, w/complete copy of application; Sent Via CMRRR
Property Owners Within 200' and Easement Holders; Sent Via CM
County Planning Board, Sent Via CM
Municipal Planning Board, Sent Via CM
Municipal Construction Official, Sent Via CM
Municipal Environmental Commission, Sent Via CM
Somerset-Union Soil Conservation District

ENVIRONMENTAL TECHNOLOGY INC.
32 Grove Street, P.O. Box 50 Chester, NJ 07930 Tel: (908) 879-8509 Fax: (908) 879-8609

COURSE TABLE (LINE)		
LINE	DISTANCE	BEARING
E1	19.00'	N31° 04' 06"W
E2	48.00'	S85° 42' 16"W
E3	55.00'	S78° 36' 52"W
E4	30.00'	N85° 07' 28"W
E5	20.00'	S87° 22' 39"W
E6	30.00'	N73° 30' 41"W
E7	55.00'	S75° 14' 00"W
E8	28.00'	S86° 30' 10"W
E9	70.00'	S78° 19' 58"W
E10	20.00'	N57° 33' 35"W

F1	123.97'	S85° 31' 41"W
F2	528.58'	N23° 25' 32"W

WORKS PER REFERENCE #1

LEGEND

- PROPERTY LINE
- LOT LINE
- EXISTING BUILDING
- FHA LINE — FHL
- FHA LABEL — E1
- FLOODWAY LINE — FLOWY
- FLOODWAY LABEL — F1
- RIPARIAN LINE
- PHOTO LOCATION POINTS — 1

LONG HILL TOWNSHIP (MORRIS COUNTY)

R=160.00'
A=132.17'
B=S07°42'18"W
C=128.45'

S22°48'19"W 45.10'

S53°34'50"E 12.90'

S53°34'50"E 58.91'

S11°43'35"W 27.88'

AREA OF OVERLAP AS PER LOT 35 (Bk. 1354 Pg. 325)

S16°57'37"E 56.84'

S31°22'14"W 79.87'

S27°37'57"E 115.75'

R=54.00'
A=71.99'
B=S15°23'16"E
C=66.78'

S80°37'57"W 9.95'

N24°28'25"E 35.00'

(N73°12'26"E 68.88')

50' RIPARIAN ZONE (FROM TOP OF BANK)

PASSAIC RIVER FHA LINE (EL. 217.6) (PER REF. No. 3)

S89°35'37"W 28.00'

N64°45'40"E 393.70'

N12°53'16"W 216.58'

PASSAIC RIVER FLOODWAY (PER REF No. 3)

T.M. LOT 2 BLOCK 8201

T.M. LOT 25 BLOCK 8201

T.M. LOT 24 BLOCK 8201 N/F NICKATI LLC (Bk. 6880 Pg. 1)

P.O.B. LOT 23

N04°49'26"E 979.16'

S47°53'53"E 428.19'

T.M. LOT 23 BLOCK 8201 158,976± S.F. 3.604 AC.

S14°13'27"W 892.89'

T.M. LOT 22 BLOCK 8201 354,389± S.F. 8.136 AC.

N10°37'52"E 106.18'

T.M. LOT 21 BLOCK 8201 N/F LU, XIAOJUN STEVE + JIA, YONGMEI (Bk. 6024 Pg. 2485)

VALLEY ROAD

NOTES:

1. THE STATE OF NEW JERSEY HAS DETERMINED THAT ALL OR A PORTION OF THIS LOT LIES IN A FLOOD HAZARD AREA AND/OR RIPARIAN ZONE. CERTAIN ACTIVITIES OF FLOOD HAZARD AREAS AND RIPARIAN ZONES ARE REGULATED BY THE NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND SOME ACTIVITIES MAY BE PROHIBITED ON THIS SITE OR MAY FIRST REQUIRE A FLOOD HAZARD AREA PERMIT. CONSULT WWW.NJ.GOV/DEP/LANDUSE OR CONTACT THE DIVISION OF LAND USE REGULATION AT (609) 777-0454 FOR MORE INFORMATION PRIOR TO ANY CONSTRUCTION ONSITE.

REFERENCES:

1. EXISTING CONDITIONS SHOWN BASED ON DRAWING TITLED "TOPOGRAPHIC SURVEY OF TAX LOTS 22 & 23 – BLOCK 8201, LOCATED IN THE TOWNSHIP OF BERNARDS, SOMERSET COUNTY, NEW JERSEY" CERTIFIED TO BRAEMAR PARTNERS, PREPARED BY JAMES P. DEADY SURVEYOR, LLC DATED 10/08/2020 AND LAST REVISED ON 12/01/2020.
2. FLOOD HAZARD AREA FOR THE PASSAIC RIVER WAS DETERMINED BY USING METHOD 1 AS DESCRIBED IN N.J.A.C. 7:13-3.
   2.1. FLOOD HAZARD AREA SHOWN BASED ON STATE OF NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION PASSAIC RIVER SUPPLEMENTAL FLOOD HAZARD STUDIES & MAPPING R.M. 72.939 TO R.M. 73.886 BY HARRIS – TOUPS ASSOCIATES UNDATED PLATE: 29.
3. FLOODWAY FOR THE PASSAIC RIVER SHOWN BASED ON STATE OF NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION PASSAIC RIVER SUPPLEMENTAL FLOOD HAZARD STUDIES & MAPPING R.M. 72.939 TO R.M. 73.886 BY HARRIS – TOUPS ASSOCIATES UNDATED PLATE: 29.
4. WETLANDS DELINEATIONS SHOWN BASED ON FIELD WORK PERFORMED BY ENVIRONMENTAL TECHNOLOGY INC. ON 08/12/20 AND SKETCH TITLED "8-12-20/ETI DELINEATION, C-1 TO C-11" PREPARED BY ENVIRONMENTAL TECHNOLOGY INC. DATED 08/12/20.
5. SUPPLEMENTAL CONTOURS SHOWN BASED ON "2008 NJ STATEWIDE LIDAR: SOMERSET COUNTY" BY USGS/NJDEP.
6. PER REFERENCE #1 ELEVATIONS AREA REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988(NAVD88). THE FORMULA TO CONVERT TO NGVD29 DATUM IS AS FOLLOWS: NAVD88 + 0.896' = NGVD29

DRESDNER ROBIN

DRESDNER ROBIN ENVIRONMENTAL MANAGEMENT, INC.
55 LANE ROAD, SUITE 220, FAIRFIELD, NJ 07004
TEL: 973.696.2600 FAX: 973.696.1362
NJ CERTIFICATE OF AUTHORIZATION : 24GA27926000

JERSEY CITY ▲ FAIRFIELD ▲ ASBURY PARK ▲ CHERRY HILL

REVISIONS:

NO	DATE	DESCRIPTION	BY

OWNER (LOT 22):
RICA PROPERTIES, LLC
151 MOUNT BETHEL ROAD
WARREN, NEW JERSEY 07059

OWNER (LOT 23):
RICA REALTY RENTAL GROUP II, LLC
151 MOUNT BETHEL ROAD
WARREN, NEW JERSEY 07059

APPLICANT:
BRAEMAR PARTNERS
13140 FREEMANVILLE ROAD
MILTON, GA 30004

DRAWING TITLE:
FLOOD HAZARD AREA VERIFICATION PLAN

PROJECT:
ARBOR TERRACE BASKING RIDGE

LOCATION:
3066-3074 VALLEY ROAD
LOTS 22 & 23, BLOCK 8201
TOWNSHIP OF BERNARDS
SOMERSET COUNTY,
NEW JERSEY, 07920

12/30/2020

GRANT B. LEWIS
PROFESSIONAL ENGINEER
NJ LICENSE NUMBER 24GE04809200

SCALE:
50 25 0 50
SCALE: 1"=50'

DRAWN BY:	CHECKED BY:	DRAWING NUMBER:
LMF	GBL	X-221
SCALE: 1"=50'	DATE: 12-30-2020	
JOB No: 11380-001	SHEET 01 OF 01	

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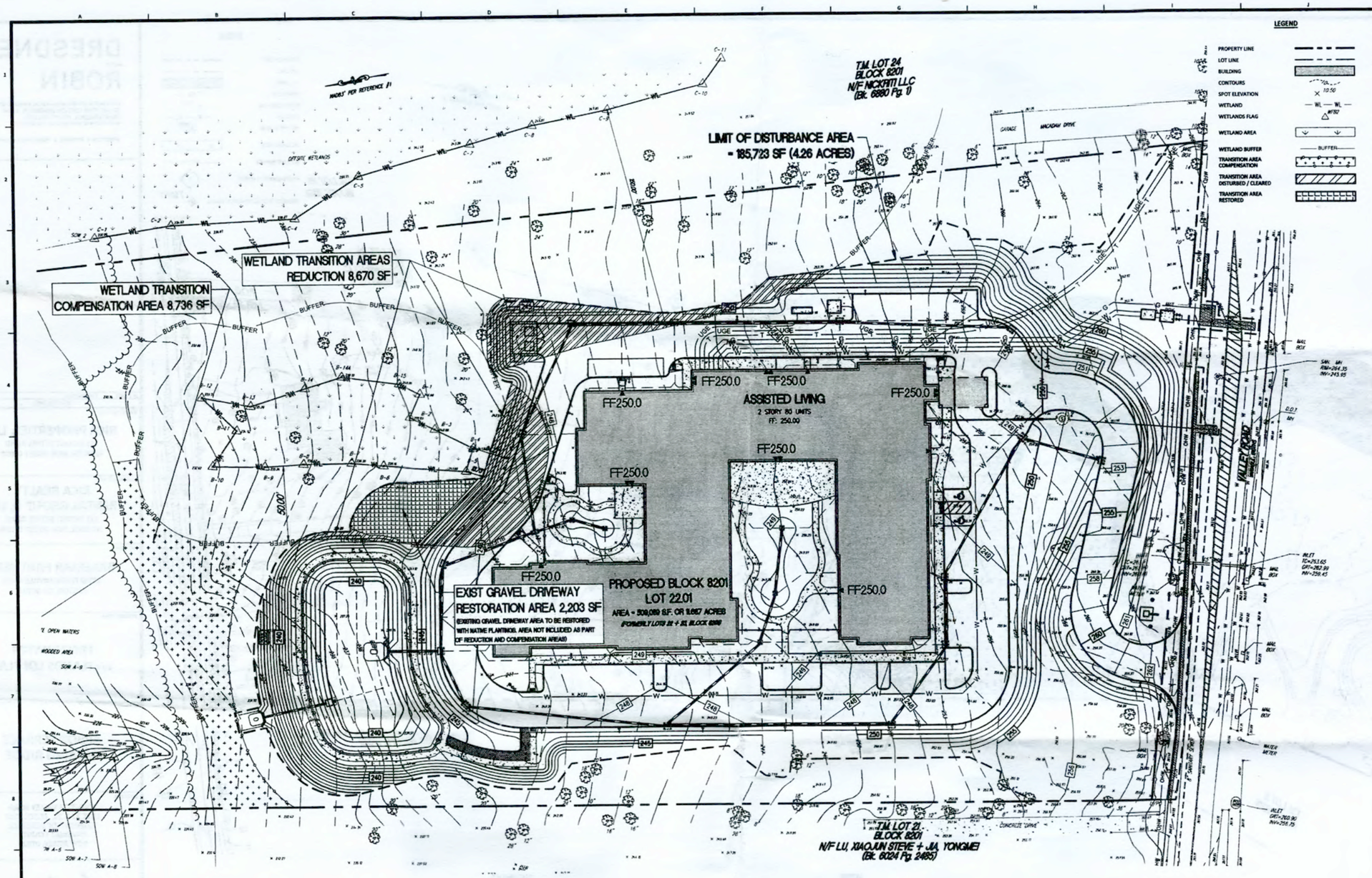
DUE TO INHERENT ERRORS IN REPRODUCTION METHODS, ERRORS MAY OCCUR WHEN SCALING THIS DRAWING



NOTES:

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2. THIS PLAN IS FOR REVIEW OF WETLAND RELATED PERMITS. FOR OTHER SITE RELATED INFORMATION SEE OTHER SITE PLAN DRAWINGS.

REFERENCE:

1. EXISTING CONDITIONS SHOWN BASED ON DRAWING TITLED "TOPOGRAPHIC SURVEY OF TAX LOTS 22 & 23 - BLOCK 8201, LOCATED IN THE TOWNSHIP OF BERNARDS, SOMERSET COUNTY, NEW JERSEY" CERTIFIED TO BRAEMAR PARTNERS, PREPARED BY JAMES P. DEADY SURVEYOR, LLC DATED 10/08/2020 AND LAST REVISED ON 12/01/2020.
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3. PER REFERENCE #1 ELEVATIONS AREA REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988(NAVD88).

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MILTON, GA 30004

DRAWING TITLE:
FRESHWATER WETLANDS TRANSITION AREA AVERAGING WAIVER PLAN

PROJECT:
ARBOR TERRACE BASKING RIDGE

LOCATION:
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LOTS 22 & 23, BLOCK 8201
TOWNSHIP OF BERNARDS
SOMERSET COUNTY,
NEW JERSEY, 07920

12/30/2020
GRANT B. LEWIS
PROFESSIONAL ENGINEER
NJ LICENSE NUMBER 24GE04809200

SCALE:
30 15 0 30
SCALE: 1"=30'

DRAWN BY:	CHECKED BY:	DRAWING NUMBER:
DGR | LMF	GBL	X-211
SCALE: 1"=30'	DATE: 12-30-2020	
JOB No: 11380-001	SHEET 01 OF 01	

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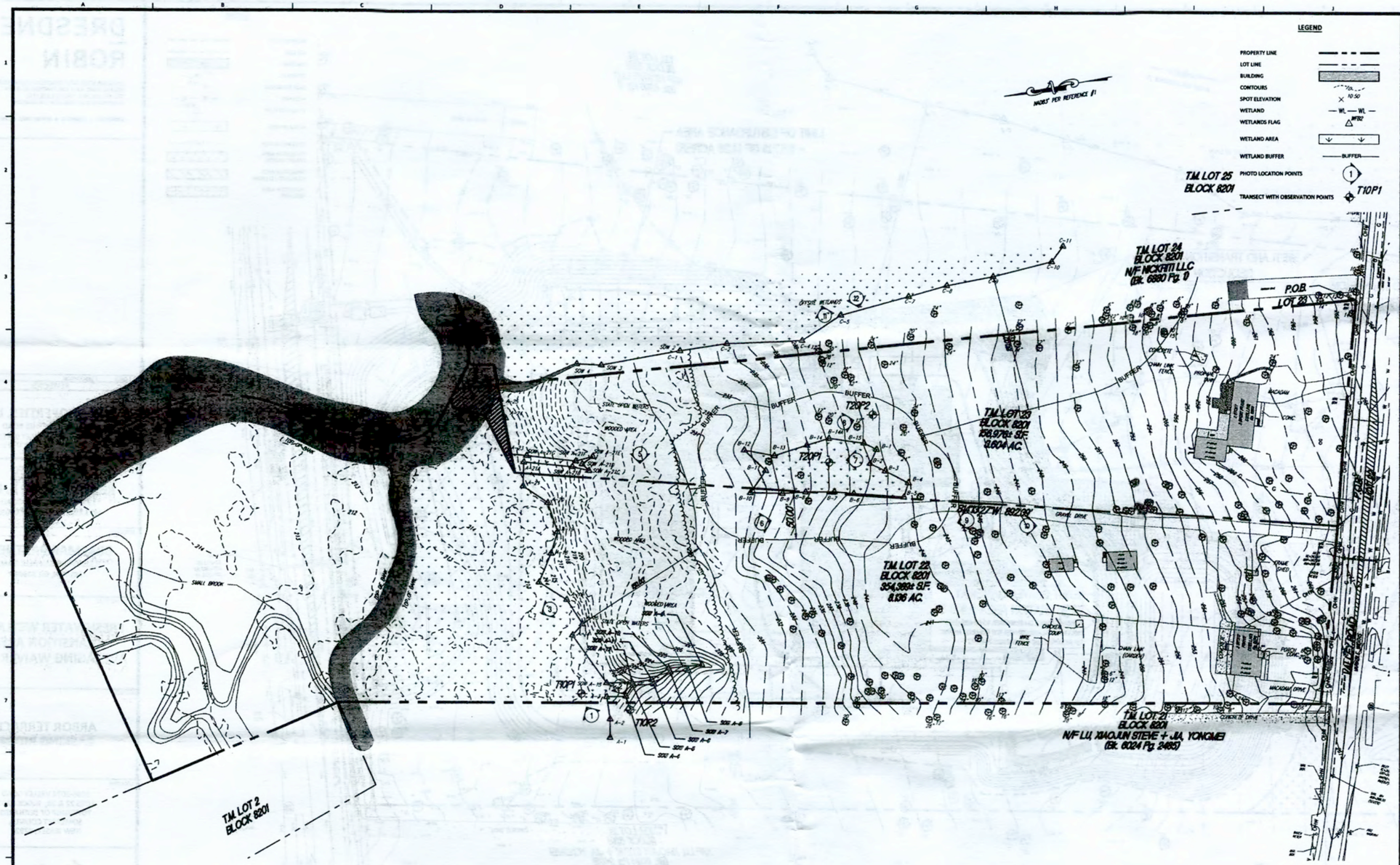

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MILTON, GA 30004

DRAWING TITLE:
FRESHWATER WETLANDS LOI PLAN

PROJECT:
ARBOR TERRACE BASKING RIDGE

LOCATION:
3066-3074 VALLEY ROAD
LOTS 22 & 23, BLOCK 8201
TOWNSHIP OF BERNARDS
SOMERSET COUNTY,
NEW JERSEY, 07920

12/30/2020
GRANT B. LEWIS
PROFESSIONAL ENGINEER
NJ LICENSE NUMBER 24GE04809200

SCALE:
50 25 0 50
SCALE: 1"=50'

DRAWN BY: LMF	CHECKED BY: GBL	DRAWING NUMBER: X-201
SCALE: 1"=50'	DATE: 12-30-2020	
JOB No: 11380-001		SHEET 01 OF 01

DUE TO INHERENT ERRORS IN REPRODUCTION METHODS, ERRORS MAY OCCUR WHEN SCALING THIS DRAWING

Bernards Township Environmental Commission

January 25, 2021

The following is a summary of the 2020 activities of the Bernards Township Environmental Commission ("EC" or "Commission").

Mission Statement

The Bernards Township Environmental Commission is responsible for ensuring that environmental issues in Bernards Township NJ are given the right priority in order to protect and preserve natural resources of the Township and surrounding areas including land, water, air, and bios (flora, fauna, wildlife). As a result of NJDEP having oversight of the NJ Historic Preservation Office, occasionally the EC will offer historic-preservation comments in accordance with the Bernards Township Master Plan.

Goals

The Commission accomplishes its mission via:

(a) taking proactive stances on local environmental matters, and strengthening the local planning process
(b) coordinating rational, balanced reviews of development applications for the appropriate township bodies
(c) increasing public awareness and understanding of local and regional environmental issues
(d) keeping abreast of, and being involved in, environmental issues that affect our surrounding areas and communities
(e) staying up to date on ordinances and regulations for Bernards Township with training sessions.

2020 Summary

General:

During 2020, the EC held ten meetings. As an advisory body, the EC continued to provide commentary to the Planning Board, Board of Adjustment, and Township Committee regarding environmental impacts and issues. As a result of covid19, one scheduled meeting was cancelled and seven were conducted virtually via Zoom conference call. In addition, agendas and all meeting materials were made available on the Bernards Township website. Members are in favor of making this improvement permanent after in-person meetings resume.

During 2020, the EC reviewed 36 development applications and revisions: 28 Board of Adjustment; 8 Planning Board. In comparison, during 2019, the EC reviewed 23 Board of Adjustment and 2 Planning Board applications.

Budget:
In 2020, as a result of limited events and programs during the covid19 restrictions, the EC committee spent $8.00.

2020 Accomplishments:

The EC accomplished its mission in 2020 through the following initiatives:

- *Development Application Reviews*

The EC reviewed and commented on environmental concerns related to property development applications. The EC comments within 2020 calendar year emphasized green infrastructure to promote storm water infiltration and suggested stormwater best management practices to protect wetlands and surface water bodies. Also, comments were made concerning disturbance of steep slopes, tree replacement species and calculations, drainage, lot coverage, pool water discharge best methods, best management practices for freshwater wetlands, stream buffers. When applicable, the EC noted that NJDEP Land Use Permits requirements be considered for development applications. The EC also commented on historic preservation concerns in connection with one application that included demolition of a 19th-century house.

- *Tree Removal Applications*

The EC works cooperatively with the Township's Shade Tree Commission and Engineering Department to assess proposed tree removal applications. The assessments focus on any safety issues associated with the tree; the health of the tree; and overall appropriateness of the removal requests. Typically, tree removals are completed in conjunction with replacement/mitigation measures. There were no Tree Removal Applications reviewed during 2020.

- *Public Comment*

A public comment period is set aside in each meeting, which allows citizens to bring environmental questions and concerns to the attention of the EC. The public comments are recorded in the meeting minutes and, as appropriate, the EC advises the citizen(s) on the question itself or directs them to the proper Township personnel. The EC was able to accommodate public comment during virtual meetings.

- *Charter Day*

The 2020 Charter Day event was cancelled.

- *Social Media Outreach*

The EC initiated a series of environmental-related posts on FaceBook. The first post was for a Halloween-themed, virtual pumpkin smashing/composting event. Additional posts related to recycling subjects.

The EC looks forward to continuing to serve Bernards Township and its residents in 2021.

Respectfully submitted on behalf of the Bernards Township Environmental Commission.

cc: Township Committee
Rhonda Pisano, Township Clerk

EC

TOWNSHIP OF BERNARDS
ZONING BOARD OF ADJUSTMENT
APPLICATION STATUS FORM

Application No: ZB21-003 Block: 2701 Lot: 3 Zone: R-6

Applicant: ROSSI, NESA & PATRICK

Address of Property: 14 CULBERSON ROAD

Description: (c) COVERAGE VARIANCE FOR CONSTRUCTION OF AN IN-GROUND POOL, PATIO & CABANA

APPLICATION CHECKLIST

- ✓ Original + 16 copies of Application
- ✓ W-9
- ✓ Site Visit Consent (A)
- — Ownership Form (B)
- ✓ 200' Property Search List (C)
- ✓ Tax Certification (D)
- ✓ Notice to be Served/Published (E)
- ✓ Dimensional Statistics Form (F)
- — Contributions Disclosure Form (G)
- ✓ Engineering Plan/Plot Plan
- — Architectural Plans
- ✓ Survey
- ✓ Photographs
- — Wetlands Report/LOI
- ✓ Application Fee
- ✓ Escrow Deposit
- ✓ Imaging Fee
- — Tax Map Revision Fee
- — Checklist

SCHEDULING

- 1.12.21 Original Submission Date 60
- 3.13.21 Completeness Deadline (~~45~~ days)
- _____ Incomplete Date
- _____ Resubmission Date
- _____ Date Complete 60
- 5.12.21 Time to Act (~~45/95/120~~ days)

HEARING

- _____ Notice to Property Owners
- _____ Date of Publication
- _____ Completeness Hearing
- 2.3.21 Public Hearing
- _____ Carried to Date
- _____ Decision - Approved/Denied
- _____ Resolution Memorialized
- _____ Resolution Published

DISTRIBUTION

- 1.12.21 Environmental Comm
- _____ Fire Official
- _____ LCFAS
- _____ Police

NOTES

09/15/2020

TOWNSHIP OF BERNARDS
2021 ZONING BOARD OF ADJUSTMENT APPLICATION

[✓] Bulk or Dimensional ("c") Variance
[ ] Use ("d") Variance
[ ] Conditional Use ("d") Variance
[ ] Floor Area Ratio, Density, or Height ("d") Variance
[ ] Site Plan - Preliminary / Final

[ ] Appeal of Zoning Officer's Decision
[ ] Interpretation of Zoning Ordinance
[ ] Minor Subdivision
[ ] Major Subdivision - Preliminary / Final
[ ] Other (specify):

---

1. APPLICANT: Nesa and Patrick Rossi

Address: 14 Culberson Rd, Basking Ridge, NJ 07920

Phone: (home) — (work) — (mobile) 973-219-6906

Email (*will be used for official notifications*): nesa.rossi@gmail.com

2. OWNER (*if different from applicant*): N/A

Address: _____

Phone: _____ Email (*will be used for official notifications*): _____

3. ATTORNEY: N/A

Address: _____

Phone: _____ Email (*will be used for official notifications*): _____

4. OTHER PROFESSIONALS (*Engineer, Architect, etc. Attach additional sheet if necessary*):

Name: Scott Lynn Profession: Engineer

Address: P.O. BOX 792 Rocky Hill, NJ 08553

Phone: 908-359-0989 Email (*will be used for official notifications*): slynneng@yahoo.com

5. PROPERTY INFORMATION: Block(s): 2701 Lot(s): 3 Zone: R-6

Street Address: 14 Culberson Rd, Basking Ridge Total Area (*square feet/acres*): 43,154

6. ARE THERE ANY PENDING OR PRIOR PLANNING BOARD OR BOARD OF ADJUSTMENT APPLICATIONS INVOLVING THE PROPERTY? [✓] No [ ] Yes (*if yes, explain or attach Board resolution*) _____

7. ARE THERE CURRENTLY ANY VIOLATIONS OF THE ZONING ORDINANCE INVOLVING THE PROPERTY? [✓] No [ ] Yes (*if yes, explain*) _____

8. ARE THERE ANY DEED RESTRICTIONS OR EASEMENTS AFFECTING THE PROPERTY?
[√] No [ ] Yes (*if yes, explain*) _____

9. DESCRIPTION OF THE EXISTING PROPERTY AND THE PROPOSAL/REQUEST: _____
The property, a .991 acre lot in the R-6 zone hosts a single family residence. We wish to install an in ground swimming pool with surrounding patio and pavilion over one side of the patio.

10. DESCRIPTION OF REQUESTED VARIANCES OR EXCEPTIONS (*include Ordinance section no.*):
The proposed request exceeds the maximum allowable lot coverage.
-ordinance section no. 21-15.1(d) + table 501

11. THE FOLLOWING ARGUMENTS ARE MADE IN SUPPORT OF THE APPLICATION: _____
We are currently at 17.3% lot coverage and the maximum allowable lot coverage is 18%. This doesn't allow us to add any additional square footage.

12. NOTARIZED SIGNATURES (*ALL APPLICANTS AND OWNERS MUST SIGN*):

APPLICANT(S) SIGN HERE:

I/we, Nesa Rossi and Patrick Rossi hereby depose and say that all of the above statements and the statements contained in the materials submitted herewith are true and correct.

Signature of Applicant(s): Nesa Rossi and _____

Sworn and subscribed before me, this 1 day of January, 2021

_____
Notary

RHONDA S. HAMMONDS
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires 8/30/2025

OWNER(S) SIGN HERE (*IF APPLICANT IS NOT THE OWNER*):

If the application is made by a person or entity other than the property owner, or by less than all of the property owners, then the property owner or the additional owners must complete the following:

I/we, _____ the owner(s) of the property described in this application,

hereby authorize _____ to act as my/our agent for purposes of making and prosecuting this application and I/we hereby consent to the variance relief (if any) granted and all conditions of approval thereof.

Signature of owner(s): _____

Sworn and subscribed before me, this _____ day of _____, 20__.

_____
Notary

SUBMIT ORIGINAL AND 16 COPIES FORM A

TOWNSHIP OF BERNARDS
PLANNING BOARD / BOARD OF ADJUSTMENT

SITE INSPECTION CONSENT FORM

Applicant: Nesa and Patrick Rossi

Block: 2701 Lot: 3

Street Address: 14 Culberson Rd, Basking Ridge, NJ 07920

I, Nesa and Patrick Rossi, owner of the above property, hereby acknowledge that, upon determination of completeness of the application, a site inspection may be scheduled with the Board for a mutually convenient date and time. I hereby authorize members of the Planning Board/Board of Adjustment and their representatives and consultants to enter onto the property at the time of the site inspection for the purpose of evaluating the application.

Signature: Nesa Rossi Date: 1/11/2021

Signature: Date: 1/11/2021

FORM F

SUBMIT 17 COPIES TOTAL

DIMENSIONAL STATISTICS

	REQUIRED	EXISTING	PROPOSED
LOT AREA	32,670	43,154	43,154
LOT WIDTH	150'	150'	150'
FRONTAGE	75	150'	150'
FRONT YARD SETBACK	50'	69.86'	69.86'
REAR YARD SETBACK	50'	155' +/-	155' +/-
COMBINED SIDE YARD	75'	58.4' *	58.4'
SIDE YARD	30'	43.37' & 15.03'	43.37' & 15.03'
COVERAGE **	18%	17.27%	22.54% **
HEIGHT	—	—	—
IF REQUIRED, GROSS FLOOR AREA	—	—	—
IF REQUIRED, FLOOR AREA RATIO	—	—	—
IF REQUIRED, IMPROVABLE LOT AREA	—	—	—

* DWELLING CONSTRUCTED PRIOR TO 9-21-06
** VARIANCE REQUIRED FOR POOL & POOL PATIO

WUNNER ENGINEERING ASSOCIATES
ENGINEERS · LAND SURVEYORS · PLANNERS
P.O. BOX 303
SUCCASUNNA, NEW JERSEY 07876
973-584-2233 FAX 973-584-6646
www.wunnerengineering.com

NICHOLAS J. WUNNER,P.E.,P.L.S.,P.P.

LEE AMERSPEK, P.L.S.

SUBDIVISION AND SITE PLANS
ROAD AND DRAINAGE DESIGN
STORM WATER MANAGEMENT PLANS
MUNICIPAL ENGINEERING
SOIL LOGS AND ANALYSIS
PERMEABILITY TESTS
SEPTIC SYSTEMS
WETLAND STUDIES
NJDEP PERMITS
BOUNDARY SURVEYS
TOPOGRAPHICAL SURVEYS
CONSTRUCTION LAYOUT

December 29, 2020

Patrick and Nesa Rossi
14 Culberson Road
Basking Ridge, NJ 07920

Re: Impervious Coverage Calculations
Block 2701 Lot 3
Township of Bernards
Somerset County, NJ
Our File No. 14-5589

Dear Mr. & Mrs. Rossi;

In accordance with your request, enclosed you will find the Impervious Coverage Calculations for the above referenced lot. These calculations are based on the survey we did for you on 12/06/2014. Also enclosed is a color mark up on how the impervious coverage calculations were derived.

If you should have any questions, please feel free to call.

Nicholas J. Wunner, PE, PLS
Wunner Engineering Associates, PA

NJW/cs

WUNNER ENGINEERING ASSOCIATES
ENGINEERS · LAND SURVEYORS · PLANNERS
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TOPOGRAPHICAL SURVEYS
CONSTRUCTION LAYOUT

Impervious Coverage Calculations

Owner: Patrick and Nesa Rossi

Property: 14 Culberson Road
Basking Ridge, NJ 07920
Block 2701 Lot 3

The following Impervious Coverage Calculations are based upon a survey dated 12/06/2014 prepared by Wunner Engineering Associates, PA.

Summary:

Ex. Dwelling	3,283 SF	
Ex. Driveway	2,655 SF (includes mountable curb)	
Ex. Walkways, patio and fire pit	1,507 SF	
Ex. AC Units	8 SF	
Total Existing SF:	***7,453 SF***	***17.3%***

Nicholas J. Wunner, PE, PLS
Wunner Engineering Associates, PA

December 29, 2020

January 13, 2021

Nesa and Patrick Rossi
14 Culberson Road
Basking Ridge, NJ 07920

Re: Variance Application ZB21-003

Dear Township of Bernards Zoning Board,

We would like to amend our application, # ZB21-003 to include:

1- A variance for an 8ft high deer fence in the rear yard where the maximum feet allowance is 6ft, section ordinance 21-16.2.b. Please reference submitted survey from Nunner Engineering as well as photos we took.

2- A variance for the fence being less than 6 inches from the property line in a couple places, section ordinance 21-16.2.e.

Please note the fences (deer, aluminum and PVC) were installed before we purchased the property.

Regards

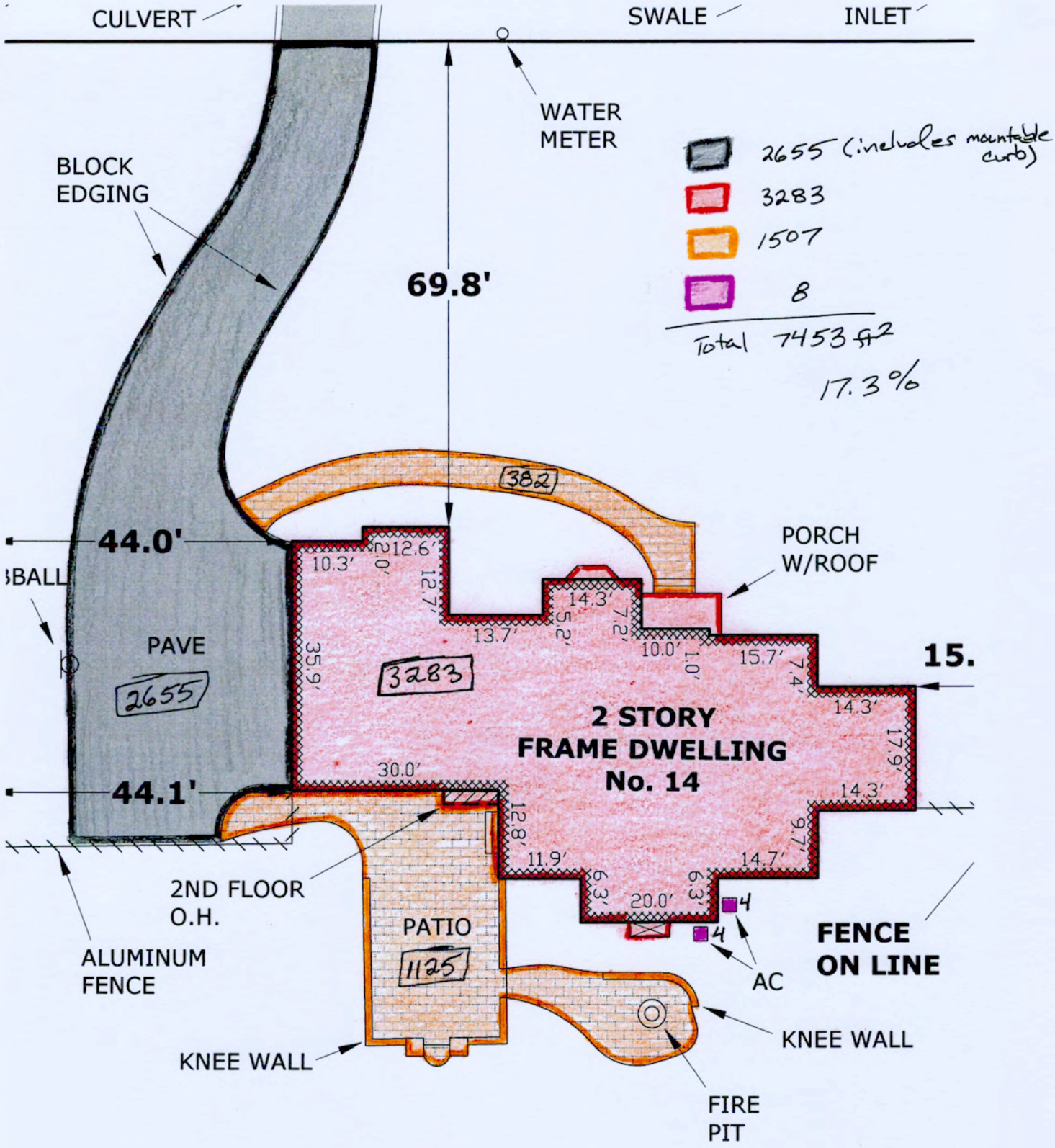
1/13/2021 Nesa and Patrick Rossi

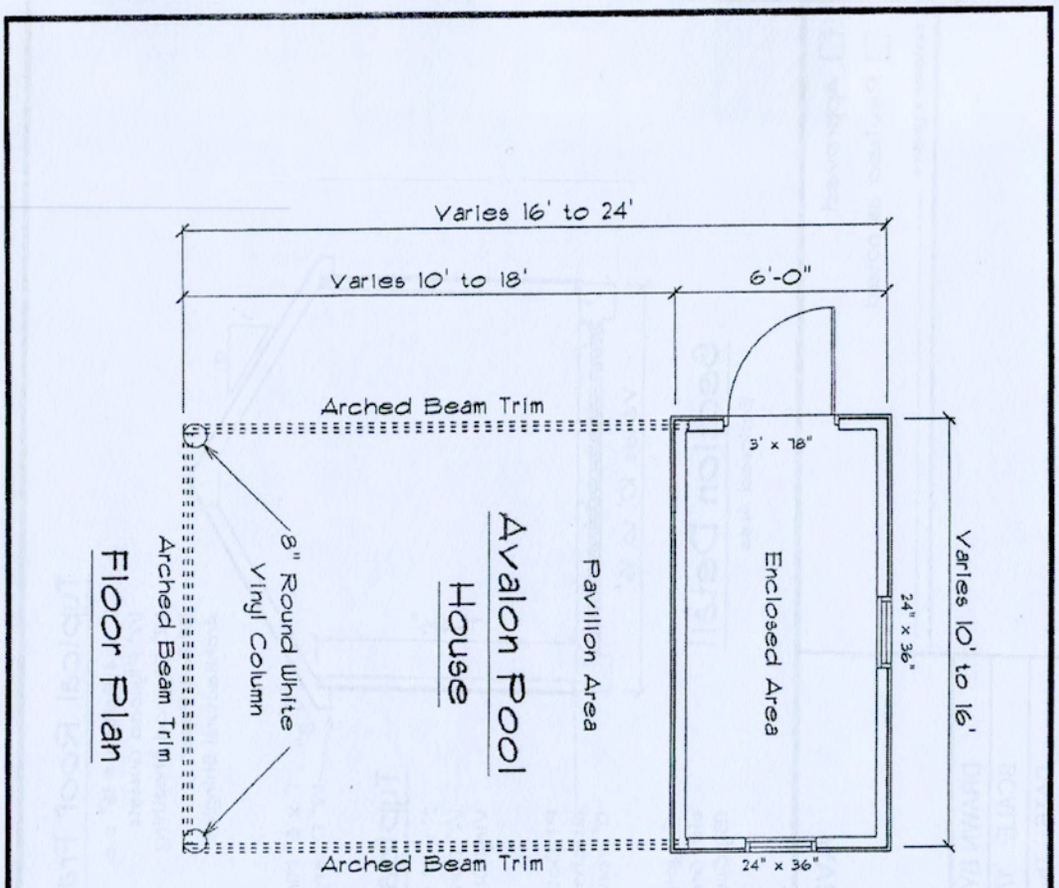
Current deer fence
(close up)

Deer fence

Aluminum Fence
(looking from driveway to rear yard)

PVC Fence
(property line of 20 culberson)


CULVERT
SWALE
INLET
WATER METER
BLOCK EDGING
69.8'
2655 (includes mountable curb)
3283
1507
8
Total 7453 ft2
17.3%
382
44.0'
44.1'
BALL
PAVE
2655
3283
PORCH W/ROOF
2 STORY FRAME DWELLING No. 14
15.
2ND FLOOR O.H.
ALUMINUM FENCE
PATIO
1125
KNEE WALL
KNEE WALL
AC
FENCE ON LINE
FIRE PIT
10.3'
2.0'
12.6'
12.7'
13.7'
14.3'
5.2'
7.2'
10.0'
1.0'
15.7'
7.4'
14.3'
17.9'
35.9'
30.0'
14.3'
9.7'
14.7'
9.3'
20.0'
6.3'
11.9'
12.8'



☐ Approved

☐ Revised as noted

customer signature _____

Avalon Pool House

PHONE:

FAX:

DRAWN BY: Jonathan A

SCALE: 1/4" = 1'-0"

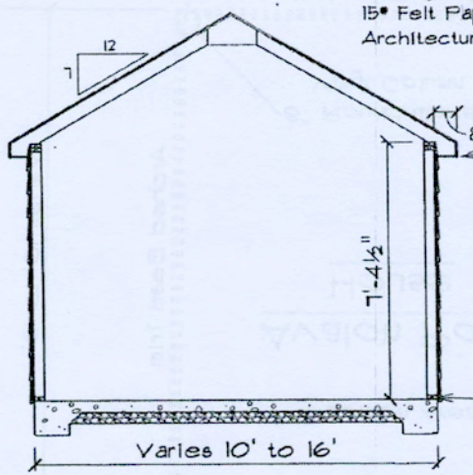
DATE: Thursday, May 19, 2016

PAGE: 1

Floor Plan

Typical Roof Framing

2" x 4 Rafters @ 16" o.c.
1/2" Plywood Gussets
1/2" Plywood Sheathing
15# Felt Paper
Architectural Shingles



Typical Wall Framing

2" x 4" Studs @ 16"o.c.
1/2" Dura-Temp Wood Siding or
Vinyl Siding over 1/2" Plywood Sheathing

PT Bottom Plate
attached w/ 1/2" x 5" expansion anchors
12" from corners & splices & 48" o.c. max

4" Typical Concrete Slab
with Granular Base
(By Customer)

Section Detail

Enclosed Area

☐ Approved
☐ Revised as noted

customer signature _____

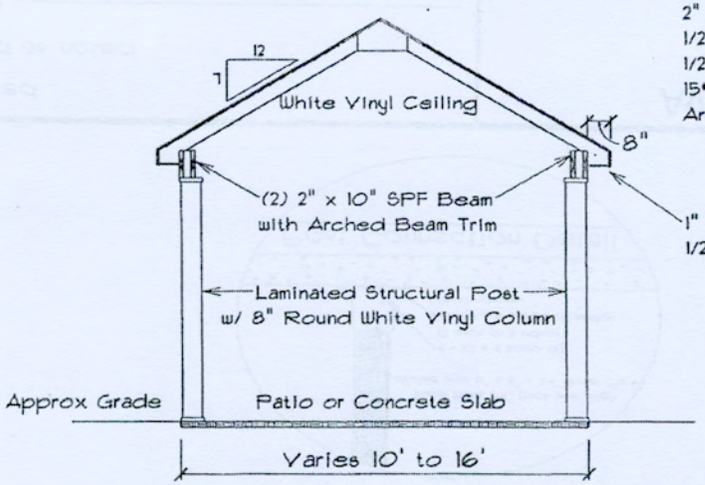
Avalon Pool House

PHONE:

DRAWN BY: Jonathan A	PAGE: 2
SCALE: 1/4" = 1'-0"	
DATE: Thursday, May 19, 2016	Section Detail 1

Typical Roof Framing

2" x 4 Rafters @ 16" o.c.
1/2" Plywood Gussets
1/2" Plywood Sheathing
15# Felt Paper
Architectural Shingles



Section Detail

Pavilion Area

☐ Approved
☐ Revised as noted

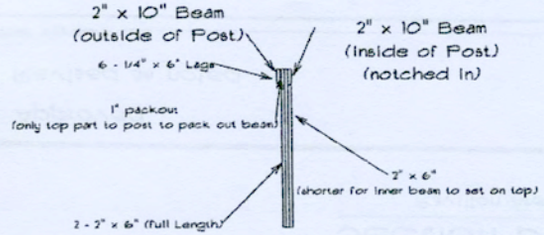
customer signature _____

Avalon Pool House

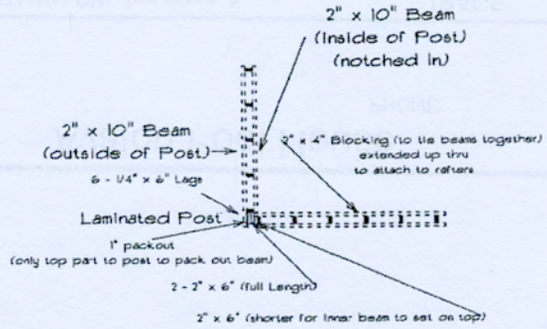
PHONE:

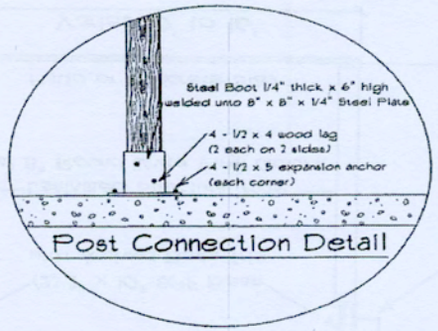
DRAWN BY: Jonathan A	PAGE: 3
SCALE: 1/4" = 1'-0"	Section Detail 2
DATE: Thursday, May 19, 2016	

Side View Beam Detail



Top View Beam Detail





Post Connection Detail

☐ Approved

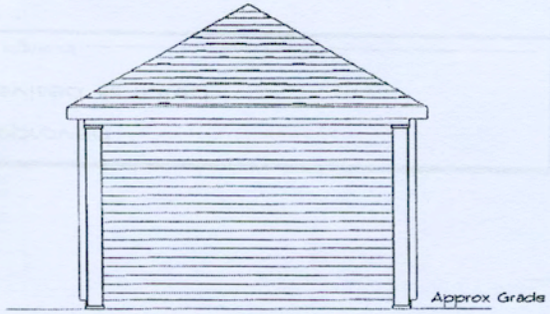
☐ Revised as noted

customer signature _____

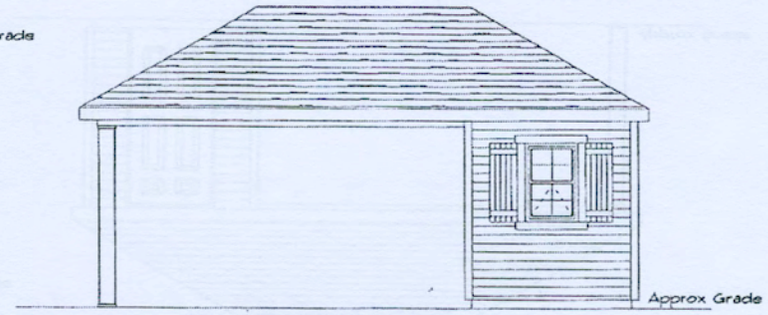
Avalon Pool House

PHONE:

DRAWN BY: Jonathan A	PAGE: 4
SCALE: 3/16" = 1'-0"	
DATE: Thursday, May 19, 2016	Beam & Post Detai



Front Elevation



Right Elevation

☐ Approved

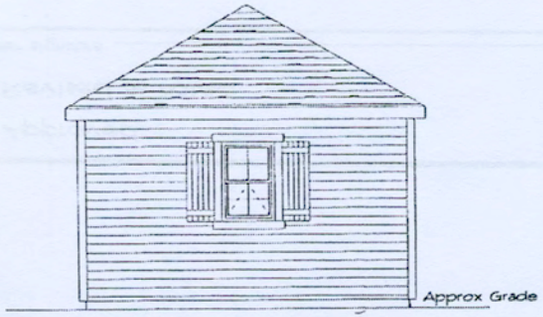
☐ Revised as noted

customer signature _____

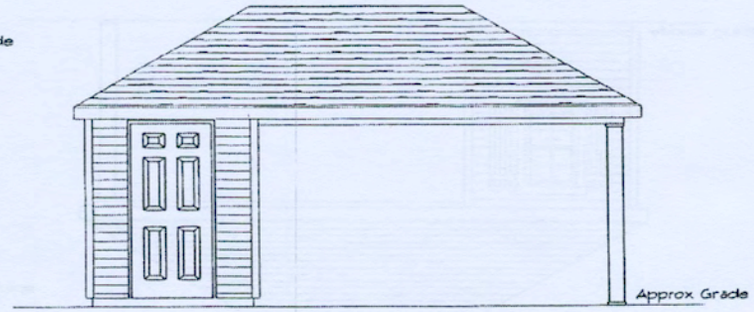
Avalon Pool House

PHONE:

DRAWN BY: Jonathan A	PAGE: 5
SCALE: 3/16" = 1'-0"	Elevation1
DATE: Thursday, May 19, 2016	



Rear Elevation



Left Elevation

☐ Approved

☐ Revised as noted

customer signature _____

Avalon Pool House

PHONE:

DRAWN BY: Jonathan A	PAGE: 6
SCALE: 3/16" = 1'-0"	Elevation2
DATE: Thursday, May 19, 2016	

Looking from our patio to the backyard.

spencer

135 spencer ↓ 141 spencer ↓ 147 spencer

8 Culberson

20 culberson

Looking from the rear of our property towards our house.

20 Culberson

8 culberson

Spencer

side photo. Standing near property line of 8 culberson looking towards 20 culberson.

side of 20 culberson

side of 8 culberson

Side Photo. Standing near property line of 20 culberson looking towards 8 culberson

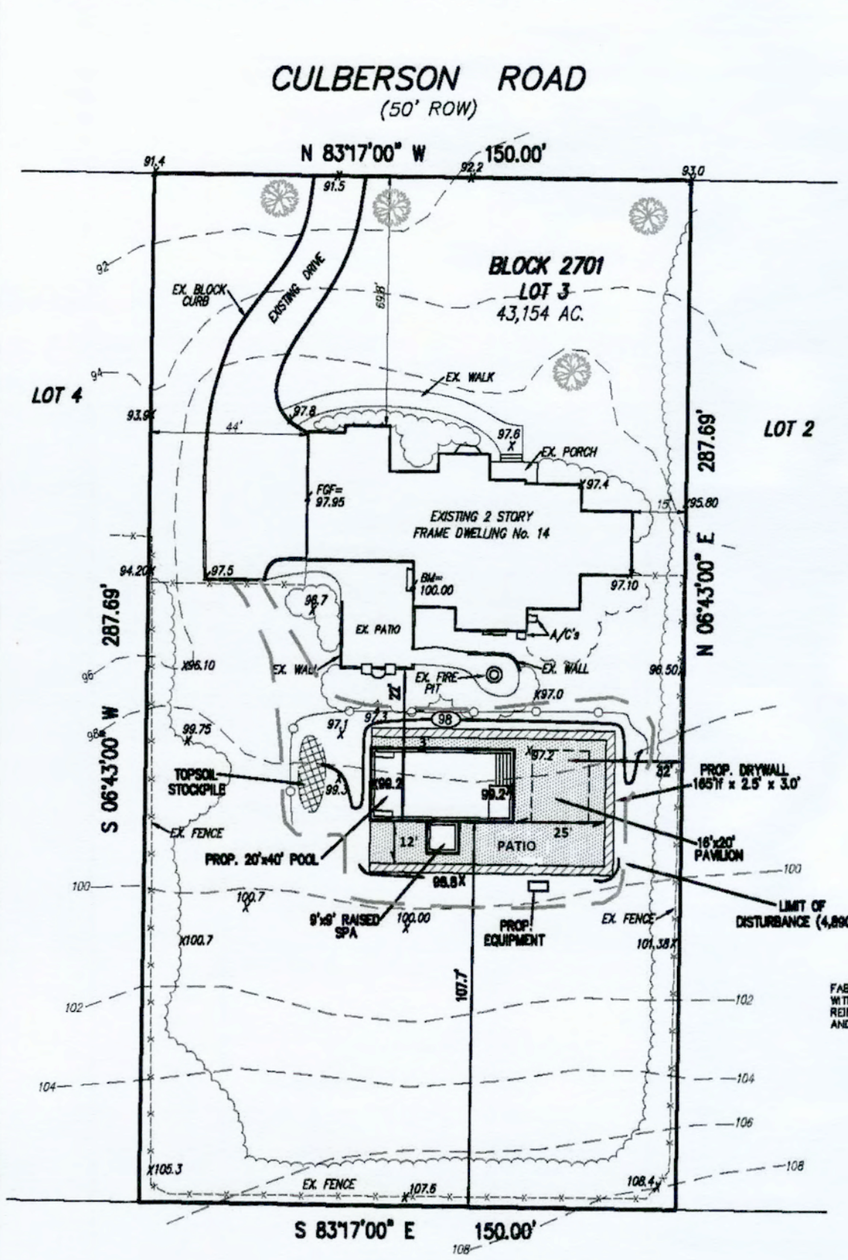
side of 8 culberson

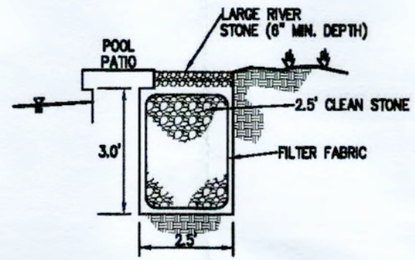
side of 20 culberson

APPENDIX D, ARTICLE III
Checklist
Application for Approval of a Variance Pursuant to NJSA 40:55D-70(c)

Important: Each item must be marked Submitted, Not Applicable or Waiver Requested

No.	Item	Submitted	Not Applicable	Waiver Requested
1	A completed application form and checklist.	✓		
2	A certificate from the tax collector indicating that taxes are paid.	✓		
3	All required application and escrow deposit fees.	✓		
4	Names and addresses of property owners within 200' of the subject property, as disclosed by current tax records and identified by block & lot numbers.	✓		
5	A plot plan or survey accurately depicting the entire subject property and all existing buildings, structures, driveways, patios, etc.	✓		
6	Sketch of all proposed improvements on the plot plan or survey, with dimensions of improvements and distances to property lines.	✓		
7	Calculations of existing & proposed lot coverage percentages.	✓		
8	Architectural sketches (floor plan and elevations) of the proposed improvements.	✓		
9	Photographs of the property in the location of the proposed improvements.	✓		
10	A wetlands delineation or wetlands absence determination prepared by a qualified consultant and verified by a letter of interpretation from the New Jersey Department of Environmental Protection, if required pursuant to Section 21-14.1.a.		✓	
11	The locations of percolation tests and a copy of the written approval of the tests and locations from the Bernards Township Health Department, if the application involves a new dwelling and sewage disposal is to be handled by an individual septic system.		✓	
12	Delineations of existing and proposed stream buffer conservation areas and stream buffer management plans, if required pursuant to Section 21-14.4.b.		✓	
13	Existing topography, proposed grading, and proposed stormwater infiltration measures in accordance with §21-42.1.f.2(b), shown on the plot plan or survey, if 1,000sf or more of new impervious area is proposed.	✓		





REQUIRED:

(2,275 SF LESS 800 SF FOR THE 20'x40' POOL WATER SURFACE AREA = 1,475 SF)

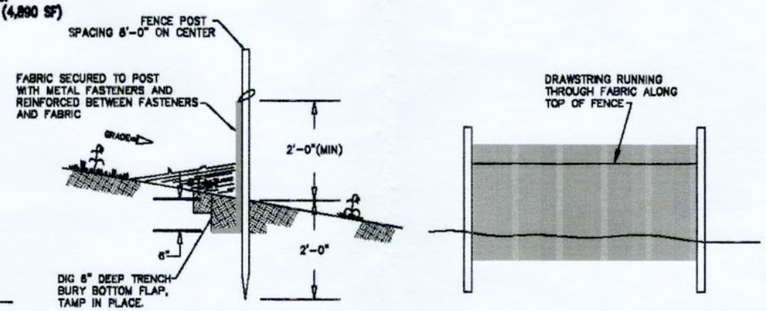
1,475 SF IMPERVIOUS COVERAGE 33% STONE RATIO, 3" RAIN EVENT.
1,475 SF x 3/12 = 368.75 cu.ft
368.75/33% = 1,117 CF REQUIRED

DESIGN:

165 lf X 2.5' FT WIDTH X 3.0' FT = 1,237 cu.ft
STORAGE PROVIDED

DRYWELL DESIGN

NTS



NOTES:
1. FENCE POSTS SHALL BE SPACED 8 FEET CENTER-TO-CENTER OR CLOSER. THEY SHALL EXTEND AT LEAST 2 FEET INTO THE GROUND AND EXTEND AT LEAST 2 FEET ABOVE GROUND (FIG. 25-2). POSTS SHALL BE CONSTRUCTED OF HARDWOOD WITH A MINIMUM DIAMETER THICKNESS OF 1½ INCHES.
2. A METAL FENCE WITH 6 INCH OR SMALLER OPENINGS AND A LEAST 2 FEET HIGH MAY BE UTILIZED, FASTENED TO THE FENCE POSTS, TO PROVIDE REINFORCEMENT AND SUPPORT TO THE GEOTEXTILE FABRIC WHERE SPACES FOR OTHER PRACTICES IS LIMITED AND HEAVY SEDIMENT LOADING IS EXPECTED.
3. A GEOTEXTILE FABRIC, RECOMMENDED FOR SUCH USE BY MANUFACTURER, SHALL BE BURIED AT LEAST 6 INCHES DEEP IN THE GROUND. THE FABRIC SHALL EXTEND AT LEAST 2 FEET ABOVE THE GROUND. THE FABRIC MUST BE SECURELY FASTENED TO THE POSTS USING A SYSTEM CONSISTING OF METAL FASTENERS (NAIL OR STAPLES) AND A HIGH STRENGTH REINFORCEMENT MATERIAL (NYLON WEBBING, GROMMETS, WASHERS ETC.) PLACED BETWEEN THE FASTENERS AND THE GEOTEXTILE FABRIC. THE FASTENING SYSTEM SHALL RESIST TEARING AWAY THE POSTS. THE FABRIC SHALL INCORPORATE A DRAWSTRING IN THE TOP PORTION OF THE FENCE FOR ADDED STRENGTH.

SILT FENCE DETAIL

NOT TO SCALE

UTILITY NOTES:

1.) IT IS IMPERATIVE THAT UTILITY COMPANIES ARE NOTIFIED TO ANY EXCAVATION AND/OR CONSTRUCTION 1-800-272-1000.

2.) NO CERTIFICATION IS MADE BY D.S. ENGINEERING, P.C. AS TO THE ACTUAL POSITION OF ANY UNDERGROUND UTILITIES OR TO THE COMPLETENESS OF THE UTILITIES SHOWN.

PRIVATE RESIDENTIAL SWIMMING POOL NOTES

1.) THE PROPOSED SWIMMING POOL SHALL BE ENCLOSED BY A PERMANENT FENCE SUFFICIENT TO MAKE THE POOL INACCESSIBLE TO SMALL CHILDREN. THE FENCE, INCLUDING THE GATE THEREIN, SHALL NOT BE LESS THAN FOUR (4) FEET IN HEIGHT, NO MORE THAN SIX (6) FEET IN HEIGHT. ALL GATES SHALL BE SELF CLOSING AND SELF LATCHING WITH LATCHES PLACED FOUR FEET SIX INCHES (4 1/2 FEET) ABOVE THE UNDERLYING GROUND AND OTHERWISE MADE INACCESSIBLE FROM THE OUTSIDE TO SMALL CHILDREN.

NOTES:

1.) OUTBOUND INFORMATION FOR BLOCK 2701 LOT 3 AS SHOWN ON A PLAN ENTITLED "LOCATION SURVEY" PREPARED BY WUNNER ENGINEERING ASSOCIATES DATED 12-06-2014.

2.) TOPOGRAPHIC INFORMATION FOR BLOCK 2701 LOT 3 OBTAIN AUGUST, 2020.

3.) PROPOSED POOL SIZE, LOCATION AND CONFIGURATION AS SUPPLIED BY THE HOMEOWNER.

4.) PROPOSED FENCE LOCATION AND TYPE AS PER HOMEOWNER.

5.) ASSUMED BENCH MARK OF 100.00 ON F.F.F..

6.) R6 ZONE.

7.) A VARIANCE IS REQUIRED FOR EXCEEDING THE MAX. ALLOW IMPERVIOUS COVERAGE OF 18% WHERE 22.54% IS PROPOSED.

8.) EX. IMPERVIOUS COVERAGE NUMBERS PER WUNNER ENGINEERING ASSOCIATES 12-20.

IMPERVIOUS COVERAGE SUMMARY

EX. DWELLING	- 3,283 SF
EX. DRIVEWAY	- 2,655 SF
EX. WALKS, PATIO & FIRE PIT	- 1,507 SF
EX. A/C	- 8 SF
EXISTING	- 7,453 SF
PROP. POOL & WALK	- 2,275 SF
TOTAL = 9,728 SF OR 22.54%*	

MR & MRS ROSSI
14 CULBERSON ROAD,
BERNARDS, NJ

LEGEND

— 100 —	EXISTING CONTOUR
100	PROPOSED CONTOUR
X 100.0	EXISTING SPOT ELEVATION
100.0 X	PROPOSED SPOT ELEVATION
→	DRAINAGE DIRECTION

REVISIONS	AUTH.	DATE
PER BERNARDS TWP.	SGL	11-23-20
PER BERNARDS TWP.	SGL	1-7-21

DATE: 08/28/20
SCALE: 1"=40'
DESIGN BY: SGL
DRAWN BY:
CHECKED BY: DJS

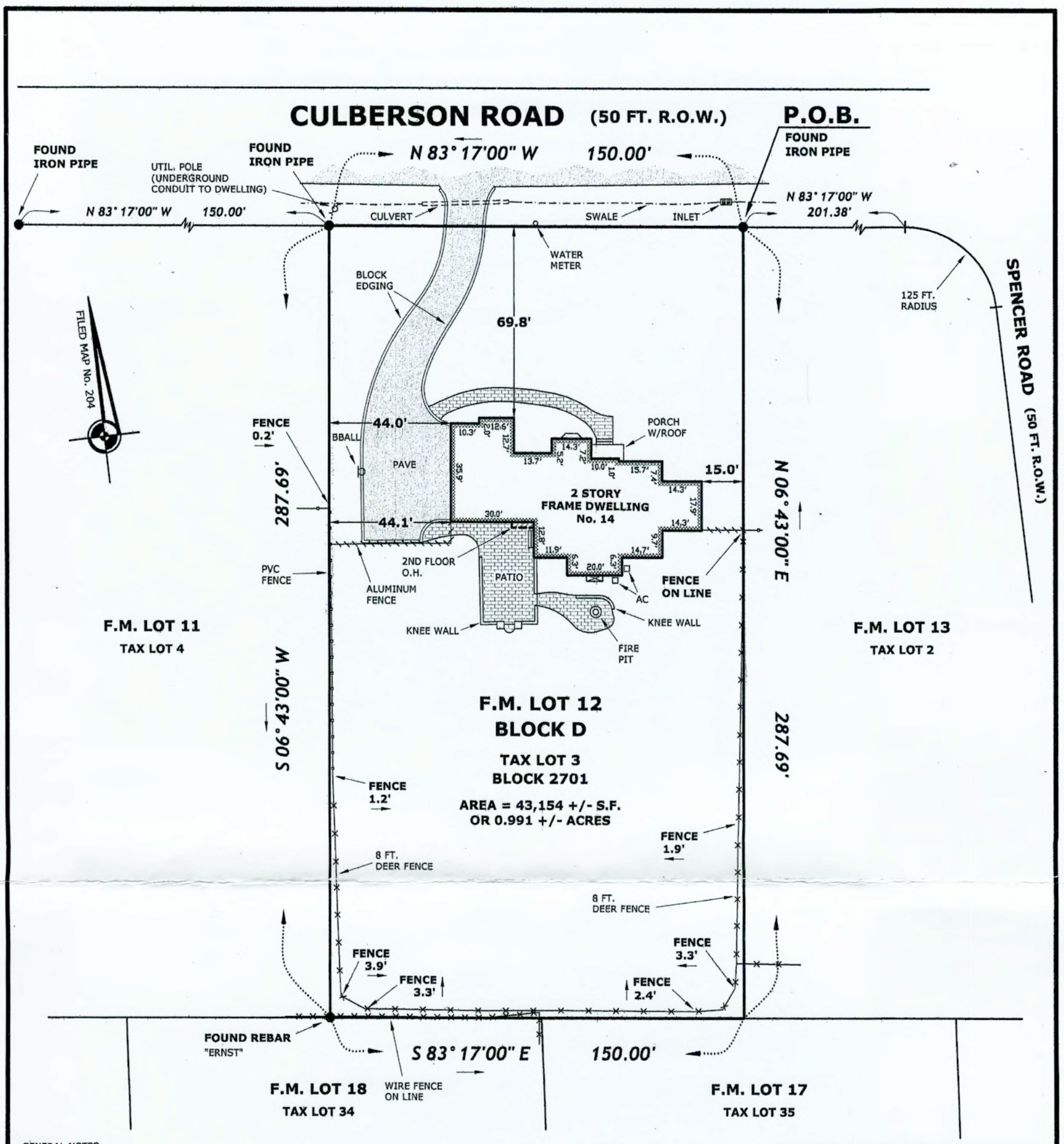
POOL GRADING PLAN

Prepared For
BLOCK 2701
LOT 3
Situated In
Bernards Township,
Somerset County, New Jersey

D.S. ENGINEERING, P.C.
ENGINEERS AND DESIGN PROFESSIONALS
P.O. BOX 792
Rocky Hill, New Jersey, 08553
(908) 359-0989 Fax (908) 359-4118

BY: David J. Schmidt
Professional Engineer N.J. Lic. No. 39409

SHEET NUMBER: 1



GENERAL NOTES:

1) A WRITTEN WAIVER AND DIRECTION NOT TO SET CORNER MARKERS HAS BEEN OBTAINED FROM THE ULTIMATE USER PURSUANT TO P.L. 2003, c.14 (C45:8-36.3) AND N.J.A.C. 13:40-5.1(d)

2) PROPERTY SUBJECT TO DOCUMENTS OF RECORD.

3) THE PROPERTY IN QUESTION IS SUBJECT TO ANY EASEMENTS, RESTRICTION, EXCEPTIONS OR COVENANTS THAT MAY EXIST.

4) ONLY SURFACE CONDITIONS ARE SHOWN, NO RESPONSIBILITY IS TAKEN FOR BURIED PIPES, WIRES, SEPTICS, WELLS, ETC.

5) THE PROPERTY IN QUESTION IS SUBJECT TO THE RIGHTS OF THE PUBLIC IN ANY PORTION THEREOF LYING WITHIN THE RIGHTS OF WAY OF THE ROADS SHOWN.

6) PROPERTY IS SUBJECT TO AN ACCURATE TITLE SEARCH.

7) THIS MAP IS INTENDED FOR USE BY ONLY THOSE PARTIES TO WHOM IT IS CERTIFIED AND SHALL BE DEEMED INVALID UNLESS AFFIXED WITH A RAISED SEAL.

DEED REFERENCE: BOOK 5760 PAGE 1405

CERTIFIED TO:

1) Patrick Rossi and Nesa Rossi, husband and wife

2) JP Morgan Chase Bank, N.A., its successors and/or assigns, as their interest may appear

3) NRT Title Agency, LLC (NRT56051)

4) Chicago Title Insurance Company

5) Richard L. Wade, Esq.

LOCATION SURVEY

LOT 12 BLOCK D

AS SHOWN ON A MAP ENTITLED
"MAP OF LANDS LOCATED IN BASKING RIDGE"
FILED IN THE SOMERSET COUNTY CLERK'S OFFICE
ON NOVEMBER 2, 1949 AS MAP No. 204.

ALSO KNOWN AS TAX LOT 3 BLOCK 2701

No. 14 CULBERSON ROAD

TOWNSHIP OF BERNARDS
SOMERSET COUNTY NEW JERSEY

P.L.S

LEE E. AMERSPEK
PROFESSIONAL LAND SURVEYOR N.J. LIC. # 37935

WUNNER ENGINEERING ASSOCIATES
ENGINEERS-LAND SURVEYORS-PLANNERS
P.O. BOX 303 SUCCASUNNA, N.J. 07876
PHONE # (973) 584-2233 FAX # (973) 584-6646

SCALE: 1" = 40'	CALC. BY: L.A.	DRAWN BY: L.A.
DATE: 12-06-2014	SURVEYED BY: LA/KR	FILE #: 14-5589

EC

TOWNSHIP OF BERNARDS
ZONING BOARD OF ADJUSTMENT
APPLICATION STATUS FORM

Application No: ZB21-004 Block: 3704 Lot: 1.06 Zone: R-4

Applicant: MASCHHOFF, ANDREW & ANITA

Address of Property: 31 CLAIRVAUX COURT

Description: "C" VARIANCES FOR IN-GROUND POOL: COVERAGE & NOT BEHIND REAR BUILDING LINE OF ADJACENT DWELLING

APPLICATION CHECKLIST

✓	Original + 16 copies of Application	✓	Engineering Plan/Plot Plan
✓	W-9		Architectural Plans
✓	Site Visit Consent (A)	✓	Survey
—	Ownership Form (B)	✓	Photographs
✓	200' Property Search List (C)		Wetlands Report/LOI
✓	Tax Certification (D)	✓	Application Fee
✓	Notice to be Served/Published (E)	✓	Escrow Deposit
✓	Dimensional Statistics Form (F)	✓	Imaging Fee
—	Contributions Disclosure Form (G)	—	Tax Map Revision Fee
			Checklist

SCHEDULING

1.13.21	Original Submission Date (60)
3.14.21	Completeness Deadline (~~45~~ days)
	Incomplete Date
	Resubmission Date
	Date Complete (60)
5.13.21	Time to Act (~~45/95/120~~ days)

HEARING

	Notice to Property Owners
	Date of Publication
	Completeness Hearing
~~3.3.21~~	Public Hearing
	Carried to Date
	Decision - Approved/Denied
	Resolution Memorialized
	Resolution Published

2.3.21

DISTRIBUTION

1.13.21	Environmental Comm
	Fire Official
	LCFAS
	Police

NOTES

TOWNSHIP OF BERNARDS
2020 ZONING BOARD OF ADJUSTMENT APPLICATION

[X] Bulk or Dimensional ("c") Variance
[ ] Use ("d") Variance
[ ] Conditional Use ("d") Variance
[ ] Floor Area Ratio, Density, or Height ("d") Variance
[ ] Site Plan - Preliminary / Final

[ ] Appeal of Zoning Officer's Decision
[ ] Interpretation of Zoning Ordinance
[ ] Minor Subdivision
[ ] Major Subdivision - Preliminary / Final
[ ] Other (specify):

---

1. APPLICANT: Andrew & Anita Maschhoff

Address: 31 Clairvaux Court, Basking Ridge, NJ

Phone: (home) _____ **(work)** _____ **(mobile)** (516) 232-5509 (Andr

Email (*will be used for official notifications*): andymaschhoff@gmail.com

2. OWNER (*if different from applicant*): _____

Address: _____

Phone: _____ **Email (*will be used for official notifications*):** _____

3. ATTORNEY: _____

Address: _____

Phone: _____ **Email (*will be used for official notifications*):** _____

4. OTHER PROFESSIONALS (*Engineer, Architect, etc. Attach additional sheet if necessary*):

Name: Larry Butynski (Cross River Design, Inc.) **Profession:** Landscape Architect

Address: 1473 Rt. 22 East, Annandale, NJ 08801

Phone: (908) 236-9291 (x-15) **Email (*will be used for official notifications*):** LButynski@crossriverdesig
com

5. PROPERTY INFORMATION: **Block(s):** 3704 **Lot(s):** 1.06 **Zone:** R-4

Street Address: 31 Clairvaux Court **Total Area (*square feet/acres*):** 43,600 SF / 1.001 A

6. ARE THERE ANY PENDING OR PRIOR PLANNING BOARD OR BOARD OF ADJUSTMENT APPLICATIONS INVOLVING THE PROPERTY? [X] No [ ] Yes (*if yes, explain or attach Board resolution*) _____

7. ARE THERE CURRENTLY ANY VIOLATIONS OF THE ZONING ORDINANCE INVOLVING THE PROPERTY? [X] No [ ] Yes (*if yes, explain*) _____

the rear building lines of existing residential structures on adjacent properties which

8. ARE THERE ANY DEED RESTRICTIONS OR EASEMENTS AFFECTING THE PROPERTY?
[X] No [ ] Yes (*if yes, explain*) _____

9. DESCRIPTION OF THE EXISTING PROPERTY AND THE PROPOSAL/REQUEST: Residential lot located at 31 Clairvaux Court, Basking Ridge. (Block 3704-Lot 1.06). Applicant is seeking to locate a swimming pool closer to the residence than ordinance allows and is seeking lot coverage relief to provide hardscape adjacent to the pool for circulation and seating. Also to address site topography that requires walls

10. DESCRIPTION OF REQUESTED VARIANCES OR EXCEPTIONS (*include Ordinance section no.*):
Section 21-18 Applicant is seeking relief from the portion of the Ordinance that states: "In all cases the pool shall be located behind the rear building line of existing residential structures on adjoining lots" By this ordinance the pool would be forced to the very back of the property.

11. THE FOLLOWING ARGUMENTS ARE MADE IN SUPPORT OF THE APPLICATION: Swimming pool placement as per plan (near the house). This allows better access for the applicant and also greatly reduces the impact and visability of the pool from adjacent properties. Also Section 21-3.1 regarding lot coverage. Keeping the pool closer to the house reduces impervious coverage.

12. NOTARIZED SIGNATURES (*ALL APPLICANTS AND OWNERS MUST SIGN*):

APPLICANT(S) SIGN HERE:

I/we, Andrew Maschhoff and Anita Maschhoff hereby depose and say that all of the above statements and the statements contained in the materials submitted herewith are true and correct.

Signature of Applicant(s): _____ and _____

Sworn and subscribed before me, this 5th day of October, 2020.

B. Manjusree

Notary

MANJUSREE R. REVURI
NOTARY PUBLIC OF NEW JERSEY
ID # 50001769
My Commission Expires 8/13/2024

OWNER(S) SIGN HERE (*IF APPLICANT IS NOT THE OWNER*):

If the application is made by a person or entity other than the property owner, or by less than all of the property owners, then the property owner or the additional owners must complete the following:

I/we, Andrew + Anita Maschhoff the owner(s) of the property described in this application,

hereby authorize _____ to act as my/our agent for purposes of making and prosecuting this application and I/we hereby consent to the variance relief (if any) granted and all conditions of approval thereof.

Signature of owner(s): _____

Sworn and subscribed before me, this _____ day of _____, 2020.

_____

Notary

SUBMIT ORIGINAL AND 16 COPIES FORM A

TOWNSHIP OF BERNARDS
PLANNING BOARD / BOARD OF ADJUSTMENT

SITE INSPECTION CONSENT FORM

Applicant: Andrew & Anita Maschhoff Application: _____

Block: 3704 Lot: 1.06

Street Address: 31 Clairvaux Court

I, Andrew Maschhoff, owner of the above property, hereby acknowledge that, upon determination of completeness of the application, a site inspection may be scheduled with the Board for a mutually convenient date and time. I hereby authorize members of the Planning Board/Board of Adjustment and their representatives and consultants to enter onto the property at the time of the site inspection for the purpose of evaluating the application.

Signature: _____ Date: 10/4/20

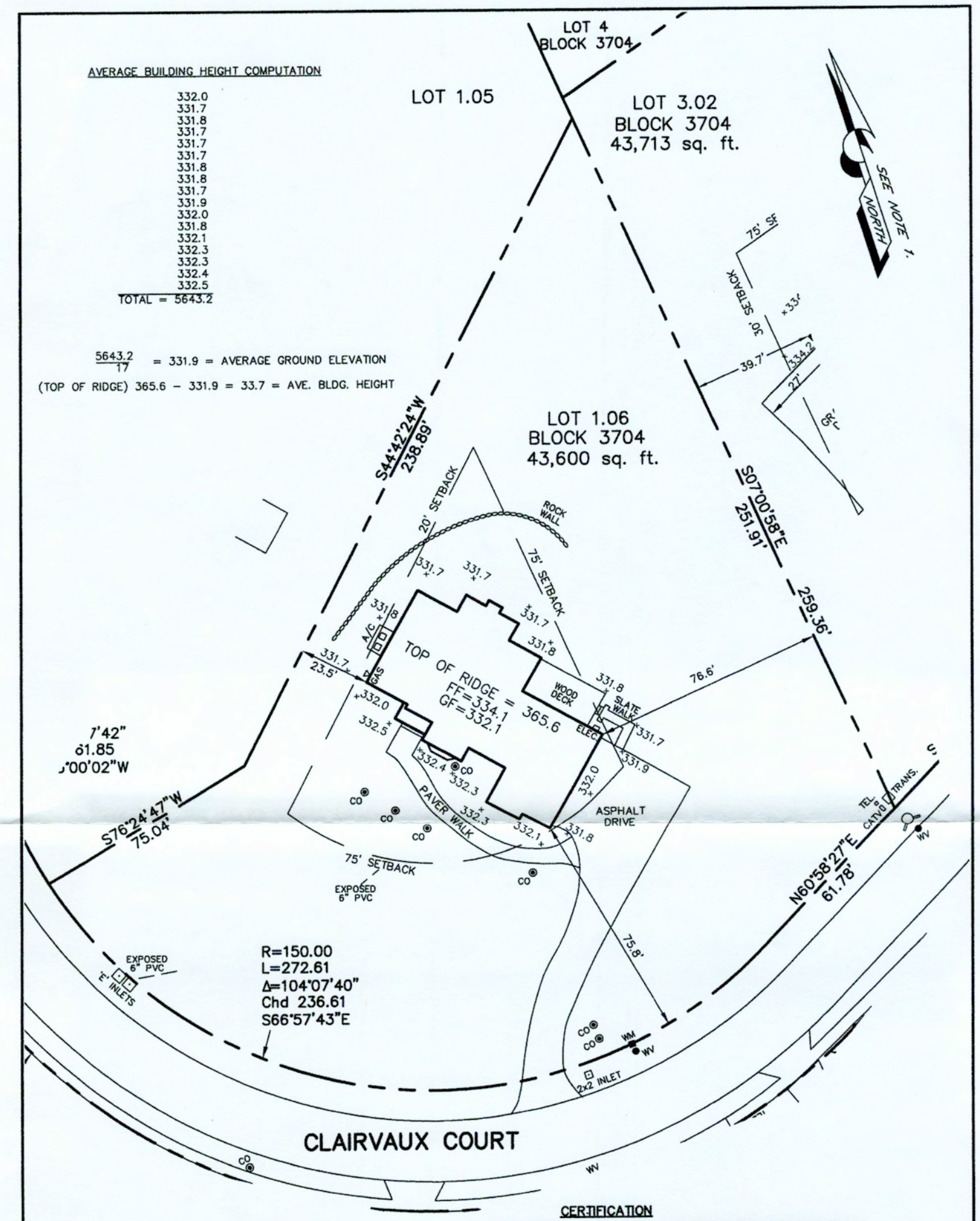
SUBMIT 17 COPIES TOTAL

FORM G

DIMENSIONAL STATISTICS

	REQUIRED	EXISTING	PROPOSED
LOT AREA	1 ACRE	1 Acre	N/A
LOT WIDTH	200'	272'	N/A
FRONTAGE	100'	334.5'	N/A
FRONT YARD SETBACK	75'	75.8'	N/A
REAR YARD SETBACK	75'	83.7'	N/A
COMBINED SIDE YARD	50'	N/A	N/A
SIDE YARD	20'	23.4'	N/A
COVERAGE	15%	13%	18.1%
HEIGHT	35'	< 35'	N/A
IF REQUIRED, GROSS FLOOR AREA			
IF REQUIRED, FLOOR AREA RATIO			
IF REQUIRED, IMPROVABLE LOT AREA			

ITEM #A - SURVEY PLAN



AVERAGE BUILDING HEIGHT COMPUTATION

	332.0
	331.7
	331.8
	331.7
	331.7
	331.7
	331.8
	331.8
	331.7
	331.9
	332.0
	331.8
	332.1
	332.3
	332.3
	332.4
	332.5
TOTAL =	5643.2

$\frac{5643.2}{17}$ = 331.9 = AVERAGE GROUND ELEVATION

(TOP OF RIDGE) 365.6 − 331.9 = 33.7 = AVE. BLDG. HEIGHT

LOT COVERAGE

BUILDING	2,897
DRIVE	2,175
WALKS	577
TOTAL	5,649 Sq. Ft

$\frac{5,649}{43,600}$ = 12.96 % LOT COVERAGE

NOTES

1. BOUNDARY INFORMATION SHOWN HEREON FROM FILED MAP NO. BK5864 PG390, 2006012023.
2. NO CORNER MARKERS SET PER CONTRACTUAL AGREEMENT.
3. NO DELINEATION OR LOCATION OF STATE OPEN WATERS AND/OR WETLANDS WAS PERFORMED AS A PART OF THIS SURVEY.

CERTIFICATION

THIS SURVEY CERTIFIED TO THE FOLLOWING PARTIES ONLY:

XAVIER GARIJO AND KRISTIN C. von HOERDE-GARIJO, HUSBAND AND WIFE
ROBERT J. NISH, P.C.
WELLS FARGO BANK N.A., IT'S SUCCESSORS AND/OR ASSIGNS AS THEIR INTERESTS MAY APPEAR;
FIRST AMERICAN TITLE INSURANCE COMPANY
CLEAR CREEK TITLE COMPANY
HIGHLAND CROSSING, LLC
MACKEVICH, BURKE AND STANICKI, JAMES MACKEVICH, ESQ.

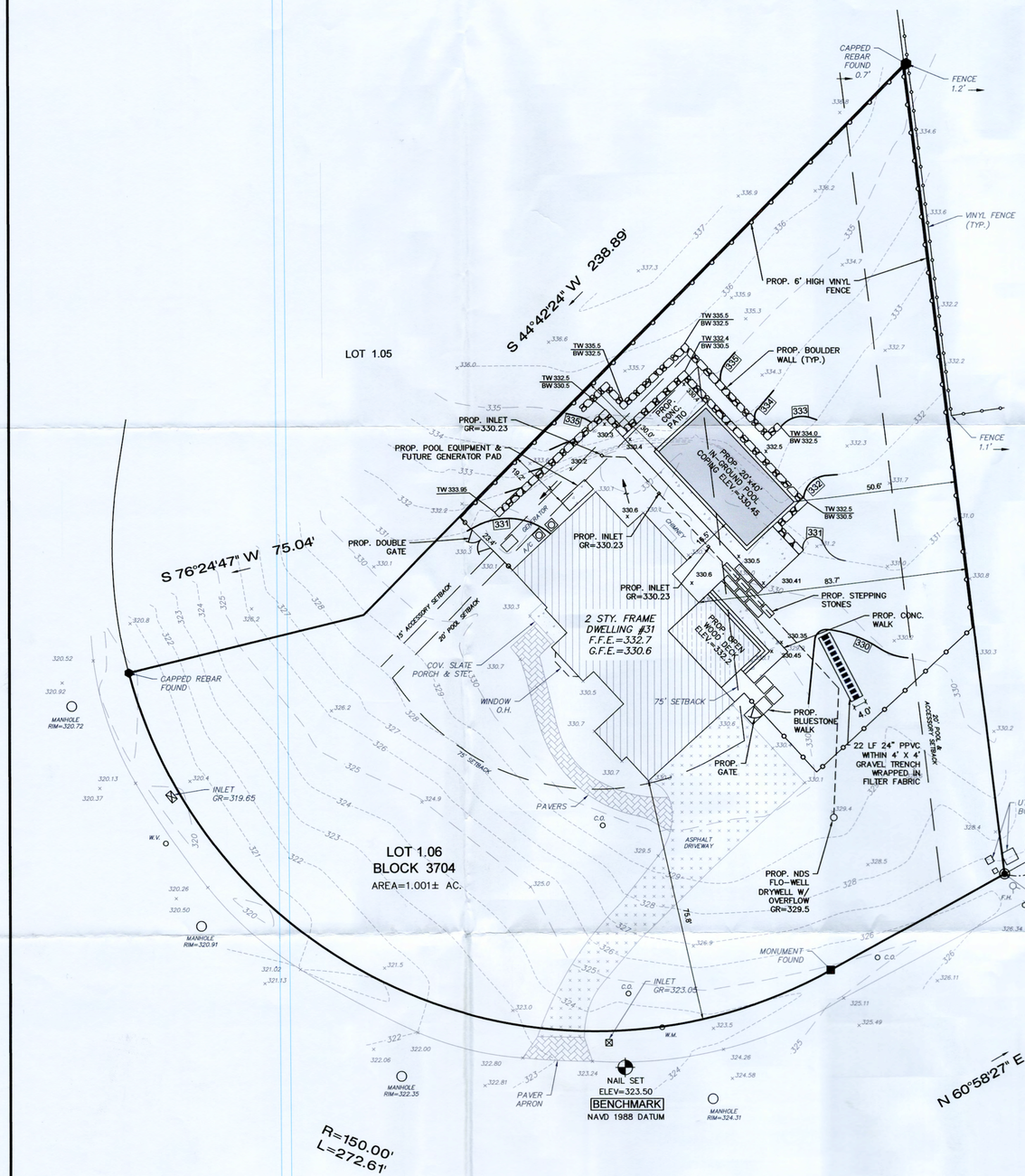
KENNY L. KENNON, P.L.S.
PROFESSIONAL LAND SURVEYOR LICENSE NO. 37195
DATE: 5-6-09

REV. 5-6-09 ADD ANNOTATION
REV. 5-1-09 ADD CERTIFICATIONS

FINAL LOCATION SURVEY
BLOCK 3704 – LOT 1.06
TOWNSHIP OF BERNARDS
SOMERSET COUNTY, NEW JERSEY

KSS KENNON SURVEYING SERVICES INC.
5 POWDER HORN DRIVE, SUITE 4
P.O. BOX 4477
WARREN, NEW JERSEY 07059
PHONE 732-564-1818 CERTIFICATE OF AUTHORIZATION NO. 27944900 FAX 732-564-9999

date	scale	proj. no.	sheet
3-2-09	1" = 40'	1581	1 OF 1



IMPERVIOUS COVERAGE

DESCRIPTION	EXISTING	PROPOSED
DWELLING	2,939 S.F.	2,939 S.F.
DRIVEWAY	2,127 S.F.	2,127 S.F.
PAVERS	485 S.F.	485 S.F.
CONCRETE	N/A	927 S.F.
SLATE	105 S.F.	N/A
POOL	N/A	800 S.F.
STONE STEPPERS	N/A	154 S.F.
BLOCK WALL	N/A	462 S.F.
IMPERVIOUS LOT COVERAGE	5,656 S.F.	7,894 S.F.
LOT AREA	43,560 S.F.	
TOTAL IMPERVIOUS LOT COVERAGE	13.0%	18.1%

NOTES

1. THIS MAP IS NOT A SURVEY.
2. THE PURPOSE OF THIS MAP IS FOR OBTAINING A PERMIT FROM THE TOWNSHIP OF BERNARDS, SOMERSET COUNTY, NEW JERSEY FOR THE CONSTRUCTION OF AN IN-GROUND SWIMMING POOL.
3. BACKWASH SHALL BE DISCHARGED TOWARDS CLAIRVAUX ROAD AND NO DISCHARGE SHALL BE PERMITTED TOWARD ADJACENT PROPERTIES.
4. BOUNDARY AND TOPOGRAPHIC INFORMATION SHOWN HEREON TAKEN FROM A CERTAIN PLAN ENTITLED "BOUNDARY AND TOPOGRAPHIC SURVEY, LOT 1.06, BLOCK 3705, TOWNSHIP OF BERNARDS, COUNTY OF SOMERSET, NEW JERSEY," PREPARED BY MORGAN ENGINEERING & SURVEYING, LLC, DATED 11/16/20.
5. EXISTING UTILITIES TO BE MARKED OUT PRIOR TO THE START OF CONSTRUCTION.
6. THE FINISHED OR RIGHT SIDE OF ANY FENCE SHALL FACE THE ADJOINING PROPERTY OR STREET.
7. IN-GROUND POOLS SHALL BE COMPLETELY ENCLOSED BY A FENCE AT LEAST 4 FEET IN HEIGHT. ACCESS GATES SHALL OPEN OUTWARD AWAY FROM THE POOL AND SHALL BE SELF-CLOSING AND HAVE A SELF-LATCHING DEVICE. FENCING SHALL BE CODE COMPLAINT AND MEET NATIONAL SWIMMING POOL REGULATIONS, LOCAL BUILDING CODES AND TOWNSHIP ORDINANCE
8. ALL DISTURBED AREAS TO RECEIVE TOP SOIL AND VEGETATIVE COVER.
9. PER THE STATE OF NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION BUREAU OF GIS' NJ-GEOWEB INTERACTIVE MAPPING APPLICATION, WETLANDS DO NOT APPEAR TO EXIST ON THE SUBJECT PROPERTY.
10. ALL ELEVATIONS ARE IN NAVD 1988 DATUM.

ACCESSORY SETBACKS

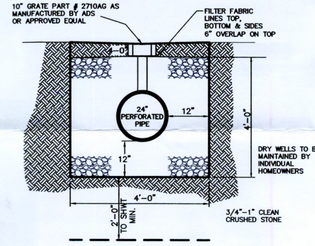
	REQUIRED	PROVIDED
MIN. SIDE YARD	15 FT.	30 FT.
MIN. REAR SETBACK	20 FT.	50.6 FT.
SURFACE AREA OF POOL (WITHIN AREA OF REAR YARD)	25%	19.8%

*NOTE: A VARIANCE IS REQUIRED FOR A POOL WHICH IS LOCATED "IN FRONT" OF THE EXISTING AVERAGE FRONT YARD SETBACK OF HOUSES LOCATED ON ADJACENT LOTS.

ZONE R-4 REQUIREMENTS

	REQUIRED	PROVIDED
MIN. LOT AREA	1 ACRE	1 ACRE
MIN. LOT WIDTH	200 FT.	272 FT.
MIN. LOT FRONTAGE	100 FT.	334.5 FT.
MIN. FRONT SETBACK	75 FT.	75.8 FT.
MIN. REAR SETBACK	75 FT.	83.7 FT.
MIN. SIDE YARD SETBACK	20 FT.	23.4 FT.
MIN. SIDE YARD COMBINED SETBACK	50 FT.	N/A
MAX. BUILDING HEIGHT	35 FT.	<35 FT.
MAX. COVERAGE	15%	18.1%*

N/A = NOT APPLICABLE
* = VARIANCE REQUIRED



VOLUME PROVIDED
PIPE:
$\pi r^2 \times L = (3.14)(1.0)^2 \times (22) = 69.1$

TRENCH:
L x W x H = (22)(4)(4) = 352 C.F.
352 - 69.1= 282.9(0.4) = 113.2 C.F.

113.2 + 69.1 = 182.3 C.F. STORAGE PROVIDED

VOLUME REQUIRED
DRYWELL DESIGN AS PER TOWNSHIP REQUIREMENT OF 3" STORM EVENT AS PER ZERO INCREASE STORMWATER RUNOFF REQUIREMENT.

NEW IMPERVIOUS DRAINAGE AREA OF 725 S.F. x 0.25 = 181.25 CU.FT. REQUIRED.

DRYWELL INSTALLATION SHALL BE DONE IN COMPLIANCE WITH THE MANUFACTURERS SPECIFICATIONS AND THE TOWNSHIP REQUIREMENTS.

DRYWELL DETAIL
N.T.S.

Bernards Township
Parcel Offset List

Target Parcel(s): Block-Lot: 3704-1.06
MASCHHOFF, ANDREW & ANITA
31 CLAIRVAUX CT

13 parcels fall within 200 feet of this parcel(s).

Block-Lot: 3704-1.02
SEMINARA, PETER & LAUREN
24 CLAIRVAUX CT
BASKING RIDGE NJ 07920
RE: 24 CLAIRVAUX CT

Block-Lot: 3704-1.03
GONZALEZ,ANTONIO & LAGO-ADLER,NADIA
30 CLAIRVAUX CT
BASKING RIDGE NJ 07920
RE: 30 CLAIRVAUX CT

Block-Lot: 3704-1.01
RIOS-NOGALES, LUIS
7275 SW 89TH ST, B311
MIAMI FL 33156
RE: 12 CLAIRVAUX CT

Block-Lot: 3704-5
ROME, CATHERINE
333 S FINLEY AVE
BASKING RIDGE NJ 07920
RE: 333 S FINLEY AVE

Block-Lot: 3703-3
BEAUDRY, THEODORE J & CHRISTINA M
90 LYONS PL
BASKING RIDGE NJ 07920
RE: 96 LYONS PL

Block-Lot: 3704-4
VOSS, THOMAS
359 S FINLEY AVE
BASKING RIDGE NJ 07920
RE: 359 S FINLEY AVE

Block-Lot: 3704-3.02
SAMUELSON, MICHAEL G & KATHLEEN N
15 CLAIRVAUX CT
BASKING RIDGE NJ 07920
RE: 15 CLAIRVAUX CT

Block-Lot: 3704-3.01
MEYER, SCOTT & ALISON
7 CLAIRVAUX CT
BASKING RIDGE NJ 07920
RE: 7 CLAIRVAUX CT

Block-Lot: 3704-1.05
BUTALA, PRANAY & SHUBHRA
43 CLAIRVAUX CT
BASKING RIDGE NJ 07920
RE: 43 CLAIRVAUX CT

Block-Lot: 3702-3
MUNIR, KARIM & CAROL
25 DEBRA LN
BASKING RIDGE NJ 07920
RE: 25 DEBRA LN

Block-Lot: 3704-1.04
SHAH, MITUL KIRAN & PAYAL
47 CLAIRVAUX CT
BASKING RIDGE NJ 07920
RE: 47 CLAIRVAUX CT

Block-Lot: 3702-2
ZIMMERMANN, JOHN M & PATRICIA A
29 DEBRA LN
BASKING RIDGE NJ 07920
RE: 29 DEBRA LN

Date Printed: 10/9/2020

Block-Lot: 200-5
NJ TRANSIT
ONE PENN PLAZA EAST
NEWARK NJ 07105
RE: RAILROAD R O W

PREPARED FOR: *ANDREW MASCHHOFF*

REV	DATE	DESCRIPTION	BY
1	12/22/20	REVISED IMPERVIOUS COVERAGE	KW

CERTIFICATE OF AUTHORIZATION: 24GA28229800
MORGAN engineering & surveying
P.O. BOX 5232
TOMS RIVER, N.J. 08754
TEL: 732-270-9690
FAX: 732-270-9691
www.morganengineeringllc.com

MATHEW R. WILDER
NEW JERSEY PROFESSIONAL ENGINEER
LICENSE No. 50652

POOL GRADING PLAN

LOT 1.06 BLOCK 3704
TOWNSHIP OF BERNARDS
COUNTY OF SOMERSET NEW JERSEY

Scale:	Drawn By:	Date:	JOB #:	CAD File #:	Sheet #:
1"=30'	DVP	12/1/20	E20-00491	POOL PP	1 OF 1

LEGEND:

100 PROP. CONTOURS
100 EXIST. CONTOURS
100.00 PROP. SPOT ELEVATIONS
100.00 EXIST. SPOT ELEVATIONS

ASPHALT DRIVEWAY

NDS FLO-WELL DRY WELL W/ OVERFLOW GRATE

PROP. FENCE & GATE (TYP.)

PROP. BLUESTONE WALKWAY

DOWNSPOUT (TYP.)

ELECTRIC METER

PROP. GRILL

DINING TABLE (4'X8')

PROP. DECK (17'X24')

FLOWER POT (TYP.)

RESIDENCE

LOT 1.06
BLOCK 3704
43,600 SQ. FT.

3 DN @7"

POOL SETBACK 20'

ACCESSORY STRUCTURE SETBACK 15'

GAS METER

W.W.

A.C.

A.C.

PROP. DOUBLE GATE

POOL EQUIP. & FUTURE GENERATOR PAD

W.W.

W.W.

CHIM.

Ø4" PVC DRAIN PIPE

PROP. STEPPING STONES

2%

9" NDS INLET (TYP.)

PROP. PATIO

2%

LAWN

PROP. POOL
20'X40'

LOUNGE CHAIR (TYP.)

POOL & ACCESSORY STRUCTURE SETBACK 20'

EXIST. TREES (TYP.)

EXIST. BOULDER WALL

PROP. BOULDER WALL (TYP.)

PROP. TREES (TYP.)

0' 5' 10' 20' 40'

1. This plan is for conceptual use only and is not intended as a construction or layout drawing unless noted. Owner shall review all proposed construction material installation with local building setbacks, zoning conformity and site work requirements. In addition plan shall not be used for the preparation of estimates, relied upon in any fashion without the written authorization of Cross River Design, Inc.

2. Client shall be responsible for locating property lines and corners where required, unless otherwise discussed and agreed to prior to the start of work.

3. Should any subsurface rock or other obstructions measuring in excess of 4 cubic feet in size be encountered during excavation or grading work, additional costs for handling and disposal will be incurred by the Client. Client will be presented with cost and shall sign off on same before work continues.

4. Cross River Design, Inc. (CRD) is not responsible for damage to existing underground "invisible dog fence", unless location of fence is marked for its entire length by either Client or original Installation Contractor prior to the commencement of landscape work.

Date	Issue	Revision

CROSS RIVER DESIGN • INC

LANDSCAPE DESIGN & CONSTRUCTION SPECIALISTS
1473 Route 22 East
Annandale, New Jersey 08801
PO Box 775
Red Bank, New Jersey 07701
Phone: 908-236-9291
Fax: 908-236-7409
www.crossriverdesign.com

MASCHHOFF RESIDENCE

31 CLAIRVAUX CT.
BASKING RIDGE
SOMERSET COUNTY
NEW JERSEY

LOT: 1.06 | BLOCK: 3704 | ZONE: R4
MUNICIPALITY: HIGH | CAD: CAFRA

PROP. LANDSCAPE DEV. PLAN

SCALE:	1" = 10'
DRAWN BY:	K.C.
PROJECT No.:	2172
DATE:	9/29/20
SHEET No.:	1 OF 1
DESIGNED BY:	CRD
DRAWN BY:	CRD
DRAWING No.:	PL-1

FROM THE HOUSE LOOKING TOWARDS THE REAR YARD

FROM THE HOUSE LOOKING TOWARDS THE REAR YARD

Looking towards neighboring rear yard

Looking towards neighboring rear yard

LOOKING TOWARDS NEIGHBORING REAR YARD

LOOKING TOWARDS NEIGHBORING REAR YARD

FROM THE REAR YARD LOOKING TOWARDS THE HOUSE

FROM THE REAR YARD LOOKING TOWARDS THE HOUSE

PROPERTY LINE

C.O.

PAVER WALKWAY

POOL SETBACK 20'
ACCESSORY STRUCTURE SETBACK 15'

ASPHALT DRIVEWAY

GAS METER

W.W.

PROP. DOUBLE GATE

PROP. STEPPERS
PROP. FENCE & GATE

DOWNSPOUT (TYP.)
ELECTRIC METER

RESIDENCE
LOT 1.06
BLOCK 3704
43,600 SQ. FT.

PROP. POOL EQUIP & FUTURE GENERATOR PAD

PROP. POOL
20'X40'

PROP. BOULDER WALL (TYP.)

CHIM.

A

PROP. STEPPERS

PROP. PATIO

PROP. TREES (TYP.)

EXIST. TREES (TYP.)

PROP. POOL
20'X40'

LOT 1.05
BLOCK 111
43,600 SQ. FT.

POOL & ACCESSORY STRUCTURE SETBACK 20'

REAR BUILDING LINE OF EXISTING RESIDENTIAL STRUCTURES ON ADJOINING LOTS (TYP.)

B

C

1

2

LOT 3.02
BLOCK 3704
43,713 SQ. FT.

LEGEND:

- 100 — PROP. CONTOURS
- 100 — EXIST. CONTOURS
- 100.30 — PROP. SPOT ELEVATIONS
- 100.30 — EXIST. SPOT ELEVATIONS
- CURRENT AREA OF POOL LOCATION LIMITATION
- # — VIEWS

NOTES:

1. EXIST. SURVEY BASED ON SURVEY PLAN DONE BY KENNON SURVEYING SERVICES (K.S.S.) DATED MARCH 2ND, 2009. SEE ITEM #A.

0' 10' 20' 40' 80'

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4. Cross River Design, Inc. (CRD) is not responsible for damage to existing underground "invisible dog fence", unless location of fence is marked for its entire length by either Client or original Installation Contractor prior to the commencement of linduscape work.

Date:	Issue:	Revision:

CROSS RIVER DESIGN • INC

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Red Bank, New Jersey 07701

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www.crossriverdesign.com

MASCHHOFF RESIDENCE

31 CLAIRVAUX COURT
BASKING RIDGE
SOMERSET COUNTY
NJ

LOT:	BLOCK:	ZONE:
106	3704	R4

HIGHLANDS: CAFRA:

PROPOSED LANDSCAPE DEVELOPMENT

SCALE:	1"=20'
DRAWN BY:	K.C.
PROJECT No.:	2172
DATE:	10/19/20
SHEET No.:	1OF1

CHECKED BY:

DESIGN	CONST. DEPT.
CRD	CRD

DRAWING No.: VP-1

CROSS RIVER
Your life... Outdoors.℠

Cirrus Pools

1473 Route 22 East – Annandale, NJ 08801
Cross River Design Phone (908) 236-9291
www.crossriverdesign.com
NJDCA CR#13VH00902900
Cirrus Pools Phone (908) 399-3141
www.cirruspools.com
NJDCA CR#13VH10405900

December 22, 2020

Client/Owner:
Andrew Maschhoff
31 Clairvaux Court
Basking Ridge, NJ

Job Location:
31 Clairvaux Court
Township of Bernards – Somerset County
Block 3704 – Lot 1.06

Contact:
Cell: 516-232-5509
andymaschhoff@gmail.com

MASCHHOFF Residence – Impervious Coverage Summary

1. **Lot Size**: *43,600 SF*
    a. Allowed Max. Coverage: *15% / 6,450 SF*

2. **Current exist. total impervious coverage**: ***13.00% / 5,656 SF*** (total based on "Pool Grading Plan" provided by Morgan Engineering & Surveying, dated 12/1/20)
    a. Building: *2,939 SF*
    b. Driveway: *2,127 SF*
    c. Pavers: *485 SF*
        i. Front walk
    d. Slate: *105 SF*
        i. Rear walk

3. **New total impervious coverage**: ***18.10% / 7,894 SF*** (total based on "Pool Grading Plan" provided by Morgan Engineering & Surveying, dated 12/1/20)
    a. Building: *2,939 SF*
    b. Driveway: *2,127 SF*
    c. Pavers: *485 SF*
        i. Front walk
    d. Patio: *927 SF*
    e. Pool: *800 SF*
    f. Bluestone steppers: *154 SF*
    g. Boulder wall: *462 SF*

***+3.10% SF* over allowed impervious coverage**

4. **Storm Water Management Mitigation**
    a. When introducing 1000 SF or more additional impervious coverage (minus the water surface of the pool), Storm Water Management Mitigation is required.
    b. Additional impervious surface coverage introduced: ***1438 SF* <- *Requires mitigation***
        i. 7,894 (New total imperv.) – 5,656 (Current total imperv.) – 800 (Pool area) = 1438 SF

TOWNSHIP OF BERNARDS
PLANNING BOARD
APPLICATION STATUS FORM

Application No: PB20-005 Block: 9301 Lot: 33 Zone: R-2

Applicant: FELLOWSHIP SENIOR LIVING INC

Address of Property: 8000 FELLOWSHIP ROAD

Description: PRELIMINARY & FINAL MAJOR SITE PLAN

APPLICATION CHECKLIST

- ✓ Original + 3 copies of Application
- ✓ Remaining 17 copies of Application
- ✓ W-9
- ✓ Site Inspection Form (A)
- ✓ Ownership Form (B)
- ✓ Property Owners List (C)
- ✓ Tax Certification (D)
- ✓ Public Notice (E)
- ✓ Outside Agencies Form (F)
- ✓ Tree Removal Form (G)
- ✓ Contributions Form (H)
- ✓ Engineering Plan/Plot Plan
- ✓ Architectural Plan
- ___ Survey
- ___ Wetlands Report/LOI
- ___ Application Fee
- ___ Escrow Deposit
- ___ Imaging Fee
- ___ Tax Map Revision Fee
- ✓ Checklist

SCHEDULING

- 12.21.20 Original Submission Date 60*
- 02.19.21 Completeness Deadline ~~(45 days)~~
- ___ Incomplete Date
- ___ Resubmission Date
- ___ Date Complete 60*
- ___ Time to Act ~~(45/95/120 days)~~

HEARING

- ___ Notice to Property Owners
- ___ Date of Publication
- 02.16.21 Completeness Hearing
- 4.16 Public Hearing
- ___ Carried to Date
- ___ Decision - Approved/Denied
- ___ Resolution Memorialized
- ___ Resolution Published

DISTRIBUTION

- 12.21.20 Environmental Commission
- ___ Fire Official
- ___ LCFAS
- ___ Police

NOTES

09/29/2020

*COVID E.O.

GIBBONS

Jennifer Phillips Smith
Director

Gibbons P.C.
One Gateway Center
Newark, NJ 07102-5310
Direct: 973-596-4477 Fax: 973-639-6398
jsmith@gibbonslaw.com

December 21, 2020

VIA HAND DELIVERY
Township of Bernards Planning Board
Attn: Cyndi Kiefer, Board Secretary
Municipal Building
1 Collyer Lane
Basking Ridge, New Jersey 07920

Re: Fellowship Senior Living, Inc. ("Applicant")
Application for Preliminary and Final Site Plan Approval ("Application")
Block 9301, Lot 33

Dear Ms. Kiefer:

This office represents Fellowship Senior Living, Inc., the owner of certain property located at 8000 Fellowship Road and known on the tax maps of the Township of Bernards as Block 9301, Lot 33 (the "Property"). The Property is located within the R-2 residential zoning district.

Applicant seeks preliminary and final major site plan approval from the Township of Bernards Planning Board to make certain improvements to Fellowship Village, which is a continuing care retirement community that currently operates at the Property, as further detailed in the enclosed Project Description.

In support of this Application, the following are enclosed for your review:

- Four (4) sets of the Township of Bernards Planning Board Application, including the applicable checklist, to which the following Exhibits are attached:
    - **Exhibit A**: Project Description;
    - **Exhibit B**: Statement of Ownership;
    - **Exhibit C**: Original 200' Property Owners' List;
    - **Exhibit D**: Certification as to Paid Taxes;
    - **Exhibit E**: Site Inspection Consent;
    - **Exhibit F**: List of Other Required Approvals;
    - **Exhibit G**: Tree Removal Permit;
    - **Exhibit H**: Contribution Disclosure Statements;

- **Exhibit I**: Notice for Service and Publication;
- **Exhibit J**: Calculation of Fees and Escrow:
- **Exhibit K:** List of Professionals;
- **Exhibit L**: Prior Resolutions;
- **Exhibit M**: Deed, Deed Restrictions and Easements;
- **Exhibit N**: Applicant's Certificate of Authority, dated September 13, 1993;
- **Exhibit O**: Letter from NJ Department of Community Affairs, dated November 13, 2020; and
- **Exhibit P**: Applicant's Lifecare Retirement Community Disclosure Statement (without exhibits);

- Four (4) full size signed and sealed copies of Site Plans, prepared by Marathon Engineering and Environmental Services, dated December 11, 2020, including sheets C0001, C0002, C0101, C0102, C0103, C0301, C0302, C0303, C1101, C1201, C1202, C1203, C1301, and C1302;
- Stormwater Management Report, prepared by Marathon Engineering & Environmental Services, dated November 23, 2020;
- Stormwater Management Facilities Maintenance Manual, prepared by Marathon Engineering and Environmental Services, dated November 23, 2020; and
- Four (4) full size signed and sealed copies of Architectural Plans, prepared by KDA Architects, dated November 23, 2020 including sheets A0.1 through A0.5.

Additionally, enclosed please find one (1) copy of Applicant's W-9 Form. Applicant will be hand delivering the following checks today under separate cover:

- One (1) check in the amount of $3,278.29 for payment of the application fee; and
- One (1) check in the amount $6,747.64 for payment of the escrow fee for application.

If you or the Board should require anything further before deeming the Application complete, please do not hesitate to contact me.

Sincerely,

Jennifer Phillips Smith
Director

cc: Brian Lawrence (via e-mail)
Bill Schramm (via e-mail)
Albie Day (vie e-mail)

TOWNSHIP OF BERNARDS
2020 PLANNING BOARD APPLICATION

[ ] Minor Subdivision
[ ] Major Subdivision - Preliminary
[ ] Major Subdivision - Final
[x] Conditional Use
[x] Site Plan - Preliminary
[x] Site Plan - Final
[ ] Informal Review
[ ] Other (specify): _____

---

1. APPLICANT: Fellowship Senior Living, Inc.

Address: 8000 Fellowship Road

Phone: (home) Attn: Brian G. Lawrence, President & CEO **(work)** 908-580-3805 **(mobile)** 908-966-0892

Email (*will be used for official notifications*): BLawrence@fellowshipsl.org

2. OWNER (*if different from applicant*): Same as Applicant.

Address: _____

Phone: _____ **Email (*will be used for official notifications*):** _____

3. ATTORNEY: Jennfer Phillips Smith

Address: Gibbons P.C. One Gateway Center Newark, NJ 07102

Phone: 973-596-4477 **Email (*will be used for official notifications*):** jsmith@gibbonslaw.com

4. OTHER PROFESSIONALS (*Engineer, Architect, etc. Attach additional sheet if necessary*):

Name: See Exhibit K - List of Professionals. **Profession:** _____

Address: _____

Phone: _____ **Email (*will be used for official notifications*):** _____

5. PROPERTY INFORMATION: Block(s): 9301 **Lot(s):** 33 **Zone:** R-2

Street Address: 8000 Fellowship Road **Total Area (*square feet/acres*):** 72.569 acres

6. ARE THERE ANY PENDING OR PRIOR PLANNING BOARD OR BOARD OF ADJUSTMENT APPLICATIONS INVOLVING THE PROPERTY? [ ] No [x] Yes (*if yes, explain or attach Board resolution*) Please see Exhibit L - List of Prior Approvals.

7. ARE THERE CURRENTLY ANY VIOLATIONS OF THE ZONING ORDINANCE INVOLVING THE PROPERTY? [x] No [ ] Yes (*if yes, explain*) Please refer to the attached 2016 Resolution.

8. ARE THERE ANY DEED RESTRICTIONS OR EASEMENTS AFFECTING THE PROPERTY?
[ ] No [x] Yes (*if yes, explain and attach copy*) Please see Exhibit M - List of Deed Restrictions and Easements.

9. DESCRIPTION OF THE EXISTING PROPERTY AND THE PROPOSAL/REQUEST:

Fellowship Village, a continuing care retirement community, currently operates at the Property. Please see the attached Project Description (Exhibit A) for an explanation of Applicant's proposed improvements at the Property.

10. DESCRIPTION OF REQUESTED VARIANCES OR EXCEPTIONS (*include Ordinance section no.*):

Please see the attached Project Description (Exhibit A).

11. THE FOLLOWING ARGUMENTS ARE MADE IN SUPPORT OF THE APPLICATION:

Please see the attached Project Description (Exhibit A) for arguments in support of the application.

12. NOTARIZED SIGNATURES (***ALL APPLICANTS AND OWNERS MUST SIGN***):

APPLICANT(S) SIGN HERE:

I/we, Brian G. Lawrence and _____ hereby depose and say that all of the above statements and the statements contained in the materials submitted herewith are true and correct.

FELLOWSHIP SENIOR LIVING, INC.

Signature of Applicant(s): _____ and _____

By: Brian G. Lawrence Title: President and CEO

Sworn and subscribed before me, this 23rd day of November, 2020

_____

Notary Jennifer P. Smith Attorney at Law, State of NJ

OWNER(S) SIGN HERE (***IF APPLICANT IS NOT THE OWNER***):

If the application is made by a person or entity other than the property owner, or by less than all of the property owners, then the property owner or the additional owners must complete the following:

I/we, _____ the owner(s) of the property described in this application,

hereby authorize _____ to act as my/our agent for purposes of making and prosecuting this application and I/we hereby consent to the variance relief (if any) granted and all conditions of approval thereof.

Signature of owner(s): _____

Sworn and subscribed before me, this _____ day of _____, 20__.

_____

Notary

EXHIBIT A

GIBBONS

Fellowship Senior Living, Inc.
Block 9301, Lot 33

Project Description

December 18, 2020

Fellowship Senior Living, Inc. ("Applicant") is seeking preliminary and final major site plan approval in connection with proposed improvements to the Fellowship Village continuing care retirement community ("Fellowship Village"). Fellowship Village currently operates at 8000 Fellowship Road, known on the tax maps as Block 9301, Lot 33 in the Township of Bernards (the "Property"). The Property is located within the R-2 residential zoning district, where Fellowship Village is a permitted conditional use. The Property is an approximately 72-acre lot that has frontage on Allen Road (County Route 652) and Martinsville Road (County Route 525).

Fellowship Village is comprised of numerous buildings and related site improvements, including, but not limited to, residences, a vibrant community center, health center, parking areas, and stormwater management facilities. The community was constructed in the mid-1990s and has received previous approvals from the Planning Board since then, including approval in 2016 to expand and make other improvements to the community and Property.

The improvements to Fellowship Village proposed by this Application are as follows:

Fitness Center and Salon

Applicant proposes the construction of a new, two-floor, 14,447 square foot structure to serve as a fitness center and salon. The upper level of this proposed addition will connect to the main floor of the community center. The lower level is largely below grade (underground) except for the western area, which has windows. The upper level will contain a fitness studio, including a separate room for group fitness classes. The lower level will contain a salon and barber shop. The existing salon and massage services will be relocated to this new addition.

Club Locker Rooms Renovations

The men's and women's changing/bathrooms are currently on one side of the existing pool. There is currently only one shower available, which is located inside the pool area, visible to everyone. As currently constituted, these changing/bathrooms, which could also be considered locker rooms, do not allow ample space for individuals to shower and change after exercise. Applicant proposes to expand the men's club locker room by using the footprint of the old changing/bathrooms and incorporating the existing area of an adjacent independent living unit. As for the women's clubroom, Applicant proposes to expand the space through a renovation of the existing fitness center and a small, 180 s.f. addition. These renovations will result in the loss of one independent living unit, bringing the overall total of independent living units from 257 to 256.

GIBBONS

Outdoor Trails and Observation Deck

Applicant proposes to add trails within the area of the conservation easement and wetlands. The area is currently open meadow with scattered small trees. In total, Applicant proposes approximately ¼ miles of trails, made up with a combination of 5' wide gravel paths and 5' wide elevated walkways. Applicant proposes several sitting areas along the trails. The elevated walkways are proposed over the wetland area. Applicant additionally proposes two observation decks along the trail to serve as a bird blind and sitting area. The larger observation deck will be an open overhead structure. These improvements, to the extent they are located with the conservation easement, will also require approval from the Township Council.

Dog Park

Applicant proposes to add a dog park in the upland area outside of the conservation area just off the loop walkway and access driveway. The area of the proposed dog park will be cleared and converted to lawn. The proposed dog park will be 1,545 square feet and enclosed using 4' heavy duty wire fence and a secure sally port at the entrance. Within the park, Applicant proposes to include a waste station and water fountain, movable seating, and dog play structures.

Recreational Courts

Applicant proposes the following recreational courts near the existing pool and renovated club locker rooms: pickleball, bocce ball, and shuffleboard. There are existing shaded areas within the vicinity of these proposed courts to allow for shading for spectators. A pergola will also be added around the outside of the pool to provide additional protection.

Spruce Grove Improvements

Within Fellowship Village, there is a shady grove of mature spruce trees referred to as "Spruce Grove." Applicant proposes to the make certain improvements to Spruce Grove, including the addition of (i) two sitting areas, (ii) 5' wide gravel paths to replace the existing asphalt paths, (iii) rustic stone piers at both entrances; and (iv) low level illumination. Pursuant to Section 21-14.4(c)2(a)(1) of the Township's Stream Buffer Conservation Requirements, the modest improvements to this recreational trail system and private parkland are permitted as-of-right within Zone 2.

Ephesus Pond Deck

Applicant proposes to add a 14' x 16' deck at the edge of Ephesus Pond. There will be some low level illumination installed on the deck surface. The proposed deck will complement the recently installed landscape upgrades on the pond banks, and the proposed location is highly accessible to residents, visitors and staff.

GIBBONS

Conditional Use Criteria

As a conditional use with the R-2 zone, Applicant is required to comply with the Township's conditional use standards. The chart below lists each of the conditional use requirements, as set forth in Sec. 21-12.3(l), and the Applicant's compliance with each.

Conditional Use Requirements – Continuing Care Community in R-2 zone (§21-12.3(l))	Compliance
(1) Before the development is occupied, the developer shall produce to the Zoning Officer either a certificate of authority for the CCRC issued pursuant to N.J.S.A. 52:27D-330 et seq. (P.L. 1986, c. 103), as amended from time to time, or a letter of nonapplicability pursuant to N.J.A.C. 5:19-2.3, as amended from time to time.	Certificate of Authority issued to Fellowship Village by the Department of Community Affairs on September 13, 1993 is annexed as Exhibit N.
(2) Before receiving final site plan approval, the developer shall produce a writing from the Commissioner of the Department of Community Affairs stating that any lien which the Department has filed or may file under N.J.S.A. 52:27D-341 (P.L. 1986, c.103, §12) shall be subordinated to any lien for unpaid taxes on real property or other municipal charges, whether existing now or in the future.	The November 13, 2020 letter from the Department of Community Affairs (DCA) stating that DCA has not filed a lien against Fellowship Village is annexed as Exhibit O.
(3) Reserved	N/A
(4) The development may include the following: (a) Independent-living units; (b) Assisted-living units; (c) Nursing units; (d) Congregate-care units; (e) Long-term-care units; (f) Sub-acute units; and (g) Memory-care units.	Fellowship Village includes independent living units, assisted living units, and nursing/long term care units.
(5) The development shall include at least some level of each of the following uses and services for residents, which may also be available to nonresidents of the CCRC, provided that all such uses shall be entirely contained within buildings exclusively owned and controlled by the CCRC, that that no residents shall be denied access to such uses and services, and that sufficient parking shall be provided in accordance with Subsection 21-22.1: (a) Health care, therapy, clinical, medical, and wellness service facilities and services that may be on site or off site; such facilities may be an existing or new off-site location (subject to zoning requirements) if the applicant shows adequate plans to provide residents of the development with reasonable access;	As will be explained in testimony, Applicant provides all of these uses, and will be expanding the recreation facilities offered through a new on-site fitness center. No residents are denied access to these uses.

(b) Facilities and services for providing meals for residents, with or without common dining facilities; (c) Therapy facilities and services; (d) Meeting rooms; and (e) Recreation facilities; The development may include personal, cultural, religious and other ancillary services customary to a CCRC. These services may include uses such as clinics, therapies, wellness and educational programs, theaters, performing arts programs, restaurants, and salons.	Sufficient parking is provided, as shown on the submitted site plans and explained further below.
(6) The application for development shall include a statement generally describing the health-care services, meal services for assisted-living care or nursing care and therapy services that will be provided. Such statement may be, but is not required to be, in the developer's disclosure statement (or a portion of it) which is required by N.J.S.A. 52:27D-336 (P.L. 1986, c.103, §7.	The relevant portion of Applicant's Disclosure Statement, with a March 12, 2020 Effective Date of the Fourth Amendment, is annexed as Exhibit P and generally describes the healthcare services, meal services, nursing services, and therapy services provided.
(7) Reserved	N/A
(8) It shall be a condition of final subdivision or final site plan approval that residency in the CCRC shall be age restricted to persons at least 62 years of age, with or without a spouse or other members of such person's housekeeping unit, or to surviving members of that housekeeping unit in the event of death of such resident. This condition shall not be construed as requiring the CCRC to permit surviving members below the age of 62 to remain in residence following such death. Health-care services may also be provided to individuals allowed under applicable state and federal law.	Applicant complies with this condition.
(9) Permissible accessory uses and structures shall include garages, sheds, fences, swimming pools, recreational facilities, maintenance buildings, gatehouses, employee living quarters, child-care centers, retail and personal services facilities and other uses and facilities customarily associated with and ancillary to a CCRC, so long as such accessory uses are subordinate to and serve only the conditional use for residents and nonresidents.	The current accessory uses at Fellowship Village, along with the accessory uses proposed through this Application, are permissible.
(10) Area and setback requirements: (a) Minimum Lot Area: 60 acres. (b) Minimum Lot Width: 200 feet. (c) Minimum Tract setback (buffered): (1) Front Yard: (a) For buildings: 100 feet.	All Comply. (a) 72.569 acres (b) 1568.27 ft. (c) (1) (a) 100 ft. (b) 75 ft.

GIBBONS

(b) For parking: 75 feet. (2) Side Yard: (a) For buildings: 100 feet from exterior street. (b) For buildings: 75 feet from boundary line. (c) For parking: 75 feet. (3) Rear Yard: (a) For buildings: 100 feet. (b) For parking: 75 feet. (d) Maximum Impervious Lot Coverage: 40% (e) Maximum Building Coverage: 20% (f) Maximum Building Height: 35 feet, except that height may be increased to a maximum of 50 ft., provided that, for each additional foot of building height above 35 feet, two additional feet of setback shall be required from the exterior tract buffer. Building height shall be measured from the average finished grade level surrounding the building measured five feet from the building wall to the top of the roof.	(c)(2)(b) 75 ft. (c) 75 ft. (c)(3)(a) 100 ft. (b) 75 ft. (d) 27.2% (e) 15% (f) 49.7 ft.
(11) Maximum and Minimum Number of Units (a) The maximum number of independent living and assisted-living units shall be five units per gross acre. (b) A minimum of four independent living units shall be provided for each nursing unit. (c) Assisted-living units shall be counted as independent living units in meeting the 4 to 1 ratio requirement in Subsection 21-12.3.11(b) above. (d) The maximum number of detached single-family dwellings shall not exceed 30% of the total permitted number of independent-living units.	The modified unit count for Fellowship Village will be as follows: 256 Independent Living Units; 86 Assisted Living Units; and 67 Nursing/Long Term Care Beds.
(12) Parking Requirements. Sufficient off-street parking shall be required to meet the needs of the residents, employees and guests in accordance with the following minimum requirements: (a) Independent living units: 1 per dwelling unit (b) Assisted-living units, congregate-care, long-term care, sub-acute and memory-care units: .35 per dwelling unit. (c) Nursing beds: .35 per bed (d) Staff: one off-street parking space per full time staff, plus one for every two part-time staff, on the maximum shift (e) Visitors: an additional 10% above the total required parking	Parking Requirements – All Comply. (a) Independent living – 1 x 256 = 256 spaces (b) Assisted Living - .35 x 86 = 30.1 spaces (c) Long-term care/nursing - .35 x 67 = 23.5 spaces (d) Staff (full time, max shift) – 1 x 165 = 165 spaces Staff (part-time) - .5 x

	20 = 10 spaces (e) Visitors - .10 x 485 = 48.5 spaces Auditorium parking – 240/3 = 80 spaces Total required = 613.1 spaces Total provided on-site = 617 spaces
(13) Design and Development Regulations for Multifamily Residential Buildings. The minimum distance between residential buildings shall be as follows: (a) Windowless wall to windowless wall: One story – 15 feet; Two Stories – 20 feet. (b) Window wall to windowless wall: One story – 20 feet; Two Stories – 30 feet. (c) Window wall to window wall: Front to front – 75 feet; rear to rear – 50 feet; end to end – 30 feet. (d) Front building face to common parking area: One story – 10 feet; Two stories – 20 feet. (e) Rear or side building face to common area: One story – 10 feet; Two stories – 15 feet. The Planning Board may reduce the above distances by not more than 20% if there is an angle of 20 degrees or more between buildings and if extensive landscaping and buffers, which provide necessary screening and shielding, are placed between buildings	All criteria remain compliant and unchanged, except for the distance between the residential buildings and the common area building (criteria e), which will be greater than 30' (even with the new fitness center addition) and which remains compliant.
(14) Design and Development Regulations for Single-Family Detached Housing. (a) Minimum lot size: 5,000 s.f. (b) Minimum lot width: 50 ft. (c) Minimum yard requirements: (1) Front: 25 ft. (2) Side: five feet (one); 15 feet (both); (3) Rear: 25 feet.	N/A
(15) Design and Development Regulations for Other Structures: (a) Minimum distance between residential buildings and other buildings: 30 feet	(a) >30' (b) N/A

GIBBONS

(b) Minimum distance between accessory buildings and principal buildings: 10 feet (c) Minimum distance between parking areas and buildings: 10 feet	(c) N/A
(16) Buffering and Screening: All CCRC's shall be landscaped and buffered in accordance with Section 21-43. A landscaped buffer not less than 25 feet shall be planted or installed around the perimeter of the developed areas of any CCRC site.	Complies.
(17) Other Requirements (a) Water: No site plan for a CCRC shall be approved unless it provides for water to be supplied to the development by a public utility company. (b) Sanitary sewers: No site plan for a CCRC shall be approved unless it provides for the treatment of wastewater from the development in one of the following manners: (1) The treatment plant of the Township of Bernards Sewerage Authority, if the site is in the sewer service area; (2) Another municipality's publicly owned treatment plant; (3) A treatment plant owned by a public utility; (4) A package treatment plant; or (5) Such other means as may be approved by NJDEP for community wastewater disposal; provided, however, that the means of treatment if under Paragraph I, Subparagraphs 17(b)(1) through (5) above, shall not require the Township or its Sewerage Authority to serve as co-permittee or otherwise to assume any liability of any nature; and provided, further, that any means of wastewater treatment does not conflict with the Bernards Township Wastewater Management Plan; and provided, further, that if municipal consent is required for any means of wastewater treatment, nothing in this chapter shall be construed as granting such consent or as compelling either the Township or its Sewerage Authority to grant such consent. (c) A CCRC shall have frontage and direct access to a state or county roadway.	(a) Applicant's water is supplied by NJ American Water Company. (b) Applicant's wastewater is treated by the Township of Bernards Sewerage Authority. (c) Fellowship Village has access to Allen Road (County Route 652) and Martinsville Road (County Route 525).

Applicant reserves the right to amend or supplement the list of relief required during the review of the application.

EXHIBIT B

FORM B

Submit 21 copies TOTAL

STATEMENT OF OWNERSHIP

Corporate or Partnership
Name of Applicant Fellowship Senior Living, Inc.

Address 8000 Fellowship Road Basking Ridge, NJ 07920

The following is a list of all shareholders and/or partners owning beneficially or having registered in their names not less than ten percent (10%) of the stock of the corporation or interest in a partnership involved in an application hereinabove referred to:

No ownership - Fellowship Senior Living is a 501 c(3) non-profit organization

Name _____ Name _____

Address: _____ Address: _____

_____ _____

Name _____ Name _____

Address: _____ Address: _____

_____ _____

Name _____ Name _____

Address: _____ Address: _____

_____ _____

Name _____ Name _____

Address: _____ Address: _____

_____ _____

I hereby certify under penalty of perjury that the foregoing is true:

Signature: _____ Date: 10/7/2020

By: Brian G. Lawrence
Title: President & CEO

FELLOWSHIP SENIOR LIVING, INC.
RESOLUTION

The undersigned, the Secretary of Fellowship Senior Living, Inc., a New Jersey nonprofit corporation (the "Corporation"), hereby certifies that the following is a resolution duly adopted by the Board of Trustees of the Corporation at a meeting thereof, that at such meeting a quorum was present and acting throughout, and that said copy has been compared by me with the original resolution and said copy is a true transcript therefrom and that such resolution has not been modified, amended or repealed and is in full force and effect of the date hereof

WHEREAS, the Board of Directors has determined that the Corporation may undertake various improvements to the Corporation's facilities (the "New Improvements") as follows:

- Construction of a trail walkway system that is on the ground and raised with seating areas and bird blinds through wetlands areas;
- Construction of a dog park;
- Construction of a seating area and fire pit in the spruce grove in Shiloh Court;
- Construction of a walkway and deck overlooking Ephesus pond;
- Construction of a shuffle board and bocce court on either side of the pool;
- Construction of a pickleball court behind the pool;
- Construction of a new building (approximately 14,500 square feet) with two floors consisting of a main level for a Fitness Center and a lower level (below grade) for a Salon/Spa;
- Construction of a woman's locker room to replace the former fitness center which will be modified for the new use and expanded by approximately 250 square feet;
- Renovation of apartment 2102 and the two pool bathrooms to accommodate the construction of a men's locker room – located generally opposite of the woman's locker room on the other side of the pool;
- Renovation of the existing medical center to accommodate the construction of a MediSpa;
- Relocation of the Art Studio to replace the former Salon/resident office; and
- Relocation of the medical center to the former activity room, store, card room, and billiard room.

RESOLVED, that the Corporation is authorized to undertake such improvements, investigations, and other actions as

are necessary or advisable to determine whether the Corporation shall undertake any or all of the New Improvements, including, without limitation, zoning analysis, site condition testing and evaluation, wetlands delineation and other environmental investigations, and architectural and cost review; and

RESOLVED, that the Corporation is hereby authorized to file such applications and permits and authorizations as are necessary or advisable for the New Improvements, including, without limitation, applications for site plan approval, wetlands delineation and building permits; and

RESOLVED, that the Corporation and the President, any Executive Vice President, any Vice President, the Treasurer, the Assistant Secretary and the Secretary of the Corporation (each an "Authorized Officer"), and each of them, are hereby authorized to execute and deliver all such certificates, documents, instruments and agreements necessary or advisable to carry out or implement the actions herein contemplated; and

RESOLVED, that this Resolution shall be filed in the Minute Book of the Corporation.

IN WITNESS WHEREOF, the undersigned has executed this Certification as of October 14, 2020.

Ann Marie Hurtado, Secretary

#707377v1

EXHIBIT C

OFFICE OF THE ASSESSOR

TOWNSHIP OF BERNARDS
ONE COLLYER LANE
BASKING RIDGE, NJ 07920
(908) 204-3082 Fax (908) 766-1644

*** 200 Foot Property Search ***

** VALID FOR 90 DAYS **

Date: 10/15/2020

Block:	9301	**Lot(s):**	33	**Qual:**	
Property Location:	33 Allen Rd				
Applicant:	Brendan J. Kelly, Esq				
Phone :	(973) 596-4771	**Fax:**	(973) 639-6289	**Email:**	bkelly@gibbonslaw.com

PROPERTY OWNER INFORMATION

Name:	Fellowship Senior Living, Inc
Address:	8000 Fellowship Rd
City, State, Zip:	Basking Ridge, NJ 07920

Due to the location of the referenced Block and Lot, the following Fire Company Should be notified: ➔ Liberty Corner Fire Company, P.O. Box 98, Church St., Liberty Corner, NJ 07938

Mail Report To:

Name:	Brendan J. Kelly, Esq
Address:	One Gateway Center
City, State, Zip:	Newark, NJ 07102

CERTIFIED BY: David Centrelli.

David Centrelli, Assessor - Township Of Bernards

Amount Paid: $10.00 **Paid By: Check (No. 95477)**

Bernards Township

Parcel Offset List

Target Parcel(s): Block-Lot: 9301-33
FELLOWSHIP SENIOR LIVING INC
33 ALLEN RD

20 parcels fall within 200 feet of this parcel(s).

Block-Lot: 11201-8
HBB PROPERTY LLC C/O ALLEN RD LLC
PO BOX 74
LIBERTY CORNER NJ 07938
RE: 50 ALLEN RD

Block-Lot: 9401-9
BRISTLECONE, INC.
P.O. BOX 328
LIBERTY CORNER NJ 07938
RE: 55 ALLEN RD

Block-Lot: 11201-9
JLJ PROPERTY INVESTMENTS LLC
2051 SE 3RD ST UNIT 508
DEERFIELD BEACH FL 33441
RE: 701 MARTINSVILLE RD

Block-Lot: 9204-2
BERNARDS TWP SEWERAGE AUTHORITY
MARTINSVILLE RD; BOX 247
LIBERTY CORNER NJ 07938
RE: 726 MARTINSVILLE RD

Block-Lot: 9301-35
LEONARDO, RAFAEL C & MILAGROS B
100 SHANNON HILL RD
BASKING RIDGE NJ 07920
RE: 100 SHANNON HILL RD

Block-Lot: 9301-34
SHANNON HILL FARMS HOMEOWNERS ASSOC
.
. 00000
RE: 102 SHANNON HILL RD

Block-Lot: 9401-7
SCHEHERAZADE ENTERPRISES INC
15 SHANNON HILL RD
BASKING RIDGE NJ 07920
RE: 15 SHANNON HILL RD

Block-Lot: 9301-36
BRADLEY,KENNETH O &ANDERSON,LYNNE A
92 SHANNON HILL RD
BASKING RIDGE NJ 07920
RE: 92 SHANNON HILL RD

Block-Lot: 9301-38
GALUSHA, CHRISTOPHER M & ALYSON E
80 SHANNON HILL RD
BASKING RIDGE NJ 07920
RE: 80 SHANNON HILL RD

Block-Lot: 9301-37
BARR, LARRY & JUNE
86 SHANNON HILL RD
BASKING RIDGE NJ 07920
RE: 86 SHANNON HILL RD

Block-Lot: 9301-39
BUWEN, JAMES & LEIGH
76 SHANNON HILL RD
BASKING RIDGE NJ 07920
RE: 76 SHANNON HILL RD

Block-Lot: 9301-40
KLIPPEL, JON & CROWE, MARGARET F
70 SHANNON HILL RD
BASKING RIDGE NJ 07920
RE: 70 SHANNON HILL RD

Block-Lot: 9301-32
FELLOWSHIP DEACONRY INC
PO BOX 204
LIBERTY CORNER NJ 07938
RE: 3575 VALLEY RD

Block-Lot: 9301-9.01
ENGLISH FARM ASSOCIATES, LP
PO BOX 183
LIBERTY CORNER NJ 07938
RE: 3613 VALLEY RD

Block-Lot: 9401-8
PINSON, ELLEN
658 HOYDEN HILL RD
FAIRFIELD CT 06824
RE: 99 ALLEN RD

Block-Lot: 9204-1
BRISTLECONE INC
PO BOX 328
LIBERTY CORNER NJ 07938
RE: 706 MARTINSVILLE RD

Block-Lot: 9204-2-CELL
BERNARDS TWP SEWERAGE AUTHORITY
MARTINSVILLE RD; BOX 247
LIBERTY CORNER NJ 07938
RE: 726 MARTINSVILLE RD

Block-Lot: 9401-7-Q0065
SCHEHERAZADE ENTERPRISES INC
PO BOX 139
LIBERTY CORNER NJ 07938
RE: 15 SHANNON HILL RD

Block-Lot: 9301-9.01-Q0012
ENGLISH FARM ASSOCIATES, LP
PO BOX 183
LIBERTY CORNER NJ 07938
RE: CHURCH ST

Block-Lot: 9401-8-Q0036
PINSON, ELLEN
658 HOYDEN HILL RD
FAIRFIELD CT 06824
RE: 99 ALLEN RD

OFFICE OF THE ASSESSOR

TOWNSHIP OF BERNARDS
ONE COLLYER LANE
BASKING RIDGE, NJ 07920
(908)-204-3082 FAX (908)-766-1644

200 FOOT PROPERTY SEARCH

List of names and addresses of all owners of property as shown on the current tax duplicate located within 200 feet of any part of the property affected by this application. The Township of Bernards accepts no liability for errors hereon. ***The attached list was compiled by the Engineering Department.***

If the property is within 200 feet of an adjoining municipality, the Township Clerk of that municipality should be notified. In addition, the applicant must also obtain the names and addresses of the owners of the land in such adjoining municipalities that are located within 200 feet of the subject premises.

The following is a list of utility companies located within Bernards Township. It is not to be construed as utilities being on or within 200 feet of the property being searched.

1. ALGONQUIN GAS TRANSMISSION CO
   1 Lindbergh Rd
   Stony Point, NY 10980
   (908) 757-1212

2. BELL ATLANTIC CORPORATION
   Secretary, 46th Floor
   1717 Arch
   Philadelphia, PA 19102

3. JCP & L/ GPU
   Service Tax Dept
   PO Box 1911
   Morristown, NJ 07962-1911

4. PUBLIC SERVICE ELECTRIC & GAS
   Manager – Corporate Properties
   80 Park Plaza, T6B
   Newark, NJ 07102

5. VERIZON COMMUNICATIONS
   Engineering
   290 W Mt Pleasant Ave; Ste 1400
   Livingston, NJ 07039-2763

6. NEW JERSEY AMERICAN WATER CO
   Donna Short, GIS Supervisor
   NJ-American Water Company, Inc.
   1025 Laurel Oak Rd
   Voorhees, NJ 08043

7. CABLEVISION OF RARITAN VALLEY
   275 Centennial Ave; CN6805
   Piscataway, NJ 08855
   Attn: Margurite Prenderville
   Construction Dept

8. BERNARDS TWP SEWERAGE ATHTY
   1 Collyer Ln
   Basking Ridge, NJ 07920
   (908) 204-3002

9. ENVIRONMENTAL DISPOSAL CORP
   William Halsey, President
   601 State Hwy 202/206
   Bedminster, NJ 07921
   (908) 234-0677

10. NEW JERSEY BELL TELEPHONE CO
    Edward D. Young III, Secretary
    Verizon Legal Dept.
    540 Broad St – Room 2001
    Newark, NJ 07101
    (201) 649-2233

11. TRANSCONTINENTAL GAS PIPELINE
    Division Office
    3200 S Wood Ave
    Linden, NJ 07036

12. VERIZON BUSINESS/MCI
    Right of Way Dept.
    2400 N Glenville Dr
    Richardson, TX 75082

PLEASE NOTE :
Numbers 1,3,4,5 and 7 are registered with the Township and REQUIRE NOTIFICATION

If the property is adjacent to a State Highway, the COMMISSIONER OF TRANSPORTATION must be notified at

NEW JERSEY DEPT OF TRANSPORTATION
1035 Parkway Ave., CN600
Trenton, NJ 08625

If the property is adjacent to a County Road, the SOMERSET COUNTY PLANNING BOARD must be notified at

SOMERSET COUNTY PLANNING BOARD
PO Box 3000
Somerville, NJ 08876

EXHIBIT D

Submit 3 copies TOTAL

FORM D

FORM TO BE SENT TO TAX COLLECTOR, ONE COLLYER LANE, BASKING RIDGE, NEW JERSEY, 07920 (908) 204-3078 FOR CERTIFICATION OF CURRENT PROPERTY TAX PAYMENTS. CERTIFICATION WILL BE MAILED TO YOU WHEN IT IS COMPLETED. DO NOT SUBMIT APPLICATION WITHOUT PROOF OF TAXES PAID.

CERTIFICATION OF CURRENT PROPERTY TAX PAYMENTS

BLOCK 9301 **LOT** 33

PROPERTY LOCATION: 8000 Fellowship Road

ASSESSED TO: Fellowship Senior Living, Inc.

ADDRESS: Same as above.

REQUESTED BY: Gibbons P.C. - Brendan J. Kelly, Esq.

PHONE NUMBER: 973-596-4771

MAIL CERTIFICATION TO: Gibbons P.C. One Gateway Center Newark, NJ 07102

Please also email, if possible, to bkelly@gibbonslaw.com and jsmith@gibbonslaw.com

I CERTIFY THAT THE PROPERTY TAXES ARE CURRENT, PAID THROUGH September 30, 2020

Peggy J. Warren

PEGGY WARREN,
TAX COLLECTOR

EXHIBIT E

Submit 21 copies TOTAL

FORM E

TOWNSHIP OF BERNARDS
PLANNING BOARD / BOARD OF ADJUSTMENT

SITE INSPECTION CONSENT FORM

Applicant: Fellowship Senior Living, Inc. **Application:** Minor Site Plan

Block: 9301 **Lot:** 33

Street Address: 8000 Fellowship Road

I, Brian G. Lawrence, President and CEO of Fellowship Senior Living, Inc., who is the owner of the above property, hereby acknowledge that, upon determination of completeness of the application, a site inspection may be scheduled with the Board for a mutually convenient date and time. I hereby authorize members of the Planning Board/Board of Adjustment and their representatives and consultants to enter onto the property at the time of the site inspection for the purpose of evaluating the application.

Signature: Brian G. Lawrence **Date:** 11/23/20

By: Brian G. Lawrence
Title: President & CEO

EXHIBIT F

Submit 21 copies TOTAL FORM F

ADDENDUM TO THE BERNARDS TOWNSHIP PLANNING BOARD APPLICATION

APPROVALS REQUIRED BY LOCAL, COUNTY, STATE AND OTHER AGENCIES

PERMITS	APPLICABLE	N/A	PENDING	RECEIVED
Somerset County Planning Bd.***	✓			
Somerset County Road Opening Permit		✓		
Bernards Sewerage Authority		✓		
NJDEP: a) Stream encroachment		✓		
b) Filing Floodplain		✓		
c) Other	✓			
Army Corp of Engineers:		✓		
a) Section 404		✓		
b) Other		✓		
NJDOT:		✓		
a) Road opening permit		✓		
b) Drainage permit		✓		

***** All applications for subdivision or site plan, whether Preliminary, Final, Minor or Major, must be submitted to Somerset County Planning Board by the applicant and proof of submittal must be received by Bernards Township prior to the scheduling of the application for the first hearing before the Bernards Township Planning Board.**

D J Flanagan 24GE03321600 12/15/2020

Applicant's Engineer **PE Number** **Date**

EXHIBIT G

Submit 21 copies TOTAL FORM G

TOWNSHIP OF BERNARDS
APPLICATION FOR TREE REMOVAL PERMIT

DATE: 10/07/2020

1. **Name and address of the owner of the premises and status of legal entity (individual, partnership, corporation of this or any other state, etc.)** Fellowship Senior Living, Inc. / 501 c(3) non-proit corporation
8000 Fellowship Road Basking Ridge, NJ 07920

2. **Status of the applicant with respect to land (owner, lessee, tenant, purchaser, under contract, etc.)** Owner

3. **Name and address of the applicant for the permit if other than the owner (attach owner's written consent)**

4. **Description of the premises where tree removal is to take place, including lot and block numbers and street address**
8000 Fellowship Road Basking Ridge, NJ 07920 / Block 9301 Lot 33
Back of Community Center of Fellowship Village flanked by Health Center and Residential Building

5. **A list of all trees to be removed with a DBH equal to or greater than six inches identified by size and species, including total number of each species to be removed (attach separate sheet if necessary)** (6) 10" Pin Oak Trees, (1) 6" Crabapple Tree

6. **Purpose for tree removal (construction, street or roadway, driveway, utility easement, recreation areas, patio, parking lot, etc.)**
Construction of Fitness Center and Salon/Spa

7. **Proof that there are no delinquent property taxes or assessments due on the property for which the application is submitted (attach certification from tax collector).**

8. **Trees that had been removed within the past two years** Covered under separate previous permitting activities and/or N/A.

EXHIBIT H

Submit 3 copies TOTAL

FORM H

TOWNSHIP OF BERNARDS
PLANNING BOARD / BOARD OF ADJUSTMENT

CONTRIBUTION DISCLOSURE STATEMENT

Contribution Disclosure Statement Required. Pursuant to Bernards Township Ordinance Section 21-7A (Ordinance #1745, adopted October 26, 2004), Contribution Disclosure Statements are required for certain types of development applications that include a request for a variance or other relief. When required, a Contribution Disclosure Statement must be submitted by all applicants and property owners, as well as all professionals who apply for or provide testimony, plans or reports in support of the application. See Section 21-7A for details.

Applicant: Fellowship Senior Living **Application:** _____

Pursuant to Bernards Township Ordinance Section 21-7A, I hereby certify that I, or the firm or entity with which I am associated, made the following contributions to or on behalf of a candidate, candidate committee, joint candidates committee, political committee, continuing political committee or political party committee of, or pertaining to, the Township of Bernards, within one year prior to the filing of the above application.

[✓] I made no contributions.

[ ] I made the following contributions:

Date:_____ Amount:_____ Recipient: _____
Date:_____ Amount:_____ Recipient: _____
Date:_____ Amount:_____ Recipient: _____
Date:_____ Amount:_____ Recipient: _____

Signature: _____ **Date:** 10/07/20

Name: Rick Ricciardi
Title: President
Firm: Marathon Engineering & Environmental Services, Inc.
Address: 3 Killdeer Court, Suite 302
Swedesboro, NJ 08085

Submit 3 copies TOTAL

FORM H

TOWNSHIP OF BERNARDS
PLANNING BOARD / BOARD OF ADJUSTMENT

CONTRIBUTION DISCLOSURE STATEMENT

Contribution Disclosure Statement Required. Pursuant to Bernards Township Ordinance Section 21-7A (Ordinance #1745, adopted October 26, 2004), Contribution Disclosure Statements are required for certain types of development applications that include a request for a variance or other relief. When required, a Contribution Disclosure Statement must be submitted by all applicants and property owners, as well as all professionals who apply for or provide testimony, plans or reports in support of the application. See Section 21-7A for details.

Applicant: Fellowship Senior Living, Inc. Application: _____

Pursuant to Bernards Township Ordinance Section 21-7A, I hereby certify that I, or the firm or entity with which I am associated, made the following contributions to or on behalf of a candidate, candidate committee, joint candidates committee, political committee, continuing political committee or political party committee of, or pertaining to, the Township of Bernards, within one year prior to the filing of the above application.

[✓] I made no contributions.

[ ] I made the following contributions:

Date:_____ Amount:_____ Recipient: _____
Date:_____ Amount:_____ Recipient: _____
Date:_____ Amount:_____ Recipient: _____
Date:_____ Amount:_____ Recipient: _____

Signature: Brian Lawrence Date: 11/23/20
Name: Brian G. Lawrence
Title: President & CEO
Firm: Fellowship Senior Living
Address: 8000 Fellowship Road
Basking Ridge, NJ 07920

Submit 3 copies TOTAL

FORM II

TOWNSHIP OF BERNARDS
PLANNING BOARD / BOARD OF ADJUSTMENT

CONTRIBUTION DISCLOSURE STATEMENT

Contribution Disclosure Statement Required. Pursuant to Bernards Township Ordinance Section 21-7A (Ordinance #1745, adopted October 26, 2004), Contribution Disclosure Statements are required for certain types of development applications that include a request for a variance or other relief. When required, a Contribution Disclosure Statement must be submitted by all applicants and property owners, as well as all professionals who apply for or provide testimony, plans or reports in support of the application. See Section 21-7A for details.

Applicant: Fellowship Senior Living Inc. **Application:** _____

Pursuant to Bernards Township Ordinance Section 21-7A, I hereby certify that I, or the firm or entity with which I am associated, made the following contributions to or on behalf of a candidate, candidate committee, joint candidates committee, political committee, continuing political committee or political party committee of, or pertaining to, the Township of Bernards, within one year prior to the filing of the above application.

[X] **I made no contributions.**

[ ] **I made the following contributions:**

Date:_____ **Amount:**_____ **Recipient:** _____
Date:_____ **Amount:**_____ **Recipient:** _____
Date:_____ **Amount:**_____ **Recipient:** _____
Date:_____ **Amount:**_____ **Recipient:** _____

Signature: _____ **Date:** 10/8/2020
Name: DAVID FOWLES
Title: PRINCIPAL
Firm: KDA ARCHITECTS
Address: 227 LAUREL RD
SUITE 200
VOORHEES, NJ
08043

SUBMIT ORIGINAL + 2 COPIES

FORM H

TOWNSHIP OF BERNARDS
PLANNING BOARD/ZONING BOARD OF ADJUSTMENT

CONTRIBUTION DISCLOSURE STATEMENT

Contribution Disclosure Statement Required. Pursuant to Bernards Township Ordinance Section 21-7A (Ordinance #1745, adopted October 26, 2004), Contribution Disclosure Statements are required for certain types of development applications that include a request for a variance or other relief. When required, a Contribution Disclosure Statement must be submitted by all applicants and property owners, as well as all professionals who apply for or provide testimony, plans or reports in support of the application. See Section 21-7A for details.

Applicant: Fellowship Senior Living Inc.

Pursuant to Bernards Township Ordinance Section 21-7A, I hereby certify that I, or the firm or entity with which I am associated, made the following contributions to or on behalf of a candidate, candidate committee, joint candidates committee, political committee, continuing political committee or political party committee of, or pertaining to, the Township of Bernards, within one year prior to the filing of the above application.

[✓] I made no contributions.

[ ] I made the following contributions:

Date:_____ Amount:_____ Recipient: _____
Date:_____ Amount:_____ Recipient: _____
Date:_____ Amount:_____ Recipient: _____
Date:_____ Amount:_____ Recipient: _____

Signature: Jennifer Phillips Smith Date: 10/8/2020
Name: Jennifer Phillips Smith
Title: Director
Firm: Gibbons PC
Address: One Gateway Center
Newark, NJ 07102

Rev 01-01-18

EXHIBIT I

PUBLIC NOTICE

PLEASE TAKE NOTICE THAT the Planning Board of the Township of Bernards (the "Board") will hold a hearing on _____ at 7:30 PM at the Municipal Building, located at 1 Collyer Lane, Basking Ridge, New Jersey 07920 for the purposes of reviewing and taking action upon the application of Fellowship Senior Living, Inc. ("Applicant"), for preliminary and final site plan approval (the "Application") for the development of certain property having a street address of 8000 Fellowship Road, known on the tax maps as Block 9301, Lot 33 (the "Property"). Fellowship Village, a continuing care retirement community, currently operates at the Property. The Property is located within the R-2 residential zoning district, where Fellowship Village is a permitted conditional use.

Applicant is seeking preliminary and final major site plan approval in connection with proposed improvements to Fellowship Village. Applicant proposes to construct a new fitness center and salon addition, and add certain outdoor improvements. Applicant proposes the construction of a new, two-floor, 14,447 square foot structure to serve as a fitness center and salon. This addition will be connected to the main floor of the existing community center, with the main level serving as the fitness center and the lower, below grade level serving as the salon. Applicant additionally proposes minor expansions of the men's and women's changing/bathrooms, which are currently on one side of the existing pool. Applicant proposes to expand the men's changing/bathroom by incorporating the existing area of an adjacent apartment unit, and expand the women's changing/bathroom through a small, 180 s.f. addition.

Applicant proposes outdoor improvements, including approximately ¼ miles of 5' wide gravel paths and 5' wide elevated walkways within the conservation easement and wetlands area of the Property. The elevated walkway is proposed over the wetland area, and Applicant is also proposing semi-enclosed observation decks along the elevated walkway trail to serve as bird blinds and sitting areas.

Applicant additionally proposes to add an enclosed dog park in the upland area outside of the conservation area just off the loop walkway and access driveway at the Property. Further, Applicant proposes pickleball, bocce ball, and shuffleboard courts near the existing pool and renovated clubrooms.

Finally, Applicant proposes certain improvements to "Spruce Grove" and Ephesus Pond. Spruce Grove is a shady grove of mature spruce trees at the Property, and Applicant proposes to add sitting areas, replace the existing paths, add stone piers at the entrances, and add low level illumination. As to Ephesus Pond, Applicant proposes to add a 14' x 16' deck at the edge of the pond that will include some low level illumination on the deck surface.

Applicant does not request any variances as part of the Application, and the Application complies with the applicable conditional use requirements.

Applicant seeks any variances, deviations, design exceptions/waivers, submission waivers, interpretations, modifications of prior imposed conditions, and other approvals reflected on the filed plans (as same may be further amended from time to time without further notice) and as may be determined to be necessary during the review and processing of the Application.

The meeting will be held in person in the Warren Craft Meeting Room within the Municipal Building. In addition, the public will be able to view the meetings live on Optimum/Cablevision TV Channel 15 and Verizon FIOS TV Channel 35, and the meetings will also be streamed live for those interested in watching on their computers. The link to access the stream will be available at 7:30 PM by clicking on the "Watch the Meeting Live" icon on the Bernards Township website homepage. Questions and comments from the public will be accepted only during the public questions and comments periods of the meeting. Those questions or comments may be offered in person at the hearing or by calling 908-202-6426. If you are calling in, please turn off your computer/television and use Google "Duo" for your call. You will be required to provide your name and address and be sworn in prior to making comments.

When the Application is called, interested parties may appear at the hearing or any adjournment thereof either in person or by attorney, ask questions, and present evidence and offer statements or documentation that may be relevant to the Application. Interested parties may attend the in-person meeting or participate virtually using the procedures outlined in the previous paragraph. The hearing may be continued without further notice on such additional or other dates as the Board may determine.

The Application, maps, plans and related supporting materials are on file with the Board at its office in the Municipal Building, 1 Collyer Lane, Basking Ridge, New Jersey 07920. Any individual seeking to review copies of such application materials should contact the Board Secretary, Cyndi Kiefer, at 908-204-30226, Monday through Friday, 8:30AM to 4:30PM.

Fellowship Senior Living, Inc.
By: Jennifer Phillips Smith, Esq.
GIBBONS P.C.
One Gateway Center
Newark, New Jersey 07102
(973) 596-4477

EXHIBIT J

FEE AND ESCROW CALCULATIONS

Fellowship Senior Living, Inc.
Preliminary and Final Major Site Plan Approval and Conditional Use Approval

Application Fees

Based on New Addition of 14,447 s.f. on the 72.569 acre property

Preliminary Major Site Plan *$500 + .02/s.f. of building floor area +$25/acre	$2,603.17
Final Major Site Plan *$300 + $.01/s.f. of building floor area +$25/acre	$2,258.70
Conditional Use *$250 + $.10/s.f. of conditional use building	$1,694.70
TOTAL	$6,556.57
MINUS (Nonprofit organization waiver) *1/2 fee	- $3,278.29
TOTAL APPLICATION FEES	***$3,278.29***

Escrow Deposit

Preliminary Major Site Plan *$2,500 + .03/s.f. of building floor area + $25/acre	$4,747.64
Final Major Site Plan	$1,500.00
Conditional Use	$500.00
TOTAL ESCROW DEPOSIT	***$6,747.64***

EXHIBIT K

GIBBONS

Fellowship Senior Living, Inc.
Block 9301, Lot 33

List of Professionals

November 24, 2020

- Bill Schramm
  KDA Architects
  One Echelon Plaza
  227 Laurel Rd., Suite 200
  Voorhees, NJ 08043
  Phone: 856-770-1060
  Email: schramm@kd-arch.com

- David Fowles
  KDA Architects
  One Echelon Plaza
  227 Laurel Rd., Suite 200
  Voorhees, NJ 08043
  Phone: 856-770-1060
  Email: fowles@kd-arch.com

- Rick Ricciardi
  Marathon Engineering & Environmental Services, Inc.
  3 Killdeer Court, Suite 302
  Swedesboro, New Jersey 08085
  Phone: 856-241-9705
  Email: RRicciardi@marathonconsultants.com

- Albie Day
  Marathon Engineering & Environmental Services, Inc.
  3 Killdeer Court, Suite 302
  Swedesboro, New Jersey 08085
  Phone: 856-241-9705
  Email: Albie.day@marathonconsultants.com

EXHIBIT L

GIBBONS

Fellowship Senior Living, Inc.
Block 9301, Lot 33

List of Prior Approvals

October 29, 2020

Below is a list of prior approvals concerning the Property to which Applicant has knowledge:

- 5/18/1993 - Preliminary and Final Site Plan Approval and Conditional Use application.
- 5/17/1994 – Amended Final Site Plan Approval.
- 2/3/1998 – Amended Preliminary and Final Site Plan Approval and Preliminary and Final Major Subdivision.
- 5/8/2007 – Amended Preliminary and Final Site Plan Approval for addition, car pavilion and increased parking.
- 4/7/2009 – Amended Preliminary and Final Site Plan Approval to enclose porches and solar roof panels.
- 6/27/2010 – Amended Preliminary and Final Site Plan Approval for expansion of dining room facilities.
- 10/18/2016 – Preliminary and Final Site Plan Approval, Conditional Use Approval, and Modification of Prior Approval for expansion of community center, health center, reconfiguration and expansion of parking areas for those center, and addition of two underground stormwater detention systems and modifications to stormwater retention basin located south of health center.
    - A copy of the memorializing resolution is attached.

Stormwater Management Facilities Maintenance Manual

Inspection, Maintenance and Control Plan

For

Fellowship Senior Living, Inc.
PROPOSED FITNESS CENTER EXPANSION & REC. AREAS

Block 9301, Lot 33
Basking Ridge / Township of Bernards
Somerset County, New Jersey

November 23, 2020

Prepared for:
Fellowship Senior Living, Inc.
8000 Fellowship Road
Basking Ridge, NJ 07920

Prepared by:
Marathon Engineering & Environmental Services, Inc.
3 Killdeer Court, Suite 302
Swedesboro, New Jersey 08085
856-241-9705

David J. Fleming, P.E.
Professional Engineer
New Jersey License No. 24GE03321600
Certificate of Authorization No. 24GA2799570

MARATHON
Engineering & Environmental Services

INSPECTION AND MAINTENANCE CONTROL PLAN FOR
CJ TMI / PROPOSED BUILDING EXPANSION

PROJECT INFORMATION

a) DRAWINGS OF STORMWATER MANAGEMENT MEASURES

The proposed Facility's Stormwater Management Plans are included in its Preliminary and Final Site Development Plans which are included herein by reference.

b) LOCATION OF STORMWATER MANAGEMENT MEASURES BY MEANS OF LATITIUDE AND LONGITUDE AND BLOCK AND LOT:

The proposed Facility's Best Management Practices Stormwater Management Facility is located on Block 9301, Lot 33 in the Township of Bernards, New Jersey. The center of the proposed facility is approximately:

LAT: 40° 34' 25.70" LONG: -74° 34' 58.42"

c) PREVENTATIVE CORRECTIVE MAINTENANCE TASKS AND SCHEDULES:

Refer to SECTION III for Summary of Maintenance Procedures.

d) COST ESTIMATE:

Refer to SECTION IV, Cost of Stormwater Management Facility Maintenance Tasks

e) NAME OF PERSON RESPONSIBLE FOR INSPECTIONS AND MAINTENANCE:

Company / Individual: Fellowship Senior Living, Inc.
Chris Black—(908-580-3800)

Address: 8000 Fellowship Road
Basking Ridge, NJ 07920

PREVENTATIVE MAINTENANCE PROCEDURES

I. OBJECTIVES

The purpose of this preventative maintenance schedule is to assure that the Stormwater Management Facility (SWMF) remains operational and safe at all times, while minimizing the need for emergency or corrective procedures.

II. OVERVIEW

This comprehensive Stormwater Management Maintenance Program is comprised of several related requirements including:

1. Providing adequate funding, staffing, equipment, and materials.
2. Performing routine maintenance procedures on a regular basis.
3. Performing emergency maintenance procedures and repairs in a timely manner.
4. Conducting SWMF inspections to determine the need for and effectiveness of the maintenance work.
5. Providing training and instruction to maintenance personnel and inspectors.
6. Conducting periodic program reviews and evaluations to determine the overall effectiveness of the maintenance programs and the need for revised or additional maintenance procedures, personnel, and equipment.
7. Instilling pride of workmanship and a commitment to excellence in program personnel.

III. SUMMARY OF MAINTENANCE PROCEDURES

A. PREVENTATIVE MAINTENANCE PROCEDURES

1. Grass Cutting

A regularly scheduled program of mowing and trimming of the grass at SWMF during the growing season will help to maintain a tightly knit turf and will also help to prevent diseases, pests, and the intrusion of weeds. The actual mowing requirements of an area should be tailored to the specific site conditions, grass type, and seasonal variations in the climate. In general, grass should not be allowed to grow more than 1 to 2 inches between cuttings. Allowing the grass to grow more than this amount prior to cutting it may result in damage to the grass growing points and limit its continued healthy growth. At a minimum, once per month (if needed) mow the side slopes and berm area of the basin. Agencies such as the Somerset County Soil Conservation District can provide valuable assistance in determining optimum mowing requirements.

2. Grass Maintenance

Grassed areas require periodic fertilizing, de-thatching, and soil conditioning in order to maintain healthy growth. Additionally, provisions should be made to re-seed and re-establish grass cover in areas damaged by sediment accumulation, stormwater flow, or other causes. Agencies such as the Somerset County Soil Conservation District can provide valuable assistance in establishing a suitable grass maintenance program.

3. Vegetative Cover

Trees, shrubs, and ground cover require periodic maintenance, including fertilizing, pruning, and pest control in order to maintain healthy growth. Agencies such as the Somerset County Soil Conservation District can be of assistance in establishing a preventative maintenance program.

4. Removal and Disposal of Trash and Debris

A regularly scheduled program of debris and trash removal from SWMFs will reduce the chance of the spillway and other basin components becoming clogged and inoperable during storm events. Additionally, removal of trash and debris will prevent possible damage to vegetated areas and eliminate potential mosquito breeding habitats. Disposal of debris and trash must comply with all local, county, state, and federal waste flow control regulations. Only suitable disposal and recycling sites should be utilized. Agencies such as the Division of Solid Waste Management of the New Jersey Department of Environmental Protection should be contacted for information on disposal regulations.

5. Sediment Removals and Disposal

Accumulated sediment should be removed before it threatens the operation or storage volume of a SWMF. Disposal of sediment must comply with all local, county, state, and federal regulations. Only suitable disposal sites should be utilized. The sediment removal program in infiltration facilities must also include provisions for monitoring the porosity of the sub-base, and replacement or cleansing of the pervious materials as necessary. Agencies such at the Division of Soil Waste Management of the New Jersey Department of Environmental Protection should be contacted for information on disposal regulations.

6. Elimination of Potential Mosquito Breading Habitats

The most effective mosquito control program is one that eliminates potential breeding habitats. Almost any stagnant pool of water can be attractive to mosquitoes, and the source of a large mosquito population. Ponded water in areas such as open cans and bottles, debris and sediment accumulations and areas of ground settlement provide ideal locations for mosquito breeding. A maintenance program dedicated to eliminating potential breeding areas is certainly preferable to controlling the health and nuisance effects of flying mosquitoes. The Somerset County Mosquito Control Commission can provide valuable information on establishing this maintenance program.

7. Basin Maintenance

A program of monitoring the proper functioning of the infiltration basin should be established. Silt and or sediment accumulation, vegetative growth, and animal populations should be monitored on a regular basis. The timely removal of silt or sediment accumulation, proper mowing of grass and observation of animal damage can prevent more serious problems from occurring. After every storm exceeding one (1) inch of rainfall: Ensure that complete infiltration will occur within the required seventy-two (72) hour time period. If stored water fails to infiltrate seventy-two (72) hours after the end of the storm, corrective measures shall be taken. Raking or tilling by light equipment can assist in maintaining infiltration capacity and break up clogged surfaces.

As a minimum, four (4) times per year (quarterly): Inspect for clogging and excessive debris and sediment accumulation. Remove sediment (if needed) when basin is completely dry.

As a minimum, two (2) times per year: Inspect for signs of damage to structures, repair eroded areas, check for signs of petroleum contamination and remediate.

As a minimum, once per year: Inspect basin for unwanted tree growth and remove as necessary, disc or otherwise aerate the bottom of the basin to a minimum depth of six (6) inches.

After every storm exceeding one (1) inch of rainfall, inspect and, if necessary, remove and replace the K5 sand layer and accumulated sediment, to restore the original infiltration rate.

7A. Drainage piping and structures

All structural components must be inspected, at least once annually , for cracking, subsidence, spalling, erosion and deterioration. Any structural defeciencies shall be addressed in a timely manner.

Components expected to receive and/or trap debris and sediment must be inspected for clogging at least four times annually, as well as after every storm exceeding 1” of rainfall.

Disposal of debris, trash, sediment and other waste material must be done at suitable disposal/recycling sites and in compliance with all applicable local, state and federal waste regulations.

8. Inspection

Regularly scheduled inspections of the SWMF should be performed by qualified inspectors. The primary purpose of the inspections is to ascertain the operational condition of embankments, outlet structure, and other safety-related aspects. Inspections will also provide information on the effectiveness of regularly scheduled preventative and aesthetic maintenance procedures and will help to identify where changes are warranted. Finally, the facility inspections should be used to determine the need for and timing of corrective maintenance procedures. In addition to regularly scheduled

inspections, an informal inspection should be performed during every visit to a SWMF by maintenance or supervisory personnel. An inspection checklist and is included as part of this maintenance plan. See Infiltration Basin Maintenance for regularly scheduled maintenance inspection times.

9. Reporting

The recording of all maintenance work and inspections provide valuable data on the SWMF condition. Along with the written reports, a chain of command for reporting and solving maintenance problems and addressing maintenance needs should be established. All inspection reports and records shall be retained on-site for a minimum of five (5) years.

B. CORRECTIVE MAINTENANCE PROCEDURES

1. Removal of Debris and Sediment

Sediment, debris, and trash should be removed immediately and properly disposed of in a timely manner. At a minimum, once per month (if needed) remove litter and debris. Equipment and personnel must be available to perform the removal work on short notice. The lack of an available disposal site should not delay the removal of trash, debris, and sediment. Temporary disposal sites may be utilized if necessary.

2. Structural Repairs

Structural damage to outlet and inlet structures, piping and headwalls from vandalism, flood events, or other causes must be repaired promptly. At a minimum, once per month (if needed) stabilize eroded banks and repair erosion at structures. Equipment, material, and personnel must be available to perform these repairs on short notice. The analysis of structural damage and the design and performance of structural repairs shall only be undertaken by qualified personnel.

3. Embankment and Slope Repairs

Damage to embankments, and side slopes must be repaired promptly. At a minimum, once per month (if needed) stabilize eroded banks. Typical problems include settlement, scouring, cracking, sloughing, seepage and rutting. Equipment, materials and personnel must be available to perform these repairs on short notice. The immediacy of the repairs will depend upon the nature of the damage and its effects on the safety and operation of the facility. The analysis of damage and the design and performance of geotechnical repairs should only be undertaken by qualified personnel.

4. Dewatering

It may be necessary to remove ponded water from within a malfunctioning SWMF. This ponding may be the result of a blocked principal outlet (detention facility), inoperable low level outlet (retention facility), loss of infiltration capacity (infiltration facility), or poor bottom drainage. Portable pumps may be necessary to remove the ponded water temporarily until a permanent solution can be implemented.

5. Extermination of Mosquitoes

If neglected, a SWMF can readily become an ideal mosquito breeding area. Extermination of mosquitoes will usually require the services of an expert, such as the Somerset County Mosquito Commission. Proper procedures carried out be trained personnel can control the mosquitoes with a minimum of damage or disturbance to the environment. If mosquito control in a facility becomes necessary, the preventative maintenance program should be re-evaluated, and more emphasis placed on control of mosquito breeding habitats.

6. Erosion Repair

Vegetative cover or other protective measures are necessary to prevent the loss of soil from the erosive forces of wind and water. Where a re-seeding program has not been effective in maintaining a non-erosive vegetative cover, or other factors have exposed soils, to erosion, corrective steps should be initiated to prevent further loss of soil and any subsequent danger to the stability of the facility. Soil loss can be controlled by a variety of materials and methods, including riprap, gabion lining, sod, seeding, concrete lining, and re-grading. The Somerset County Conservation District can provide assistance in recommending materials and methodologies to control erosion.

7. Elimination of Trees, Brush, Roots, and Animal Burrows

Large roots can impair the stability of dams, embankments and side slopes and animal burrows. Burrows can present a safety hazard for maintenance personnel. Trees and brush with extensive woody root systems should be completely removed from dams and embankments to prevent their destabilization and the creation of seepage routes. Roots should also be completely removed to prevent their decomposition within the dam or embankment. Root voids and burrows should be plugged by filling with material similar to the existing material, and capped just below grade with stone, concrete, or other material. If plugging of the burrows does not discourage the animals form returning, further measures should be taken to either remove the animal population or to make critical areas of the facility unattractive to them.

8. Snow and Ice Removal

Accumulations of snow and ice can threaten the functioning of a SWMF, particularly at inlets, outlets, and emergency spillways. Providing the equipment, materials, and personnel to monitor and remove snow and ice from these critical areas is necessary to assure the continued functioning of the facility during the winter months.

C. AESTHETIC MAINTENANCE PROCEDURES

1. Grass Trimming

Trimming of the grass edges around structures will provide for a neat and attractive appearance of the facility. At a minimum, once per month (if needed) mow the side slopes and berm area of the basin.

2. Control of Weeds

Although a regular grass maintenance program will keep weed intrusion to a minimum, some weeds will appear. Periodic weeding, either chemically or mechanically, will not only help to maintain a healthy turf, but will also keep grassed areas attractive.

3. Details

Careful, meticulous and frequent attention to the performance of maintenance items such as painting, tree pruning, leaf collection, debris removal, and grass cutting will result in a SWMF that remains both functional and attractive.

D. CHECKLISTS AND LOGS

Included in this report are Tables and Sample Checklists and Logs regarding various aspects of SWMF maintenance and inspection.

III. MAINTENANCE EQUIPMENT AND MATERIALS

A. GRASS MAINTENANCE EQUIPMENT

1. Tractor-Mounted Mowers
2. Riding Mowers
3. Hand Mowers
4. Gas Powered Trimmers
5. Gas Powered Edgers
6. Seed Spreaders
7. Fertilizer Spreaders
8. De-Thatching Equipment
9. Pesticide and Herbicide Application Equipment
10. Grass Clipping and Leaf Collection Equipment

B. VEGETATIVE COVER MAINTENANCE EQUIPMENT

1. Saws
2. Pruning Shears
3. Hedge Trimmers
4. Wood Chippers

C. TRANSPORTATION EQUIPMENT

1. Trucks for Transportation of Materials
2. Trucks for Transportation of Equipment
3. Vehicles for Transportation of Personnel

D. DEBRIS, TRASH AND SEDIMENT REMOVAL EQUIPMENT

1. Loader
2. Backhoe
3. Grader

E. MISCELLANEOUS EQUIPMENT

1. Shovels
2. Rakes
3. Picks
4. Wheelbarrows
5. Fence Repair Tools
6. Painting Equipment
7. Gloves
8. Standard Mechanics Tools
9. Tools for Maintenance of Equipment
10. Office Space
11. Office Equipment
12. Telephones
13. Safety Equipment
14. Tools for Concrete Work (Mixers, Form Materials, etc.)
15. Welding Equipment (for Repair of Trash Racks, etc.)

F. MATERIALS

1. Topsoil
2. Fill
3. Seed
4. Soil Amenities (Fertilizer, Lime, etc.)

5. Chemicals (Pesticides, Herbicides, etc.)
6. Mulch
7. Spare Parts for Equipment
8. Oil and Grease for Equipment and SWMF Components
9. Concrete

III. SWMF MAINTENANCE EQUIPMENT AND MATERIAL COSTS

This estimate is taken from NJDEP Stormwater Management Facilities Manual Table 6-1:

GRASS MAINTENANCE EQUIPMENT

	Purchase (dollars)	Rent (per day) (dollars)
Hand Mower	300 - 500	25 - 40
Riding Mower	3,000 - 5,000	75 - 100
Tractor Mower	15,000 - 20,000	100 - 300
Trimmer / Edger	200 - 500	25 - 35
Spreader	100 - 200	20 - 30
Chemical Sprayer	200 - 500	25 - 40

VEGETATIVE COVER MAINTENANCE EQUIPMENT

	Purchase (dollars)	Rent (per day) (dollars)
Hand Saw	15	5
Chain Saw	300 - 500	15 - 35
Pruning Shears	25	5
Shrub Trimmer	200	25 - 35
Brush Chipper	1,000 - 5,000	50 - 150

TRANSPORTATION EQUIPMENT

	Purchase (dollars)	Lease (per month) (dollars)	Rent (per day) (dollars)
Van	10,000 - 15,000	400	50 - 70
Pickup Truck	10,000 - 15,000	400	50 - 70
Dump Truck	30,000 - 50,000	1,200	75 - 150
Light Duty Trailer	3,000 - 5,000	150	30 - 50
Heavy Duty Trailer	10,000 - 20,000	500	100 - 200

DEBRIS, TRASH AND SEDIMENT REMOVAL EQUIPMENT

	Purchase (dollars)	Lease (per month) (dollars)	Rent (per day) (dollars)
Front End Loader	50,000 - 100,000	1,500 - 2,000	200 - 400
Backhoe	30,000 - 50,000	1,200	150 - 300
Excavator	100,000+	2,000	400 - 1,000
Grader	100,000+	2,000	400 - 1,000

MISCELLANEOUS EQUIPMENT

	Purchase (dollars)	Rent (per day) (dollars)
Shovel	15	5
Leaf Rake	15	5
Soil Rake	15	5
Pick	15	5
Wheelbarrow	100 - 200	10
Gloves	5	N /A
Portable Compressor	500 - 1,000	50 - 100
Portable Generator	500 - 1,000	50 - 100
Concrete Mixer	500 - 1,000	25 - 50
Welding Equipment	500 - 1,500	35 - 70

MATERIALS

	Purchase (dollars)
Topsoil	35 / cubic yard
Fill Soil	15 / cubic yard
Grass Seed	5 / pound
Soil Amenities (Fertilizer, Lime, etc)	0.05 / sq ft
Chemicals (Pesticides, Herbicides, etc)	10 / gallon
Mulch	25 / cubic yard
Machine / Motor Lubricants	5 / gallon
Dry Mortar Mix	4 / 50 pound bag
Concrete Delivered to Site	60 – 100 / cubic yard

Notes:

1. This estimate is an approximation of the probable construction cost in 2019 dollars. It is based upon previous construction experience and should be used as an approximate budget figure only. Marathon Engineering and Environmental Services, Inc. cannot and does not guarantee that proposals, bids, or actual costs will not vary from this opinion of probable cost.

2. Estimated equipment costs are based upon Industrial / Commercial grade equipment.

IV. COST OF SWMF MAINTENANCE TASKS

Taken from NJDEP Stormwater Management Facilities Manual Table 6-2

PREVENTATIVE MAINTENANCE TASKS

	Small Facility (Man-Hours)	Large Facility (Man-Hours)
Grass Cutting	1	1 – 2
Grass Maintenance	0.5	1
Trash & Debris Removal	0.5	1
Sediment Removal	4	8
Mobilization	1	1
Inspection & Reporting	1	2

CORRECTIVE MAINTENANCE TASKS

	Small Facility (Man-Hours)	Large Facility (Man-Hours)
Trash & Debris Removal	4	8
Structural Repairs	2-4	40
Dewatering	4	8
Mosquito Extermination	1	2-4
Erosion Repair	4	8
Snow & Ice Removal	1	2
Mobilization	2	2

AESTHETIC MAINTENANCE TASKS

	Small Facility (Man-Hours)	Large Facility (Man-Hours)
Grass Trimming	0.5	2
Weed Control	0.5	2
Landscape Maintenance	1 - 2	2 – 4

Notes:

1. This estimate is an approximation of the man-hours as provided in the NJDEP Stormwater Facility Maintenance Manual. It is based upon previous construction experience and should be used as an approximate budget figure only. Marathon Engineering and Environmental Services, Inc. cannot and does not guarantee that proposals, bids, or actual costs will not vary from this opinion of probable cost.

2. Cost estimates are presented in terms of man-hours. These values should be used in conjunction with applicable personnel rates to determine labor costs for a specific program or facility.

V. MAINTENANCE AND INSPECTION LOGS AND CHECKLISTS

Maintenance Work Order and Checklist for Stormwater Maintenance Facilities

Name of Facility: _____

Location: _____ Date: _____

Crew:			**Work Started:**		**Time:**	
Equipment:			**Work Completed:**		**Time:**	
Weather:			**Total Man-hours for Work::**			

A. Preventative Maintenance

1. Grass Cutting	Items Required √	Items Done √	Comments and Special Instructions
A. Swales and Grass Areas			
B. Embankments and Side Slopes			
C. Perimeter Areas			
D. Access Areas and Roads			
E. Other			

2. Grass Maintenance	Items Required √	Items Done √	Comments and Special Instructions
A. Fertilizing			
B. Re-Seeding			
C. De-Thatching			
D. Pest Control			
E. Other			

3. Vegetative Cover	Items Required √	Items Done √	Comments and Special Instructions
A. Fertilizing			
B. Pruning			
C. Pest Control			
D. Other			

4. Trash and Debris Removal	Items Required √	Items Done √	Comments and Special Instructions
A. Swales and Grass Areas			
B. Embankments and Side Slopes			
C. Perimeter Areas			
D. Access Areas and Drives			
E. Inlets & Endwalls			
F. Spillway			
G. Other			

5. Sediment Removal	Items Required √	Items Done √	Comments and Special Instructions
A. Swales and Grass Areas			
B. Inlets & Endwalls			
C. Spillway			
D. Other			

6. Elimination of Potential Mosquito Breeding Habitats	Items Required √	Items Done √	Comments and Special Instructions
A.			
B.			
C.			
D.			

7. Other Preventative Maintenance	Items Required √	Items Done √	Comments and Special Instructions
A.			
B.			
C.			
D.			

B. Corrective Maintenance

Work Item	Items Required √	Items Done √	Location, Comments, and Special Instructions
A. Removal of Debris & Sediment			
B. Embankment & slope Repair			
C. Dewatering			
D. Control of Mosquitoes			
E. Erosion Repair			
F. Tree, Brush & Animal Burrow Removal			
G. Snow & Ice Removal			
H. Other			

C. Aesthetic Maintenance

Work Item	Items Required √	Items Done √	Comments and Special Instructions
A. Grass Trimming			
B. Weeding			
C. Other			

Remarks: (Refer to Item No, If Applicable)

Work Order Prepared By: _____

Work Completed By: _____

Maintenance Log
Stormwater Maintenance Facilities

Name of Facility: _____

Location: _____ Date: _____

A. Preventative Maintenance

Work Item	Date:									
	(√) Completed									
1. Grass Cutting										
A. Swales and Grass Areas										
B. Embankments and Side Slopes										
C. Perimeter Areas										
D. Access Areas and Roads										
E. Other										
2. Grass Maintenance										
A. Fertilizing										
B. Re-Seeding										
C. De-Thatching										
D. Pest Control										
E. Other										
3. Vegetative Cover										
A. Fertilizing										
B. Pruning										
C. Pest Control										
D. Other										
4. Trash and Debris Removal										
A. Swales and Grass Areas										
B. Embankments and Side Slopes										
C. Perimeter Areas										
D. Access Areas and Roads										
E. Inlets and Endwalls										
F. Spillway										
G. Other										
5. Sediment Removal										
A. Swales and Grass Areas										
B. Inlets and Endwalls										
C. Spillway										
D. Other										

Date:										
Work Item	(√) Completed									

6. Elimination of Potential Mosquito Breeding Habits

A.										
B.										
C.										
D.										

7. Other Preventative Maintenance

A.										
B.										
C.										
D.										

B. Corrective Maintenance

Date:										
Work Item	(√) Completed									
A. Removal of Debris & Sediment										
B. Embankment & Slope Repair										
C. Dewatering										
D. Control of Mosquitoes										
E. Erosion Repair										
F. Tree, Brush & Animal Burrow Removal										
G. Snow & Ice Removal										
H. Other										

C. Aesthetic Maintenance

Date:										
Work Item	(√) Completed									
A. Grass Trimming										
B. Weeding										
C. Other										

Remarks: (Refer to Item No, If Applicable)

Work Order Prepared By: _____

Work Completed By: _____

Inspection Checklist
for
Stormwater Maintenance Facilities

Name of Facility: _____

Location: _____ Date: _____

Weather: _____

Facility Item	OK[1]	Routine[2]	Urgent[3]	Comments[4]
1. Embankments and Side Slopes				
A. Vegetation				
B. Linings				
C. Erosion				
D. Settlement				
E. Sloughing				
F. Trash And Debris				
G. Seepage				
H. Aesthetics				
I. Other				
2. Swales				
A. Vegetation				
B. Linings				
C. Erosion				
D. Settlement				
E. Standing Water				
F. Trash and Debris				
G. Sediment				
H. Other				
3. Perimeter				
A. Vegetation				
B. Erosion				
C. Trash & Debris				
D. Aesthetics				
E. Other				
4. Miscellaneous				
A. Effectiveness of Exist. Maint. Program				
B. Potential Mosquito Habitats				
C. Mosquitoes				
D. Other				

1. The item checked is in good condition and the maintenance program is adequate.
2. The item checked requires attention but does not present an immediate threat to the facility function or other facility components.
3. The item checked requires immediate attention to keep the facility operational or to prevent damage to other facility components.
4. Provide explanation and details if columns 2 or 3 are checked.

Remarks: (Refer to Item No, If Applicable)

Inspector: _____

Maintenance Log
Stormwater Maintenance Facilities

Name of Facility: _____

Location: _____ Date: _____

Facility Item	Date:									
	Indicate Condition (i.e. 1, 2, or 3)									
1. Embankments and Side Slopes										
A. Vegetation										
B. Linings										
C. Erosion										
D. Settlement										
E. Sloughing										
F. Trash and Debris										
G. Seepage										
H. Aesthetics										
I. Other										
2. Swales										
A. Vegetation										
B. Linings										
C. Erosion										
D. Settlement										
E. Standing Water										
F. Trash and Debris										
G. Sediment										
H. Other										
3. Perimeter										
A. Vegetation										
B. Erosion										
C. Trash & Debris										
D. Aesthetics										
E. Other										
4. Miscellaneous										
A. Effectiveness of Exist. Maintenance Program										
B. Potential Mosquito Habitats										
C. Mosquitoes										
D. Other										

1 The item checked is in good condition and the maintenance program is adequate.
2 The item checked requires attention, but does not present an immediate threat to the facility function or other facility components.
3 The item checked requires immediate attention to keep the facility operational or to prevent damage to other facility components.

Remarks: (Refer to Item No, If Applicable)

Prepared By: _____

Stormwater Management Report

For

Fellowship Senior Living, Inc.
PROPOSED FITNESS CENTER EXPANSION & REC. AREAS

Block 9301, Lot 33
Basking Ridge / Township of Bernards
Somerset County, New Jersey

November 23, 2020

Prepared for:
Fellowship Senior Living, Inc.
8000 Fellowship Road
Basking Ridge, NJ 07920

Prepared by:
Marathon Engineering &
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_____

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MARATHON
Engineering & Environmental Services
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3.0 Developed Conditions HydroCAD Summary
4.0 Water Quality

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B. Proposed Conditions HydroCAD Analysis
C. NRCS Soil Report

1.0 Project Summary

The project is located adjacent to the intersection of Liberty Corner Road and Allen Road, on Fellowship Road in the township of Bernards (Basking Ridge) Somerset County, New Jersey. The project development tract on the Bernards Township Tax Maps is known as Block 9301, Lot 33 containing 72.569 acres.

The project is proposing several areas of expansion, of which two (2) will require stormwater attenuation: a Fitness Center Addition of approximately 7,270SF and the addition of several recreation courts to include a Pickleball Court, Bocce, and Shuffleboard area. The stormwater management has been designed to handle the increased runoff from these impervious surfaces, through the use of a surface infiltration basin at the recreation court areas, and a subsurface chamber infiltration system at the Fitness Center Addition. The developable portions of Lot 33 consist of primarily Hydrologic Soil Group C.

Due to the extremely minimal nature of the proposed development, the impact is expected to be negligible and the proposed stormwater BMPs proposed with this report are appropriate to reduce both the flow and quantity of runoff from the development areas. This design is compliant with the the Stormwater Management BMP.

2.0 Existing Conditions HydroCAD Summary Analysis

Two separate areas have been analyzed in this report, the Fitness Center Area and the Recreation/Court Area.

Table 1 – Fitness Center Area – Peak Flow (Existing Condition)

Storm Event (years)	Peak Existing Discharge/ (Allowable Discharge) (cfs)
2	0.21 cfs / (0.11 cfs)
10	0.49 cfs / (0.37 cfs)
100	1.11 cfs / (0.89 cfs)
NJDEP WQ	0.01 cfs / (N/A)

Table 2 – Recreation/Court Area – Peak Flow (Existing Condition)

Storm Event (years)	Peak Existing Elevation (ft) / Storage (cf)
2	0.08 cfs / (0.04 cfs)
10	0.18 cfs / (0.14 cfs)
100	0.41 cfs / (0.33 cfs)
NJDEP WQ	0.01 cfs / (N/A)

3.0 Developed Conditions HydroCAD Summary Analysis

All inflow hydrographs to the proposed stormwater management facilities were computed using United States Department of Agriculture (USDA) National Resource Conservation Service (NRCS) methodology as implemented within HydroCAD, version 10.00 desktop software package, by HydroCAD Software Solutions. The analysis included the use of the Delmarva Unit Hydrograph and New Jersey 24 Hour Rainfall Frequency Data, as published in Chapter 2 of the Engineering Field Handbook New Jersey Supplement, released August 2012. The NRCS Type III 24 hour distribution was used for all calculations. Curve number (CN) values where computed using the NRCS Technical Release No. 55 (TR-55), Urban Hydrology for Small Watersheds, June of 1986, within the HydroCAD software. Times of Concentration utilized for the project are based on estimated storm sewer flows or the minimum allowable time of 6 minutes as allowed by TR-55.

This report will demonstrate post development drainage areas for the site will be less than existing conditions as required. The minimum Tc utilized is 6 minutes or where higher times of concentration exist, the Tc's will be based on length/ slope and coverage condition based on TR-55 design methodology.

Two separate areas have been analyzed in this report, the Fitness Center Area and the Recreation/Court Area. *(For the Fitness Center – the peak storage is achieved with the proposed chambers, and designed infiltration at 1"/hr within the subsurface system.)*

Table 3 – Fitness Center Area – Peak Flow (Proposed Condition)

Storm Event (years)	Peak Existing Discharge/ (Allowable Discharge) (cfs)
2	0.06 cfs / (0.11 cfs)
10	0.06 cfs / (0.37 cfs)
100	0.07 cfs / (0.89 cfs)
NJDEP WQ	0.00 cfs / (N/A)

Table 4 – Recreation/Court Area – Peak Flow (Proposed Condition)

Storm Event (years)	Peak Existing Elevation (ft) / Storage (cf)
2	0.02 cfs / (0.04 cfs)
10	0.02 cfs / (0.14 cfs)
100	0.21 cfs / (0.33 cfs)
NJDEP WQ	0.00 cfs / (N/A)

4.0 Water Quality

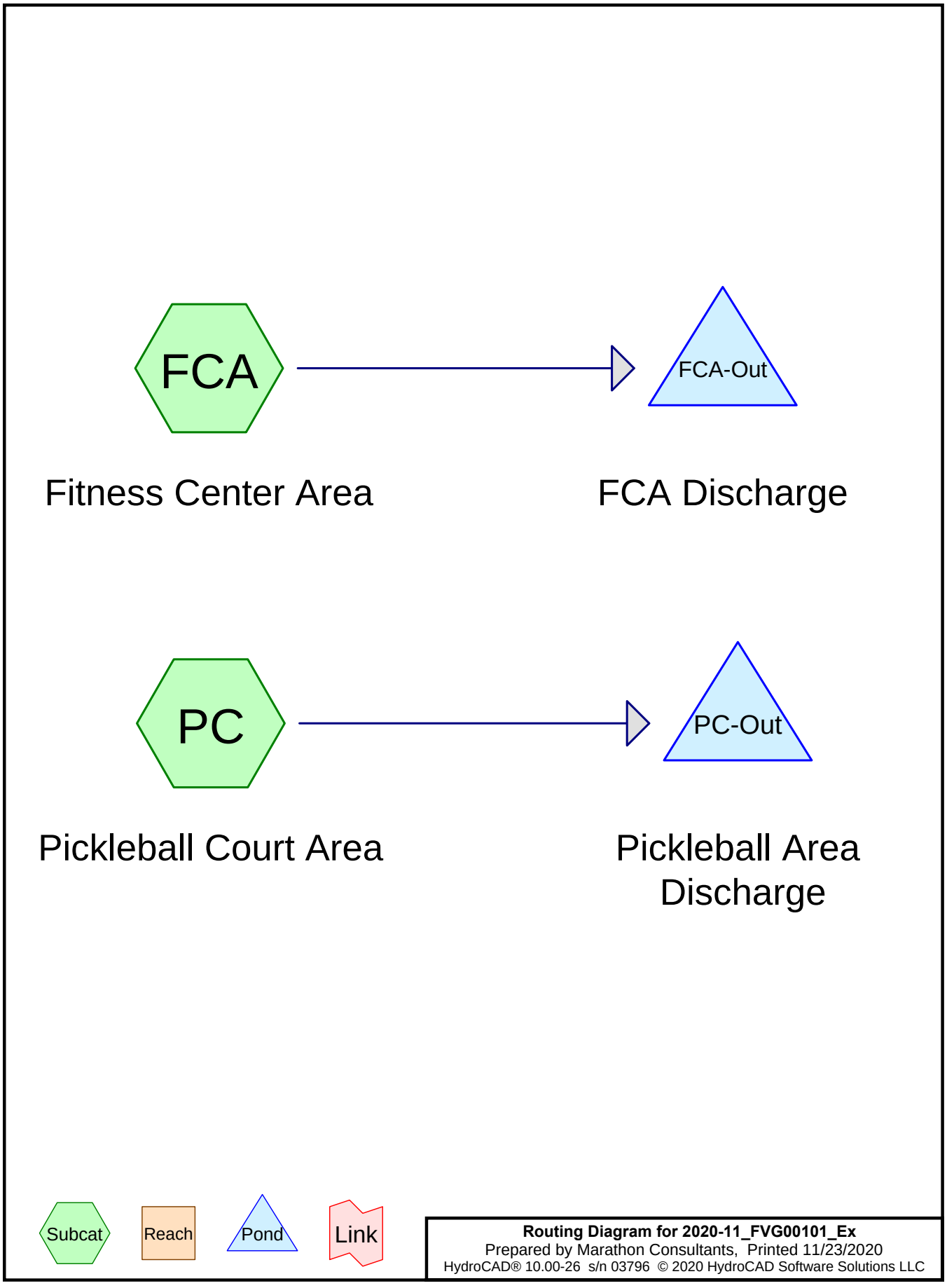
In accordance with N.J.A.C. 7:8-5.5, the water quality regulations require the removal of 80% of the Total Suspended Solids (TSS) from the runoff from the increase in vehicle trafficked impervious surface generated by the water quality design storm (defined as 1.25 inches of rainfall over 2 hours).

Site TSS Removal Summary

The runoff from the recreation courts is proposed to be attenuated in an infiltration basin which provides 80% TSS Removal. The runoff from the fitness center building expansion is considered “clean” and does not require TSS Removal.

Appendix A

Existing Conditions
HydroCAD Analysis



Routing Diagram for 2020-11_FVG00101_Ex
Prepared by Marathon Consultants, Printed 11/23/2020
HydroCAD® 10.00-26 s/n 03796 © 2020 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
880	71	Bocce & Concrete Walk (PC)
7,270	71	Grass Area - Fitness Center Addition (FCA)
1,580	71	Grass Area - Fitness Center Walk (FCA)
1,905	71	Pickleball Court & Walk (PC)
480	71	Shuffleboard & Walk (PC)
12,115	**71**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
0	HSG C	
0	HSG D	
12,115	Other	FCA, PC
12,115		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover
0	0	0	0	880	880	Bocce & Concrete Walk
0	0	0	0	7,270	7,270	Grass Area - Fitness Center Addition
0	0	0	0	1,580	1,580	Grass Area - Fitness Center Walk
0	0	0	0	1,905	1,905	Pickleball Court & Walk
0	0	0	0	480	480	Shuffleboard & Walk
0	**0**	**0**	**0**	**12,115**	**12,115**	**TOTAL AREA**

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment FCA: Fitness Center Area Runoff Area=8,850 sf 0.00% Impervious Runoff Depth=0.96"
Tc=6.0 min CN=71 Runoff=0.21 cfs 711 cf

Subcatchment PC: Pickleball Court Area Runoff Area=3,265 sf 0.00% Impervious Runoff Depth=0.96"
Tc=6.0 min CN=71 Runoff=0.08 cfs 262 cf

Pond FCA-Out: FCA Discharge Inflow=0.21 cfs 711 cf
Primary=0.21 cfs 711 cf

Pond PC-Out: Pickleball Area Discharge Inflow=0.08 cfs 262 cf
Primary=0.08 cfs 262 cf

Total Runoff Area = 12,115 sf Runoff Volume = 973 cf Average Runoff Depth = 0.96"
100.00% Pervious = 12,115 sf 0.00% Impervious = 0 sf

Summary for Subcatchment FCA: Fitness Center Area

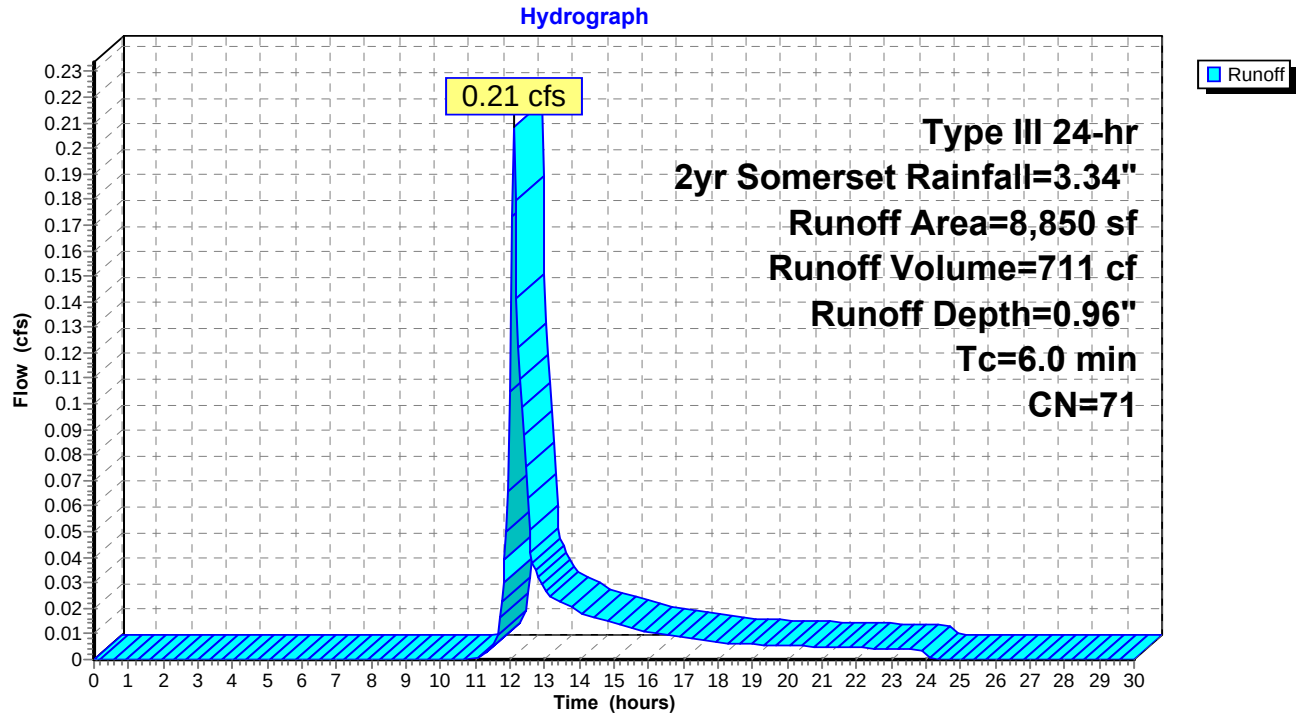
Runoff = 0.21 cfs @ 12.10 hrs, Volume= 711 cf, Depth= 0.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2yr Somerset Rainfall=3.34"

	Area (sf)	CN	Description
*	7,270	71	Grass Area - Fitness Center Addition
*	1,580	71	Grass Area - Fitness Center Walk
	8,850	71	Weighted Average
	8,850		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Roof Drains**

Subcatchment FCA: Fitness Center Area



Hydrograph for Subcatchment FCA: Fitness Center Area

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.02	0.00	0.00
1.00	0.03	0.00	0.00
1.50	0.05	0.00	0.00
2.00	0.07	0.00	0.00
2.50	0.08	0.00	0.00
3.00	0.10	0.00	0.00
3.50	0.12	0.00	0.00
4.00	0.14	0.00	0.00
4.50	0.17	0.00	0.00
5.00	0.19	0.00	0.00
5.50	0.21	0.00	0.00
6.00	0.24	0.00	0.00
6.50	0.27	0.00	0.00
7.00	0.30	0.00	0.00
7.50	0.34	0.00	0.00
8.00	0.38	0.00	0.00
8.50	0.43	0.00	0.00
9.00	0.49	0.00	0.00
9.50	0.55	0.00	0.00
10.00	0.63	0.00	0.00
10.50	0.72	0.00	0.00
11.00	0.83	0.00	0.00
11.50	1.00	0.01	0.01
12.00	1.67	0.15	**0.10**
12.50	2.34	0.42	**0.06**
13.00	2.50	0.49	0.03
13.50	2.62	0.55	0.02
14.00	2.71	0.60	0.02
14.50	2.79	0.64	0.02
15.00	2.85	0.68	0.01
15.50	2.91	0.71	0.01
16.00	2.96	0.74	0.01
16.50	3.00	0.76	0.01
17.00	3.04	0.78	0.01
17.50	3.07	0.80	0.01
18.00	3.10	0.82	0.01
18.50	3.13	0.83	0.01
19.00	3.15	0.85	0.01
19.50	3.17	0.86	0.01
20.00	3.20	0.88	0.01
20.50	3.22	0.89	0.01
21.00	3.24	0.90	0.00
21.50	3.26	0.91	0.00
22.00	3.28	0.92	0.00
22.50	3.29	0.93	0.00
23.00	3.31	0.94	0.00
23.50	3.33	0.95	0.00
24.00	**3.34**	**0.96**	0.00
24.50	3.34	0.96	0.00
25.00	3.34	0.96	0.00
25.50	3.34	0.96	0.00
26.00	3.34	0.96	0.00
26.50	3.34	0.96	0.00
27.00	3.34	0.96	0.00
27.50	3.34	0.96	0.00
28.00	3.34	0.96	0.00
28.50	3.34	0.96	0.00
29.00	3.34	0.96	0.00
29.50	3.34	0.96	0.00
30.00	3.34	0.96	0.00

Summary for Subcatchment PC: Pickleball Court Area

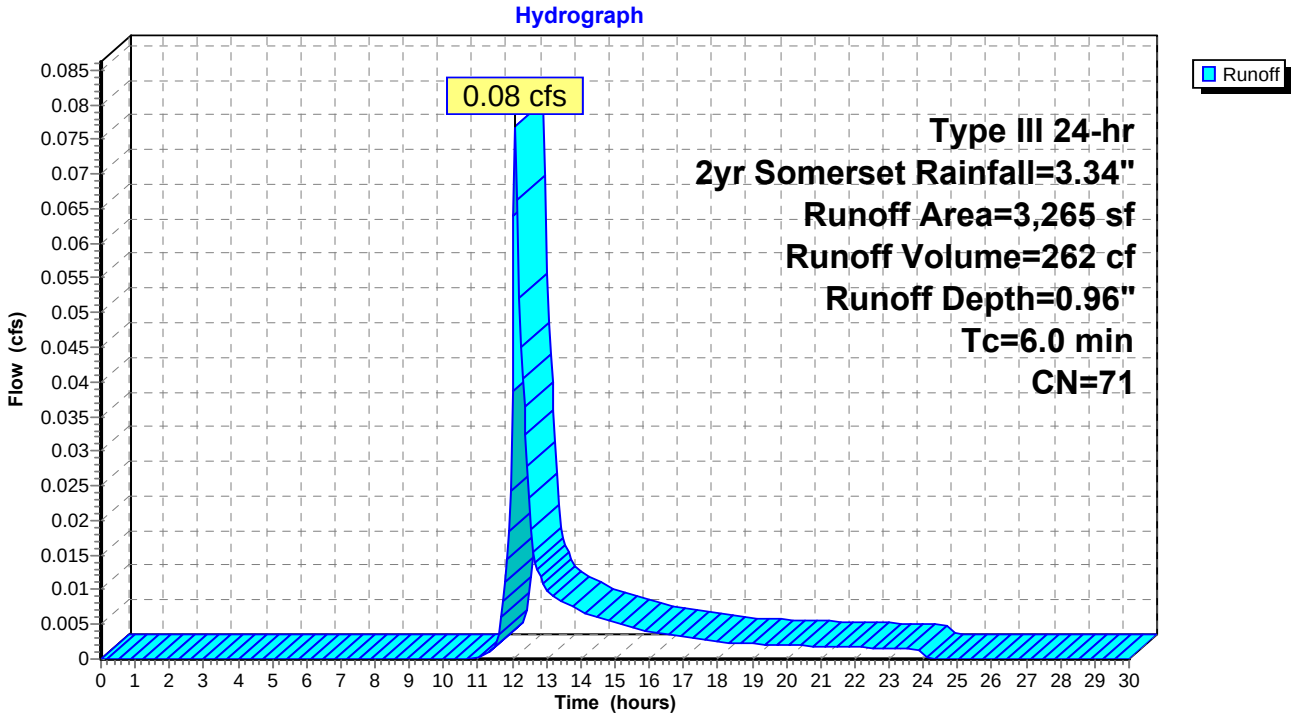
Runoff = 0.08 cfs @ 12.10 hrs, Volume= 262 cf, Depth= 0.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2yr Somerset Rainfall=3.34"

	Area (sf)	CN	Description
*	1,905	71	Pickleball Court & Walk
*	480	71	Shuffleboard & Walk
*	880	71	Bocce & Concrete Walk
	3,265	71	Weighted Average
	3,265		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Pickleball Court**

Subcatchment PC: Pickleball Court Area



Hydrograph for Subcatchment PC: Pickleball Court Area

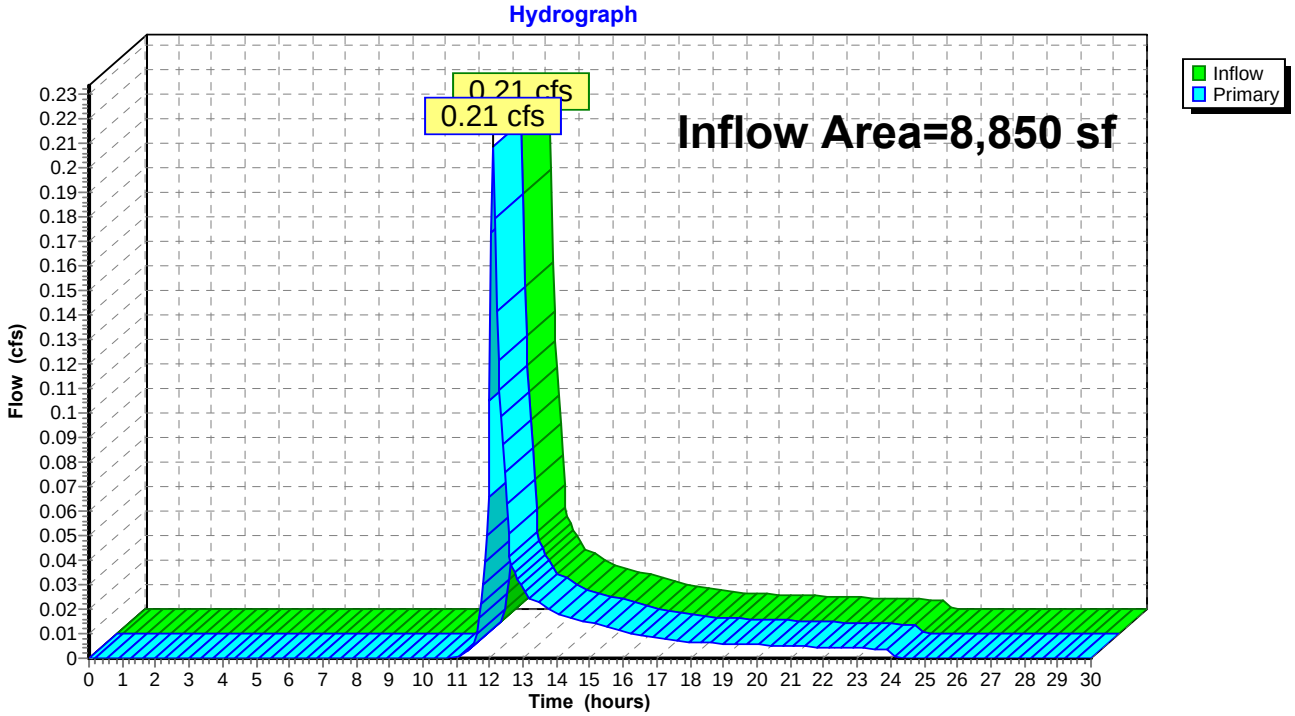
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.00	3.34	0.96	0.00
0.50	0.02	0.00	0.00	26.50	3.34	0.96	0.00
1.00	0.03	0.00	0.00	27.00	3.34	0.96	0.00
1.50	0.05	0.00	0.00	27.50	3.34	0.96	0.00
2.00	0.07	0.00	0.00	28.00	3.34	0.96	0.00
2.50	0.08	0.00	0.00	28.50	3.34	0.96	0.00
3.00	0.10	0.00	0.00	29.00	3.34	0.96	0.00
3.50	0.12	0.00	0.00	29.50	3.34	0.96	0.00
4.00	0.14	0.00	0.00	30.00	3.34	0.96	0.00
4.50	0.17	0.00	0.00				
5.00	0.19	0.00	0.00				
5.50	0.21	0.00	0.00				
6.00	0.24	0.00	0.00				
6.50	0.27	0.00	0.00				
7.00	0.30	0.00	0.00				
7.50	0.34	0.00	0.00				
8.00	0.38	0.00	0.00				
8.50	0.43	0.00	0.00				
9.00	0.49	0.00	0.00				
9.50	0.55	0.00	0.00				
10.00	0.63	0.00	0.00				
10.50	0.72	0.00	0.00				
11.00	0.83	0.00	0.00				
11.50	1.00	0.01	0.00				
12.00	1.67	0.15	**0.04**				
12.50	2.34	0.42	**0.02**				
13.00	2.50	0.49	0.01				
13.50	2.62	0.55	0.01				
14.00	2.71	0.60	0.01				
14.50	2.79	0.64	0.01				
15.00	2.85	0.68	0.01				
15.50	2.91	0.71	0.00				
16.00	2.96	0.74	0.00				
16.50	3.00	0.76	0.00				
17.00	3.04	0.78	0.00				
17.50	3.07	0.80	0.00				
18.00	3.10	0.82	0.00				
18.50	3.13	0.83	0.00				
19.00	3.15	0.85	0.00				
19.50	3.17	0.86	0.00				
20.00	3.20	0.88	0.00				
20.50	3.22	0.89	0.00				
21.00	3.24	0.90	0.00				
21.50	3.26	0.91	0.00				
22.00	3.28	0.92	0.00				
22.50	3.29	0.93	0.00				
23.00	3.31	0.94	0.00				
23.50	3.33	0.95	0.00				
24.00	**3.34**	**0.96**	0.00				
24.50	3.34	0.96	0.00				
25.00	3.34	0.96	0.00				
25.50	3.34	0.96	0.00				

Summary for Pond FCA-Out: FCA Discharge

Inflow Area = 8,850 sf, 0.00% Impervious, Inflow Depth = 0.96" for 2yr Somerset event
Inflow = 0.21 cfs @ 12.10 hrs, Volume= 711 cf
Primary = 0.21 cfs @ 12.10 hrs, Volume= 711 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2

Pond FCA-Out: FCA Discharge



Hydrograph for Pond FCA-Out: FCA Discharge

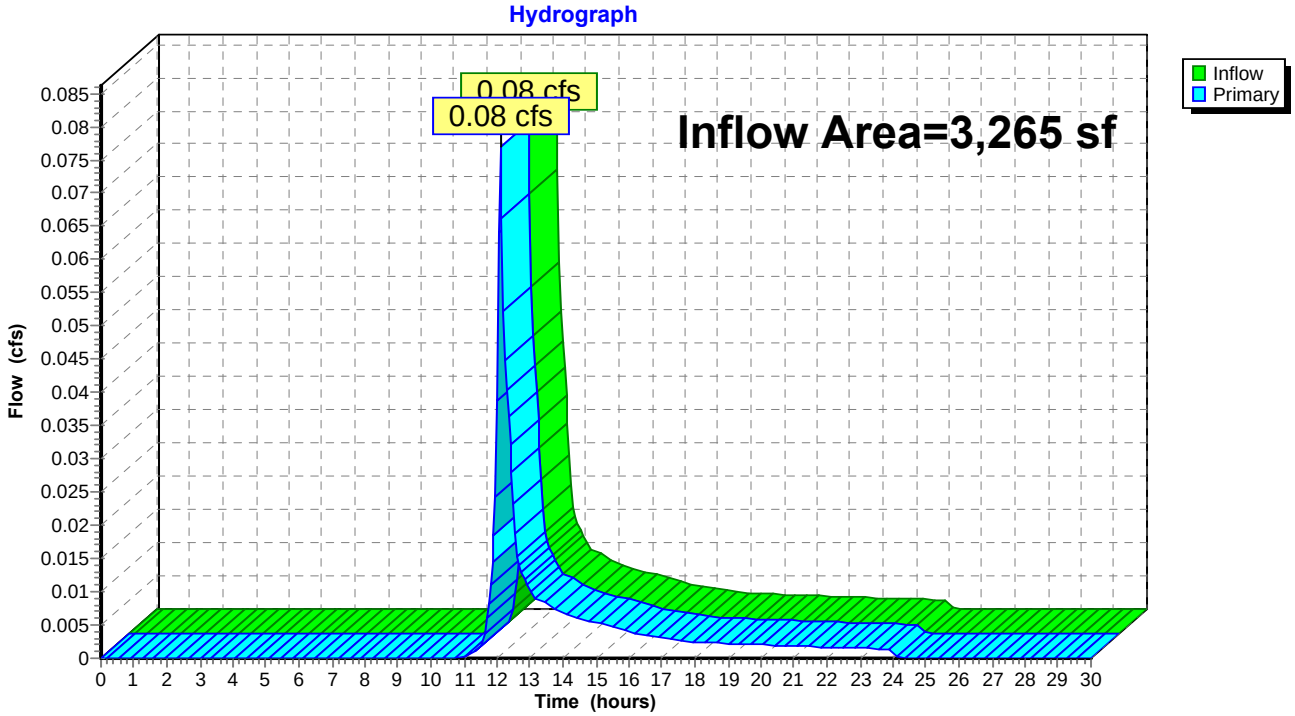
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
0.50	0.00		0.00
1.00	0.00		0.00
1.50	0.00		0.00
2.00	0.00		0.00
2.50	0.00		0.00
3.00	0.00		0.00
3.50	0.00		0.00
4.00	0.00		0.00
4.50	0.00		0.00
5.00	0.00		0.00
5.50	0.00		0.00
6.00	0.00		0.00
6.50	0.00		0.00
7.00	0.00		0.00
7.50	0.00		0.00
8.00	0.00		0.00
8.50	0.00		0.00
9.00	0.00		0.00
9.50	0.00		0.00
10.00	0.00		0.00
10.50	0.00		0.00
11.00	0.00		0.00
11.50	0.01		0.01
12.00	**0.10**		**0.10**
12.50	**0.06**		**0.06**
13.00	0.03		0.03
13.50	0.02		0.02
14.00	0.02		0.02
14.50	0.02		0.02
15.00	0.01		0.01
15.50	0.01		0.01
16.00	0.01		0.01
16.50	0.01		0.01
17.00	0.01		0.01
17.50	0.01		0.01
18.00	0.01		0.01
18.50	0.01		0.01
19.00	0.01		0.01
19.50	0.01		0.01
20.00	0.01		0.01
20.50	0.01		0.01
21.00	0.00		0.00
21.50	0.00		0.00
22.00	0.00		0.00
22.50	0.00		0.00
23.00	0.00		0.00
23.50	0.00		0.00
24.00	0.00		0.00
24.50	0.00		0.00
25.00	0.00		0.00
25.50	0.00		0.00
26.00	0.00		0.00
26.50	0.00		0.00
27.00	0.00		0.00
27.50	0.00		0.00
28.00	0.00		0.00
28.50	0.00		0.00
29.00	0.00		0.00
29.50	0.00		0.00
30.00	0.00		0.00

Summary for Pond PC-Out: Pickleball Area Discharge

Inflow Area = 3,265 sf, 0.00% Impervious, Inflow Depth = 0.96" for 2yr Somerset event
Inflow = 0.08 cfs @ 12.10 hrs, Volume= 262 cf
Primary = 0.08 cfs @ 12.10 hrs, Volume= 262 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2

Pond PC-Out: Pickleball Area Discharge



Hydrograph for Pond PC-Out: Pickleball Area Discharge

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
0.50	0.00		0.00
1.00	0.00		0.00
1.50	0.00		0.00
2.00	0.00		0.00
2.50	0.00		0.00
3.00	0.00		0.00
3.50	0.00		0.00
4.00	0.00		0.00
4.50	0.00		0.00
5.00	0.00		0.00
5.50	0.00		0.00
6.00	0.00		0.00
6.50	0.00		0.00
7.00	0.00		0.00
7.50	0.00		0.00
8.00	0.00		0.00
8.50	0.00		0.00
9.00	0.00		0.00
9.50	0.00		0.00
10.00	0.00		0.00
10.50	0.00		0.00
11.00	0.00		0.00
11.50	0.00		0.00
12.00	**0.04**		**0.04**
12.50	**0.02**		**0.02**
13.00	0.01		0.01
13.50	0.01		0.01
14.00	0.01		0.01
14.50	0.01		0.01
15.00	0.01		0.01
15.50	0.00		0.00
16.00	0.00		0.00
16.50	0.00		0.00
17.00	0.00		0.00
17.50	0.00		0.00
18.00	0.00		0.00
18.50	0.00		0.00
19.00	0.00		0.00
19.50	0.00		0.00
20.00	0.00		0.00
20.50	0.00		0.00
21.00	0.00		0.00
21.50	0.00		0.00
22.00	0.00		0.00
22.50	0.00		0.00
23.00	0.00		0.00
23.50	0.00		0.00
24.00	0.00		0.00
24.50	0.00		0.00
25.00	0.00		0.00
25.50	0.00		0.00
26.00	0.00		0.00
26.50	0.00		0.00
27.00	0.00		0.00
27.50	0.00		0.00
28.00	0.00		0.00
28.50	0.00		0.00
29.00	0.00		0.00
29.50	0.00		0.00
30.00	0.00		0.00

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment FCA: Fitness Center Area Runoff Area=8,850 sf 0.00% Impervious Runoff Depth=2.12"
Tc=6.0 min CN=71 Runoff=0.49 cfs 1,566 cf

Subcatchment PC: Pickleball Court Area Runoff Area=3,265 sf 0.00% Impervious Runoff Depth=2.12"
Tc=6.0 min CN=71 Runoff=0.18 cfs 578 cf

Pond FCA-Out: FCA Discharge Inflow=0.49 cfs 1,566 cf
Primary=0.49 cfs 1,566 cf

Pond PC-Out: Pickleball Area Discharge Inflow=0.18 cfs 578 cf
Primary=0.18 cfs 578 cf

Total Runoff Area = 12,115 sf Runoff Volume = 2,144 cf Average Runoff Depth = 2.12"
100.00% Pervious = 12,115 sf 0.00% Impervious = 0 sf

Summary for Subcatchment FCA: Fitness Center Area

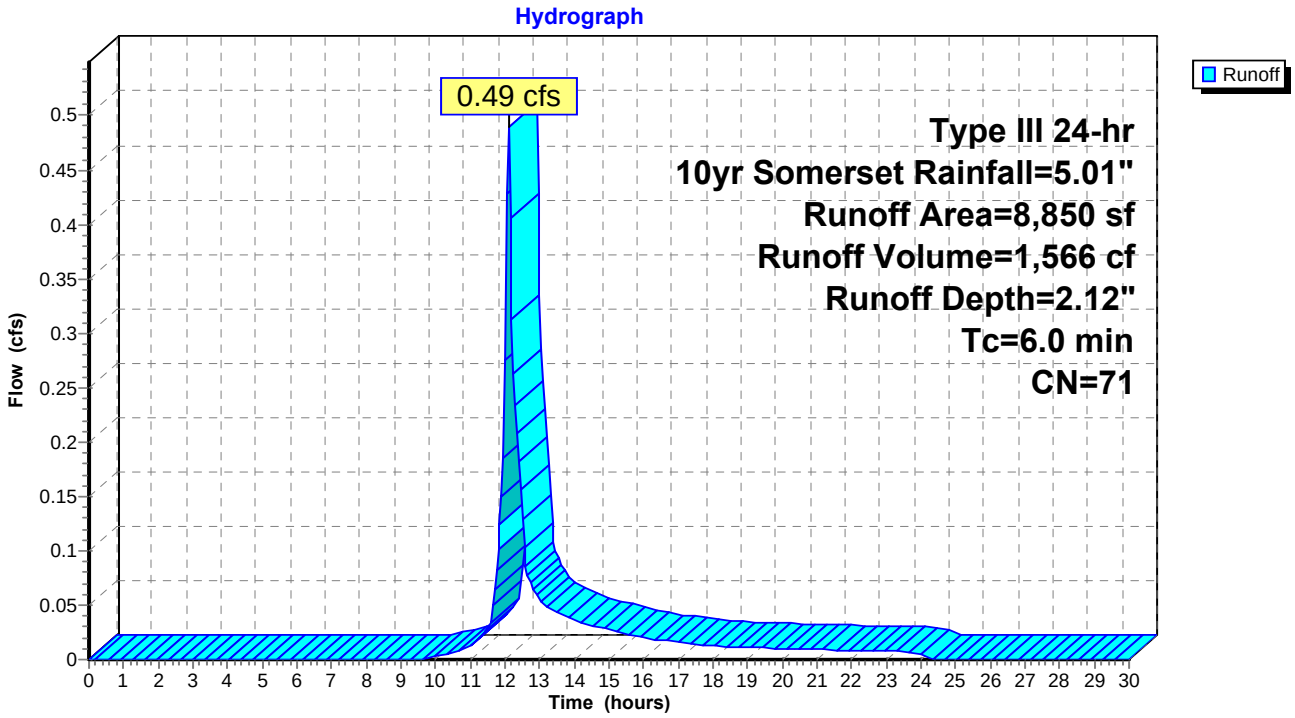
Runoff = 0.49 cfs @ 12.10 hrs, Volume= 1,566 cf, Depth= 2.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10yr Somerset Rainfall=5.01"

	Area (sf)	CN	Description
*	7,270	71	Grass Area - Fitness Center Addition
*	1,580	71	Grass Area - Fitness Center Walk
	8,850	71	Weighted Average
	8,850		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Roof Drains**

Subcatchment FCA: Fitness Center Area



Hydrograph for Subcatchment FCA: Fitness Center Area

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.03	0.00	0.00
1.00	0.05	0.00	0.00
1.50	0.08	0.00	0.00
2.00	0.10	0.00	0.00
2.50	0.13	0.00	0.00
3.00	0.15	0.00	0.00
3.50	0.18	0.00	0.00
4.00	0.22	0.00	0.00
4.50	0.25	0.00	0.00
5.00	0.28	0.00	0.00
5.50	0.32	0.00	0.00
6.00	0.36	0.00	0.00
6.50	0.40	0.00	0.00
7.00	0.45	0.00	0.00
7.50	0.51	0.00	0.00
8.00	0.57	0.00	0.00
8.50	0.64	0.00	0.00
9.00	0.73	0.00	0.00
9.50	0.83	0.00	0.00
10.00	0.95	0.00	0.00
10.50	1.08	0.02	0.01
11.00	1.25	0.04	0.01
11.50	1.49	0.10	0.03
12.00	2.50	0.49	**0.28**
12.50	3.52	1.07	**0.13**
13.00	3.76	1.23	0.06
13.50	3.93	1.34	0.04
14.00	4.06	1.44	0.04
14.50	4.18	1.52	0.03
15.00	4.28	1.59	0.03
15.50	4.37	1.65	0.02
16.00	4.44	1.70	0.02
16.50	4.50	1.75	0.02
17.00	4.56	1.79	0.02
17.50	4.61	1.82	0.01
18.00	4.65	1.86	0.01
18.50	4.69	1.88	0.01
19.00	4.73	1.91	0.01
19.50	4.76	1.94	0.01
20.00	4.79	1.96	0.01
20.50	4.83	1.99	0.01
21.00	4.86	2.01	0.01
21.50	4.89	2.03	0.01
22.00	4.91	2.05	0.01
22.50	4.94	2.07	0.01
23.00	4.96	2.09	0.01
23.50	4.99	2.11	0.01
24.00	**5.01**	**2.12**	0.01
24.50	5.01	2.12	0.00
25.00	5.01	2.12	0.00
25.50	5.01	2.12	0.00
26.00	5.01	2.12	0.00
26.50	5.01	2.12	0.00
27.00	5.01	2.12	0.00
27.50	5.01	2.12	0.00
28.00	5.01	2.12	0.00
28.50	5.01	2.12	0.00
29.00	5.01	2.12	0.00
29.50	5.01	2.12	0.00
30.00	5.01	2.12	0.00

Summary for Subcatchment PC: Pickleball Court Area

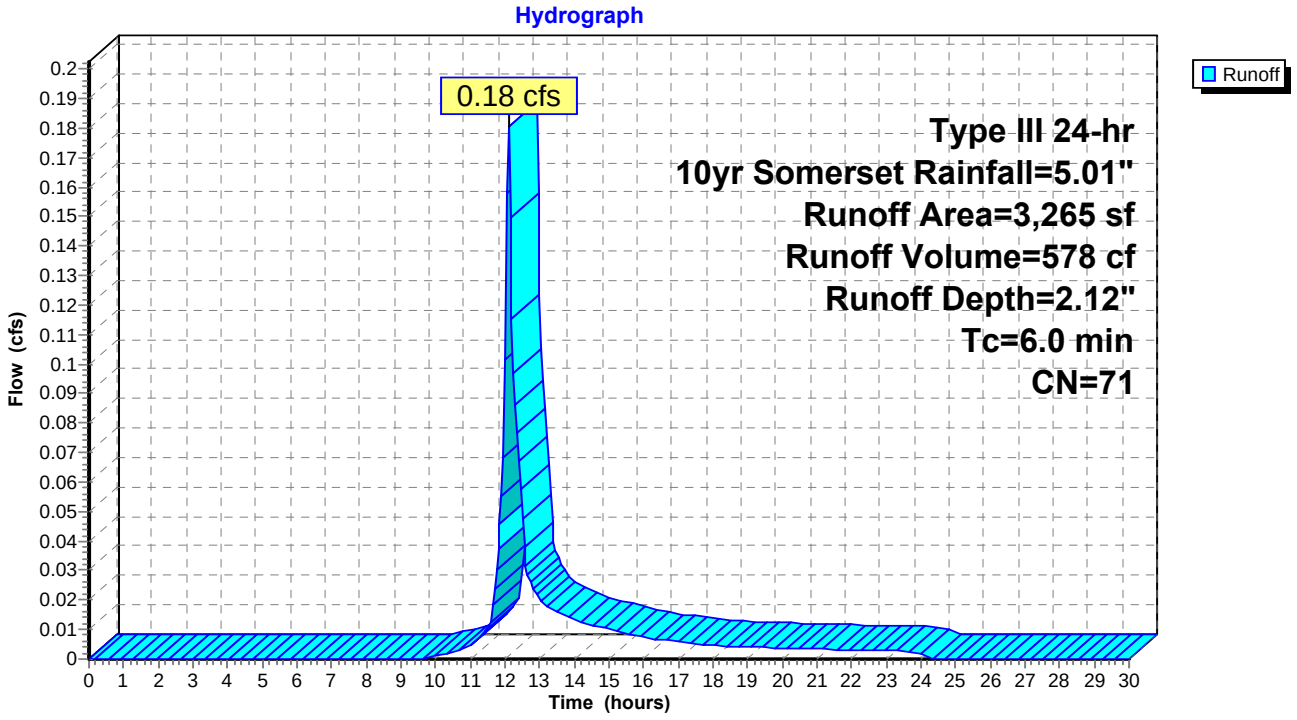
Runoff = 0.18 cfs @ 12.10 hrs, Volume= 578 cf, Depth= 2.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10yr Somerset Rainfall=5.01"

	Area (sf)	CN	Description
*	1,905	71	Pickleball Court & Walk
*	480	71	Shuffleboard & Walk
*	880	71	Bocce & Concrete Walk
	3,265	71	Weighted Average
	3,265		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Pickleball Court**

Subcatchment PC: Pickleball Court Area



Hydrograph for Subcatchment PC: Pickleball Court Area

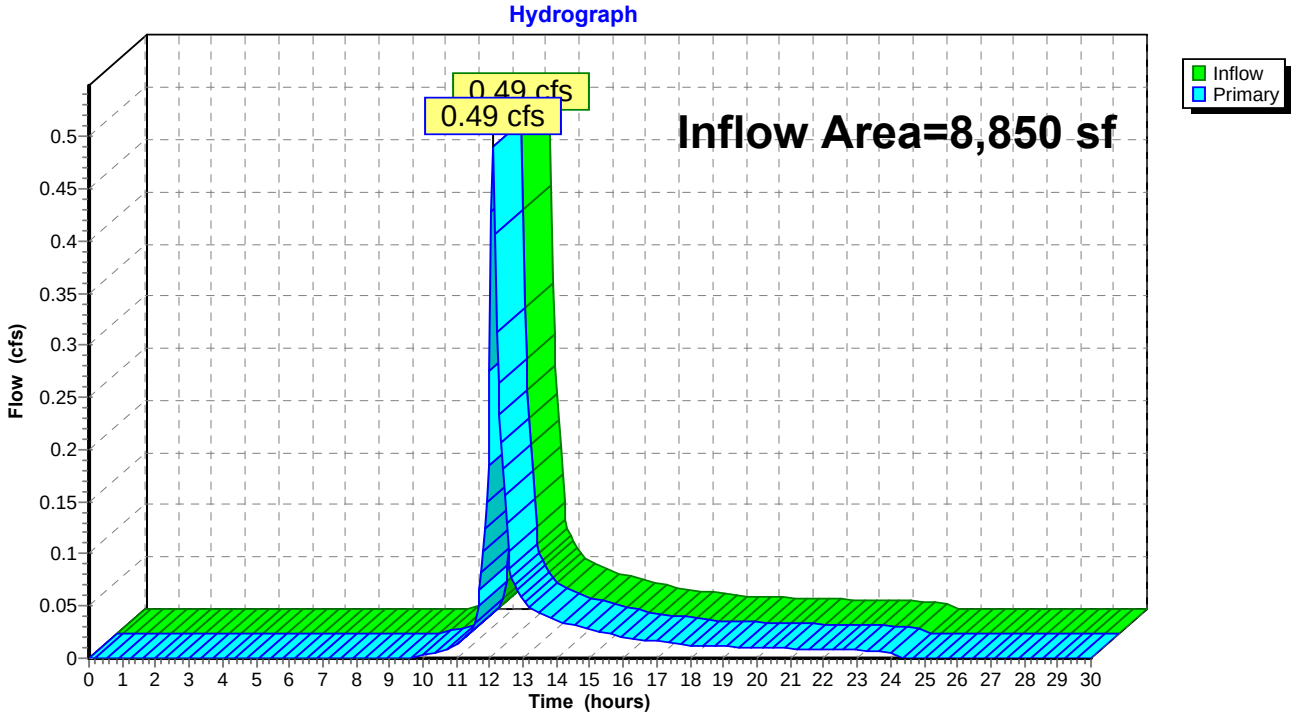
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.03	0.00	0.00
1.00	0.05	0.00	0.00
1.50	0.08	0.00	0.00
2.00	0.10	0.00	0.00
2.50	0.13	0.00	0.00
3.00	0.15	0.00	0.00
3.50	0.18	0.00	0.00
4.00	0.22	0.00	0.00
4.50	0.25	0.00	0.00
5.00	0.28	0.00	0.00
5.50	0.32	0.00	0.00
6.00	0.36	0.00	0.00
6.50	0.40	0.00	0.00
7.00	0.45	0.00	0.00
7.50	0.51	0.00	0.00
8.00	0.57	0.00	0.00
8.50	0.64	0.00	0.00
9.00	0.73	0.00	0.00
9.50	0.83	0.00	0.00
10.00	0.95	0.00	0.00
10.50	1.08	0.02	0.00
11.00	1.25	0.04	0.00
11.50	1.49	0.10	0.01
12.00	2.50	0.49	**0.10**
12.50	3.52	1.07	**0.05**
13.00	3.76	1.23	0.02
13.50	3.93	1.34	0.02
14.00	4.06	1.44	0.01
14.50	4.18	1.52	0.01
15.00	4.28	1.59	0.01
15.50	4.37	1.65	0.01
16.00	4.44	1.70	0.01
16.50	4.50	1.75	0.01
17.00	4.56	1.79	0.01
17.50	4.61	1.82	0.01
18.00	4.65	1.86	0.00
18.50	4.69	1.88	0.00
19.00	4.73	1.91	0.00
19.50	4.76	1.94	0.00
20.00	4.79	1.96	0.00
20.50	4.83	1.99	0.00
21.00	4.86	2.01	0.00
21.50	4.89	2.03	0.00
22.00	4.91	2.05	0.00
22.50	4.94	2.07	0.00
23.00	4.96	2.09	0.00
23.50	4.99	2.11	0.00
24.00	**5.01**	**2.12**	0.00
24.50	5.01	2.12	0.00
25.00	5.01	2.12	0.00
25.50	5.01	2.12	0.00
26.00	5.01	2.12	0.00
26.50	5.01	2.12	0.00
27.00	5.01	2.12	0.00
27.50	5.01	2.12	0.00
28.00	5.01	2.12	0.00
28.50	5.01	2.12	0.00
29.00	5.01	2.12	0.00
29.50	5.01	2.12	0.00
30.00	5.01	2.12	0.00

Summary for Pond FCA-Out: FCA Discharge

Inflow Area = 8,850 sf, 0.00% Impervious, Inflow Depth = 2.12" for 10yr Somerset event
Inflow = 0.49 cfs @ 12.10 hrs, Volume= 1,566 cf
Primary = 0.49 cfs @ 12.10 hrs, Volume= 1,566 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2

Pond FCA-Out: FCA Discharge



Hydrograph for Pond FCA-Out: FCA Discharge

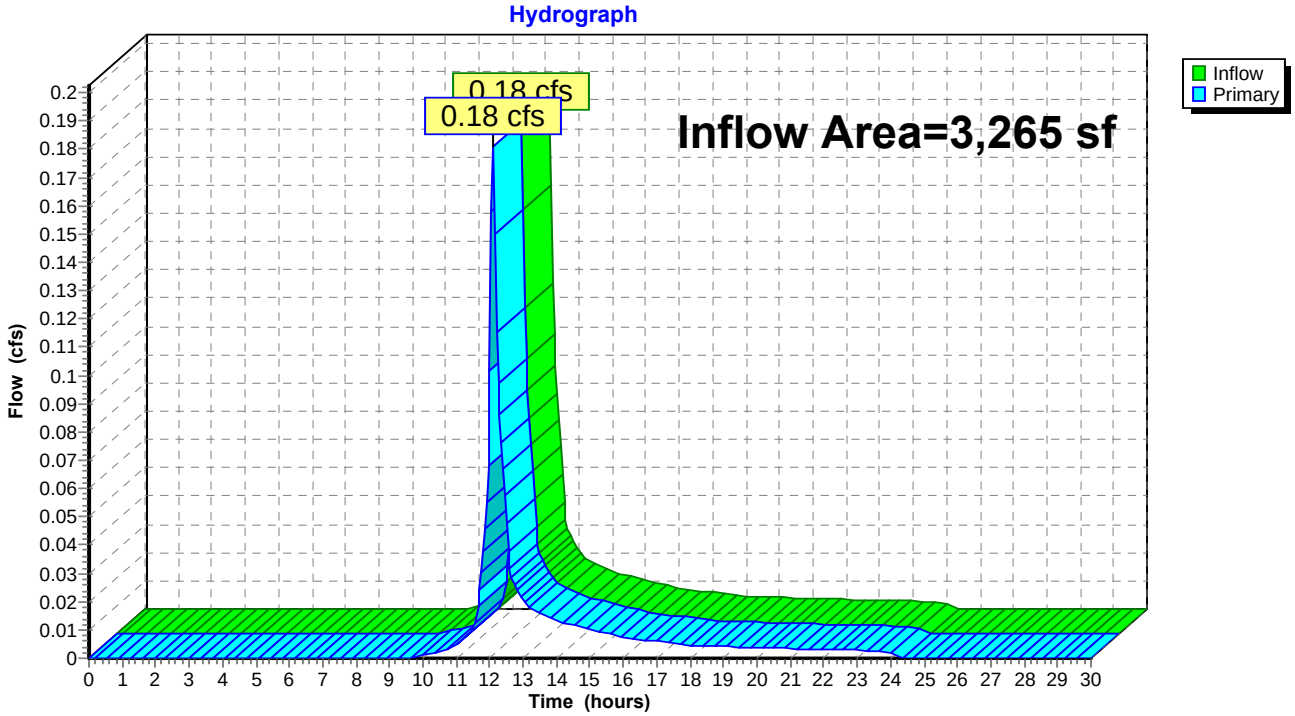
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
0.50	0.00		0.00
1.00	0.00		0.00
1.50	0.00		0.00
2.00	0.00		0.00
2.50	0.00		0.00
3.00	0.00		0.00
3.50	0.00		0.00
4.00	0.00		0.00
4.50	0.00		0.00
5.00	0.00		0.00
5.50	0.00		0.00
6.00	0.00		0.00
6.50	0.00		0.00
7.00	0.00		0.00
7.50	0.00		0.00
8.00	0.00		0.00
8.50	0.00		0.00
9.00	0.00		0.00
9.50	0.00		0.00
10.00	0.00		0.00
10.50	0.01		0.01
11.00	0.01		0.01
11.50	0.03		0.03
12.00	**0.28**		**0.28**
12.50	**0.13**		**0.13**
13.00	0.06		0.06
13.50	0.04		0.04
14.00	0.04		0.04
14.50	0.03		0.03
15.00	0.03		0.03
15.50	0.02		0.02
16.00	0.02		0.02
16.50	0.02		0.02
17.00	0.02		0.02
17.50	0.01		0.01
18.00	0.01		0.01
18.50	0.01		0.01
19.00	0.01		0.01
19.50	0.01		0.01
20.00	0.01		0.01
20.50	0.01		0.01
21.00	0.01		0.01
21.50	0.01		0.01
22.00	0.01		0.01
22.50	0.01		0.01
23.00	0.01		0.01
23.50	0.01		0.01
24.00	0.01		0.01
24.50	0.00		0.00
25.00	0.00		0.00
25.50	0.00		0.00
26.00	0.00		0.00
26.50	0.00		0.00
27.00	0.00		0.00
27.50	0.00		0.00
28.00	0.00		0.00
28.50	0.00		0.00
29.00	0.00		0.00
29.50	0.00		0.00
30.00	0.00		0.00

Summary for Pond PC-Out: Pickleball Area Discharge

Inflow Area = 3,265 sf, 0.00% Impervious, Inflow Depth = 2.12" for 10yr Somerset event
Inflow = 0.18 cfs @ 12.10 hrs, Volume= 578 cf
Primary = 0.18 cfs @ 12.10 hrs, Volume= 578 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2

Pond PC-Out: Pickleball Area Discharge



Hydrograph for Pond PC-Out: Pickleball Area Discharge

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
0.50	0.00		0.00
1.00	0.00		0.00
1.50	0.00		0.00
2.00	0.00		0.00
2.50	0.00		0.00
3.00	0.00		0.00
3.50	0.00		0.00
4.00	0.00		0.00
4.50	0.00		0.00
5.00	0.00		0.00
5.50	0.00		0.00
6.00	0.00		0.00
6.50	0.00		0.00
7.00	0.00		0.00
7.50	0.00		0.00
8.00	0.00		0.00
8.50	0.00		0.00
9.00	0.00		0.00
9.50	0.00		0.00
10.00	0.00		0.00
10.50	0.00		0.00
11.00	0.00		0.00
11.50	0.01		0.01
12.00	**0.10**		**0.10**
12.50	**0.05**		**0.05**
13.00	0.02		0.02
13.50	0.02		0.02
14.00	0.01		0.01
14.50	0.01		0.01
15.00	0.01		0.01
15.50	0.01		0.01
16.00	0.01		0.01
16.50	0.01		0.01
17.00	0.01		0.01
17.50	0.01		0.01
18.00	0.00		0.00
18.50	0.00		0.00
19.00	0.00		0.00
19.50	0.00		0.00
20.00	0.00		0.00
20.50	0.00		0.00
21.00	0.00		0.00
21.50	0.00		0.00
22.00	0.00		0.00
22.50	0.00		0.00
23.00	0.00		0.00
23.50	0.00		0.00
24.00	0.00		0.00
24.50	0.00		0.00
25.00	0.00		0.00
25.50	0.00		0.00
26.00	0.00		0.00
26.50	0.00		0.00
27.00	0.00		0.00
27.50	0.00		0.00
28.00	0.00		0.00
28.50	0.00		0.00
29.00	0.00		0.00
29.50	0.00		0.00
30.00	0.00		0.00

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment FCA: Fitness Center Area Runoff Area=8,850 sf 0.00% Impervious Runoff Depth=4.76"
Tc=6.0 min CN=71 Runoff=1.11 cfs 3,512 cf

Subcatchment PC: Pickleball Court Area Runoff Area=3,265 sf 0.00% Impervious Runoff Depth=4.76"
Tc=6.0 min CN=71 Runoff=0.41 cfs 1,296 cf

Pond FCA-Out: FCA Discharge Inflow=1.11 cfs 3,512 cf
Primary=1.11 cfs 3,512 cf

Pond PC-Out: Pickleball Area Discharge Inflow=0.41 cfs 1,296 cf
Primary=0.41 cfs 1,296 cf

Total Runoff Area = 12,115 sf Runoff Volume = 4,808 cf Average Runoff Depth = 4.76"
100.00% Pervious = 12,115 sf 0.00% Impervious = 0 sf

Summary for Subcatchment FCA: Fitness Center Area

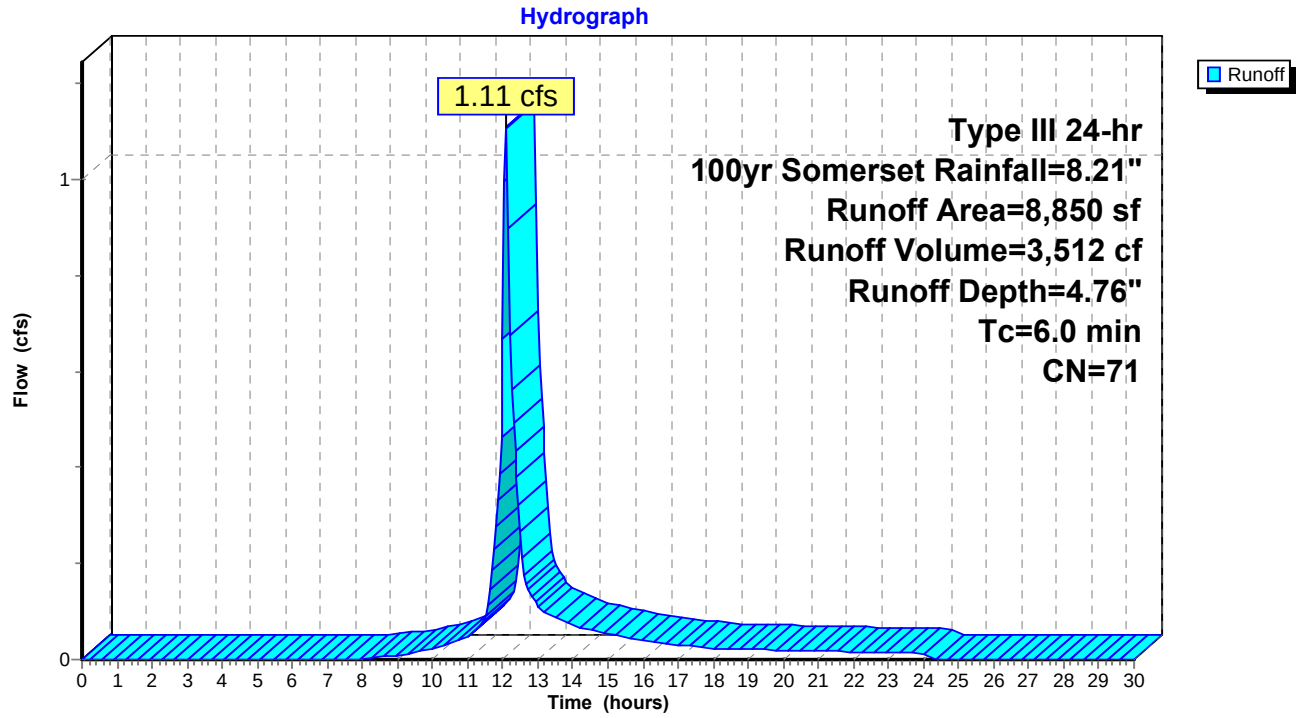
Runoff = 1.11 cfs @ 12.09 hrs, Volume= 3,512 cf, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100yr Somerset Rainfall=8.21"

	Area (sf)	CN	Description
*	7,270	71	Grass Area - Fitness Center Addition
*	1,580	71	Grass Area - Fitness Center Walk
	8,850	71	Weighted Average
	8,850		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Roof Drains**

Subcatchment FCA: Fitness Center Area



Hydrograph for Subcatchment FCA: Fitness Center Area

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.04	0.00	0.00
1.00	0.08	0.00	0.00
1.50	0.12	0.00	0.00
2.00	0.16	0.00	0.00
2.50	0.21	0.00	0.00
3.00	0.25	0.00	0.00
3.50	0.30	0.00	0.00
4.00	0.35	0.00	0.00
4.50	0.41	0.00	0.00
5.00	0.47	0.00	0.00
5.50	0.53	0.00	0.00
6.00	0.59	0.00	0.00
6.50	0.66	0.00	0.00
7.00	0.74	0.00	0.00
7.50	0.83	0.00	0.00
8.00	0.94	0.00	0.00
8.50	1.05	0.01	0.01
9.00	1.20	0.03	0.01
9.50	1.36	0.06	0.01
10.00	1.55	0.11	0.02
10.50	1.78	0.18	0.03
11.00	2.05	0.29	0.05
11.50	2.45	0.46	0.09
12.00	4.10	1.47	**0.67**
12.50	5.76	2.71	**0.27**
13.00	6.16	3.03	0.11
13.50	6.43	3.25	0.09
14.00	6.66	3.44	0.07
14.50	6.85	3.60	0.06
15.00	7.01	3.73	0.05
15.50	7.16	3.85	0.05
16.00	7.27	3.96	0.04
16.50	7.38	4.04	0.03
17.00	7.47	4.12	0.03
17.50	7.55	4.19	0.03
18.00	7.62	4.25	0.02
18.50	7.68	4.31	0.02
19.00	7.74	4.36	0.02
19.50	7.80	4.41	0.02
20.00	7.86	4.46	0.02
20.50	7.91	4.50	0.02
21.00	7.96	4.54	0.02
21.50	8.01	4.59	0.02
22.00	8.05	4.62	0.02
22.50	8.09	4.66	0.02
23.00	8.14	4.70	0.01
23.50	8.17	4.73	0.01
24.00	**8.21**	**4.76**	0.01
24.50	8.21	4.76	0.00
25.00	8.21	4.76	0.00
25.50	8.21	4.76	0.00
26.00	8.21	4.76	0.00
26.50	8.21	4.76	0.00
27.00	8.21	4.76	0.00
27.50	8.21	4.76	0.00
28.00	8.21	4.76	0.00
28.50	8.21	4.76	0.00
29.00	8.21	4.76	0.00
29.50	8.21	4.76	0.00
30.00	8.21	4.76	0.00

Summary for Subcatchment PC: Pickleball Court Area

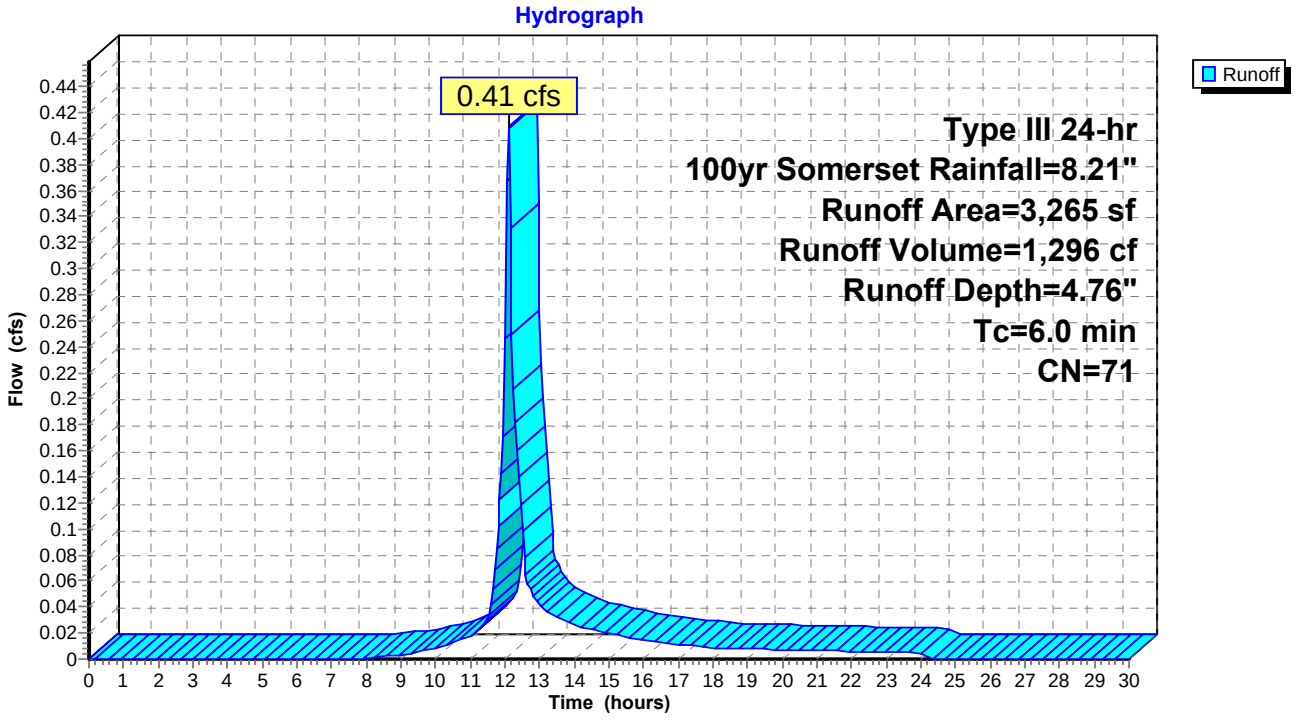
Runoff = 0.41 cfs @ 12.09 hrs, Volume= 1,296 cf, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100yr Somerset Rainfall=8.21"

	Area (sf)	CN	Description
*	1,905	71	Pickleball Court & Walk
*	480	71	Shuffleboard & Walk
*	880	71	Bocce & Concrete Walk
	3,265	71	Weighted Average
	3,265		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Pickleball Court**

Subcatchment PC: Pickleball Court Area



Hydrograph for Subcatchment PC: Pickleball Court Area

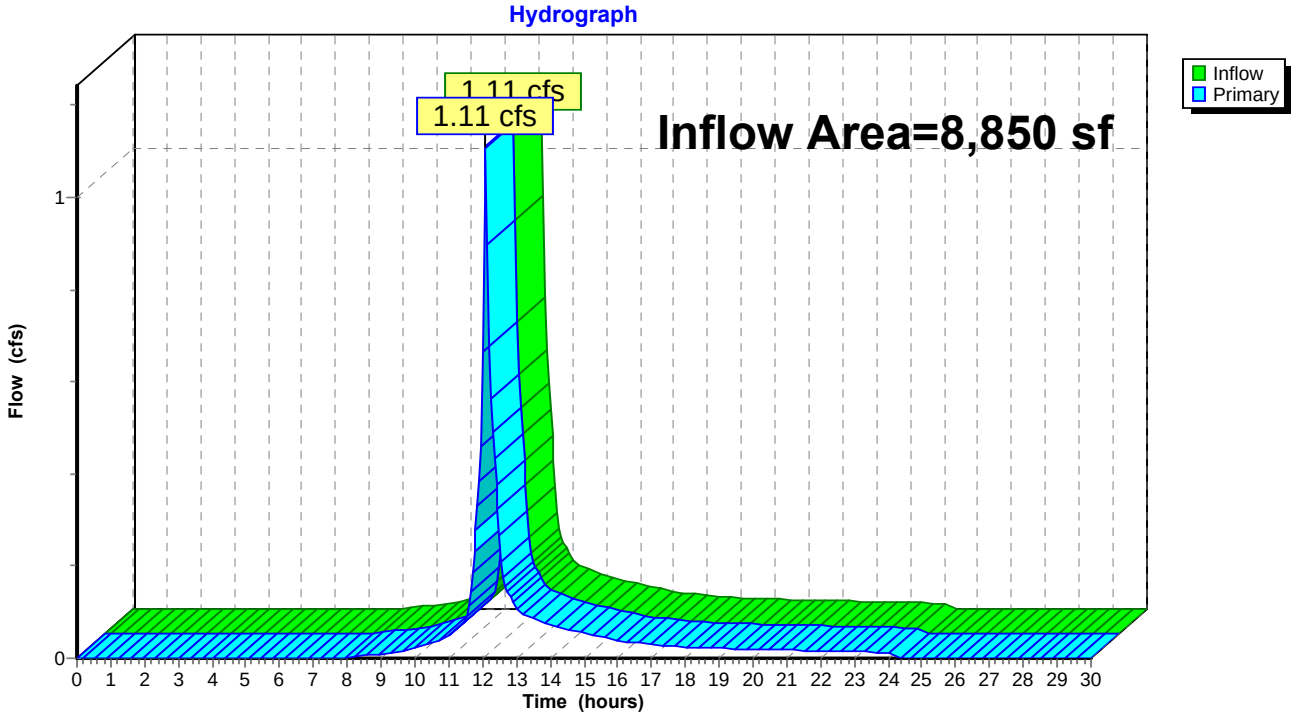
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.04	0.00	0.00
1.00	0.08	0.00	0.00
1.50	0.12	0.00	0.00
2.00	0.16	0.00	0.00
2.50	0.21	0.00	0.00
3.00	0.25	0.00	0.00
3.50	0.30	0.00	0.00
4.00	0.35	0.00	0.00
4.50	0.41	0.00	0.00
5.00	0.47	0.00	0.00
5.50	0.53	0.00	0.00
6.00	0.59	0.00	0.00
6.50	0.66	0.00	0.00
7.00	0.74	0.00	0.00
7.50	0.83	0.00	0.00
8.00	0.94	0.00	0.00
8.50	1.05	0.01	0.00
9.00	1.20	0.03	0.00
9.50	1.36	0.06	0.01
10.00	1.55	0.11	0.01
10.50	1.78	0.18	0.01
11.00	2.05	0.29	0.02
11.50	2.45	0.46	0.03
12.00	4.10	1.47	**0.25**
12.50	5.76	2.71	**0.10**
13.00	6.16	3.03	0.04
13.50	6.43	3.25	0.03
14.00	6.66	3.44	0.03
14.50	6.85	3.60	0.02
15.00	7.01	3.73	0.02
15.50	7.16	3.85	0.02
16.00	7.27	3.96	0.01
16.50	7.38	4.04	0.01
17.00	7.47	4.12	0.01
17.50	7.55	4.19	0.01
18.00	7.62	4.25	0.01
18.50	7.68	4.31	0.01
19.00	7.74	4.36	0.01
19.50	7.80	4.41	0.01
20.00	7.86	4.46	0.01
20.50	7.91	4.50	0.01
21.00	7.96	4.54	0.01
21.50	8.01	4.59	0.01
22.00	8.05	4.62	0.01
22.50	8.09	4.66	0.01
23.00	8.14	4.70	0.01
23.50	8.17	4.73	0.00
24.00	**8.21**	**4.76**	0.00
24.50	8.21	4.76	0.00
25.00	8.21	4.76	0.00
25.50	8.21	4.76	0.00
26.00	8.21	4.76	0.00
26.50	8.21	4.76	0.00
27.00	8.21	4.76	0.00
27.50	8.21	4.76	0.00
28.00	8.21	4.76	0.00
28.50	8.21	4.76	0.00
29.00	8.21	4.76	0.00
29.50	8.21	4.76	0.00
30.00	8.21	4.76	0.00

Summary for Pond FCA-Out: FCA Discharge

Inflow Area = 8,850 sf, 0.00% Impervious, Inflow Depth = 4.76" for 100yr Somerset event
Inflow = 1.11 cfs @ 12.09 hrs, Volume= 3,512 cf
Primary = 1.11 cfs @ 12.09 hrs, Volume= 3,512 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2

Pond FCA-Out: FCA Discharge



Hydrograph for Pond FCA-Out: FCA Discharge

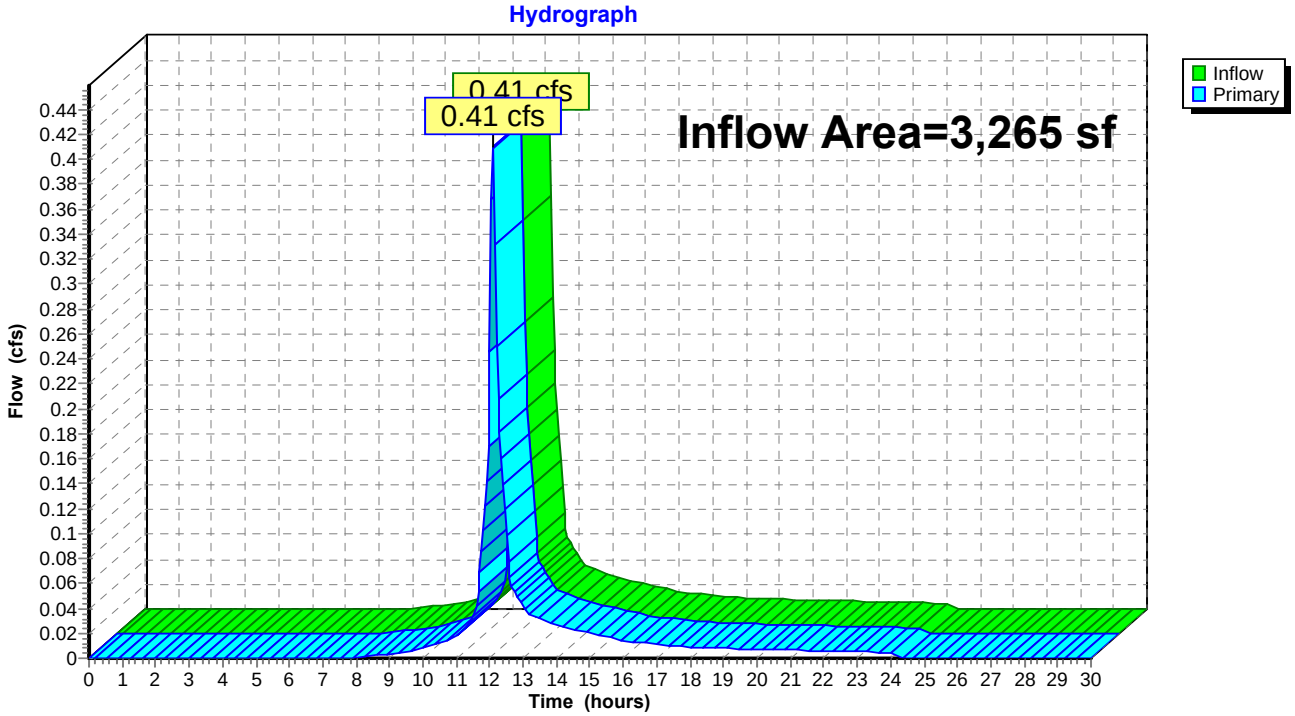
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
0.50	0.00		0.00
1.00	0.00		0.00
1.50	0.00		0.00
2.00	0.00		0.00
2.50	0.00		0.00
3.00	0.00		0.00
3.50	0.00		0.00
4.00	0.00		0.00
4.50	0.00		0.00
5.00	0.00		0.00
5.50	0.00		0.00
6.00	0.00		0.00
6.50	0.00		0.00
7.00	0.00		0.00
7.50	0.00		0.00
8.00	0.00		0.00
8.50	0.01		0.01
9.00	0.01		0.01
9.50	0.01		0.01
10.00	0.02		0.02
10.50	0.03		0.03
11.00	0.05		0.05
11.50	0.09		0.09
12.00	**0.67**		**0.67**
12.50	**0.27**		**0.27**
13.00	0.11		0.11
13.50	0.09		0.09
14.00	0.07		0.07
14.50	0.06		0.06
15.00	0.05		0.05
15.50	0.05		0.05
16.00	0.04		0.04
16.50	0.03		0.03
17.00	0.03		0.03
17.50	0.03		0.03
18.00	0.02		0.02
18.50	0.02		0.02
19.00	0.02		0.02
19.50	0.02		0.02
20.00	0.02		0.02
20.50	0.02		0.02
21.00	0.02		0.02
21.50	0.02		0.02
22.00	0.02		0.02
22.50	0.02		0.02
23.00	0.01		0.01
23.50	0.01		0.01
24.00	0.01		0.01
24.50	0.00		0.00
25.00	0.00		0.00
25.50	0.00		0.00
26.00	0.00		0.00
26.50	0.00		0.00
27.00	0.00		0.00
27.50	0.00		0.00
28.00	0.00		0.00
28.50	0.00		0.00
29.00	0.00		0.00
29.50	0.00		0.00
30.00	0.00		0.00

Summary for Pond PC-Out: Pickleball Area Discharge

Inflow Area = 3,265 sf, 0.00% Impervious, Inflow Depth = 4.76" for 100yr Somerset event
Inflow = 0.41 cfs @ 12.09 hrs, Volume= 1,296 cf
Primary = 0.41 cfs @ 12.09 hrs, Volume= 1,296 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2

Pond PC-Out: Pickleball Area Discharge



Hydrograph for Pond PC-Out: Pickleball Area Discharge

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
0.50	0.00		0.00
1.00	0.00		0.00
1.50	0.00		0.00
2.00	0.00		0.00
2.50	0.00		0.00
3.00	0.00		0.00
3.50	0.00		0.00
4.00	0.00		0.00
4.50	0.00		0.00
5.00	0.00		0.00
5.50	0.00		0.00
6.00	0.00		0.00
6.50	0.00		0.00
7.00	0.00		0.00
7.50	0.00		0.00
8.00	0.00		0.00
8.50	0.00		0.00
9.00	0.00		0.00
9.50	0.01		0.01
10.00	0.01		0.01
10.50	0.01		0.01
11.00	0.02		0.02
11.50	0.03		0.03
12.00	**0.25**		**0.25**
12.50	**0.10**		**0.10**
13.00	0.04		0.04
13.50	0.03		0.03
14.00	0.03		0.03
14.50	0.02		0.02
15.00	0.02		0.02
15.50	0.02		0.02
16.00	0.01		0.01
16.50	0.01		0.01
17.00	0.01		0.01
17.50	0.01		0.01
18.00	0.01		0.01
18.50	0.01		0.01
19.00	0.01		0.01
19.50	0.01		0.01
20.00	0.01		0.01
20.50	0.01		0.01
21.00	0.01		0.01
21.50	0.01		0.01
22.00	0.01		0.01
22.50	0.01		0.01
23.00	0.01		0.01
23.50	0.00		0.00
24.00	0.00		0.00
24.50	0.00		0.00
25.00	0.00		0.00
25.50	0.00		0.00
26.00	0.00		0.00
26.50	0.00		0.00
27.00	0.00		0.00
27.50	0.00		0.00
28.00	0.00		0.00
28.50	0.00		0.00
29.00	0.00		0.00
29.50	0.00		0.00
30.00	0.00		0.00

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment FCA: Fitness Center Area Runoff Area=8,850 sf 0.00% Impervious Runoff Depth=0.04"
Tc=6.0 min CN=71 Runoff=0.01 cfs 31 cf

Subcatchment PC: Pickleball Court Area Runoff Area=3,265 sf 0.00% Impervious Runoff Depth=0.04"
Tc=6.0 min CN=71 Runoff=0.01 cfs 11 cf

Pond FCA-Out: FCA Discharge Inflow=0.01 cfs 31 cf
Primary=0.01 cfs 31 cf

Pond PC-Out: Pickleball Area Discharge Inflow=0.01 cfs 11 cf
Primary=0.01 cfs 11 cf

Total Runoff Area = 12,115 sf Runoff Volume = 42 cf Average Runoff Depth = 0.04"
100.00% Pervious = 12,115 sf 0.00% Impervious = 0 sf

Summary for Subcatchment FCA: Fitness Center Area

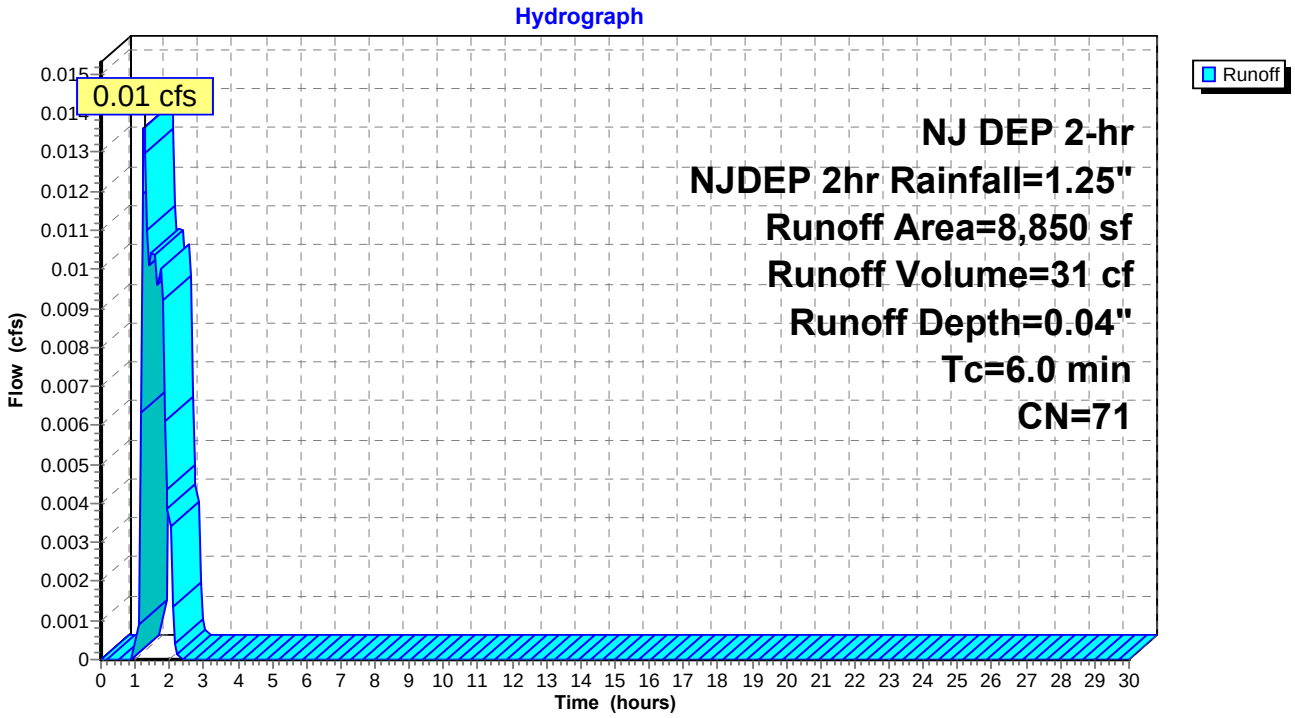
Runoff = 0.01 cfs @ 1.26 hrs, Volume= 31 cf, Depth= 0.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr NJDEP 2hr Rainfall=1.25"

	Area (sf)	CN	Description
*	7,270	71	Grass Area - Fitness Center Addition
*	1,580	71	Grass Area - Fitness Center Walk
	8,850	71	Weighted Average
	8,850		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Roof Drains**

Subcatchment FCA: Fitness Center Area



Hydrograph for Subcatchment FCA: Fitness Center Area

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.10	0.00	0.00
1.00	0.63	0.00	**0.00**
1.50	1.15	0.03	**0.01**
2.00	**1.25**	**0.04**	0.00
2.50	1.25	0.04	0.00
3.00	1.25	0.04	0.00
3.50	1.25	0.04	0.00
4.00	1.25	0.04	0.00
4.50	1.25	0.04	0.00
5.00	1.25	0.04	0.00
5.50	1.25	0.04	0.00
6.00	1.25	0.04	0.00
6.50	1.25	0.04	0.00
7.00	1.25	0.04	0.00
7.50	1.25	0.04	0.00
8.00	1.25	0.04	0.00
8.50	1.25	0.04	0.00
9.00	1.25	0.04	0.00
9.50	1.25	0.04	0.00
10.00	1.25	0.04	0.00
10.50	1.25	0.04	0.00
11.00	1.25	0.04	0.00
11.50	1.25	0.04	0.00
12.00	1.25	0.04	0.00
12.50	1.25	0.04	0.00
13.00	1.25	0.04	0.00
13.50	1.25	0.04	0.00
14.00	1.25	0.04	0.00
14.50	1.25	0.04	0.00
15.00	1.25	0.04	0.00
15.50	1.25	0.04	0.00
16.00	1.25	0.04	0.00
16.50	1.25	0.04	0.00
17.00	1.25	0.04	0.00
17.50	1.25	0.04	0.00
18.00	1.25	0.04	0.00
18.50	1.25	0.04	0.00
19.00	1.25	0.04	0.00
19.50	1.25	0.04	0.00
20.00	1.25	0.04	0.00
20.50	1.25	0.04	0.00
21.00	1.25	0.04	0.00
21.50	1.25	0.04	0.00
22.00	1.25	0.04	0.00
22.50	1.25	0.04	0.00
23.00	1.25	0.04	0.00
23.50	1.25	0.04	0.00
24.00	1.25	0.04	0.00
24.50	1.25	0.04	0.00
25.00	1.25	0.04	0.00
25.50	1.25	0.04	0.00
26.00	1.25	0.04	0.00
26.50	1.25	0.04	0.00
27.00	1.25	0.04	0.00
27.50	1.25	0.04	0.00
28.00	1.25	0.04	0.00
28.50	1.25	0.04	0.00
29.00	1.25	0.04	0.00
29.50	1.25	0.04	0.00
30.00	1.25	0.04	0.00

Summary for Subcatchment PC: Pickleball Court Area

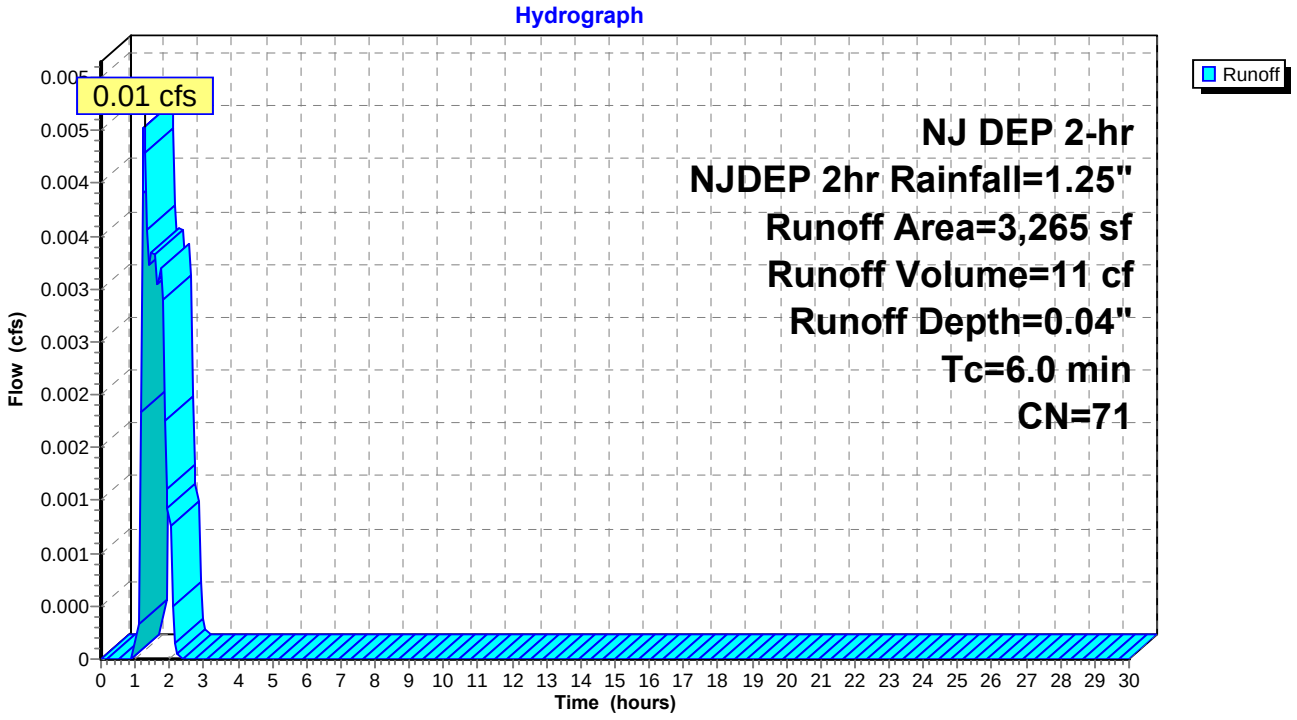
Runoff = 0.01 cfs @ 1.26 hrs, Volume= 11 cf, Depth= 0.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr NJDEP 2hr Rainfall=1.25"

	Area (sf)	CN	Description
*	1,905	71	Pickleball Court & Walk
*	480	71	Shuffleboard & Walk
*	880	71	Bocce & Concrete Walk
	3,265	71	Weighted Average
	3,265		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Pickleball Court**

Subcatchment PC: Pickleball Court Area



Hydrograph for Subcatchment PC: Pickleball Court Area

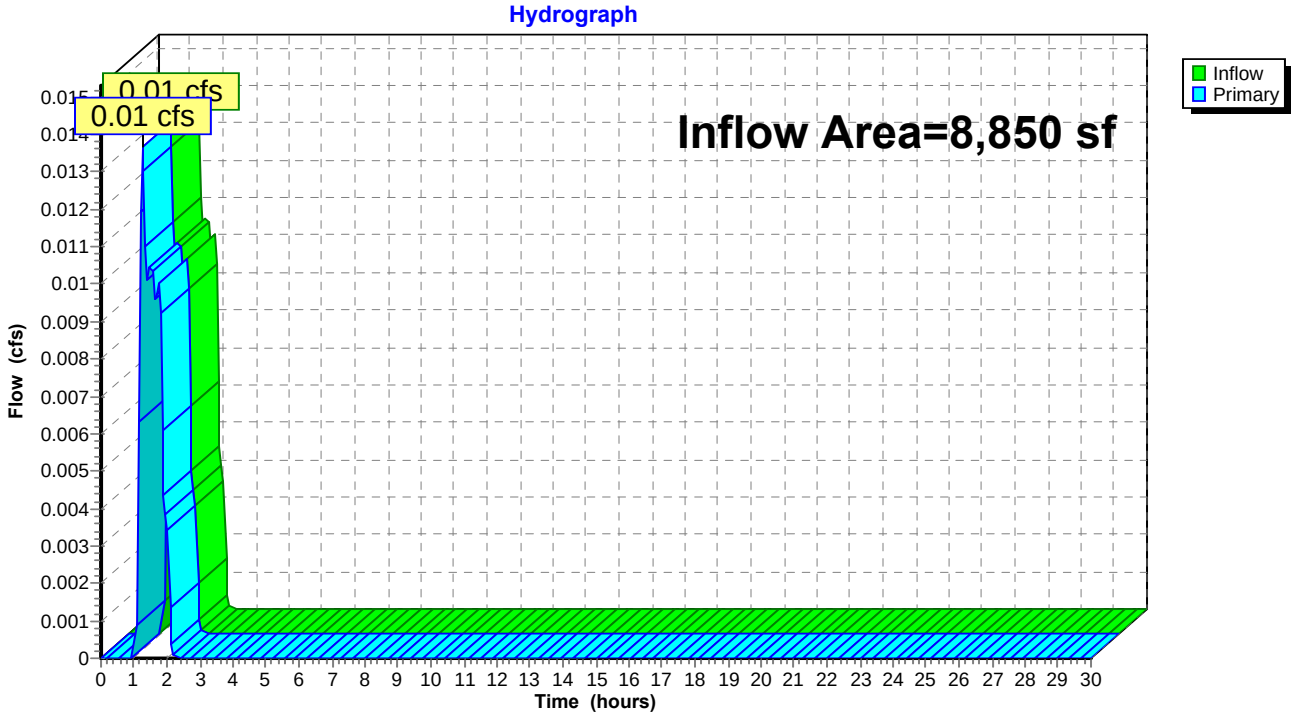
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.10	0.00	0.00
1.00	0.63	0.00	**0.00**
1.50	1.15	0.03	**0.00**
2.00	**1.25**	**0.04**	0.00
2.50	1.25	0.04	0.00
3.00	1.25	0.04	0.00
3.50	1.25	0.04	0.00
4.00	1.25	0.04	0.00
4.50	1.25	0.04	0.00
5.00	1.25	0.04	0.00
5.50	1.25	0.04	0.00
6.00	1.25	0.04	0.00
6.50	1.25	0.04	0.00
7.00	1.25	0.04	0.00
7.50	1.25	0.04	0.00
8.00	1.25	0.04	0.00
8.50	1.25	0.04	0.00
9.00	1.25	0.04	0.00
9.50	1.25	0.04	0.00
10.00	1.25	0.04	0.00
10.50	1.25	0.04	0.00
11.00	1.25	0.04	0.00
11.50	1.25	0.04	0.00
12.00	1.25	0.04	0.00
12.50	1.25	0.04	0.00
13.00	1.25	0.04	0.00
13.50	1.25	0.04	0.00
14.00	1.25	0.04	0.00
14.50	1.25	0.04	0.00
15.00	1.25	0.04	0.00
15.50	1.25	0.04	0.00
16.00	1.25	0.04	0.00
16.50	1.25	0.04	0.00
17.00	1.25	0.04	0.00
17.50	1.25	0.04	0.00
18.00	1.25	0.04	0.00
18.50	1.25	0.04	0.00
19.00	1.25	0.04	0.00
19.50	1.25	0.04	0.00
20.00	1.25	0.04	0.00
20.50	1.25	0.04	0.00
21.00	1.25	0.04	0.00
21.50	1.25	0.04	0.00
22.00	1.25	0.04	0.00
22.50	1.25	0.04	0.00
23.00	1.25	0.04	0.00
23.50	1.25	0.04	0.00
24.00	1.25	0.04	0.00
24.50	1.25	0.04	0.00
25.00	1.25	0.04	0.00
25.50	1.25	0.04	0.00
26.00	1.25	0.04	0.00
26.50	1.25	0.04	0.00
27.00	1.25	0.04	0.00
27.50	1.25	0.04	0.00
28.00	1.25	0.04	0.00
28.50	1.25	0.04	0.00
29.00	1.25	0.04	0.00
29.50	1.25	0.04	0.00
30.00	1.25	0.04	0.00

Summary for Pond FCA-Out: FCA Discharge

Inflow Area = 8,850 sf, 0.00% Impervious, Inflow Depth = 0.04" for NJDEP 2hr event
Inflow = 0.01 cfs @ 1.26 hrs, Volume= 31 cf
Primary = 0.01 cfs @ 1.26 hrs, Volume= 31 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2

Pond FCA-Out: FCA Discharge



Hydrograph for Pond FCA-Out: FCA Discharge

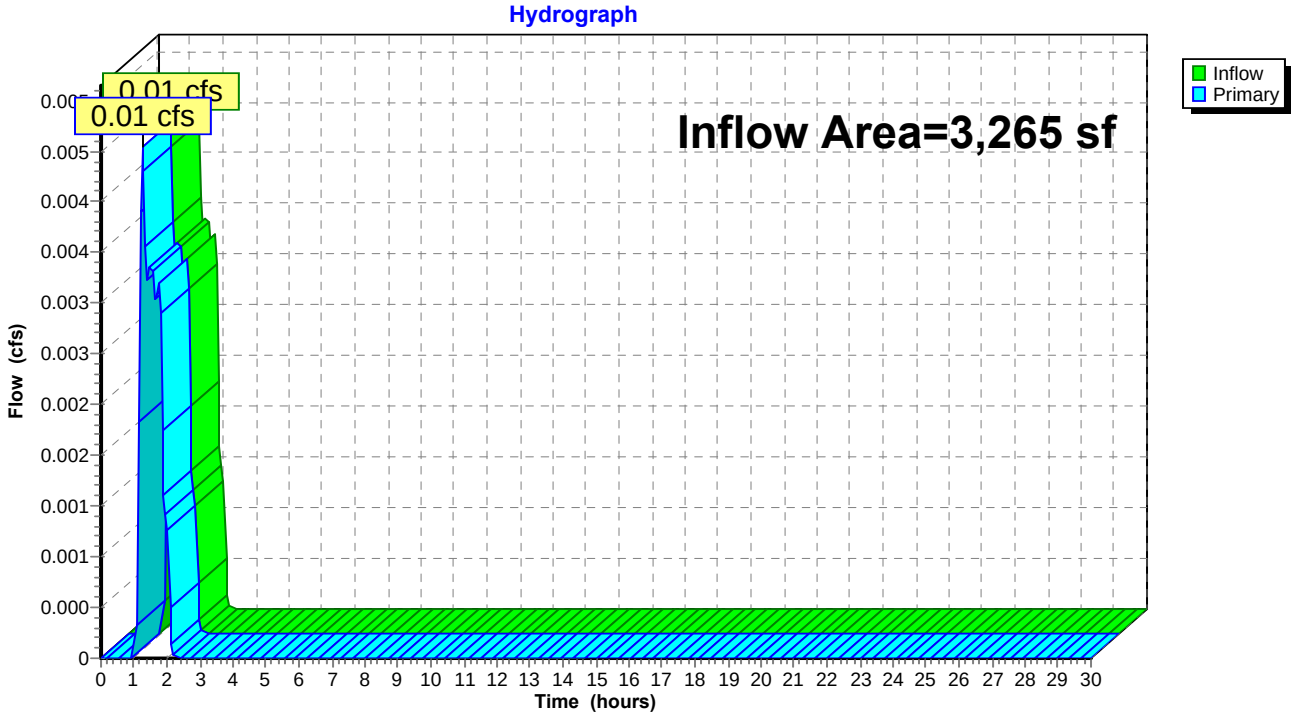
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	26.00	0.00		0.00
0.50	0.00		0.00	26.50	0.00		0.00
1.00	**0.00**		**0.00**	27.00	0.00		0.00
1.50	**0.01**		**0.01**	27.50	0.00		0.00
2.00	0.00		0.00	28.00	0.00		0.00
2.50	0.00		0.00	28.50	0.00		0.00
3.00	0.00		0.00	29.00	0.00		0.00
3.50	0.00		0.00	29.50	0.00		0.00
4.00	0.00		0.00	30.00	0.00		0.00
4.50	0.00		0.00				
5.00	0.00		0.00				
5.50	0.00		0.00				
6.00	0.00		0.00				
6.50	0.00		0.00				
7.00	0.00		0.00				
7.50	0.00		0.00				
8.00	0.00		0.00				
8.50	0.00		0.00				
9.00	0.00		0.00				
9.50	0.00		0.00				
10.00	0.00		0.00				
10.50	0.00		0.00				
11.00	0.00		0.00				
11.50	0.00		0.00				
12.00	0.00		0.00				
12.50	0.00		0.00				
13.00	0.00		0.00				
13.50	0.00		0.00				
14.00	0.00		0.00				
14.50	0.00		0.00				
15.00	0.00		0.00				
15.50	0.00		0.00				
16.00	0.00		0.00				
16.50	0.00		0.00				
17.00	0.00		0.00				
17.50	0.00		0.00				
18.00	0.00		0.00				
18.50	0.00		0.00				
19.00	0.00		0.00				
19.50	0.00		0.00				
20.00	0.00		0.00				
20.50	0.00		0.00				
21.00	0.00		0.00				
21.50	0.00		0.00				
22.00	0.00		0.00				
22.50	0.00		0.00				
23.00	0.00		0.00				
23.50	0.00		0.00				
24.00	0.00		0.00				
24.50	0.00		0.00				
25.00	0.00		0.00				
25.50	0.00		0.00				

Summary for Pond PC-Out: Pickleball Area Discharge

Inflow Area = 3,265 sf, 0.00% Impervious, Inflow Depth = 0.04" for NJDEP 2hr event
Inflow = 0.01 cfs @ 1.26 hrs, Volume= 11 cf
Primary = 0.01 cfs @ 1.26 hrs, Volume= 11 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2

Pond PC-Out: Pickleball Area Discharge



Hydrograph for Pond PC-Out: Pickleball Area Discharge

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00
0.50	0.00		0.00
1.00	**0.00**		**0.00**
1.50	**0.00**		**0.00**
2.00	0.00		0.00
2.50	0.00		0.00
3.00	0.00		0.00
3.50	0.00		0.00
4.00	0.00		0.00
4.50	0.00		0.00
5.00	0.00		0.00
5.50	0.00		0.00
6.00	0.00		0.00
6.50	0.00		0.00
7.00	0.00		0.00
7.50	0.00		0.00
8.00	0.00		0.00
8.50	0.00		0.00
9.00	0.00		0.00
9.50	0.00		0.00
10.00	0.00		0.00
10.50	0.00		0.00
11.00	0.00		0.00
11.50	0.00		0.00
12.00	0.00		0.00
12.50	0.00		0.00
13.00	0.00		0.00
13.50	0.00		0.00
14.00	0.00		0.00
14.50	0.00		0.00
15.00	0.00		0.00
15.50	0.00		0.00
16.00	0.00		0.00
16.50	0.00		0.00
17.00	0.00		0.00
17.50	0.00		0.00
18.00	0.00		0.00
18.50	0.00		0.00
19.00	0.00		0.00
19.50	0.00		0.00
20.00	0.00		0.00
20.50	0.00		0.00
21.00	0.00		0.00
21.50	0.00		0.00
22.00	0.00		0.00
22.50	0.00		0.00
23.00	0.00		0.00
23.50	0.00		0.00
24.00	0.00		0.00
24.50	0.00		0.00
25.00	0.00		0.00
25.50	0.00		0.00
26.00	0.00		0.00
26.50	0.00		0.00
27.00	0.00		0.00
27.50	0.00		0.00
28.00	0.00		0.00
28.50	0.00		0.00
29.00	0.00		0.00
29.50	0.00		0.00
30.00	0.00		0.00

Fitness Center Addition

ADS MC4500

Pickleball Court

Proposed Basin

Subcat Reach Pond Link

Routing Diagram for 2020-11_FVG00101_Pr
Prepared by Marathon Consultants, Printed 11/23/2020
HydroCAD® 10.00-26 s/n 03796 © 2020 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
880	98	Bocce & Concrete Walk (PC)
7,270	98	Fitness Center Roof (FCA)
1,580	98	Fitness Center Walk (FCA)
1,905	98	Pickleball Court & Walk (PC)
480	98	Shuffleboard & Walk (PC)
12,115	**98**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
0	HSG C	
0	HSG D	
12,115	Other	FCA, PC
12,115		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Subca Numb
0	0	0	0	880	880	Bocce & Concrete Walk	
0	0	0	0	7,270	7,270	Fitness Center Roof	
0	0	0	0	1,580	1,580	Fitness Center Walk	
0	0	0	0	1,905	1,905	Pickleball Court & Walk	
0	0	0	0	480	480	Shuffleboard & Walk	
0	**0**	**0**	**0**	**12,115**	**12,115**	**TOTAL AREA**	

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment FCA: Fitness Center Runoff Area=8,850 sf 100.00% Impervious Runoff Depth=3.11"
Tc=6.0 min CN=98 Runoff=0.64 cfs 2,291 cf

Subcatchment PC: Pickleball Court Runoff Area=3,265 sf 100.00% Impervious Runoff Depth=3.11"
Tc=6.0 min CN=98 Runoff=0.24 cfs 845 cf

Pond ADS: ADS MC4500 Peak Elev=242.38' Storage=981 cf Inflow=0.64 cfs 2,291 cf
Outflow=0.06 cfs 2,293 cf

Pond PB: Proposed Basin Peak Elev=248.24' Storage=441 cf Inflow=0.24 cfs 845 cf
Discarded=0.02 cfs 830 cf Primary=0.00 cfs 0 cf Outflow=0.02 cfs 830 cf

Total Runoff Area = 12,115 sf Runoff Volume = 3,137 cf Average Runoff Depth = 3.11"
0.00% Pervious = 0 sf 100.00% Impervious = 12,115 sf

Summary for Subcatchment FCA: Fitness Center Addition

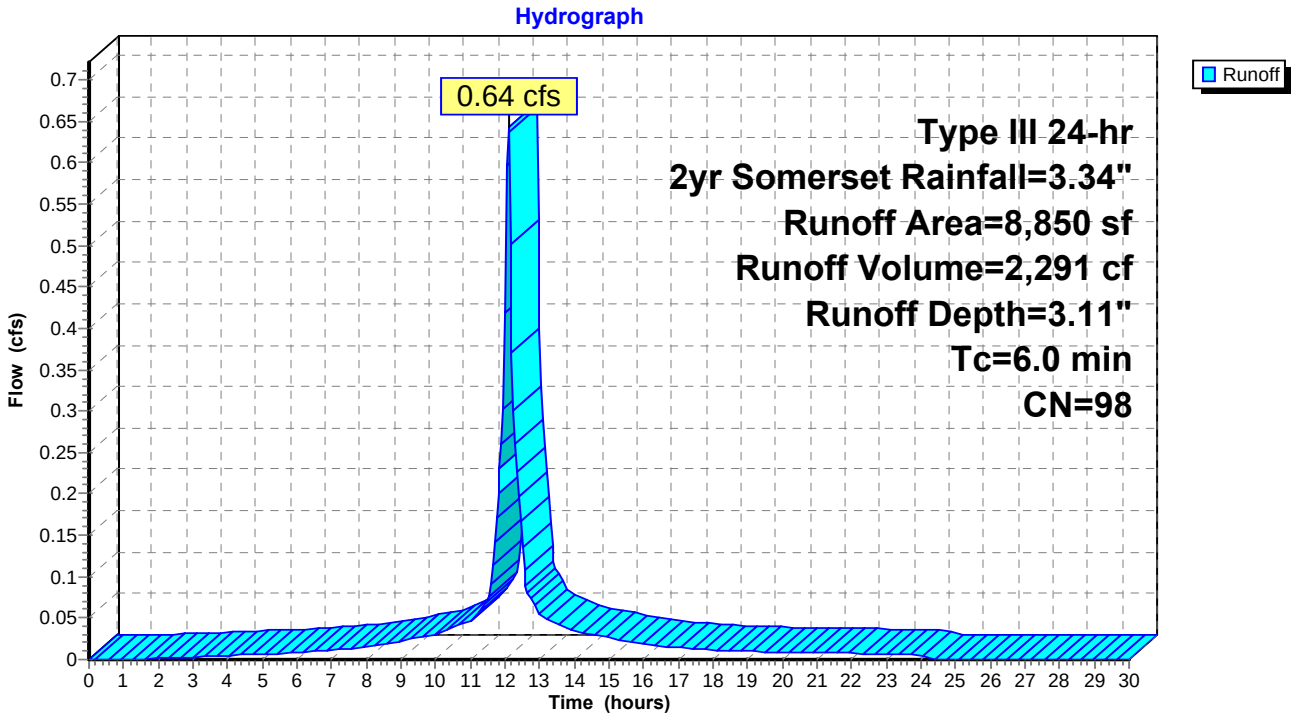
Runoff = 0.64 cfs @ 12.09 hrs, Volume= 2,291 cf, Depth= 3.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2yr Somerset Rainfall=3.34"

	Area (sf)	CN	Description
*	7,270	98	Fitness Center Roof
*	1,580	98	Fitness Center Walk
	8,850	98	Weighted Average
	8,850		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Roof Drains**

Subcatchment FCA: Fitness Center Addition



Hydrograph for Subcatchment FCA: Fitness Center Addition

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.02	0.00	0.00
1.00	0.03	0.00	0.00
1.50	0.05	0.00	0.00
2.00	0.07	0.00	0.00
2.50	0.08	0.01	0.00
3.00	0.10	0.01	0.00
3.50	0.12	0.02	0.00
4.00	0.14	0.03	0.00
4.50	0.17	0.05	0.01
5.00	0.19	0.06	0.01
5.50	0.21	0.08	0.01
6.00	0.24	0.10	0.01
6.50	0.27	0.12	0.01
7.00	0.30	0.15	0.01
7.50	0.34	0.18	0.01
8.00	0.38	0.21	0.01
8.50	0.43	0.25	0.02
9.00	0.49	0.31	0.02
9.50	0.55	0.37	0.03
10.00	0.63	0.44	0.03
10.50	0.72	0.53	0.04
11.00	0.83	0.63	0.05
11.50	1.00	0.79	0.07
12.00	1.67	1.45	**0.42**
12.50	2.34	2.12	**0.14**
13.00	2.50	2.28	0.06
13.50	2.62	2.39	0.04
14.00	2.71	2.48	0.03
14.50	2.79	2.55	0.03
15.00	2.85	2.62	0.03
15.50	2.91	2.68	0.02
16.00	2.96	2.73	0.02
16.50	3.00	2.77	0.02
17.00	3.04	2.81	0.01
17.50	3.07	2.84	0.01
18.00	3.10	2.87	0.01
18.50	3.13	2.89	0.01
19.00	3.15	2.92	0.01
19.50	3.17	2.94	0.01
20.00	3.20	2.96	0.01
20.50	3.22	2.99	0.01
21.00	3.24	3.01	0.01
21.50	3.26	3.02	0.01
22.00	3.28	3.04	0.01
22.50	3.29	3.06	0.01
23.00	3.31	3.08	0.01
23.50	3.33	3.09	0.01
24.00	**3.34**	**3.11**	0.01
24.50	3.34	3.11	0.00
25.00	3.34	3.11	0.00
25.50	3.34	3.11	0.00
26.00	3.34	3.11	0.00
26.50	3.34	3.11	0.00
27.00	3.34	3.11	0.00
27.50	3.34	3.11	0.00
28.00	3.34	3.11	0.00
28.50	3.34	3.11	0.00
29.00	3.34	3.11	0.00
29.50	3.34	3.11	0.00
30.00	3.34	3.11	0.00

Summary for Subcatchment PC: Pickleball Court

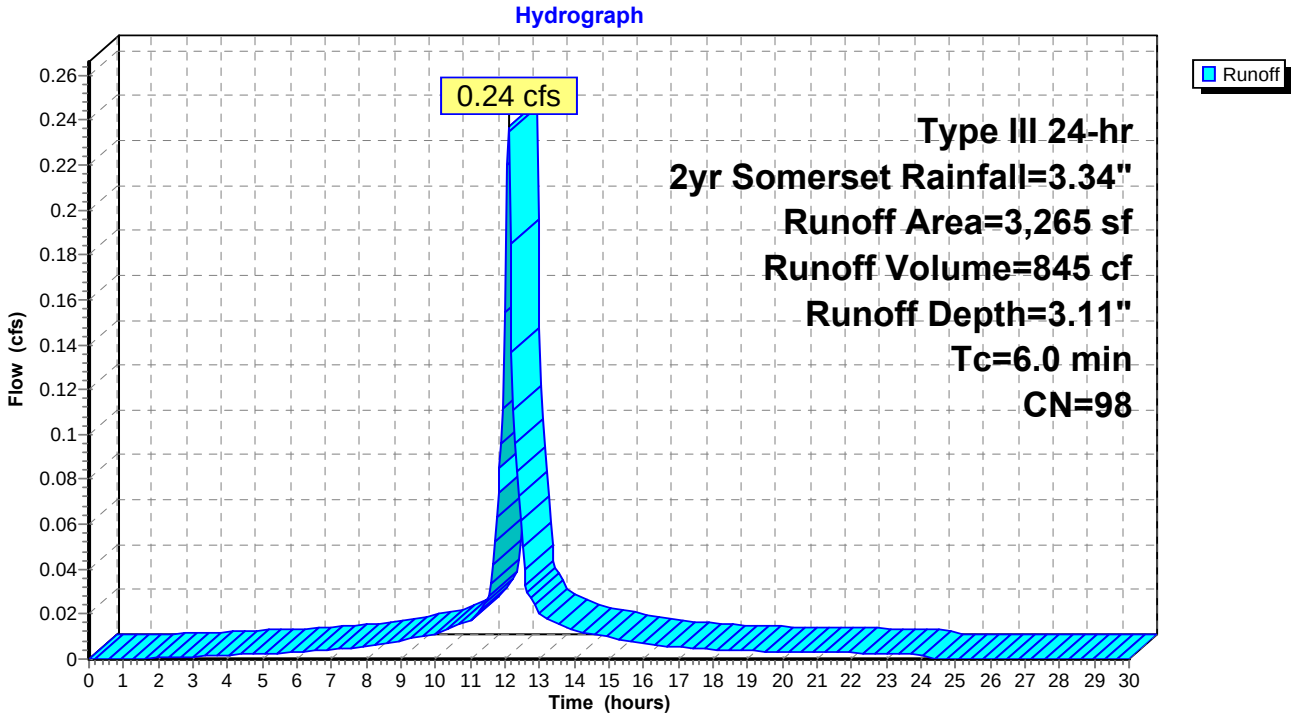
Runoff = 0.24 cfs @ 12.09 hrs, Volume= 845 cf, Depth= 3.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2yr Somerset Rainfall=3.34"

	Area (sf)	CN	Description
*	1,905	98	Pickleball Court & Walk
*	480	98	Shuffleboard & Walk
*	880	98	Bocce & Concrete Walk
	3,265	98	Weighted Average
	3,265		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Pickleball Court**

Subcatchment PC: Pickleball Court



Hydrograph for Subcatchment PC: Pickleball Court

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.00	3.34	3.11	0.00
0.50	0.02	0.00	0.00	26.50	3.34	3.11	0.00
1.00	0.03	0.00	0.00	27.00	3.34	3.11	0.00
1.50	0.05	0.00	0.00	27.50	3.34	3.11	0.00
2.00	0.07	0.00	0.00	28.00	3.34	3.11	0.00
2.50	0.08	0.01	0.00	28.50	3.34	3.11	0.00
3.00	0.10	0.01	0.00	29.00	3.34	3.11	0.00
3.50	0.12	0.02	0.00	29.50	3.34	3.11	0.00
4.00	0.14	0.03	0.00	30.00	3.34	3.11	0.00
4.50	0.17	0.05	0.00				
5.00	0.19	0.06	0.00				
5.50	0.21	0.08	0.00				
6.00	0.24	0.10	0.00				
6.50	0.27	0.12	0.00				
7.00	0.30	0.15	0.00				
7.50	0.34	0.18	0.00				
8.00	0.38	0.21	0.01				
8.50	0.43	0.25	0.01				
9.00	0.49	0.31	0.01				
9.50	0.55	0.37	0.01				
10.00	0.63	0.44	0.01				
10.50	0.72	0.53	0.01				
11.00	0.83	0.63	0.02				
11.50	1.00	0.79	0.03				
12.00	1.67	1.45	**0.15**				
12.50	2.34	2.12	**0.05**				
13.00	2.50	2.28	0.02				
13.50	2.62	2.39	0.02				
14.00	2.71	2.48	0.01				
14.50	2.79	2.55	0.01				
15.00	2.85	2.62	0.01				
15.50	2.91	2.68	0.01				
16.00	2.96	2.73	0.01				
16.50	3.00	2.77	0.01				
17.00	3.04	2.81	0.01				
17.50	3.07	2.84	0.00				
18.00	3.10	2.87	0.00				
18.50	3.13	2.89	0.00				
19.00	3.15	2.92	0.00				
19.50	3.17	2.94	0.00				
20.00	3.20	2.96	0.00				
20.50	3.22	2.99	0.00				
21.00	3.24	3.01	0.00				
21.50	3.26	3.02	0.00				
22.00	3.28	3.04	0.00				
22.50	3.29	3.06	0.00				
23.00	3.31	3.08	0.00				
23.50	3.33	3.09	0.00				
24.00	**3.34**	**3.11**	0.00				
24.50	3.34	3.11	0.00				
25.00	3.34	3.11	0.00				
25.50	3.34	3.11	0.00				

Summary for Pond ADS: ADS MC4500

Inflow Area = 8,850 sf,100.00% Impervious, Inflow Depth = 3.11" for 2yr Somerset event
Inflow = 0.64 cfs @ 12.09 hrs, Volume= 2,291 cf
Outflow = 0.06 cfs @ 18.60 hrs, Volume= 2,293 cf, Atten= 91%, Lag= 390.8 min
Discarded = 0.06 cfs @ 18.60 hrs, Volume= 2,293 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 242.38' @ 12.97 hrs Surf.Area= 2,483 sf Storage= 981 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 153.8 min (909.3 - 755.5)

Volume	Invert	Avail.Storage	Storage Description
#1	240.75'	286 cf	**Bottom Stone (Prismatic)**Listed below (Recalc) 714 cf Overall x 40.0% Voids
#2	241.50'	971 cf	**Stone Around Chamber (Prismatic)**Listed below (Recalc) 4,760 cf Overall x 20.4% Voids
#3	241.50'	2,124 cf	**ADS_StormTech MC-4500 +Cap @ 77.57' L** Effective Size= 90.4"W x 60.0"H => 26.46 sf x 77.57'L = 2,052.3 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap Cap Storage= +35.7 cf x 2 x 1 rows = 71.4 cf
#4	246.50'	381 cf	**Top Stone (Prismatic)**Listed below (Recalc) 952 cf Overall x 40.0% Voids
		3,761 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
240.75	952	0	0
241.50	952	714	714

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
241.50	952	0	0
246.50	952	4,760	4,760

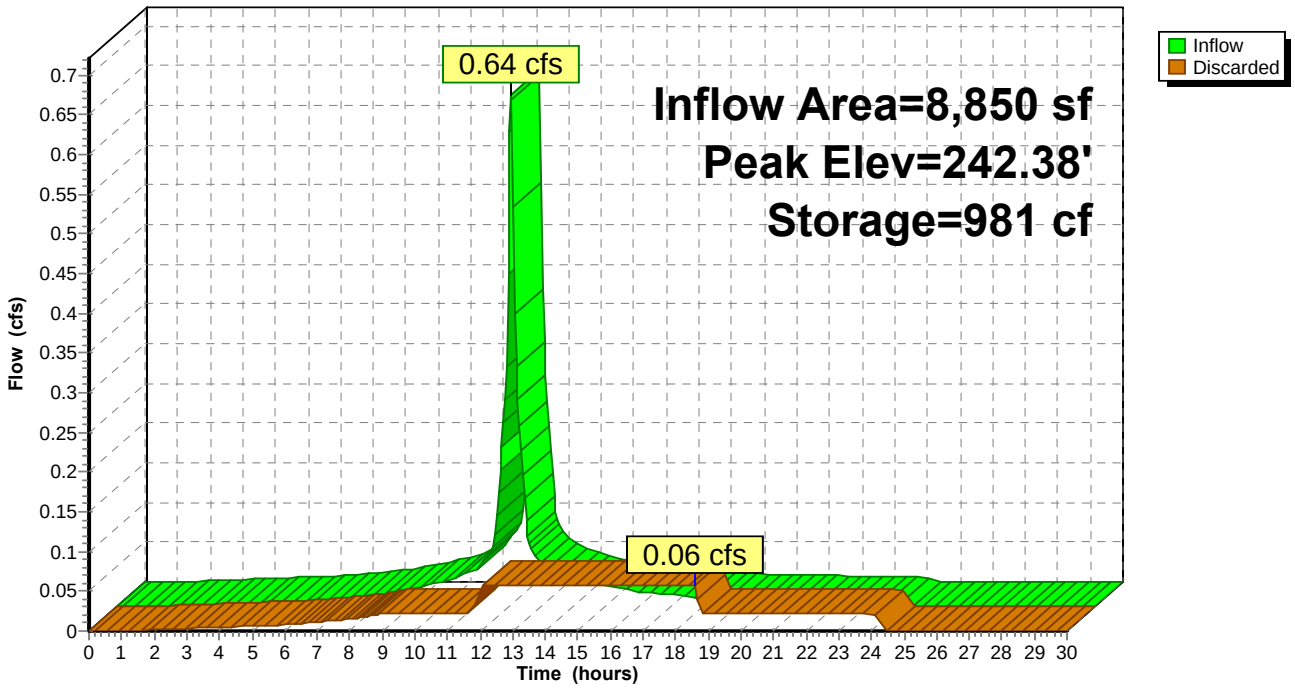
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
246.50	952	0	0
247.50	952	952	952

Device	Routing	Invert	Outlet Devices
#1	Discarded	240.75'	**1.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.06 cfs @ 18.60 hrs HW=241.51' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.06 cfs)

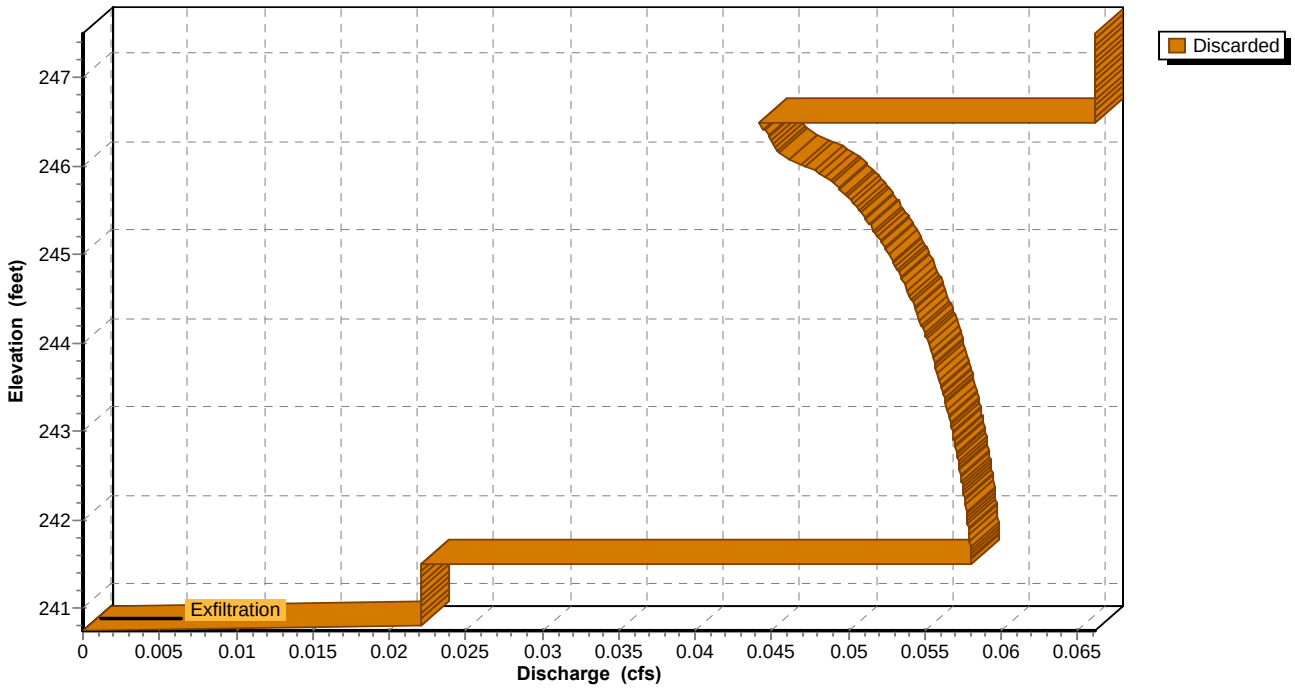
Pond ADS: ADS MC4500

Hydrograph

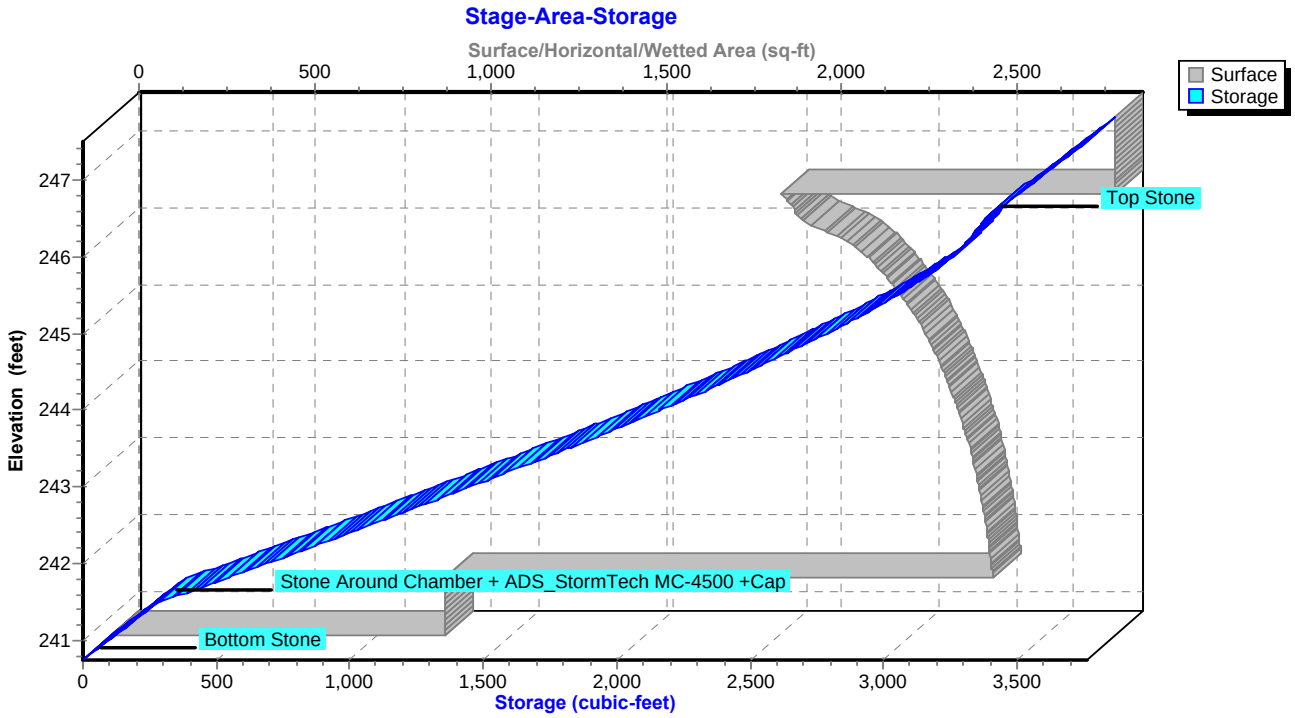


Pond ADS: ADS MC4500

Stage-Discharge



Pond ADS: ADS MC4500



Hydrograph for Pond ADS: ADS MC4500

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)
0.00	0.00	0	240.75	0.00
1.00	0.00	0	240.75	0.00
2.00	0.00	0	240.75	0.00
3.00	0.00	0	240.75	0.00
4.00	0.00	0	240.75	0.00
5.00	0.01	0	240.75	0.01
6.00	0.01	0	240.75	0.01
7.00	0.01	0	240.75	0.01
8.00	0.01	0	240.75	0.01
9.00	0.02	0	240.75	0.02
10.00	0.03	16	240.79	0.02
11.00	0.05	74	240.94	0.02
12.00	**0.42**	**414**	**241.66**	0.06
13.00	**0.06**	**981**	**242.38**	0.06
14.00	0.03	930	242.32	0.06
15.00	0.03	832	242.19	0.06
16.00	0.02	704	242.03	0.06
17.00	0.01	555	241.84	0.06
18.00	0.01	393	241.63	**0.06**
19.00	0.01	270	241.46	**0.02**
20.00	0.01	225	241.34	0.02
21.00	0.01	177	241.21	0.02
22.00	0.01	125	241.08	0.02
23.00	0.01	71	240.94	0.02
24.00	0.01	14	240.79	0.02
25.00	0.00	0	240.75	0.00
26.00	0.00	0	240.75	0.00
27.00	0.00	0	240.75	0.00
28.00	0.00	0	240.75	0.00
29.00	0.00	0	240.75	0.00
30.00	0.00	0	240.75	0.00

Stage-Discharge for Pond ADS: ADS MC4500

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
240.75	0.00	242.83	0.06	244.91	0.05	246.99	0.07
240.79	0.02	242.87	0.06	244.95	0.05	247.03	0.07
240.83	0.02	242.91	0.06	244.99	0.05	247.07	0.07
240.87	0.02	242.95	0.06	245.03	0.05	247.11	0.07
240.91	0.02	242.99	0.06	245.07	0.05	247.15	0.07
240.95	0.02	243.03	0.06	245.11	0.05	247.19	0.07
240.99	0.02	243.07	0.06	245.15	0.05	247.23	0.07
241.03	0.02	243.11	0.06	245.19	0.05	247.27	0.07
241.07	0.02	243.15	0.06	245.23	0.05	247.31	0.07
241.11	0.02	243.19	0.06	245.27	0.05	247.35	0.07
241.15	0.02	243.23	0.06	245.31	0.05	247.39	0.07
241.19	0.02	243.27	0.06	245.35	0.05	247.43	0.07
241.23	0.02	243.31	0.06	245.39	0.05	247.47	0.07
241.27	0.02	243.35	0.06	245.43	0.05		
241.31	0.02	243.39	0.06	245.47	0.05		
241.35	0.02	243.43	0.06	245.51	0.05		
241.39	0.02	243.47	0.06	245.55	0.05		
241.43	0.02	243.51	0.06	245.59	0.05		
241.47	0.02	243.55	0.06	245.63	0.05		
241.51	0.06	243.59	0.06	245.67	0.05		
241.55	0.06	243.63	0.06	245.71	0.05		
241.59	0.06	243.67	0.06	245.75	0.05		
241.63	0.06	243.71	0.06	245.79	0.05		
241.67	0.06	243.75	0.06	245.83	0.05		
241.71	0.06	243.79	0.06	245.87	0.05		
241.75	0.06	243.83	0.06	245.91	0.05		
241.79	0.06	243.87	0.06	245.95	0.05		
241.83	0.06	243.91	0.06	245.99	0.05		
241.87	0.06	243.95	0.06	246.03	0.05		
241.91	0.06	243.99	0.06	246.07	0.05		
241.95	0.06	244.03	0.06	246.11	0.05		
241.99	0.06	244.07	0.06	246.15	0.05		
242.03	0.06	244.11	0.05	246.19	0.05		
242.07	0.06	244.15	0.05	246.23	0.05		
242.11	0.06	244.19	0.05	246.27	0.05		
242.15	0.06	244.23	0.05	246.31	0.04		
242.19	0.06	244.27	0.05	246.35	0.04		
242.23	0.06	244.31	0.05	246.39	0.04		
242.27	0.06	244.35	0.05	246.43	0.04		
242.31	0.06	244.39	0.05	246.47	0.04		
242.35	0.06	244.43	0.05	246.51	**0.07**		
242.39	0.06	244.47	0.05	246.55	0.07		
242.43	0.06	244.51	0.05	246.59	0.07		
242.47	0.06	244.55	0.05	246.63	0.07		
242.51	0.06	244.59	0.05	246.67	0.07		
242.55	0.06	244.63	0.05	246.71	0.07		
242.59	0.06	244.67	0.05	246.75	0.07		
242.63	0.06	244.71	0.05	246.79	0.07		
242.67	0.06	244.75	0.05	246.83	0.07		
242.71	0.06	244.79	0.05	246.87	0.07		
242.75	0.06	244.83	0.05	246.91	0.07		
242.79	0.06	244.87	0.05	246.95	0.07		

Summary for Pond PB: Proposed Basin

Inflow Area = 3,265 sf,100.00% Impervious, Inflow Depth = 3.11" for 2yr Somerset event
Inflow = 0.24 cfs @ 12.09 hrs, Volume= 845 cf
Outflow = 0.02 cfs @ 13.34 hrs, Volume= 830 cf, Atten= 93%, Lag= 75.1 min
Discarded = 0.02 cfs @ 13.34 hrs, Volume= 830 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 248.24' @ 13.34 hrs Surf.Area= 728 sf Storage= 441 cf

Plug-Flow detention time= 312.9 min calculated for 829 cf (98% of inflow)
Center-of-Mass det. time= 301.4 min (1,057.0 - 755.5)

Volume	Invert	Avail.Storage	Storage Description
#1	247.00'	2,900 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

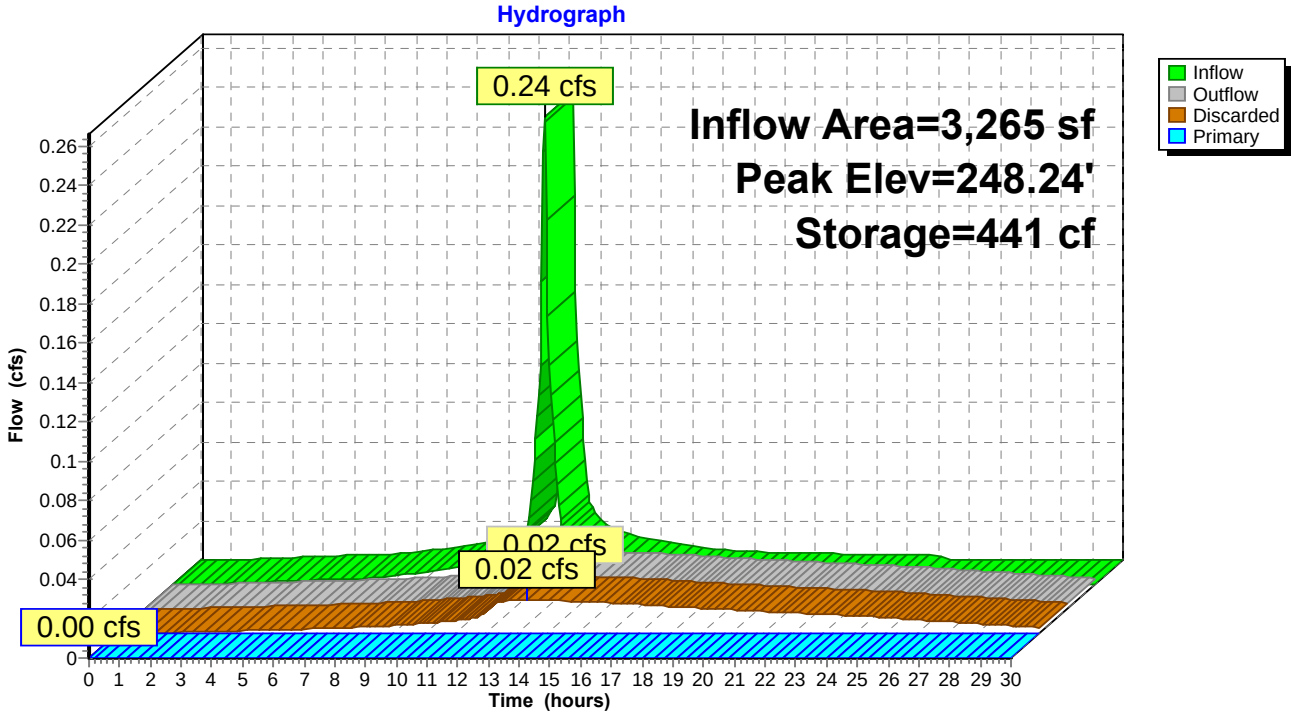
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
247.00	27	0	0
248.00	548	288	288
249.00	1,293	921	1,208
249.50	1,689	746	1,954
250.00	2,098	947	2,900

Device	Routing	Invert	Outlet Devices
#1	Discarded	247.00'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	248.85'	**15.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

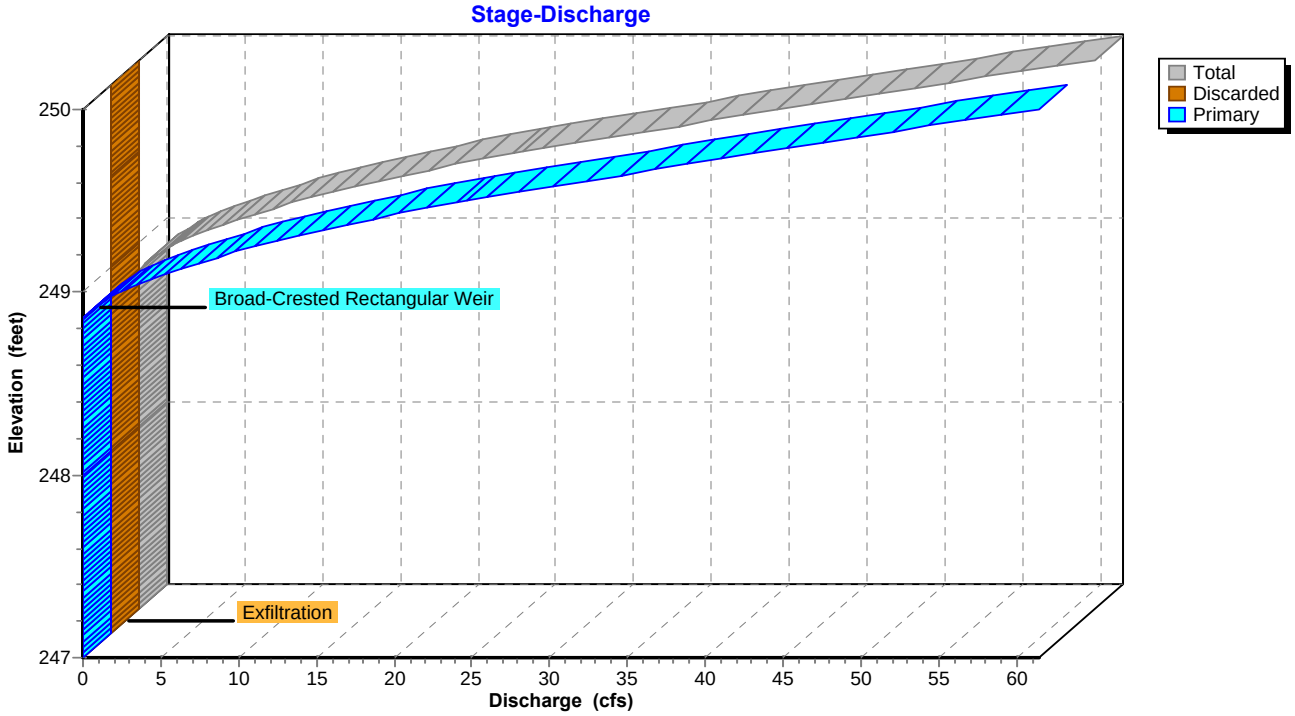
Discarded OutFlow Max=0.02 cfs @ 13.34 hrs HW=248.24' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=247.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

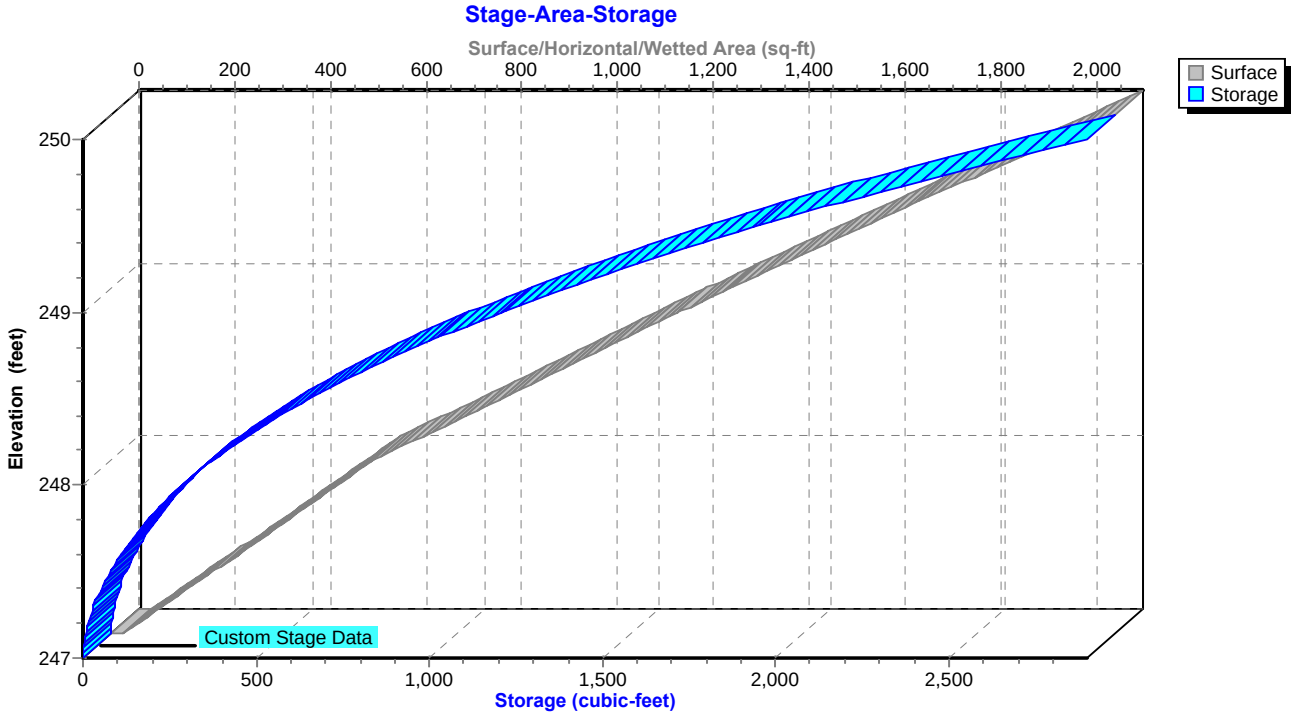
Pond PB: Proposed Basin



Pond PB: Proposed Basin



Pond PB: Proposed Basin



Hydrograph for Pond PB: Proposed Basin

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	247.00	0.00	0.00	**0.00**
1.00	0.00	0	247.00	0.00	0.00	0.00
2.00	0.00	0	247.00	0.00	0.00	0.00
3.00	0.00	1	247.02	0.00	0.00	0.00
4.00	0.00	2	247.05	0.00	0.00	0.00
5.00	0.00	4	247.09	0.00	0.00	0.00
6.00	0.00	7	247.12	0.00	0.00	0.00
7.00	0.00	11	247.16	0.00	0.00	0.00
8.00	0.01	18	247.22	0.00	0.00	0.00
9.00	0.01	30	247.29	0.00	0.00	0.00
10.00	0.01	48	247.38	0.01	0.01	0.00
11.00	0.02	77	247.50	0.01	0.01	0.00
12.00	**0.15**	209	247.85	0.01	0.01	0.00
13.00	**0.02**	**440**	**248.24**	**0.02**	**0.02**	0.00
14.00	0.01	**437**	**248.23**	**0.02**	**0.02**	0.00
15.00	0.01	417	248.21	0.02	0.02	0.00
16.00	0.01	390	248.17	0.02	0.02	0.00
17.00	0.01	357	248.12	0.01	0.01	0.00
18.00	0.00	323	248.06	0.01	0.01	0.00
19.00	0.00	289	248.00	0.01	0.01	0.00
20.00	0.00	257	247.94	0.01	0.01	0.00
21.00	0.00	227	247.88	0.01	0.01	0.00
22.00	0.00	198	247.82	0.01	0.01	0.00
23.00	0.00	170	247.76	0.01	0.01	0.00
24.00	0.00	145	247.70	0.01	0.01	0.00
25.00	0.00	115	247.61	0.01	0.01	0.00
26.00	0.00	88	247.53	0.01	0.01	0.00
27.00	0.00	64	247.45	0.01	0.01	0.00
28.00	0.00	44	247.36	0.01	0.01	0.00
29.00	0.00	28	247.28	0.00	0.00	0.00
30.00	0.00	16	247.20	0.00	0.00	0.00

Stage-Discharge for Pond PB: Proposed Basin

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
247.00	0.00	0.00	0.00
247.05	0.00	0.00	0.00
247.10	0.00	0.00	0.00
247.15	0.00	0.00	0.00
247.20	0.00	0.00	0.00
247.25	0.00	0.00	0.00
247.30	0.00	0.00	0.00
247.35	0.00	0.00	0.00
247.40	0.01	0.01	0.00
247.45	0.01	0.01	0.00
247.50	0.01	0.01	0.00
247.55	0.01	0.01	0.00
247.60	0.01	0.01	0.00
247.65	0.01	0.01	0.00
247.70	0.01	0.01	0.00
247.75	0.01	0.01	0.00
247.80	0.01	0.01	0.00
247.85	0.01	0.01	0.00
247.90	0.01	0.01	0.00
247.95	0.01	0.01	0.00
248.00	0.01	0.01	0.00
248.05	0.01	0.01	0.00
248.10	0.01	0.01	0.00
248.15	0.02	0.02	0.00
248.20	0.02	0.02	0.00
248.25	0.02	0.02	0.00
248.30	0.02	0.02	0.00
248.35	0.02	0.02	0.00
248.40	0.02	0.02	0.00
248.45	0.02	0.02	0.00
248.50	0.02	0.02	0.00
248.55	0.02	0.02	0.00
248.60	0.02	0.02	0.00
248.65	0.02	0.02	0.00
248.70	0.02	0.02	0.00
248.75	0.03	0.03	0.00
248.80	0.03	0.03	0.00
248.85	0.03	0.03	0.00
248.90	0.50	0.03	0.47
248.95	1.36	0.03	1.33
249.00	2.47	0.03	2.44
249.05	3.79	0.03	3.76
249.10	5.34	0.03	5.31
249.15	7.08	0.03	7.05
249.20	9.01	0.03	8.98
249.25	11.12	0.03	11.08
249.30	13.44	0.04	13.40
249.35	15.95	0.04	15.91
249.40	18.64	0.04	18.60
249.45	21.51	0.04	21.47
249.50	24.68	0.04	24.64
249.55	28.06	0.04	28.02
249.60	31.66	0.04	31.62
249.65	35.46	0.04	35.42
249.70	38.89	0.04	38.85
249.75	42.44	0.04	42.39
249.80	46.09	0.04	46.04
249.85	49.85	0.05	49.80
249.90	53.63	0.05	53.58
249.95	57.50	0.05	57.45
250.00	**61.46**	**0.05**	**61.42**

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment FCA: Fitness Center Runoff Area=8,850 sf 100.00% Impervious Runoff Depth=4.77"
Tc=6.0 min CN=98 Runoff=0.97 cfs 3,520 cf

Subcatchment PC: Pickleball Court Runoff Area=3,265 sf 100.00% Impervious Runoff Depth=4.77"
Tc=6.0 min CN=98 Runoff=0.36 cfs 1,299 cf

Pond ADS: ADS MC4500 Peak Elev=243.36' Storage=1,716 cf Inflow=0.97 cfs 3,520 cf
Outflow=0.06 cfs 3,521 cf

Pond PB: Proposed Basin Peak Elev=248.56' Storage=712 cf Inflow=0.36 cfs 1,299 cf
Discarded=0.02 cfs 1,208 cf Primary=0.00 cfs 0 cf Outflow=0.02 cfs 1,208 cf

Total Runoff Area = 12,115 sf Runoff Volume = 4,819 cf Average Runoff Depth = 4.77"
0.00% Pervious = 0 sf 100.00% Impervious = 12,115 sf

Summary for Subcatchment FCA: Fitness Center Addition

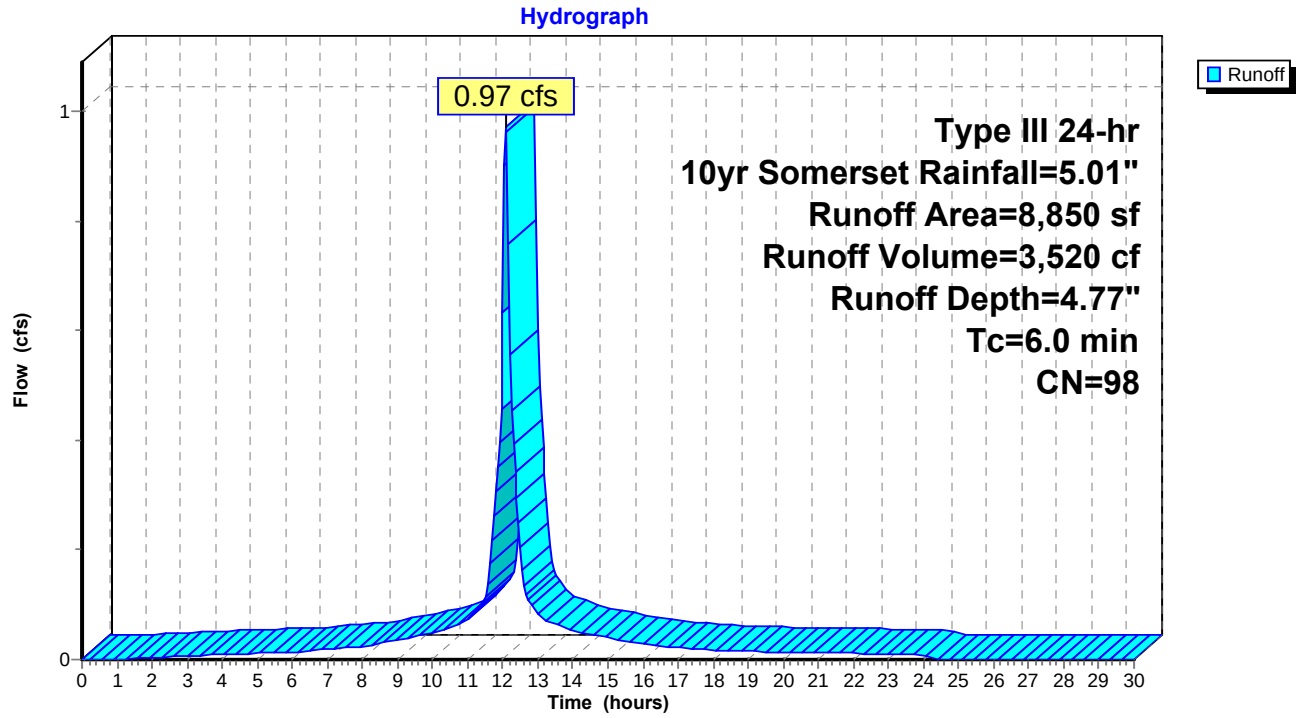
Runoff = 0.97 cfs @ 12.09 hrs, Volume= 3,520 cf, Depth= 4.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10yr Somerset Rainfall=5.01"

	Area (sf)	CN	Description
*	7,270	98	Fitness Center Roof
*	1,580	98	Fitness Center Walk
	8,850	98	Weighted Average
	8,850		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Roof Drains**

Subcatchment FCA: Fitness Center Addition



Hydrograph for Subcatchment FCA: Fitness Center Addition

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.03	0.00	0.00
1.00	0.05	0.00	0.00
1.50	0.08	0.00	0.00
2.00	0.10	0.01	0.00
2.50	0.13	0.03	0.01
3.00	0.15	0.04	0.01
3.50	0.18	0.06	0.01
4.00	0.22	0.08	0.01
4.50	0.25	0.11	0.01
5.00	0.28	0.13	0.01
5.50	0.32	0.16	0.01
6.00	0.36	0.20	0.01
6.50	0.40	0.23	0.02
7.00	0.45	0.28	0.02
7.50	0.51	0.33	0.02
8.00	0.57	0.38	0.02
8.50	0.64	0.45	0.03
9.00	0.73	0.53	0.04
9.50	0.83	0.63	0.04
10.00	0.95	0.74	0.05
10.50	1.08	0.87	0.06
11.00	1.25	1.04	0.07
11.50	1.49	1.27	0.11
12.00	2.50	2.28	**0.63**
12.50	3.52	3.28	**0.21**
13.00	3.76	3.52	0.08
13.50	3.93	3.69	0.06
14.00	4.06	3.83	0.05
14.50	4.18	3.94	0.05
15.00	4.28	4.04	0.04
15.50	4.37	4.13	0.03
16.00	4.44	4.20	0.03
16.50	4.50	4.26	0.02
17.00	4.56	4.32	0.02
17.50	4.61	4.37	0.02
18.00	4.65	4.41	0.02
18.50	4.69	4.45	0.02
19.00	4.73	4.49	0.01
19.50	4.76	4.52	0.01
20.00	4.79	4.56	0.01
20.50	4.83	4.59	0.01
21.00	4.86	4.62	0.01
21.50	4.89	4.65	0.01
22.00	4.91	4.68	0.01
22.50	4.94	4.70	0.01
23.00	4.96	4.73	0.01
23.50	4.99	4.75	0.01
24.00	**5.01**	**4.77**	0.01
24.50	5.01	4.77	0.00
25.00	5.01	4.77	0.00
25.50	5.01	4.77	0.00
26.00	5.01	4.77	0.00
26.50	5.01	4.77	0.00
27.00	5.01	4.77	0.00
27.50	5.01	4.77	0.00
28.00	5.01	4.77	0.00
28.50	5.01	4.77	0.00
29.00	5.01	4.77	0.00
29.50	5.01	4.77	0.00
30.00	5.01	4.77	0.00

Summary for Subcatchment PC: Pickleball Court

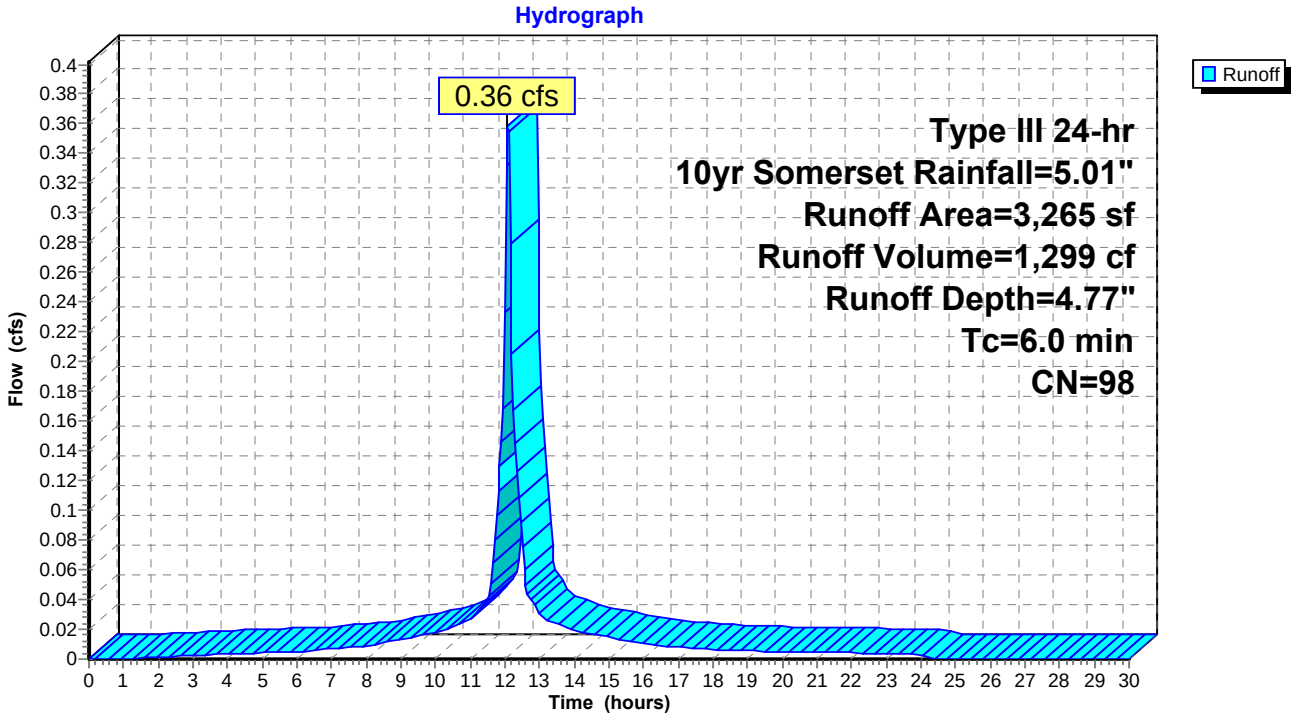
Runoff = 0.36 cfs @ 12.09 hrs, Volume= 1,299 cf, Depth= 4.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10yr Somerset Rainfall=5.01"

	Area (sf)	CN	Description
*	1,905	98	Pickleball Court & Walk
*	480	98	Shuffleboard & Walk
*	880	98	Bocce & Concrete Walk
	3,265	98	Weighted Average
	3,265		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Pickleball Court**

Subcatchment PC: Pickleball Court



Hydrograph for Subcatchment PC: Pickleball Court

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.03	0.00	0.00
1.00	0.05	0.00	0.00
1.50	0.08	0.00	0.00
2.00	0.10	0.01	0.00
2.50	0.13	0.03	0.00
3.00	0.15	0.04	0.00
3.50	0.18	0.06	0.00
4.00	0.22	0.08	0.00
4.50	0.25	0.11	0.00
5.00	0.28	0.13	0.00
5.50	0.32	0.16	0.00
6.00	0.36	0.20	0.01
6.50	0.40	0.23	0.01
7.00	0.45	0.28	0.01
7.50	0.51	0.33	0.01
8.00	0.57	0.38	0.01
8.50	0.64	0.45	0.01
9.00	0.73	0.53	0.01
9.50	0.83	0.63	0.02
10.00	0.95	0.74	0.02
10.50	1.08	0.87	0.02
11.00	1.25	1.04	0.03
11.50	1.49	1.27	0.04
12.00	2.50	2.28	**0.23**
12.50	3.52	3.28	**0.08**
13.00	3.76	3.52	0.03
13.50	3.93	3.69	0.02
14.00	4.06	3.83	0.02
14.50	4.18	3.94	0.02
15.00	4.28	4.04	0.01
15.50	4.37	4.13	0.01
16.00	4.44	4.20	0.01
16.50	4.50	4.26	0.01
17.00	4.56	4.32	0.01
17.50	4.61	4.37	0.01
18.00	4.65	4.41	0.01
18.50	4.69	4.45	0.01
19.00	4.73	4.49	0.01
19.50	4.76	4.52	0.01
20.00	4.79	4.56	0.00
20.50	4.83	4.59	0.00
21.00	4.86	4.62	0.00
21.50	4.89	4.65	0.00
22.00	4.91	4.68	0.00
22.50	4.94	4.70	0.00
23.00	4.96	4.73	0.00
23.50	4.99	4.75	0.00
24.00	**5.01**	**4.77**	0.00
24.50	5.01	4.77	0.00
25.00	5.01	4.77	0.00
25.50	5.01	4.77	0.00
26.00	5.01	4.77	0.00
26.50	5.01	4.77	0.00
27.00	5.01	4.77	0.00
27.50	5.01	4.77	0.00
28.00	5.01	4.77	0.00
28.50	5.01	4.77	0.00
29.00	5.01	4.77	0.00
29.50	5.01	4.77	0.00
30.00	5.01	4.77	0.00

Summary for Pond ADS: ADS MC4500

Inflow Area = 8,850 sf,100.00% Impervious, Inflow Depth = 4.77" for 10yr Somerset event
Inflow = 0.97 cfs @ 12.09 hrs, Volume= 3,520 cf
Outflow = 0.06 cfs @ 24.40 hrs, Volume= 3,521 cf, Atten= 94%, Lag= 738.8 min
Discarded = 0.06 cfs @ 24.40 hrs, Volume= 3,521 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 243.36' @ 13.84 hrs Surf.Area= 2,432 sf Storage= 1,716 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 271.4 min (1,019.4 - 748.0)

Volume	Invert	Avail.Storage	Storage Description
#1	240.75'	286 cf	**Bottom Stone (Prismatic)**Listed below (Recalc) 714 cf Overall x 40.0% Voids
#2	241.50'	971 cf	**Stone Around Chamber (Prismatic)**Listed below (Recalc) 4,760 cf Overall x 20.4% Voids
#3	241.50'	2,124 cf	**ADS_StormTech MC-4500 +Cap @ 77.57' L** Effective Size= 90.4"W x 60.0"H => 26.46 sf x 77.57'L = 2,052.3 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap Cap Storage= +35.7 cf x 2 x 1 rows = 71.4 cf
#4	246.50'	381 cf	**Top Stone (Prismatic)**Listed below (Recalc) 952 cf Overall x 40.0% Voids
		3,761 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
240.75	952	0	0
241.50	952	714	714

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
241.50	952	0	0
246.50	952	4,760	4,760

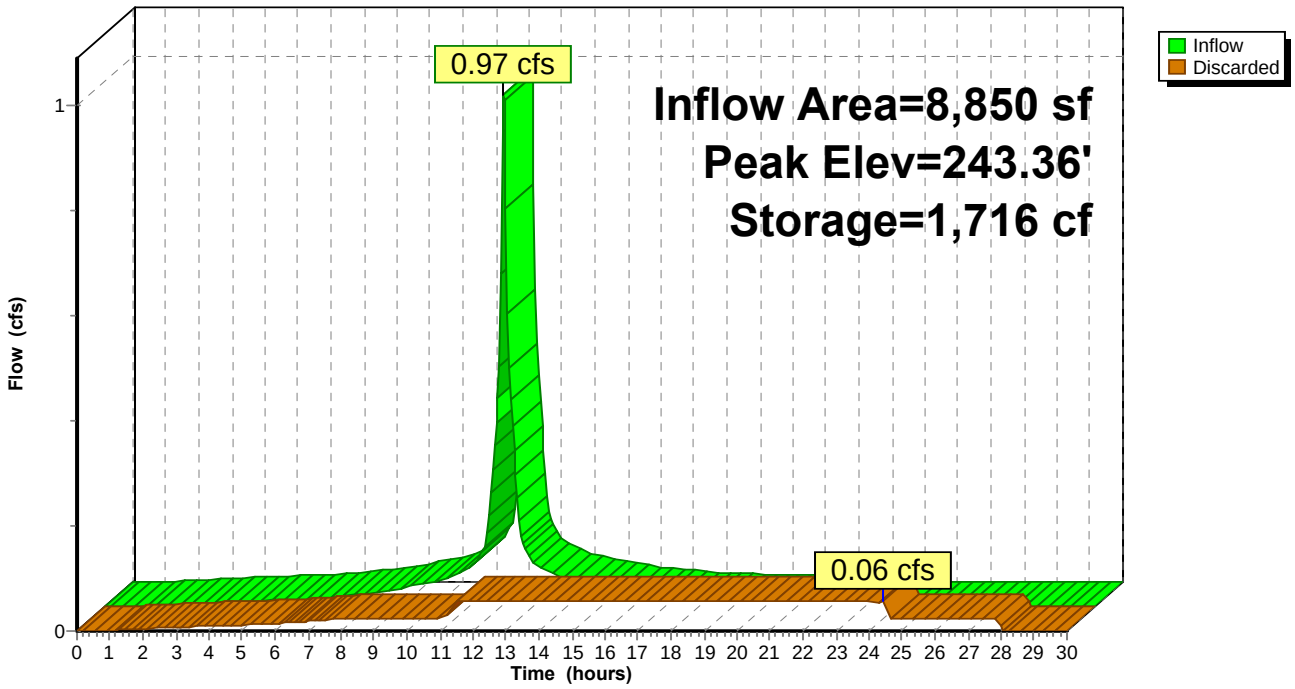
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
246.50	952	0	0
247.50	952	952	952

Device	Routing	Invert	Outlet Devices
#1	Discarded	240.75'	**1.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.06 cfs @ 24.40 hrs HW=241.50' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.06 cfs)

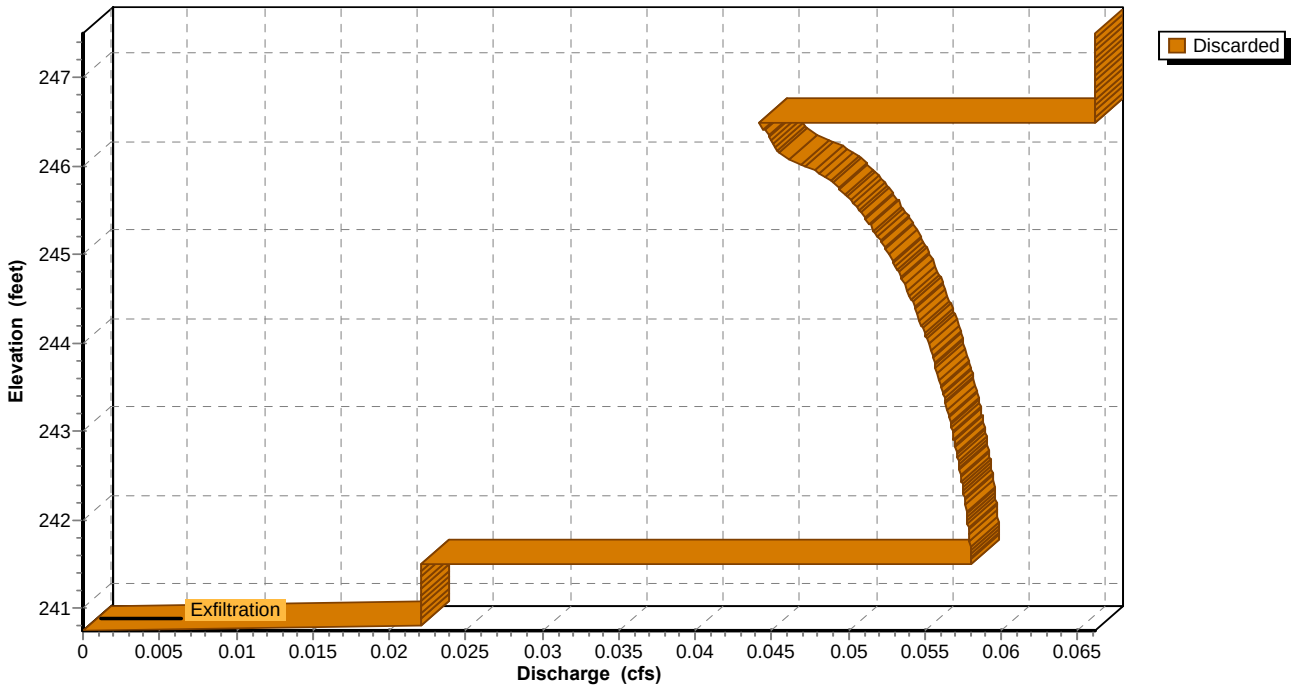
Pond ADS: ADS MC4500

Hydrograph

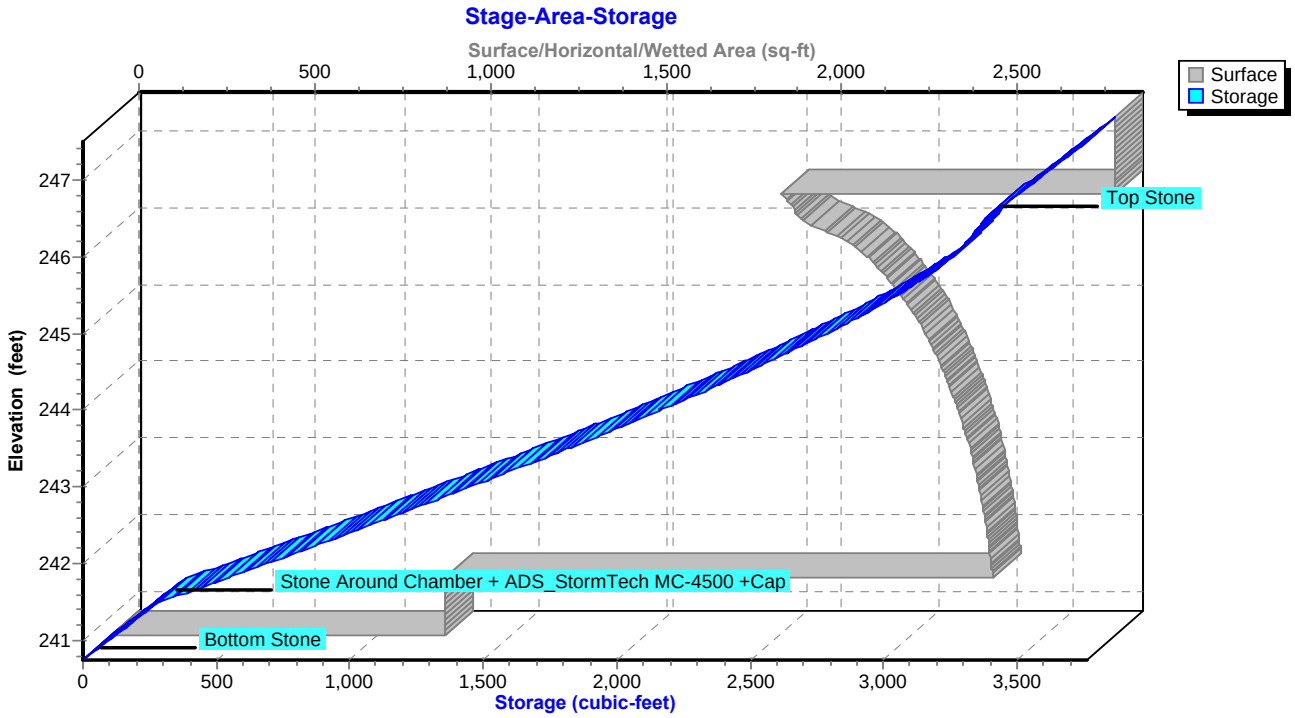


Pond ADS: ADS MC4500

Stage-Discharge



Pond ADS: ADS MC4500



Hydrograph for Pond ADS: ADS MC4500

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)
0.00	0.00	0	240.75	0.00
1.00	0.00	0	240.75	0.00
2.00	0.00	0	240.75	0.00
3.00	0.01	0	240.75	0.01
4.00	0.01	0	240.75	0.01
5.00	0.01	0	240.75	0.01
6.00	0.01	0	240.75	0.01
7.00	0.02	0	240.75	0.02
8.00	0.02	2	240.75	0.02
9.00	0.04	28	240.82	0.02
10.00	0.05	98	241.01	0.02
11.00	0.07	230	241.35	0.02
12.00	**0.63**	719	242.05	0.06
13.00	**0.08**	**1,683**	**243.32**	0.06
14.00	0.05	**1,715**	**243.36**	0.06
15.00	0.04	1,676	243.31	0.06
16.00	0.03	1,594	243.20	0.06
17.00	0.02	1,478	243.04	0.06
18.00	0.02	1,343	242.86	0.06
19.00	0.01	1,195	242.66	0.06
20.00	0.01	1,040	242.46	0.06
21.00	0.01	879	242.25	0.06
22.00	0.01	713	242.04	0.06
23.00	0.01	543	241.82	0.06
24.00	0.01	368	241.60	**0.06**
25.00	0.00	237	241.37	**0.02**
26.00	0.00	158	241.16	0.02
27.00	0.00	78	240.96	0.02
28.00	0.00	0	240.75	0.01
29.00	0.00	0	240.75	0.00
30.00	0.00	0	240.75	0.00

Stage-Discharge for Pond ADS: ADS MC4500

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
240.75	0.00	242.83	0.06	244.91	0.05	246.99	0.07
240.79	0.02	242.87	0.06	244.95	0.05	247.03	0.07
240.83	0.02	242.91	0.06	244.99	0.05	247.07	0.07
240.87	0.02	242.95	0.06	245.03	0.05	247.11	0.07
240.91	0.02	242.99	0.06	245.07	0.05	247.15	0.07
240.95	0.02	243.03	0.06	245.11	0.05	247.19	0.07
240.99	0.02	243.07	0.06	245.15	0.05	247.23	0.07
241.03	0.02	243.11	0.06	245.19	0.05	247.27	0.07
241.07	0.02	243.15	0.06	245.23	0.05	247.31	0.07
241.11	0.02	243.19	0.06	245.27	0.05	247.35	0.07
241.15	0.02	243.23	0.06	245.31	0.05	247.39	0.07
241.19	0.02	243.27	0.06	245.35	0.05	247.43	0.07
241.23	0.02	243.31	0.06	245.39	0.05	247.47	0.07
241.27	0.02	243.35	0.06	245.43	0.05		
241.31	0.02	243.39	0.06	245.47	0.05		
241.35	0.02	243.43	0.06	245.51	0.05		
241.39	0.02	243.47	0.06	245.55	0.05		
241.43	0.02	243.51	0.06	245.59	0.05		
241.47	0.02	243.55	0.06	245.63	0.05		
241.51	0.06	243.59	0.06	245.67	0.05		
241.55	0.06	243.63	0.06	245.71	0.05		
241.59	0.06	243.67	0.06	245.75	0.05		
241.63	0.06	243.71	0.06	245.79	0.05		
241.67	0.06	243.75	0.06	245.83	0.05		
241.71	0.06	243.79	0.06	245.87	0.05		
241.75	0.06	243.83	0.06	245.91	0.05		
241.79	0.06	243.87	0.06	245.95	0.05		
241.83	0.06	243.91	0.06	245.99	0.05		
241.87	0.06	243.95	0.06	246.03	0.05		
241.91	0.06	243.99	0.06	246.07	0.05		
241.95	0.06	244.03	0.06	246.11	0.05		
241.99	0.06	244.07	0.06	246.15	0.05		
242.03	0.06	244.11	0.05	246.19	0.05		
242.07	0.06	244.15	0.05	246.23	0.05		
242.11	0.06	244.19	0.05	246.27	0.05		
242.15	0.06	244.23	0.05	246.31	0.04		
242.19	0.06	244.27	0.05	246.35	0.04		
242.23	0.06	244.31	0.05	246.39	0.04		
242.27	0.06	244.35	0.05	246.43	0.04		
242.31	0.06	244.39	0.05	246.47	0.04		
242.35	0.06	244.43	0.05	246.51	**0.07**		
242.39	0.06	244.47	0.05	246.55	0.07		
242.43	0.06	244.51	0.05	246.59	0.07		
242.47	0.06	244.55	0.05	246.63	0.07		
242.51	0.06	244.59	0.05	246.67	0.07		
242.55	0.06	244.63	0.05	246.71	0.07		
242.59	0.06	244.67	0.05	246.75	0.07		
242.63	0.06	244.71	0.05	246.79	0.07		
242.67	0.06	244.75	0.05	246.83	0.07		
242.71	0.06	244.79	0.05	246.87	0.07		
242.75	0.06	244.83	0.05	246.91	0.07		
242.79	0.06	244.87	0.05	246.95	0.07		

Summary for Pond PB: Proposed Basin

Inflow Area = 3,265 sf,100.00% Impervious, Inflow Depth = 4.77" for 10yr Somerset event
Inflow = 0.36 cfs @ 12.09 hrs, Volume= 1,299 cf
Outflow = 0.02 cfs @ 13.67 hrs, Volume= 1,208 cf, Atten= 94%, Lag= 94.9 min
Discarded = 0.02 cfs @ 13.67 hrs, Volume= 1,208 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 248.56' @ 13.67 hrs Surf.Area= 966 sf Storage= 712 cf

Plug-Flow detention time= 366.8 min calculated for 1,208 cf (93% of inflow)
Center-of-Mass det. time= 328.5 min (1,076.5 - 748.0)

Volume	Invert	Avail.Storage	Storage Description
#1	247.00'	2,900 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

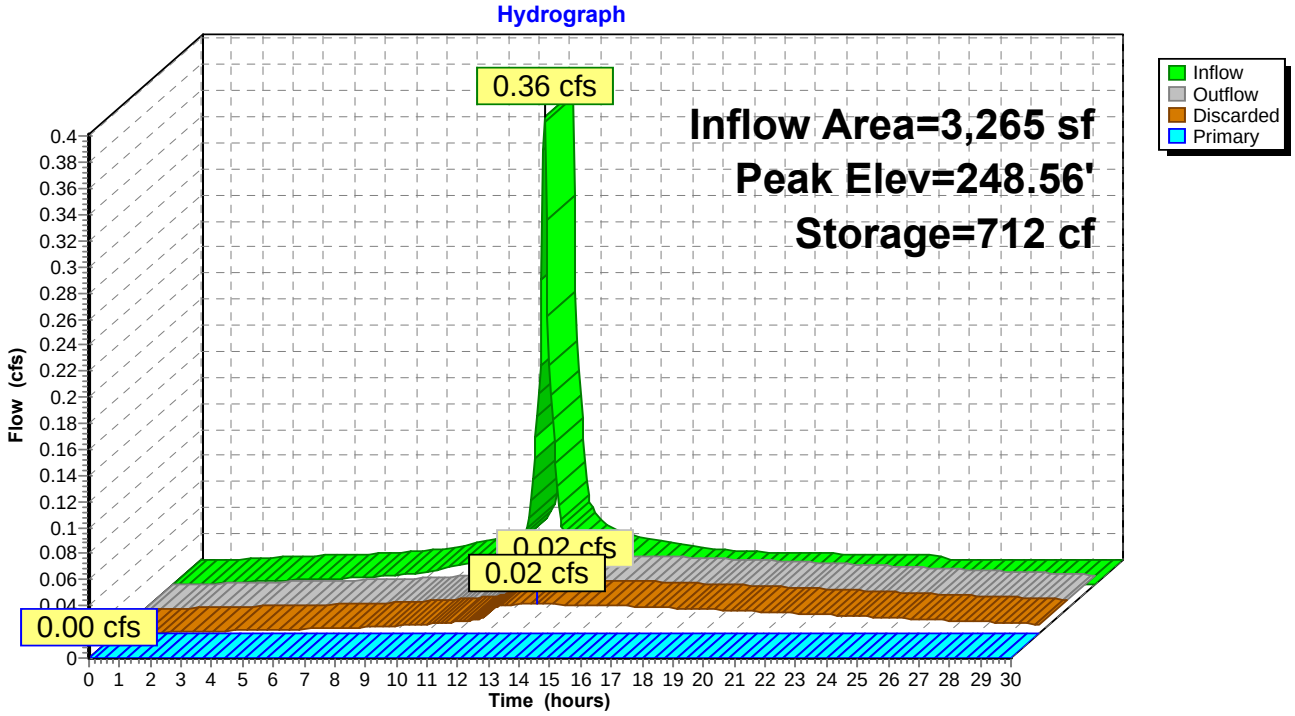
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
247.00	27	0	0
248.00	548	288	288
249.00	1,293	921	1,208
249.50	1,689	746	1,954
250.00	2,098	947	2,900

Device	Routing	Invert	Outlet Devices
#1	Discarded	247.00'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	248.85'	**15.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

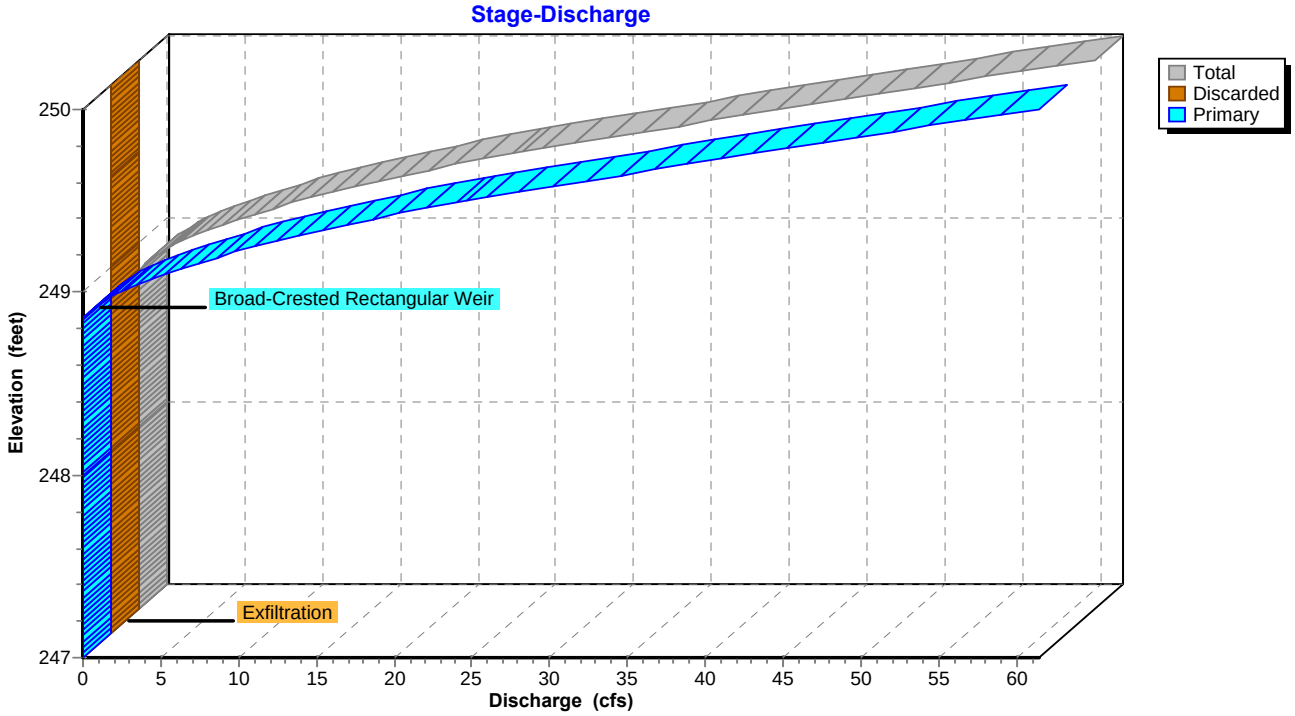
Discarded OutFlow Max=0.02 cfs @ 13.67 hrs HW=248.56' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=247.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

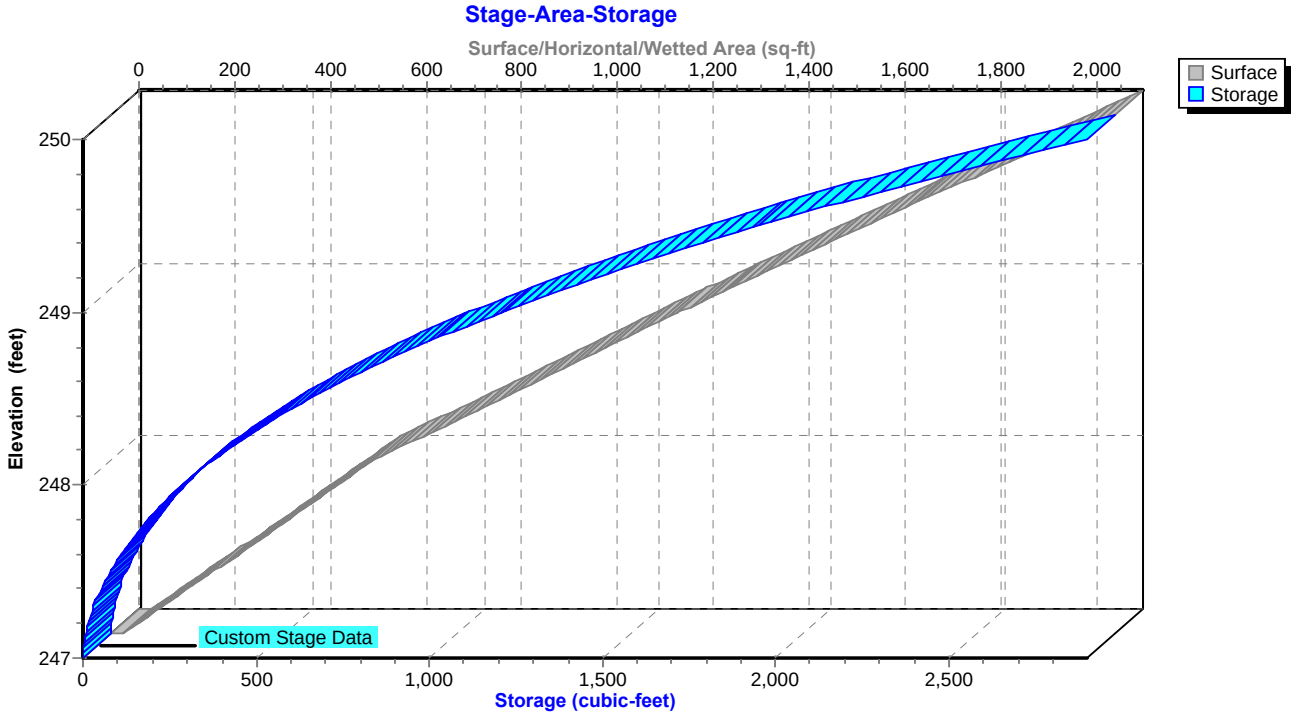
Pond PB: Proposed Basin



Pond PB: Proposed Basin



Pond PB: Proposed Basin



Hydrograph for Pond PB: Proposed Basin

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	247.00	0.00	0.00	**0.00**
1.00	0.00	0	247.00	0.00	0.00	0.00
2.00	0.00	1	247.02	0.00	0.00	0.00
3.00	0.00	3	247.07	0.00	0.00	0.00
4.00	0.00	7	247.13	0.00	0.00	0.00
5.00	0.00	13	247.17	0.00	0.00	0.00
6.00	0.01	19	247.22	0.00	0.00	0.00
7.00	0.01	27	247.27	0.00	0.00	0.00
8.00	0.01	40	247.34	0.00	0.00	0.00
9.00	0.01	60	247.43	0.01	0.01	0.00
10.00	0.02	92	247.54	0.01	0.01	0.00
11.00	0.03	141	247.69	0.01	0.01	0.00
12.00	**0.23**	347	248.10	0.01	0.01	0.00
13.00	**0.03**	**704**	**248.55**	**0.02**	**0.02**	0.00
14.00	0.02	**710**	**248.56**	**0.02**	**0.02**	0.00
15.00	0.01	691	248.54	0.02	0.02	0.00
16.00	0.01	658	248.50	0.02	0.02	0.00
17.00	0.01	615	248.46	0.02	0.02	0.00
18.00	0.01	568	248.40	0.02	0.02	0.00
19.00	0.01	520	248.34	0.02	0.02	0.00
20.00	0.00	474	248.29	0.02	0.02	0.00
21.00	0.00	430	248.22	0.02	0.02	0.00
22.00	0.00	387	248.16	0.02	0.02	0.00
23.00	0.00	347	248.10	0.01	0.01	0.00
24.00	0.00	310	248.04	0.01	0.01	0.00
25.00	0.00	265	247.96	0.01	0.01	0.00
26.00	0.00	223	247.87	0.01	0.01	0.00
27.00	0.00	185	247.79	0.01	0.01	0.00
28.00	0.00	150	247.71	0.01	0.01	0.00
29.00	0.00	119	247.62	0.01	0.01	0.00
30.00	0.00	91	247.54	0.01	0.01	0.00

Stage-Discharge for Pond PB: Proposed Basin

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
247.00	0.00	0.00	0.00
247.05	0.00	0.00	0.00
247.10	0.00	0.00	0.00
247.15	0.00	0.00	0.00
247.20	0.00	0.00	0.00
247.25	0.00	0.00	0.00
247.30	0.00	0.00	0.00
247.35	0.00	0.00	0.00
247.40	0.01	0.01	0.00
247.45	0.01	0.01	0.00
247.50	0.01	0.01	0.00
247.55	0.01	0.01	0.00
247.60	0.01	0.01	0.00
247.65	0.01	0.01	0.00
247.70	0.01	0.01	0.00
247.75	0.01	0.01	0.00
247.80	0.01	0.01	0.00
247.85	0.01	0.01	0.00
247.90	0.01	0.01	0.00
247.95	0.01	0.01	0.00
248.00	0.01	0.01	0.00
248.05	0.01	0.01	0.00
248.10	0.01	0.01	0.00
248.15	0.02	0.02	0.00
248.20	0.02	0.02	0.00
248.25	0.02	0.02	0.00
248.30	0.02	0.02	0.00
248.35	0.02	0.02	0.00
248.40	0.02	0.02	0.00
248.45	0.02	0.02	0.00
248.50	0.02	0.02	0.00
248.55	0.02	0.02	0.00
248.60	0.02	0.02	0.00
248.65	0.02	0.02	0.00
248.70	0.02	0.02	0.00
248.75	0.03	0.03	0.00
248.80	0.03	0.03	0.00
248.85	0.03	0.03	0.00
248.90	0.50	0.03	0.47
248.95	1.36	0.03	1.33
249.00	2.47	0.03	2.44
249.05	3.79	0.03	3.76
249.10	5.34	0.03	5.31
249.15	7.08	0.03	7.05
249.20	9.01	0.03	8.98
249.25	11.12	0.03	11.08
249.30	13.44	0.04	13.40
249.35	15.95	0.04	15.91
249.40	18.64	0.04	18.60
249.45	21.51	0.04	21.47
249.50	24.68	0.04	24.64
249.55	28.06	0.04	28.02
249.60	31.66	0.04	31.62
249.65	35.46	0.04	35.42
249.70	38.89	0.04	38.85
249.75	42.44	0.04	42.39
249.80	46.09	0.04	46.04
249.85	49.85	0.05	49.80
249.90	53.63	0.05	53.58
249.95	57.50	0.05	57.45
250.00	**61.46**	**0.05**	**61.42**

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment FCA: Fitness Center Runoff Area=8,850 sf 100.00% Impervious Runoff Depth=7.97"
Tc=6.0 min CN=98 Runoff=1.60 cfs 5,878 cf

Subcatchment PC: Pickleball Court Runoff Area=3,265 sf 100.00% Impervious Runoff Depth=7.97"
Tc=6.0 min CN=98 Runoff=0.59 cfs 2,169 cf

Pond ADS: ADS MC4500 Peak Elev=246.50' Storage=3,380 cf Inflow=1.60 cfs 5,878 cf
Outflow=0.07 cfs 4,396 cf

Pond PB: Proposed Basin Peak Elev=248.88' Storage=1,054 cf Inflow=0.59 cfs 2,169 cf
Discarded=0.03 cfs 1,666 cf Primary=0.18 cfs 262 cf Outflow=0.21 cfs 1,929 cf

Total Runoff Area = 12,115 sf Runoff Volume = 8,046 cf Average Runoff Depth = 7.97"
0.00% Pervious = 0 sf 100.00% Impervious = 12,115 sf

Summary for Subcatchment FCA: Fitness Center Addition

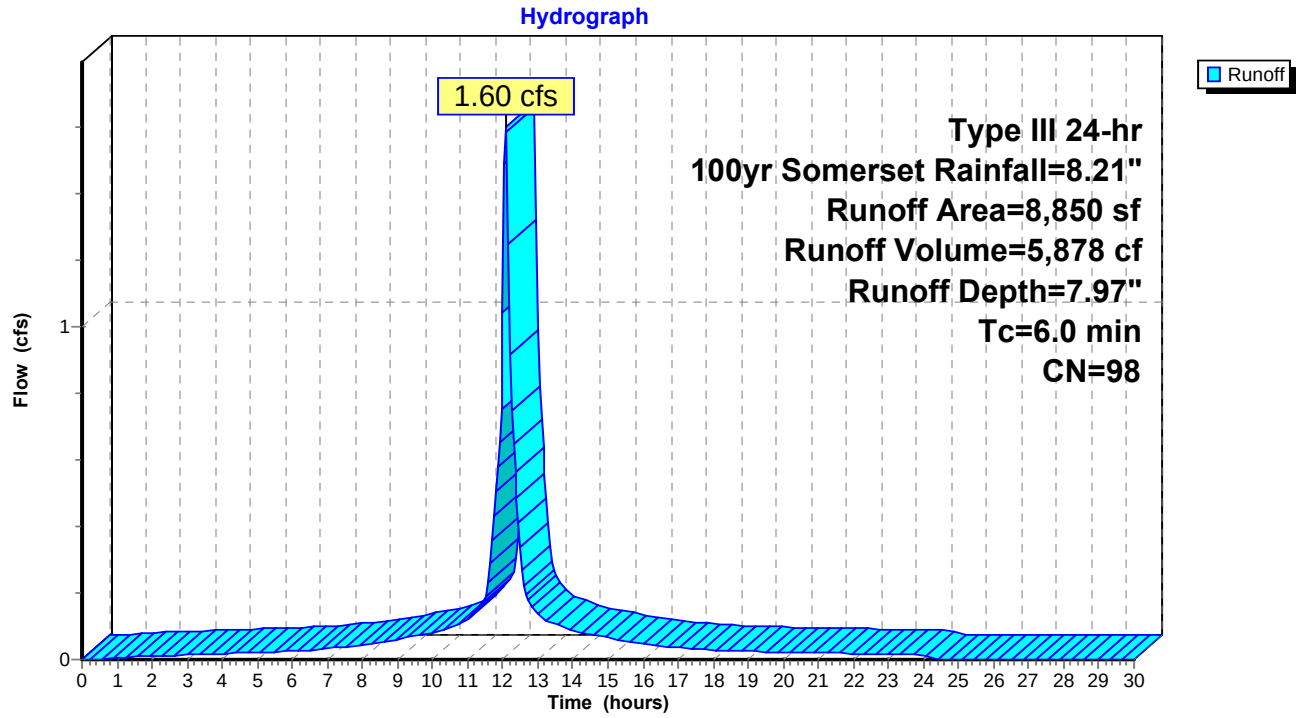
Runoff = 1.60 cfs @ 12.09 hrs, Volume= 5,878 cf, Depth= 7.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100yr Somerset Rainfall=8.21"

	Area (sf)	CN	Description
*	7,270	98	Fitness Center Roof
*	1,580	98	Fitness Center Walk
	8,850	98	Weighted Average
	8,850		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Roof Drains**

Subcatchment FCA: Fitness Center Addition



Hydrograph for Subcatchment FCA: Fitness Center Addition

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.00	8.21	7.97	0.00
0.50	0.04	0.00	0.00	26.50	8.21	7.97	0.00
1.00	0.08	0.01	0.00	27.00	8.21	7.97	0.00
1.50	0.12	0.02	0.01	27.50	8.21	7.97	0.00
2.00	0.16	0.05	0.01	28.00	8.21	7.97	0.00
2.50	0.21	0.07	0.01	28.50	8.21	7.97	0.00
3.00	0.25	0.11	0.01	29.00	8.21	7.97	0.00
3.50	0.30	0.15	0.02	29.50	8.21	7.97	0.00
4.00	0.35	0.19	0.02	30.00	8.21	7.97	0.00
4.50	0.41	0.24	0.02				
5.00	0.47	0.29	0.02				
5.50	0.53	0.34	0.02				
6.00	0.59	0.40	0.02				
6.50	0.66	0.47	0.03				
7.00	0.74	0.54	0.03				
7.50	0.83	0.63	0.04				
8.00	0.94	0.73	0.04				
8.50	1.05	0.84	0.05				
9.00	1.20	0.98	0.06				
9.50	1.36	1.14	0.07				
10.00	1.55	1.33	0.08				
10.50	1.78	1.55	0.10				
11.00	2.05	1.83	0.12				
11.50	2.45	2.22	0.18				
12.00	4.10	3.87	**1.04**				
12.50	5.76	5.53	**0.34**				
13.00	6.16	5.92	0.14				
13.50	6.43	6.19	0.11				
14.00	6.66	6.42	0.09				
14.50	6.85	6.61	0.07				
15.00	7.01	6.77	0.06				
15.50	7.16	6.92	0.06				
16.00	7.27	7.03	0.05				
16.50	7.38	7.14	0.04				
17.00	7.47	7.23	0.04				
17.50	7.55	7.31	0.03				
18.00	7.62	7.38	0.03				
18.50	7.68	7.44	0.03				
19.00	7.74	7.50	0.02				
19.50	7.80	7.56	0.02				
20.00	7.86	7.62	0.02				
20.50	7.91	7.67	0.02				
21.00	7.96	7.72	0.02				
21.50	8.01	7.77	0.02				
22.00	8.05	7.81	0.02				
22.50	8.09	7.86	0.02				
23.00	8.14	7.90	0.02				
23.50	8.17	7.93	0.02				
24.00	**8.21**	**7.97**	0.01				
24.50	8.21	7.97	0.00				
25.00	8.21	7.97	0.00				
25.50	8.21	7.97	0.00				

Summary for Subcatchment PC: Pickleball Court

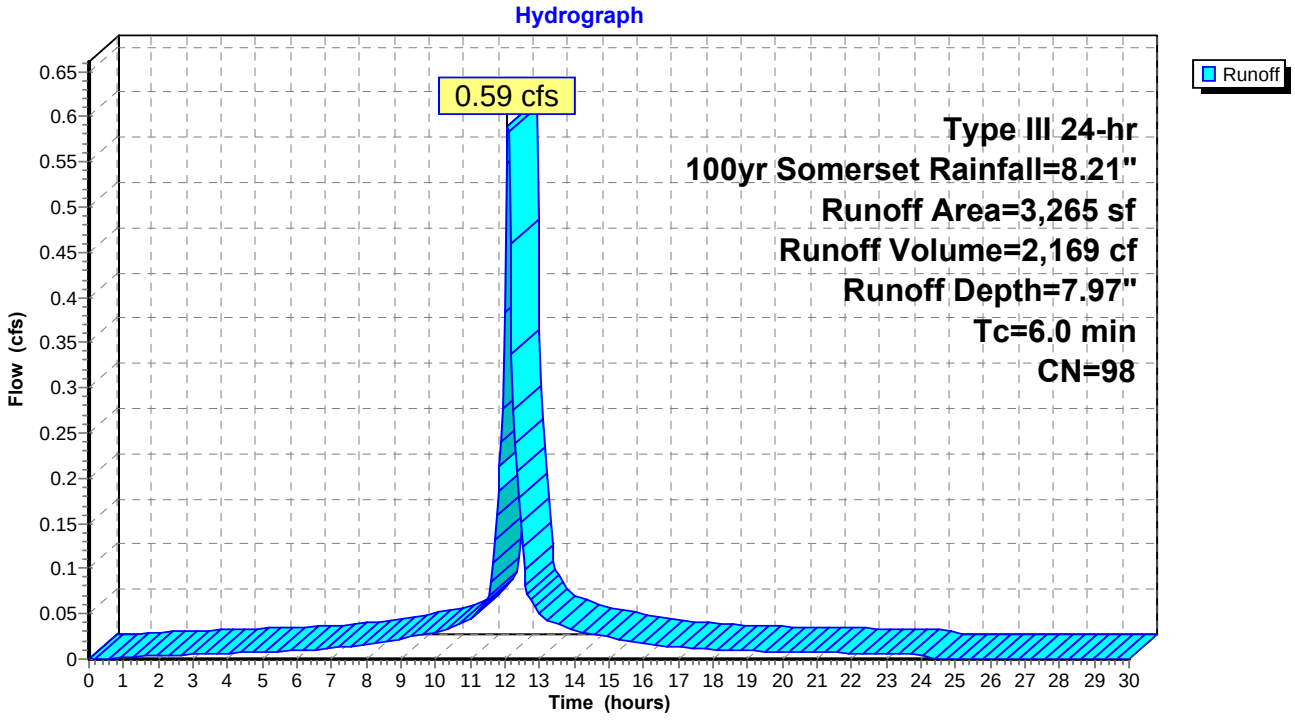
Runoff = 0.59 cfs @ 12.09 hrs, Volume= 2,169 cf, Depth= 7.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100yr Somerset Rainfall=8.21"

	Area (sf)	CN	Description
*	1,905	98	Pickleball Court & Walk
*	480	98	Shuffleboard & Walk
*	880	98	Bocce & Concrete Walk
	3,265	98	Weighted Average
	3,265		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Pickleball Court**

Subcatchment PC: Pickleball Court



Hydrograph for Subcatchment PC: Pickleball Court

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.04	0.00	0.00
1.00	0.08	0.01	0.00
1.50	0.12	0.02	0.00
2.00	0.16	0.05	0.00
2.50	0.21	0.07	0.00
3.00	0.25	0.11	0.01
3.50	0.30	0.15	0.01
4.00	0.35	0.19	0.01
4.50	0.41	0.24	0.01
5.00	0.47	0.29	0.01
5.50	0.53	0.34	0.01
6.00	0.59	0.40	0.01
6.50	0.66	0.47	0.01
7.00	0.74	0.54	0.01
7.50	0.83	0.63	0.01
8.00	0.94	0.73	0.02
8.50	1.05	0.84	0.02
9.00	1.20	0.98	0.02
9.50	1.36	1.14	0.03
10.00	1.55	1.33	0.03
10.50	1.78	1.55	0.04
11.00	2.05	1.83	0.04
11.50	2.45	2.22	0.07
12.00	4.10	3.87	**0.38**
12.50	5.76	5.53	**0.12**
13.00	6.16	5.92	0.05
13.50	6.43	6.19	0.04
14.00	6.66	6.42	0.03
14.50	6.85	6.61	0.03
15.00	7.01	6.77	0.02
15.50	7.16	6.92	0.02
16.00	7.27	7.03	0.02
16.50	7.38	7.14	0.01
17.00	7.47	7.23	0.01
17.50	7.55	7.31	0.01
18.00	7.62	7.38	0.01
18.50	7.68	7.44	0.01
19.00	7.74	7.50	0.01
19.50	7.80	7.56	0.01
20.00	7.86	7.62	0.01
20.50	7.91	7.67	0.01
21.00	7.96	7.72	0.01
21.50	8.01	7.77	0.01
22.00	8.05	7.81	0.01
22.50	8.09	7.86	0.01
23.00	8.14	7.90	0.01
23.50	8.17	7.93	0.01
24.00	**8.21**	**7.97**	0.01
24.50	8.21	7.97	0.00
25.00	8.21	7.97	0.00
25.50	8.21	7.97	0.00
26.00	8.21	7.97	0.00
26.50	8.21	7.97	0.00
27.00	8.21	7.97	0.00
27.50	8.21	7.97	0.00
28.00	8.21	7.97	0.00
28.50	8.21	7.97	0.00
29.00	8.21	7.97	0.00
29.50	8.21	7.97	0.00
30.00	8.21	7.97	0.00

Summary for Pond ADS: ADS MC4500

Inflow Area = 8,850 sf,100.00% Impervious, Inflow Depth = 7.97" for 100yr Somerset event
Inflow = 1.60 cfs @ 12.09 hrs, Volume= 5,878 cf
Outflow = 0.07 cfs @ 14.98 hrs, Volume= 4,396 cf, Atten= 96%, Lag= 173.5 min
Discarded = 0.07 cfs @ 14.98 hrs, Volume= 4,396 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 246.50' @ 14.95 hrs Surf.Area= 2,856 sf Storage= 3,380 cf

Plug-Flow detention time= 433.5 min calculated for 4,389 cf (75% of inflow)
Center-of-Mass det. time= 346.0 min (1,086.9 - 740.9)

Volume	Invert	Avail.Storage	Storage Description
#1	240.75'	286 cf	**Bottom Stone (Prismatic)**Listed below (Recalc) 714 cf Overall x 40.0% Voids
#2	241.50'	971 cf	**Stone Around Chamber (Prismatic)**Listed below (Recalc) 4,760 cf Overall x 20.4% Voids
#3	241.50'	2,124 cf	**ADS_StormTech MC-4500 +Cap @ 77.57' L** Effective Size= 90.4"W x 60.0"H => 26.46 sf x 77.57'L = 2,052.3 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap Cap Storage= +35.7 cf x 2 x 1 rows = 71.4 cf
#4	246.50'	381 cf	**Top Stone (Prismatic)**Listed below (Recalc) 952 cf Overall x 40.0% Voids
		3,761 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
240.75	952	0	0
241.50	952	714	714

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
241.50	952	0	0
246.50	952	4,760	4,760

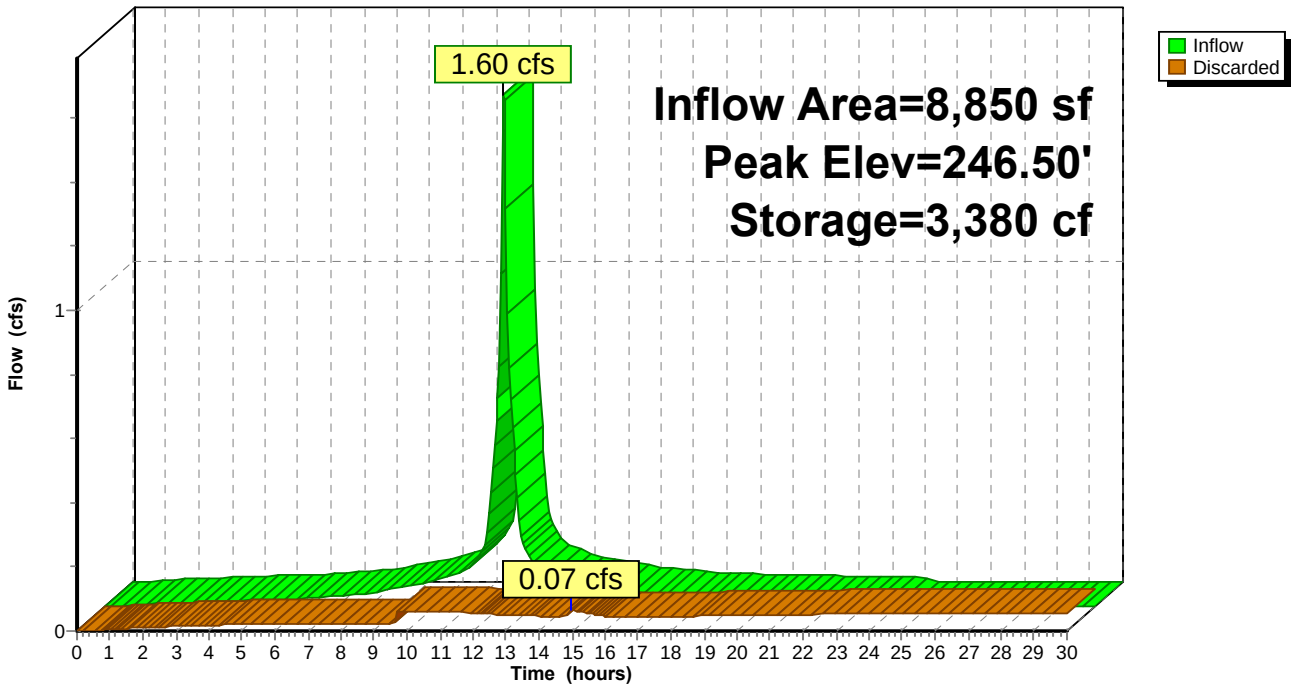
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
246.50	952	0	0
247.50	952	952	952

Device	Routing	Invert	Outlet Devices
#1	Discarded	240.75'	**1.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.07 cfs @ 14.98 hrs HW=246.50' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.07 cfs)

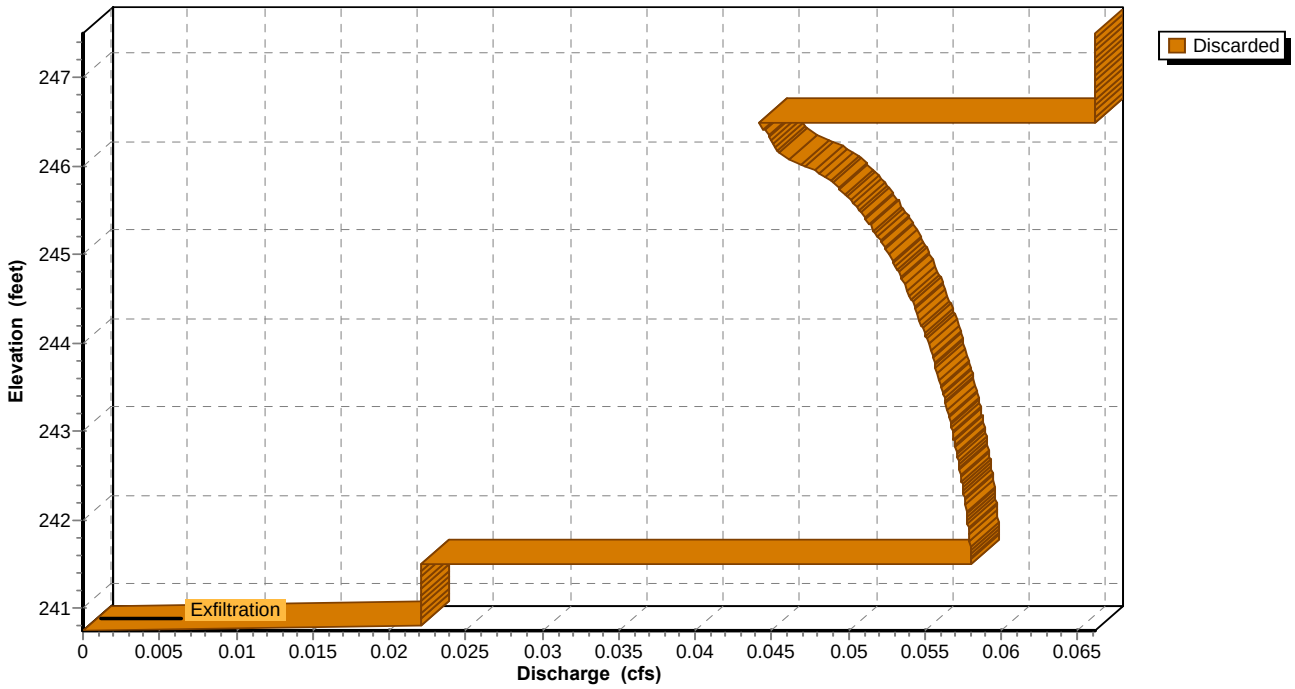
Pond ADS: ADS MC4500

Hydrograph

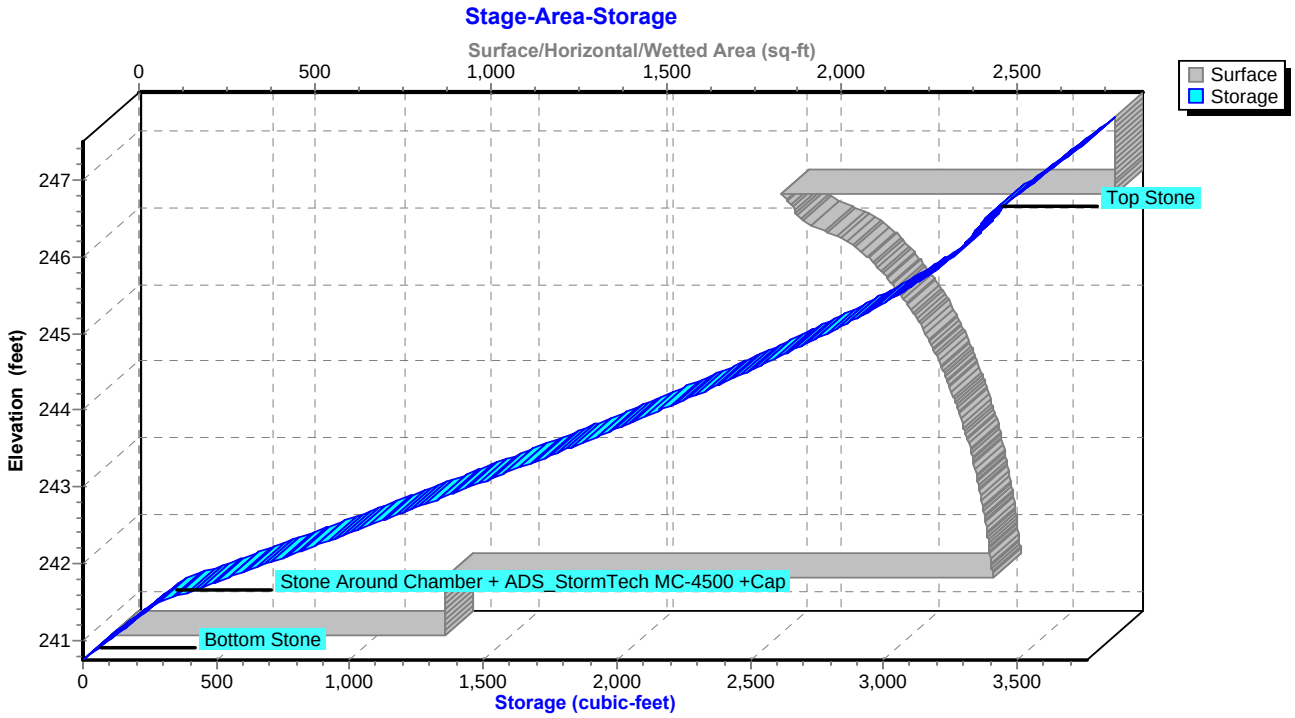


Pond ADS: ADS MC4500

Stage-Discharge



Pond ADS: ADS MC4500



Hydrograph for Pond ADS: ADS MC4500

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)
0.00	0.00	0	240.75	0.00
1.00	0.00	0	240.75	0.00
2.00	0.01	0	240.75	0.01
3.00	0.01	0	240.75	0.01
4.00	0.02	0	240.75	0.02
5.00	0.02	0	240.75	0.02
6.00	0.02	4	240.76	0.02
7.00	0.03	27	240.82	0.02
8.00	0.04	81	240.96	0.02
9.00	0.06	183	241.23	0.02
10.00	0.08	311	241.53	0.06
11.00	0.12	454	241.71	0.06
12.00	**1.04**	1,340	242.85	0.06
13.00	**0.14**	3,070	245.54	0.05
14.00	0.09	**3,279**	**246.07**	0.05
15.00	0.06	**3,380**	**246.50**	**0.07**
16.00	0.05	3,380	246.50	0.05
17.00	0.04	3,366	246.43	0.04
18.00	0.03	3,319	246.22	0.05
19.00	0.02	3,247	245.97	0.05
20.00	0.02	3,156	245.73	0.05
21.00	0.02	3,051	245.50	0.05
22.00	0.02	2,936	245.27	0.05
23.00	0.02	2,811	245.04	0.05
24.00	0.01	2,676	244.81	0.05
25.00	0.00	2,487	244.50	0.05
26.00	0.00	2,291	244.19	0.05
27.00	0.00	2,093	243.90	0.06
28.00	0.00	1,892	243.61	0.06
29.00	0.00	1,690	243.33	0.06
30.00	0.00	1,487	243.05	0.06

Stage-Discharge for Pond ADS: ADS MC4500

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
240.75	0.00	242.83	0.06	244.91	0.05	246.99	0.07
240.79	0.02	242.87	0.06	244.95	0.05	247.03	0.07
240.83	0.02	242.91	0.06	244.99	0.05	247.07	0.07
240.87	0.02	242.95	0.06	245.03	0.05	247.11	0.07
240.91	0.02	242.99	0.06	245.07	0.05	247.15	0.07
240.95	0.02	243.03	0.06	245.11	0.05	247.19	0.07
240.99	0.02	243.07	0.06	245.15	0.05	247.23	0.07
241.03	0.02	243.11	0.06	245.19	0.05	247.27	0.07
241.07	0.02	243.15	0.06	245.23	0.05	247.31	0.07
241.11	0.02	243.19	0.06	245.27	0.05	247.35	0.07
241.15	0.02	243.23	0.06	245.31	0.05	247.39	0.07
241.19	0.02	243.27	0.06	245.35	0.05	247.43	0.07
241.23	0.02	243.31	0.06	245.39	0.05	247.47	0.07
241.27	0.02	243.35	0.06	245.43	0.05		
241.31	0.02	243.39	0.06	245.47	0.05		
241.35	0.02	243.43	0.06	245.51	0.05		
241.39	0.02	243.47	0.06	245.55	0.05		
241.43	0.02	243.51	0.06	245.59	0.05		
241.47	0.02	243.55	0.06	245.63	0.05		
241.51	0.06	243.59	0.06	245.67	0.05		
241.55	0.06	243.63	0.06	245.71	0.05		
241.59	0.06	243.67	0.06	245.75	0.05		
241.63	0.06	243.71	0.06	245.79	0.05		
241.67	0.06	243.75	0.06	245.83	0.05		
241.71	0.06	243.79	0.06	245.87	0.05		
241.75	0.06	243.83	0.06	245.91	0.05		
241.79	0.06	243.87	0.06	245.95	0.05		
241.83	0.06	243.91	0.06	245.99	0.05		
241.87	0.06	243.95	0.06	246.03	0.05		
241.91	0.06	243.99	0.06	246.07	0.05		
241.95	0.06	244.03	0.06	246.11	0.05		
241.99	0.06	244.07	0.06	246.15	0.05		
242.03	0.06	244.11	0.05	246.19	0.05		
242.07	0.06	244.15	0.05	246.23	0.05		
242.11	0.06	244.19	0.05	246.27	0.05		
242.15	0.06	244.23	0.05	246.31	0.04		
242.19	0.06	244.27	0.05	246.35	0.04		
242.23	0.06	244.31	0.05	246.39	0.04		
242.27	0.06	244.35	0.05	246.43	0.04		
242.31	0.06	244.39	0.05	246.47	0.04		
242.35	0.06	244.43	0.05	246.51	**0.07**		
242.39	0.06	244.47	0.05	246.55	0.07		
242.43	0.06	244.51	0.05	246.59	0.07		
242.47	0.06	244.55	0.05	246.63	0.07		
242.51	0.06	244.59	0.05	246.67	0.07		
242.55	0.06	244.63	0.05	246.71	0.07		
242.59	0.06	244.67	0.05	246.75	0.07		
242.63	0.06	244.71	0.05	246.79	0.07		
242.67	0.06	244.75	0.05	246.83	0.07		
242.71	0.06	244.79	0.05	246.87	0.07		
242.75	0.06	244.83	0.05	246.91	0.07		
242.79	0.06	244.87	0.05	246.95	0.07		

Summary for Pond PB: Proposed Basin

Inflow Area = 3,265 sf,100.00% Impervious, Inflow Depth = 7.97" for 100yr Somerset event
Inflow = 0.59 cfs @ 12.09 hrs, Volume= 2,169 cf
Outflow = 0.21 cfs @ 12.37 hrs, Volume= 1,929 cf, Atten= 64%, Lag= 17.0 min
Discarded = 0.03 cfs @ 12.37 hrs, Volume= 1,666 cf
Primary = 0.18 cfs @ 12.37 hrs, Volume= 262 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 248.88' @ 12.37 hrs Surf.Area= 1,201 sf Storage= 1,054 cf

Plug-Flow detention time= 352.0 min calculated for 1,926 cf (89% of inflow)
Center-of-Mass det. time= 298.8 min (1,039.7 - 740.9)

Volume	Invert	Avail.Storage	Storage Description
#1	247.00'	2,900 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

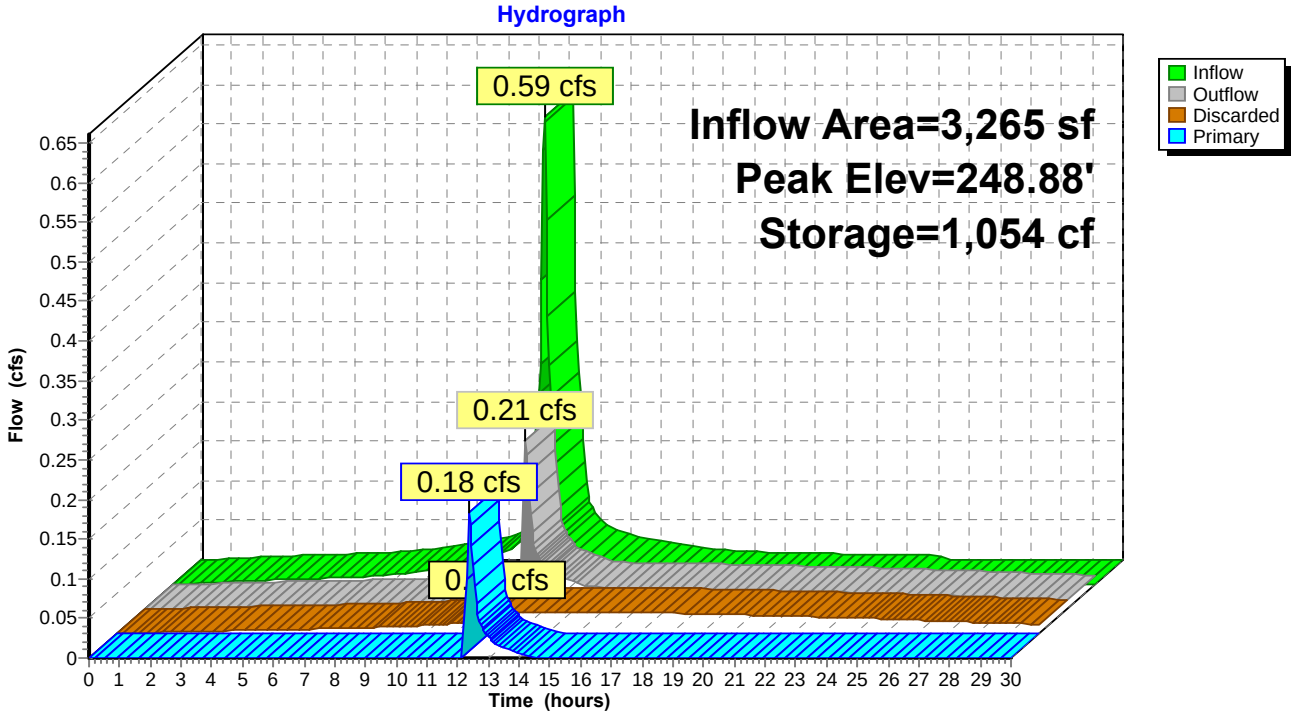
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
247.00	27	0	0
248.00	548	288	288
249.00	1,293	921	1,208
249.50	1,689	746	1,954
250.00	2,098	947	2,900

Device	Routing	Invert	Outlet Devices
#1	Discarded	247.00'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	248.85'	**15.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

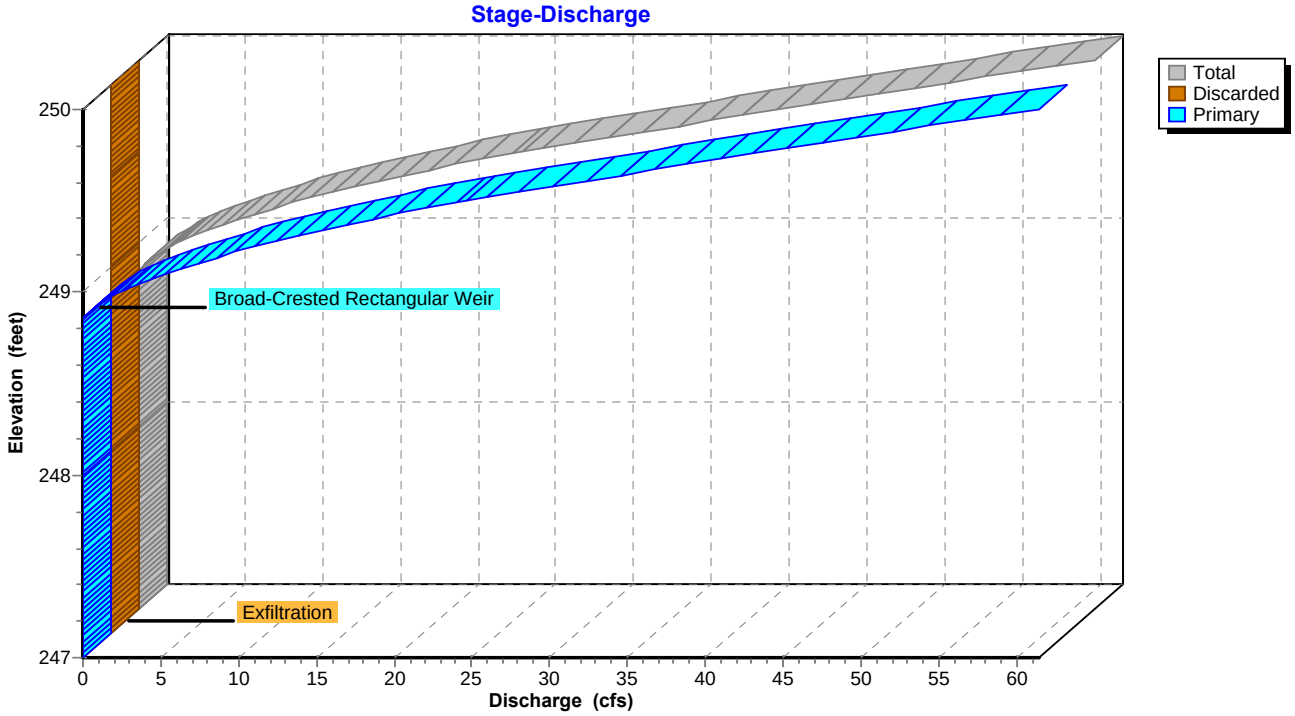
Discarded OutFlow Max=0.03 cfs @ 12.37 hrs HW=248.88' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.17 cfs @ 12.37 hrs HW=248.88' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.17 cfs @ 0.45 fps)

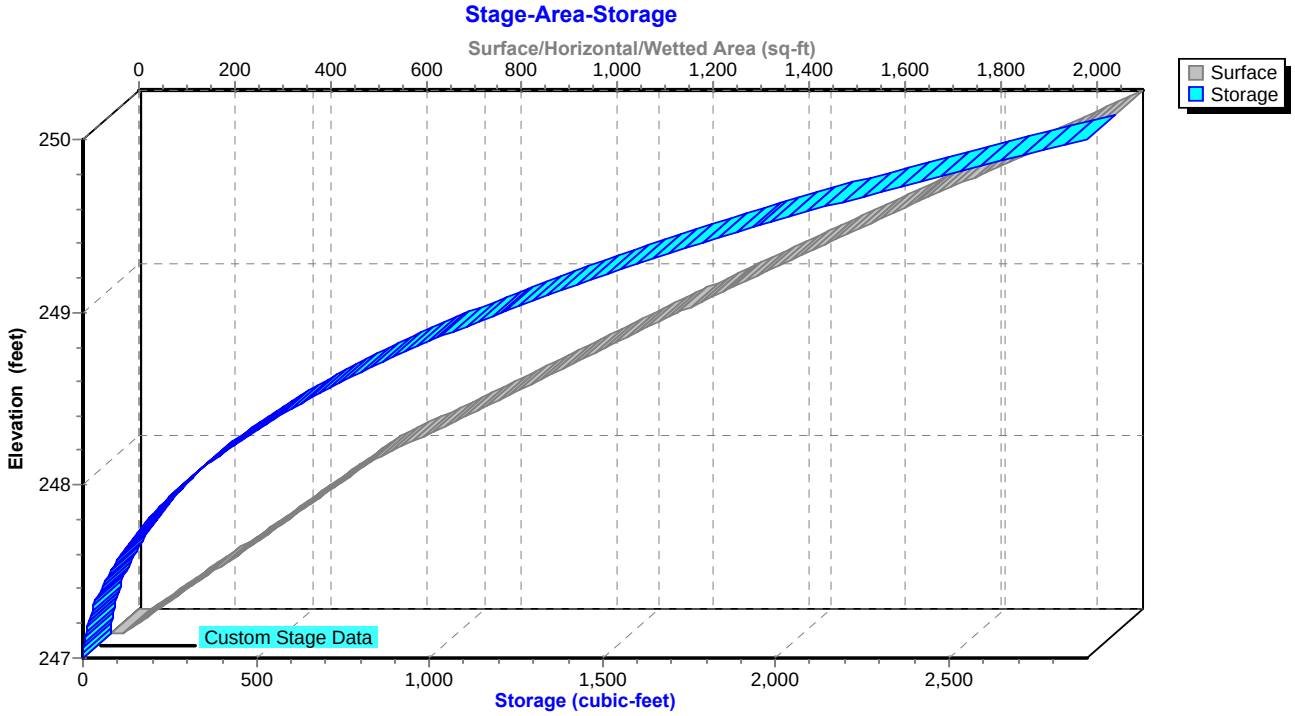
Pond PB: Proposed Basin



Pond PB: Proposed Basin



Pond PB: Proposed Basin



Hydrograph for Pond PB: Proposed Basin

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	247.00	0.00	0.00	0.00
1.00	0.00	0	247.01	0.00	0.00	0.00
2.00	0.00	6	247.10	0.00	0.00	0.00
3.00	0.01	13	247.18	0.00	0.00	0.00
4.00	0.01	23	247.25	0.00	0.00	0.00
5.00	0.01	35	247.32	0.00	0.00	0.00
6.00	0.01	48	247.38	0.01	0.01	0.00
7.00	0.01	66	247.45	0.01	0.01	0.00
8.00	0.02	91	247.54	0.01	0.01	0.00
9.00	0.02	130	247.66	0.01	0.01	0.00
10.00	0.03	188	247.80	0.01	0.01	0.00
11.00	0.04	278	247.98	0.01	0.01	0.00
12.00	**0.38**	**627**	**248.47**	**0.02**	**0.02**	**0.00**
13.00	**0.05**	**1,031**	**248.86**	**0.05**	**0.03**	**0.03**
14.00	0.03	1,026	248.85	0.03	0.03	0.01
15.00	0.02	1,020	248.85	0.03	0.03	0.00
16.00	0.02	996	248.83	0.03	0.03	0.00
17.00	0.01	953	248.79	0.03	0.03	0.00
18.00	0.01	902	248.74	0.03	0.03	0.00
19.00	0.01	846	248.69	0.02	0.02	0.00
20.00	0.01	790	248.64	0.02	0.02	0.00
21.00	0.01	735	248.58	0.02	0.02	0.00
22.00	0.01	680	248.53	0.02	0.02	0.00
23.00	0.01	626	248.47	0.02	0.02	0.00
24.00	0.01	574	248.41	0.02	0.02	0.00
25.00	0.00	507	248.33	0.02	0.02	0.00
26.00	0.00	444	248.24	0.02	0.02	0.00
27.00	0.00	385	248.16	0.02	0.02	0.00
28.00	0.00	332	248.08	0.01	0.01	0.00
29.00	0.00	284	247.99	0.01	0.01	0.00
30.00	0.00	241	247.91	0.01	0.01	0.00

Stage-Discharge for Pond PB: Proposed Basin

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
247.00	0.00	0.00	0.00
247.05	0.00	0.00	0.00
247.10	0.00	0.00	0.00
247.15	0.00	0.00	0.00
247.20	0.00	0.00	0.00
247.25	0.00	0.00	0.00
247.30	0.00	0.00	0.00
247.35	0.00	0.00	0.00
247.40	0.01	0.01	0.00
247.45	0.01	0.01	0.00
247.50	0.01	0.01	0.00
247.55	0.01	0.01	0.00
247.60	0.01	0.01	0.00
247.65	0.01	0.01	0.00
247.70	0.01	0.01	0.00
247.75	0.01	0.01	0.00
247.80	0.01	0.01	0.00
247.85	0.01	0.01	0.00
247.90	0.01	0.01	0.00
247.95	0.01	0.01	0.00
248.00	0.01	0.01	0.00
248.05	0.01	0.01	0.00
248.10	0.01	0.01	0.00
248.15	0.02	0.02	0.00
248.20	0.02	0.02	0.00
248.25	0.02	0.02	0.00
248.30	0.02	0.02	0.00
248.35	0.02	0.02	0.00
248.40	0.02	0.02	0.00
248.45	0.02	0.02	0.00
248.50	0.02	0.02	0.00
248.55	0.02	0.02	0.00
248.60	0.02	0.02	0.00
248.65	0.02	0.02	0.00
248.70	0.02	0.02	0.00
248.75	0.03	0.03	0.00
248.80	0.03	0.03	0.00
248.85	0.03	0.03	0.00
248.90	0.50	0.03	0.47
248.95	1.36	0.03	1.33
249.00	2.47	0.03	2.44
249.05	3.79	0.03	3.76
249.10	5.34	0.03	5.31
249.15	7.08	0.03	7.05
249.20	9.01	0.03	8.98
249.25	11.12	0.03	11.08
249.30	13.44	0.04	13.40
249.35	15.95	0.04	15.91
249.40	18.64	0.04	18.60
249.45	21.51	0.04	21.47
249.50	24.68	0.04	24.64
249.55	28.06	0.04	28.02
249.60	31.66	0.04	31.62
249.65	35.46	0.04	35.42
249.70	38.89	0.04	38.85
249.75	42.44	0.04	42.39
249.80	46.09	0.04	46.04
249.85	49.85	0.05	49.80
249.90	53.63	0.05	53.58
249.95	57.50	0.05	57.45
250.00	**61.46**	**0.05**	**61.42**

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment FCA: Fitness Center Runoff Area=8,850 sf 100.00% Impervious Runoff Depth=1.03"
Tc=6.0 min CN=98 Runoff=0.59 cfs 763 cf

Subcatchment PC: Pickleball Court Runoff Area=3,265 sf 100.00% Impervious Runoff Depth=1.03"
Tc=6.0 min CN=98 Runoff=0.22 cfs 281 cf

Pond ADS: ADS MC4500 Peak Elev=241.81' Storage=536 cf Inflow=0.59 cfs 763 cf
Outflow=0.06 cfs 764 cf

Pond PB: Proposed Basin Peak Elev=247.90' Storage=237 cf Inflow=0.22 cfs 281 cf
Discarded=0.01 cfs 281 cf Primary=0.00 cfs 0 cf Outflow=0.01 cfs 281 cf

Total Runoff Area = 12,115 sf Runoff Volume = 1,044 cf Average Runoff Depth = 1.03"
0.00% Pervious = 0 sf 100.00% Impervious = 12,115 sf

Summary for Subcatchment FCA: Fitness Center Addition

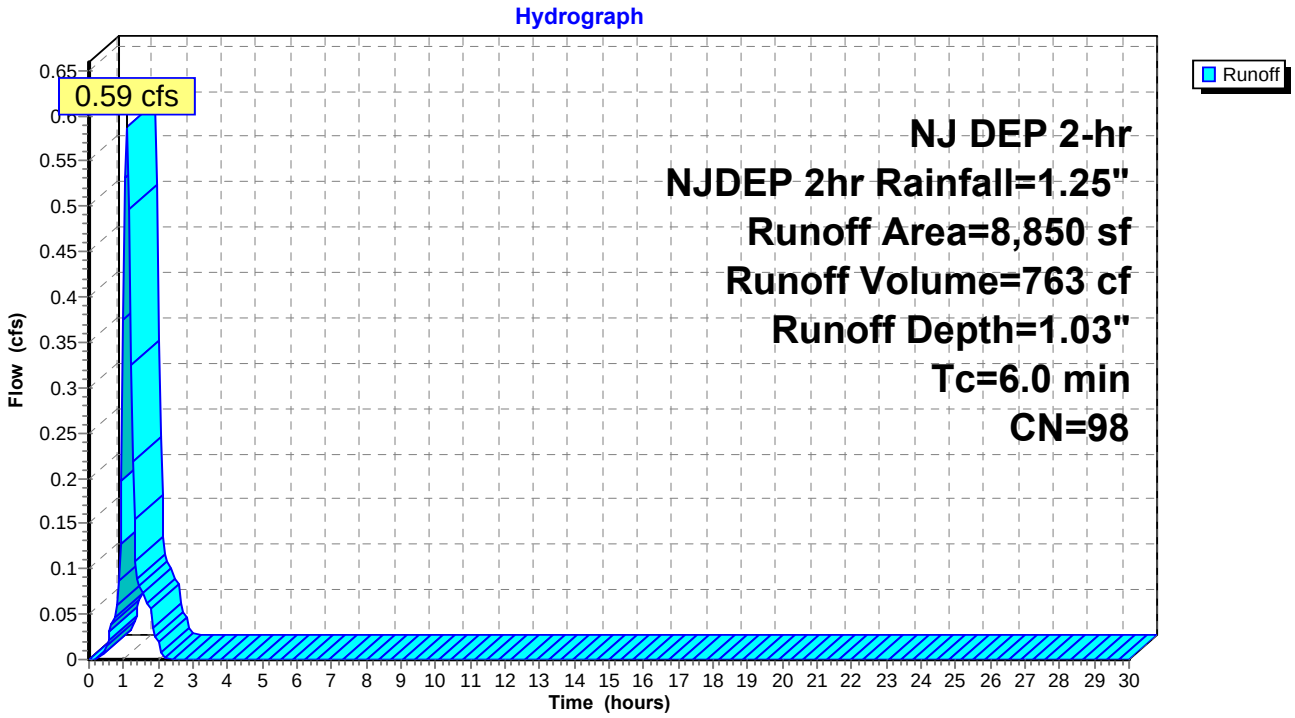
Runoff = 0.59 cfs @ 1.09 hrs, Volume= 763 cf, Depth= 1.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr NJDEP 2hr Rainfall=1.25"

	Area (sf)	CN	Description
*	7,270	98	Fitness Center Roof
*	1,580	98	Fitness Center Walk
	8,850	98	Weighted Average
	8,850		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Roof Drains**

Subcatchment FCA: Fitness Center Addition



Hydrograph for Subcatchment FCA: Fitness Center Addition

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.10	0.01	0.01
1.00	0.63	0.43	**0.37**
1.50	1.15	0.94	**0.08**
2.00	**1.25**	**1.03**	0.02
2.50	1.25	1.03	0.00
3.00	1.25	1.03	0.00
3.50	1.25	1.03	0.00
4.00	1.25	1.03	0.00
4.50	1.25	1.03	0.00
5.00	1.25	1.03	0.00
5.50	1.25	1.03	0.00
6.00	1.25	1.03	0.00
6.50	1.25	1.03	0.00
7.00	1.25	1.03	0.00
7.50	1.25	1.03	0.00
8.00	1.25	1.03	0.00
8.50	1.25	1.03	0.00
9.00	1.25	1.03	0.00
9.50	1.25	1.03	0.00
10.00	1.25	1.03	0.00
10.50	1.25	1.03	0.00
11.00	1.25	1.03	0.00
11.50	1.25	1.03	0.00
12.00	1.25	1.03	0.00
12.50	1.25	1.03	0.00
13.00	1.25	1.03	0.00
13.50	1.25	1.03	0.00
14.00	1.25	1.03	0.00
14.50	1.25	1.03	0.00
15.00	1.25	1.03	0.00
15.50	1.25	1.03	0.00
16.00	1.25	1.03	0.00
16.50	1.25	1.03	0.00
17.00	1.25	1.03	0.00
17.50	1.25	1.03	0.00
18.00	1.25	1.03	0.00
18.50	1.25	1.03	0.00
19.00	1.25	1.03	0.00
19.50	1.25	1.03	0.00
20.00	1.25	1.03	0.00
20.50	1.25	1.03	0.00
21.00	1.25	1.03	0.00
21.50	1.25	1.03	0.00
22.00	1.25	1.03	0.00
22.50	1.25	1.03	0.00
23.00	1.25	1.03	0.00
23.50	1.25	1.03	0.00
24.00	1.25	1.03	0.00
24.50	1.25	1.03	0.00
25.00	1.25	1.03	0.00
25.50	1.25	1.03	0.00
26.00	1.25	1.03	0.00
26.50	1.25	1.03	0.00
27.00	1.25	1.03	0.00
27.50	1.25	1.03	0.00
28.00	1.25	1.03	0.00
28.50	1.25	1.03	0.00
29.00	1.25	1.03	0.00
29.50	1.25	1.03	0.00
30.00	1.25	1.03	0.00

Summary for Subcatchment PC: Pickleball Court

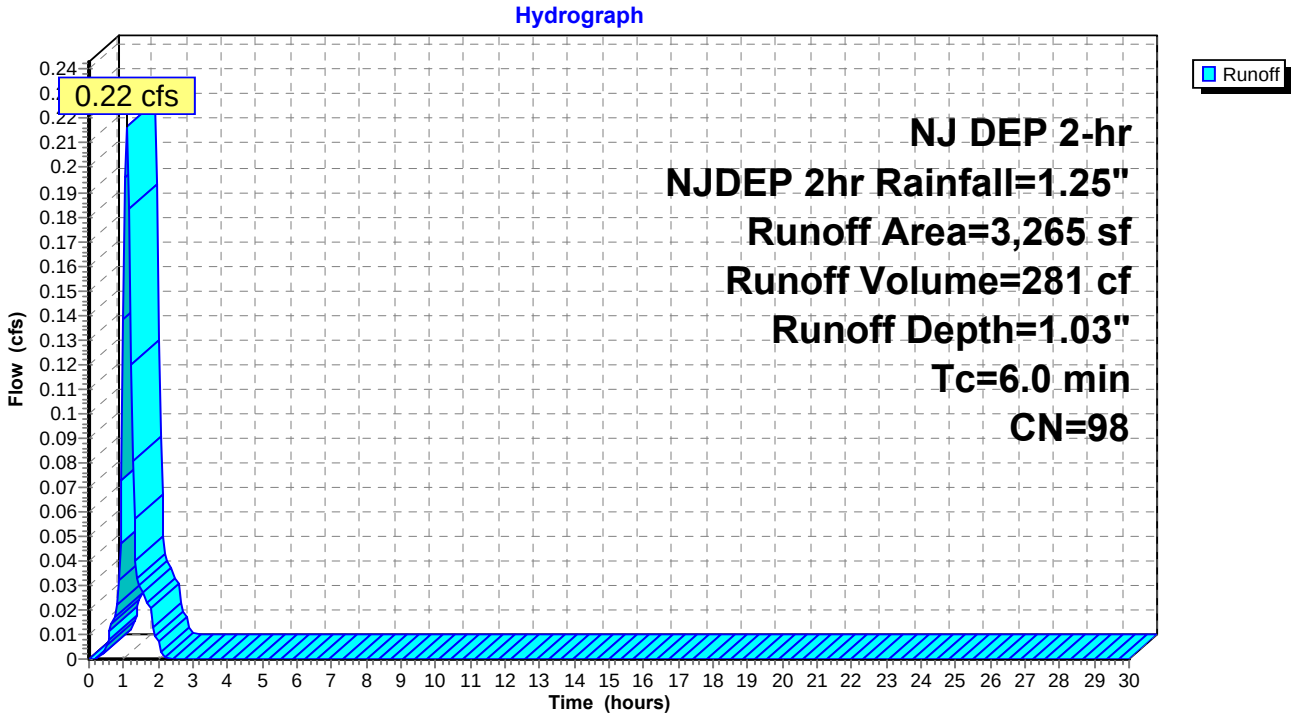
Runoff = 0.22 cfs @ 1.09 hrs, Volume= 281 cf, Depth= 1.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr NJDEP 2hr Rainfall=1.25"

	Area (sf)	CN	Description
*	1,905	98	Pickleball Court & Walk
*	480	98	Shuffleboard & Walk
*	880	98	Bocce & Concrete Walk
	3,265	98	Weighted Average
	3,265		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Pickleball Court**

Subcatchment PC: Pickleball Court



Hydrograph for Subcatchment PC: Pickleball Court

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.10	0.01	0.01
1.00	0.63	0.43	**0.14**
1.50	1.15	0.94	**0.03**
2.00	**1.25**	**1.03**	0.01
2.50	1.25	1.03	0.00
3.00	1.25	1.03	0.00
3.50	1.25	1.03	0.00
4.00	1.25	1.03	0.00
4.50	1.25	1.03	0.00
5.00	1.25	1.03	0.00
5.50	1.25	1.03	0.00
6.00	1.25	1.03	0.00
6.50	1.25	1.03	0.00
7.00	1.25	1.03	0.00
7.50	1.25	1.03	0.00
8.00	1.25	1.03	0.00
8.50	1.25	1.03	0.00
9.00	1.25	1.03	0.00
9.50	1.25	1.03	0.00
10.00	1.25	1.03	0.00
10.50	1.25	1.03	0.00
11.00	1.25	1.03	0.00
11.50	1.25	1.03	0.00
12.00	1.25	1.03	0.00
12.50	1.25	1.03	0.00
13.00	1.25	1.03	0.00
13.50	1.25	1.03	0.00
14.00	1.25	1.03	0.00
14.50	1.25	1.03	0.00
15.00	1.25	1.03	0.00
15.50	1.25	1.03	0.00
16.00	1.25	1.03	0.00
16.50	1.25	1.03	0.00
17.00	1.25	1.03	0.00
17.50	1.25	1.03	0.00
18.00	1.25	1.03	0.00
18.50	1.25	1.03	0.00
19.00	1.25	1.03	0.00
19.50	1.25	1.03	0.00
20.00	1.25	1.03	0.00
20.50	1.25	1.03	0.00
21.00	1.25	1.03	0.00
21.50	1.25	1.03	0.00
22.00	1.25	1.03	0.00
22.50	1.25	1.03	0.00
23.00	1.25	1.03	0.00
23.50	1.25	1.03	0.00
24.00	1.25	1.03	0.00
24.50	1.25	1.03	0.00
25.00	1.25	1.03	0.00
25.50	1.25	1.03	0.00
26.00	1.25	1.03	0.00
26.50	1.25	1.03	0.00
27.00	1.25	1.03	0.00
27.50	1.25	1.03	0.00
28.00	1.25	1.03	0.00
28.50	1.25	1.03	0.00
29.00	1.25	1.03	0.00
29.50	1.25	1.03	0.00
30.00	1.25	1.03	0.00

Summary for Pond ADS: ADS MC4500

Inflow Area = 8,850 sf,100.00% Impervious, Inflow Depth = 1.03" for NJDEP 2hr event
Inflow = 0.59 cfs @ 1.09 hrs, Volume= 763 cf
Outflow = 0.06 cfs @ 3.10 hrs, Volume= 764 cf, Atten= 90%, Lag= 120.3 min
Discarded = 0.06 cfs @ 3.10 hrs, Volume= 764 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 241.81' @ 1.76 hrs Surf.Area= 2,501 sf Storage= 536 cf

Plug-Flow detention time= 114.4 min calculated for 762 cf (100% of inflow)
Center-of-Mass det. time= 115.0 min (185.3 - 70.3)

Volume	Invert	Avail.Storage	Storage Description
#1	240.75'	286 cf	**Bottom Stone (Prismatic)**Listed below (Recalc) 714 cf Overall x 40.0% Voids
#2	241.50'	971 cf	**Stone Around Chamber (Prismatic)**Listed below (Recalc) 4,760 cf Overall x 20.4% Voids
#3	241.50'	2,124 cf	**ADS_StormTech MC-4500 +Cap @ 77.57' L** Effective Size= 90.4"W x 60.0"H => 26.46 sf x 77.57'L = 2,052.3 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap Cap Storage= +35.7 cf x 2 x 1 rows = 71.4 cf
#4	246.50'	381 cf	**Top Stone (Prismatic)**Listed below (Recalc) 952 cf Overall x 40.0% Voids
		3,761 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
240.75	952	0	0
241.50	952	714	714

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
241.50	952	0	0
246.50	952	4,760	4,760

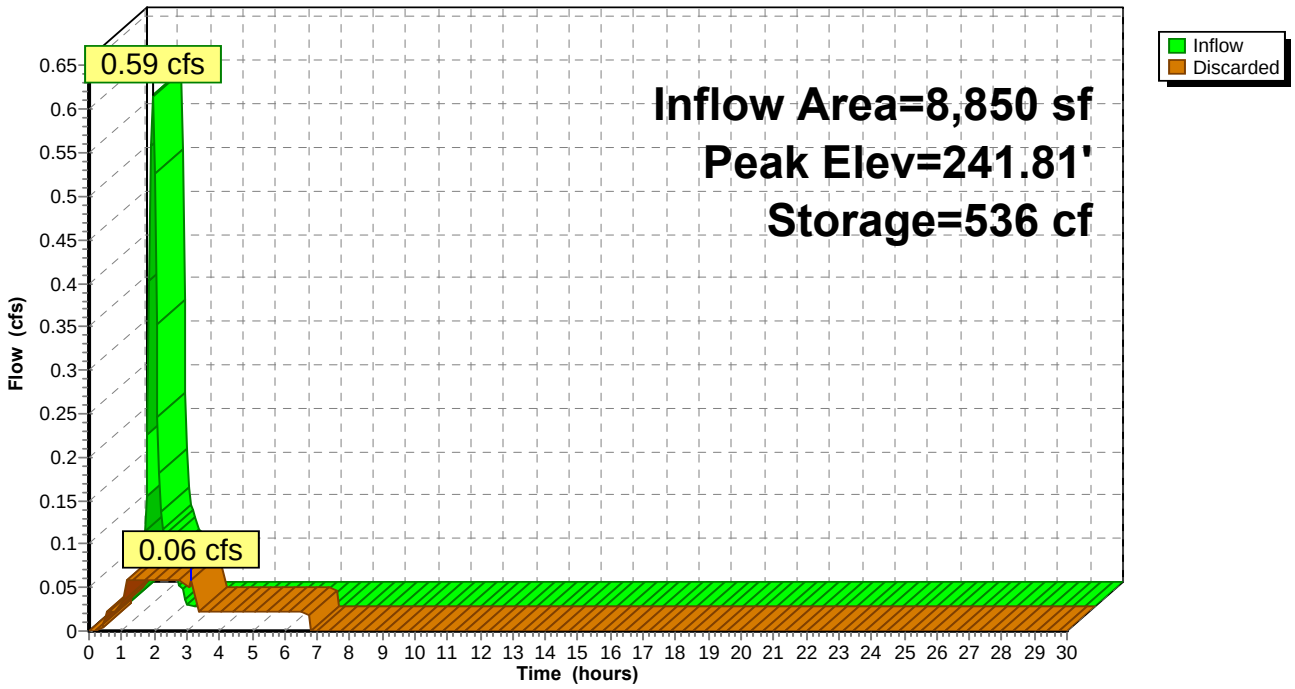
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
246.50	952	0	0
247.50	952	952	952

Device	Routing	Invert	Outlet Devices
#1	Discarded	240.75'	**1.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.06 cfs @ 3.10 hrs HW=241.51' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.06 cfs)

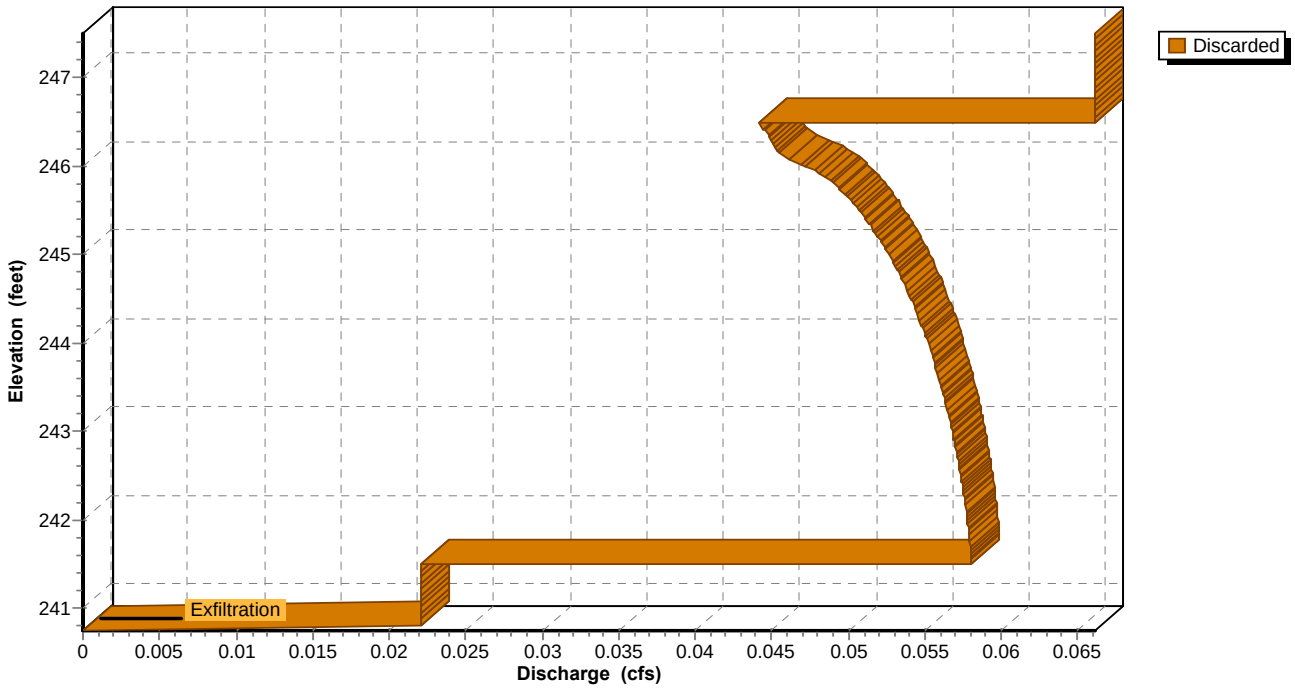
Pond ADS: ADS MC4500

Hydrograph

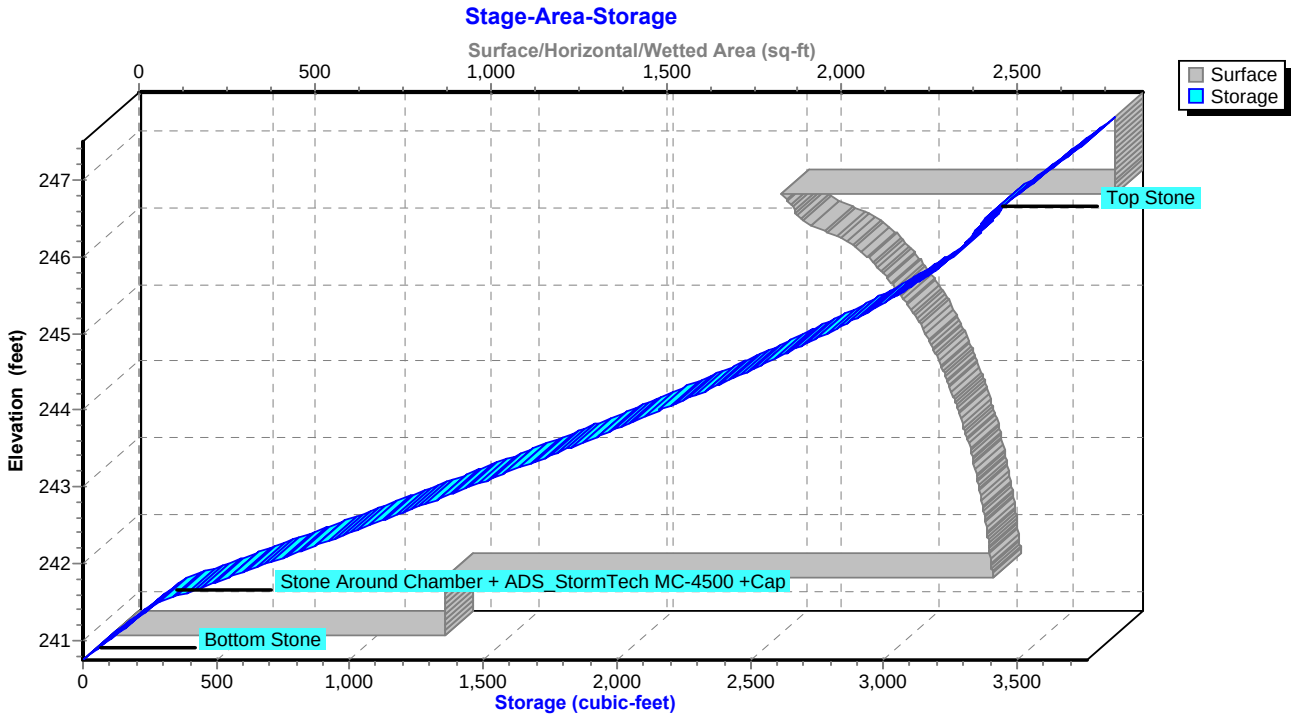


Pond ADS: ADS MC4500

Stage-Discharge



Pond ADS: ADS MC4500



Hydrograph for Pond ADS: ADS MC4500

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)
0.00	0.00	0	240.75	0.00
1.00	**0.37**	**115**	**241.05**	0.02
2.00	**0.02**	**515**	**241.79**	0.06
3.00	0.00	313	241.53	**0.06**
4.00	0.00	218	241.32	**0.02**
5.00	0.00	138	241.11	0.02
6.00	0.00	59	240.90	0.02
7.00	0.00	0	240.75	0.00
8.00	0.00	0	240.75	0.00
9.00	0.00	0	240.75	0.00
10.00	0.00	0	240.75	0.00
11.00	0.00	0	240.75	0.00
12.00	0.00	0	240.75	0.00
13.00	0.00	0	240.75	0.00
14.00	0.00	0	240.75	0.00
15.00	0.00	0	240.75	0.00
16.00	0.00	0	240.75	0.00
17.00	0.00	0	240.75	0.00
18.00	0.00	0	240.75	0.00
19.00	0.00	0	240.75	0.00
20.00	0.00	0	240.75	0.00
21.00	0.00	0	240.75	0.00
22.00	0.00	0	240.75	0.00
23.00	0.00	0	240.75	0.00
24.00	0.00	0	240.75	0.00
25.00	0.00	0	240.75	0.00
26.00	0.00	0	240.75	0.00
27.00	0.00	0	240.75	0.00
28.00	0.00	0	240.75	0.00
29.00	0.00	0	240.75	0.00
30.00	0.00	0	240.75	0.00

Stage-Discharge for Pond ADS: ADS MC4500

Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)	Elevation (feet)	Discarded (cfs)
240.75	0.00	242.83	0.06	244.91	0.05	246.99	0.07
240.79	0.02	242.87	0.06	244.95	0.05	247.03	0.07
240.83	0.02	242.91	0.06	244.99	0.05	247.07	0.07
240.87	0.02	242.95	0.06	245.03	0.05	247.11	0.07
240.91	0.02	242.99	0.06	245.07	0.05	247.15	0.07
240.95	0.02	243.03	0.06	245.11	0.05	247.19	0.07
240.99	0.02	243.07	0.06	245.15	0.05	247.23	0.07
241.03	0.02	243.11	0.06	245.19	0.05	247.27	0.07
241.07	0.02	243.15	0.06	245.23	0.05	247.31	0.07
241.11	0.02	243.19	0.06	245.27	0.05	247.35	0.07
241.15	0.02	243.23	0.06	245.31	0.05	247.39	0.07
241.19	0.02	243.27	0.06	245.35	0.05	247.43	0.07
241.23	0.02	243.31	0.06	245.39	0.05	247.47	0.07
241.27	0.02	243.35	0.06	245.43	0.05		
241.31	0.02	243.39	0.06	245.47	0.05		
241.35	0.02	243.43	0.06	245.51	0.05		
241.39	0.02	243.47	0.06	245.55	0.05		
241.43	0.02	243.51	0.06	245.59	0.05		
241.47	0.02	243.55	0.06	245.63	0.05		
241.51	0.06	243.59	0.06	245.67	0.05		
241.55	0.06	243.63	0.06	245.71	0.05		
241.59	0.06	243.67	0.06	245.75	0.05		
241.63	0.06	243.71	0.06	245.79	0.05		
241.67	0.06	243.75	0.06	245.83	0.05		
241.71	0.06	243.79	0.06	245.87	0.05		
241.75	0.06	243.83	0.06	245.91	0.05		
241.79	0.06	243.87	0.06	245.95	0.05		
241.83	0.06	243.91	0.06	245.99	0.05		
241.87	0.06	243.95	0.06	246.03	0.05		
241.91	0.06	243.99	0.06	246.07	0.05		
241.95	0.06	244.03	0.06	246.11	0.05		
241.99	0.06	244.07	0.06	246.15	0.05		
242.03	0.06	244.11	0.05	246.19	0.05		
242.07	0.06	244.15	0.05	246.23	0.05		
242.11	0.06	244.19	0.05	246.27	0.05		
242.15	0.06	244.23	0.05	246.31	0.04		
242.19	0.06	244.27	0.05	246.35	0.04		
242.23	0.06	244.31	0.05	246.39	0.04		
242.27	0.06	244.35	0.05	246.43	0.04		
242.31	0.06	244.39	0.05	246.47	0.04		
242.35	0.06	244.43	0.05	246.51	**0.07**		
242.39	0.06	244.47	0.05	246.55	0.07		
242.43	0.06	244.51	0.05	246.59	0.07		
242.47	0.06	244.55	0.05	246.63	0.07		
242.51	0.06	244.59	0.05	246.67	0.07		
242.55	0.06	244.63	0.05	246.71	0.07		
242.59	0.06	244.67	0.05	246.75	0.07		
242.63	0.06	244.71	0.05	246.79	0.07		
242.67	0.06	244.75	0.05	246.83	0.07		
242.71	0.06	244.79	0.05	246.87	0.07		
242.75	0.06	244.83	0.05	246.91	0.07		
242.79	0.06	244.87	0.05	246.95	0.07		

Summary for Pond PB: Proposed Basin

Inflow Area = 3,265 sf,100.00% Impervious, Inflow Depth = 1.03" for NJDEP 2hr event
Inflow = 0.22 cfs @ 1.09 hrs, Volume= 281 cf
Outflow = 0.01 cfs @ 1.87 hrs, Volume= 281 cf, Atten= 95%, Lag= 46.5 min
Discarded = 0.01 cfs @ 1.87 hrs, Volume= 281 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 247.90' @ 1.87 hrs Surf.Area= 498 sf Storage= 237 cf

Plug-Flow detention time= 237.6 min calculated for 281 cf (100% of inflow)
Center-of-Mass det. time= 238.2 min (308.5 - 70.3)

Volume	Invert	Avail.Storage	Storage Description
#1	247.00'	2,900 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

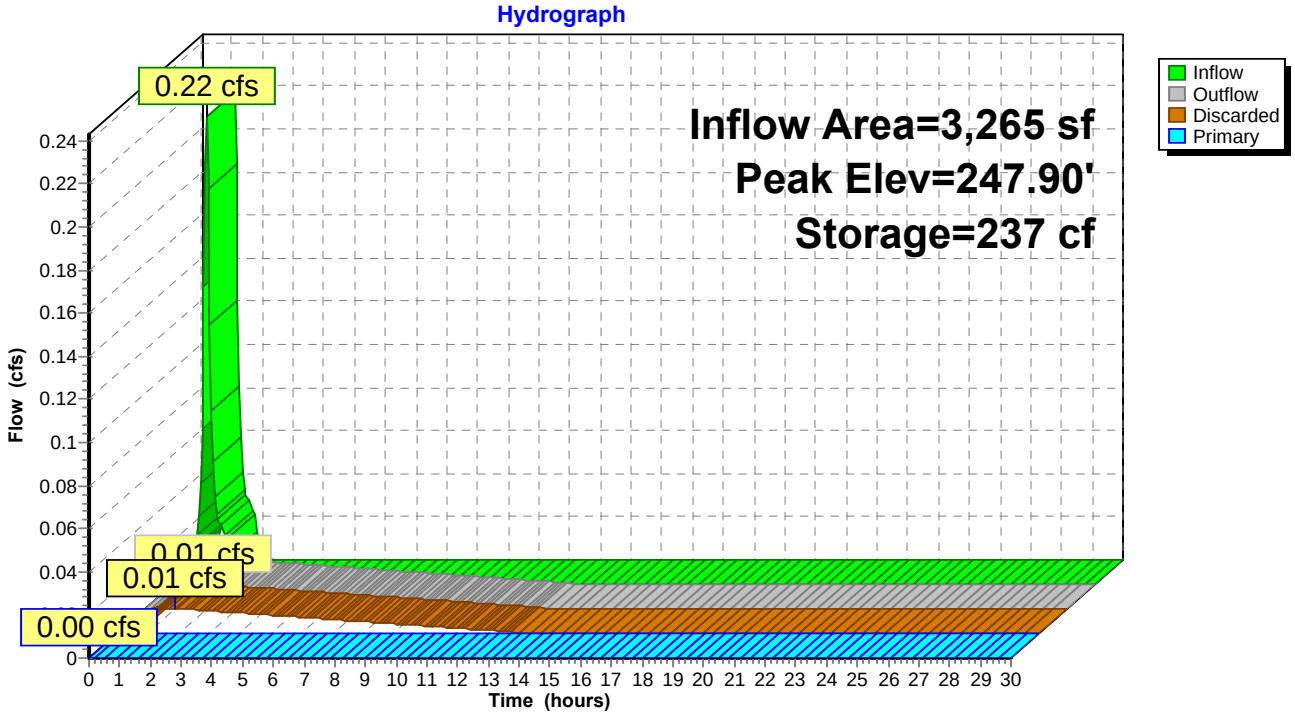
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
247.00	27	0	0
248.00	548	288	288
249.00	1,293	921	1,208
249.50	1,689	746	1,954
250.00	2,098	947	2,900

Device	Routing	Invert	Outlet Devices
#1	Discarded	247.00'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	248.85'	**15.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

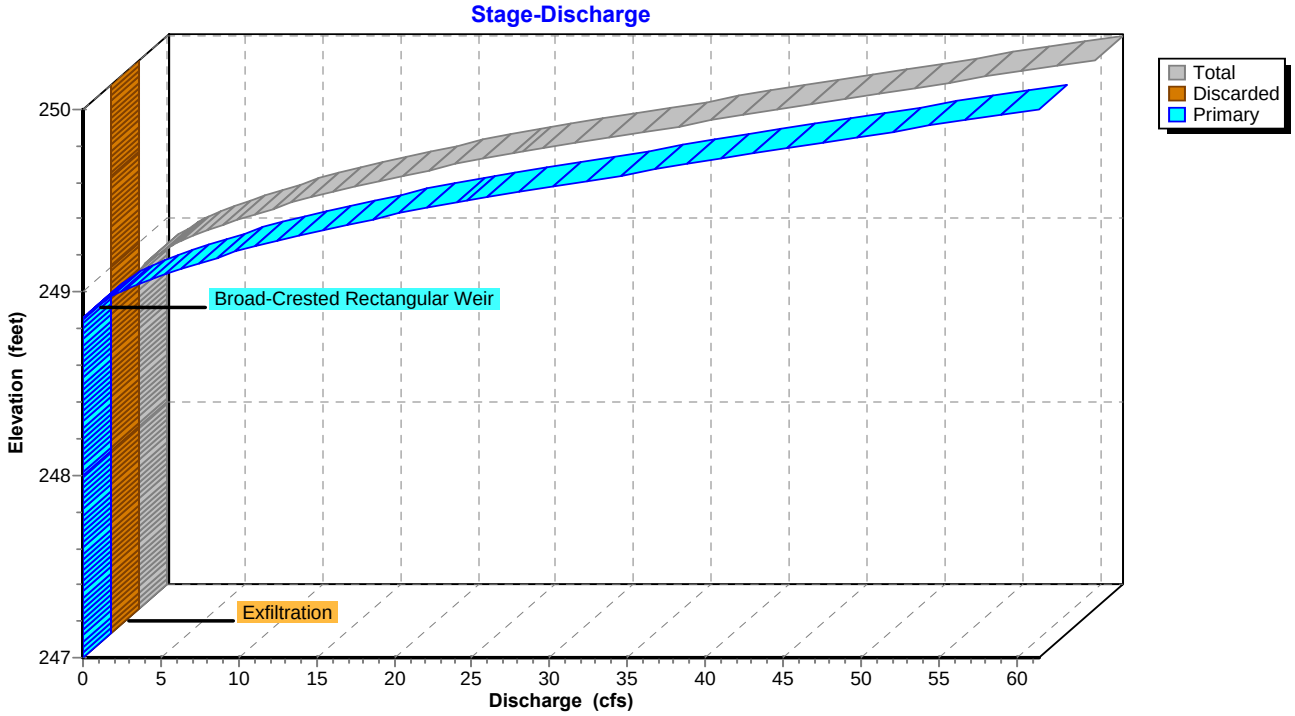
Discarded OutFlow Max=0.01 cfs @ 1.87 hrs HW=247.90' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=247.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

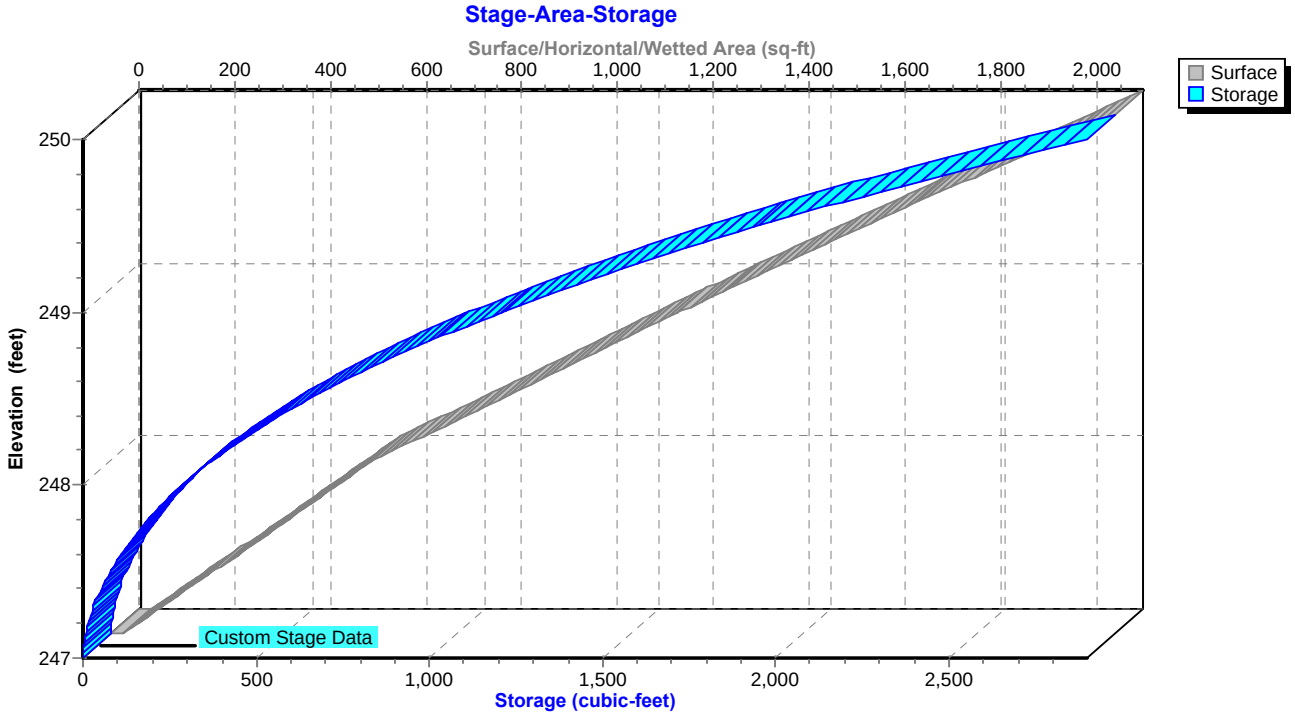
Pond PB: Proposed Basin



Pond PB: Proposed Basin



Pond PB: Proposed Basin



Hydrograph for Pond PB: Proposed Basin

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	247.00	0.00	0.00	**0.00**
1.00	**0.14**	**53**	**247.40**	**0.01**	**0.01**	0.00
2.00	**0.01**	**236**	**247.90**	**0.01**	**0.01**	0.00
3.00	0.00	199	247.82	0.01	0.01	0.00
4.00	0.00	162	247.74	0.01	0.01	0.00
5.00	0.00	130	247.66	0.01	0.01	0.00
6.00	0.00	101	247.57	0.01	0.01	0.00
7.00	0.00	76	247.49	0.01	0.01	0.00
8.00	0.00	54	247.41	0.01	0.01	0.00
9.00	0.00	36	247.32	0.00	0.00	0.00
10.00	0.00	21	247.24	0.00	0.00	0.00
11.00	0.00	11	247.16	0.00	0.00	0.00
12.00	0.00	3	247.07	0.00	0.00	0.00
13.00	0.00	0	247.00	0.00	0.00	0.00
14.00	0.00	0	247.00	0.00	0.00	0.00
15.00	0.00	0	247.00	0.00	0.00	0.00
16.00	0.00	0	247.00	0.00	0.00	0.00
17.00	0.00	0	247.00	0.00	0.00	0.00
18.00	0.00	0	247.00	0.00	0.00	0.00
19.00	0.00	0	247.00	0.00	0.00	0.00
20.00	0.00	0	247.00	0.00	0.00	0.00
21.00	0.00	0	247.00	0.00	0.00	0.00
22.00	0.00	0	247.00	0.00	0.00	0.00
23.00	0.00	0	247.00	0.00	0.00	0.00
24.00	0.00	0	247.00	0.00	0.00	0.00
25.00	0.00	0	247.00	0.00	0.00	0.00
26.00	0.00	0	247.00	0.00	0.00	0.00
27.00	0.00	0	247.00	0.00	0.00	0.00
28.00	0.00	0	247.00	0.00	0.00	0.00
29.00	0.00	0	247.00	0.00	0.00	0.00
30.00	0.00	0	247.00	0.00	0.00	0.00

Stage-Discharge for Pond PB: Proposed Basin

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
247.00	0.00	0.00	0.00
247.05	0.00	0.00	0.00
247.10	0.00	0.00	0.00
247.15	0.00	0.00	0.00
247.20	0.00	0.00	0.00
247.25	0.00	0.00	0.00
247.30	0.00	0.00	0.00
247.35	0.00	0.00	0.00
247.40	0.01	0.01	0.00
247.45	0.01	0.01	0.00
247.50	0.01	0.01	0.00
247.55	0.01	0.01	0.00
247.60	0.01	0.01	0.00
247.65	0.01	0.01	0.00
247.70	0.01	0.01	0.00
247.75	0.01	0.01	0.00
247.80	0.01	0.01	0.00
247.85	0.01	0.01	0.00
247.90	0.01	0.01	0.00
247.95	0.01	0.01	0.00
248.00	0.01	0.01	0.00
248.05	0.01	0.01	0.00
248.10	0.01	0.01	0.00
248.15	0.02	0.02	0.00
248.20	0.02	0.02	0.00
248.25	0.02	0.02	0.00
248.30	0.02	0.02	0.00
248.35	0.02	0.02	0.00
248.40	0.02	0.02	0.00
248.45	0.02	0.02	0.00
248.50	0.02	0.02	0.00
248.55	0.02	0.02	0.00
248.60	0.02	0.02	0.00
248.65	0.02	0.02	0.00
248.70	0.02	0.02	0.00
248.75	0.03	0.03	0.00
248.80	0.03	0.03	0.00
248.85	0.03	0.03	0.00
248.90	0.50	0.03	0.47
248.95	1.36	0.03	1.33
249.00	2.47	0.03	2.44
249.05	3.79	0.03	3.76
249.10	5.34	0.03	5.31
249.15	7.08	0.03	7.05
249.20	9.01	0.03	8.98
249.25	11.12	0.03	11.08
249.30	13.44	0.04	13.40
249.35	15.95	0.04	15.91
249.40	18.64	0.04	18.60
249.45	21.51	0.04	21.47
249.50	24.68	0.04	24.64
249.55	28.06	0.04	28.02
249.60	31.66	0.04	31.62
249.65	35.46	0.04	35.42
249.70	38.89	0.04	38.85
249.75	42.44	0.04	42.39
249.80	46.09	0.04	46.04
249.85	49.85	0.05	49.80
249.90	53.63	0.05	53.58
249.95	57.50	0.05	57.45
250.00	**61.46**	**0.05**	**61.42**

ADVANCED DRAINAGE SYSTEMS, INC.

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Fellowship Village - Fitness Center

Bernards, NJ

STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH MC-4500 OR APPROVED EQUAL.
2. CHAMBERS SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORT PANELS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
4. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
5. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
6. CHAMBERS SHALL BE DESIGNED AND ALLOWABLE LOADS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
7. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. THE CHAMBER MANUFACTURER SHALL SUBMIT THE FOLLOWING UPON REQUEST TO THE SITE DESIGN ENGINEER FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE:
   a. A STRUCTURAL EVALUATION SEALED BY A REGISTERED PROFESSIONAL ENGINEER THAT DEMONSTRATES THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY AASHTO FOR THERMOPLASTIC PIPE.
   b. A STRUCTURAL EVALUATION SEALED BY A REGISTERED PROFESSIONAL ENGINEER THAT DEMONSTRATES THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET. THE 50 YEAR CREEP MODULUS DATA SPECIFIED IN ASTM F2418 MUST BE USED AS PART OF THE AASHTO STRUCTURAL EVALUATION TO VERIFY LONG-TERM PERFORMANCE.
   c. STRUCTURAL CROSS SECTION DETAIL ON WHICH THE STRUCTURAL EVALUATION IS BASED.
8. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

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IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-4500 CHAMBER SYSTEM

1. STORMTECH MC-4500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTITIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH MC-4500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR EXCAVATOR SITUATED OVER THE CHAMBERS.

   STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 9" (230 mm) SPACING BETWEEN THE CHAMBER ROWS.
7. INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
8. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE 3/4-2" (20-50 mm) MEETING THE AASHTO M43 DESIGNATION OF #3 OR #4.
9. STONE SHALL BE BROUGHT UP EVENLY AROUND CHAMBERS SO AS NOT TO DISTORT THE CHAMBER SHAPE. STONE DEPTHS SHOULD NEVER DIFFER BY MORE THAN 12" (300 mm) BETWEEN ADJACENT CHAMBER ROWS.
10. STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
11. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH MC-4500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
2. THE USE OF EQUIPMENT OVER MC-4500 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

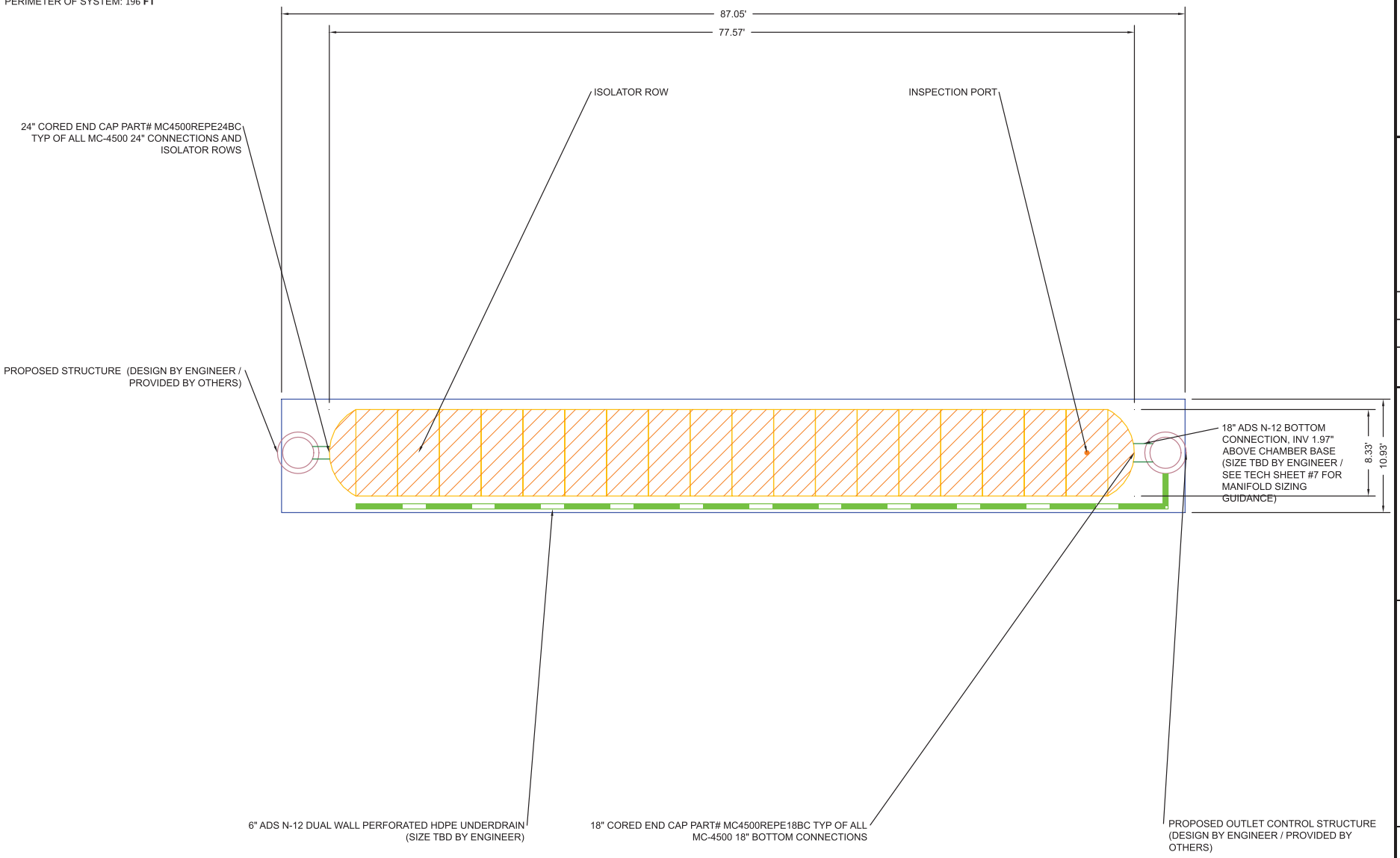
USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

CONCEPTUAL LAYOUT

(18) STORMTECH MC-4500 CHAMBERS
(2) STORMTECH MC-4500 END CAPS
INSTALLED WITH 12 " COVER STONE, 9 " BASE STONE, 40% STONE VOID
INSTALLED SYSTEM VOLUME: 3763 CF
AREA OF SYSTEM: 952 **FT²**
PERIMETER OF SYSTEM: 196 **FT**

COMPUTER GENERATED CONCEPTUAL LAYOUT - NOT FOR CONSTRUCTION



Fellowship Village - Fitness Center
Bernards, NJ

DATE: 11/02/2020 | DRAWN: AD | PROJECT #: Tool | CHECKED: ---

REV	DRW	CHK	DESCRIPTION

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Detention Retention Water Quality
70 INWOOD ROAD, SUITE 3 | ROCKY HILL, | CT | 06067
860-529-8188 |888-892-2694 | WWW.STORMTECH.COM

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1-800-733-7473

NOT TO SCALE

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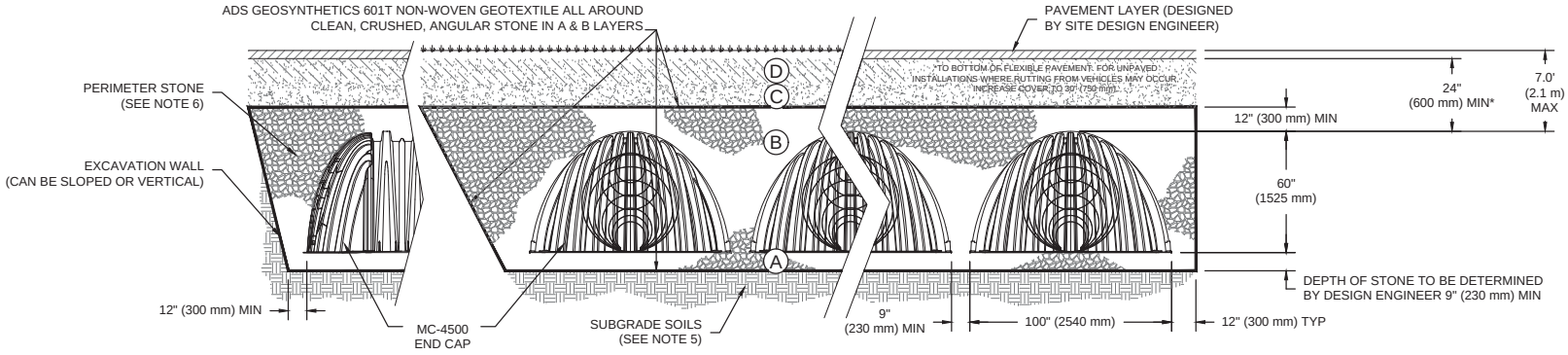
ACCEPTABLE FILL MATERIALS: STORMTECH MC-4500 CHAMBER SYSTEMS

MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE, NOMINAL SIZE DISTRIBUTION BETWEEN 3/4-2 INCH (20-50 mm)	AASHTO M43[1] 3, 4	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE, NOMINAL SIZE DISTRIBUTION BETWEEN 3/4-2 INCH (20-50 mm)	AASHTO M43[1] 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. [2 3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.



NOTES:

1. MC-4500 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. MC-4500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
4. THE "SITE DESIGN ENGINEER" REFERS TO THE ENGINEER RESPONSIBLE FOR THE DESIGN AND LAYOUT OF THE STORMTECH CHAMBERS FOR THIS PROJECT.
5. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
6. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
7. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.

Fellowship Village - Fitness Center
Bernards, NJ

DATE: 11/02/2020 | DRAWN: AD | CHECKED: ---
PROJECT #: Tool

REV	DRW	CHK	DESCRIPTION

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4640 TRUEMAN BLVD
HILLIARD, OH 43026
1-800-733-7473

StormTech
Determine Attention • Water Quality
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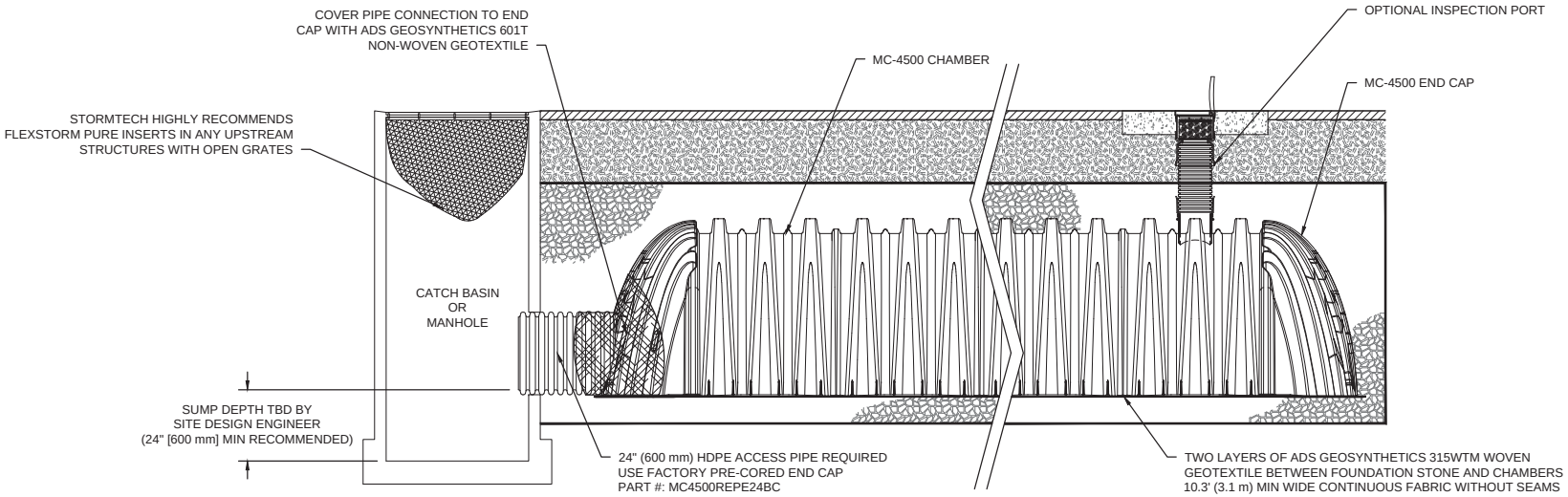


MC-4500 ISOLATOR ROW DETAIL
NTS

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

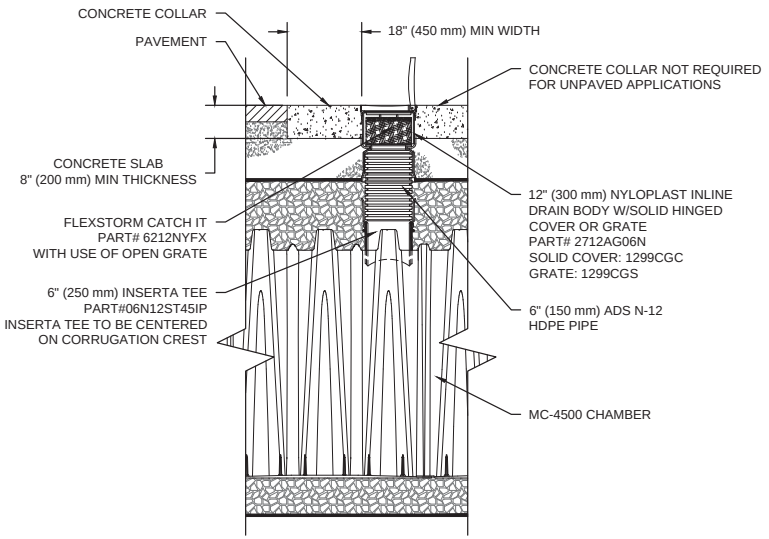
STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.

2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.



MC-4500 6" INSPECTION PORT DETAIL
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Fellowship Village - Fitness Center
Bernards, NJ

DATE: 11/02/2020 | DRAWN: AD | CHECKED: ---
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UNDERDRAIN DETAIL

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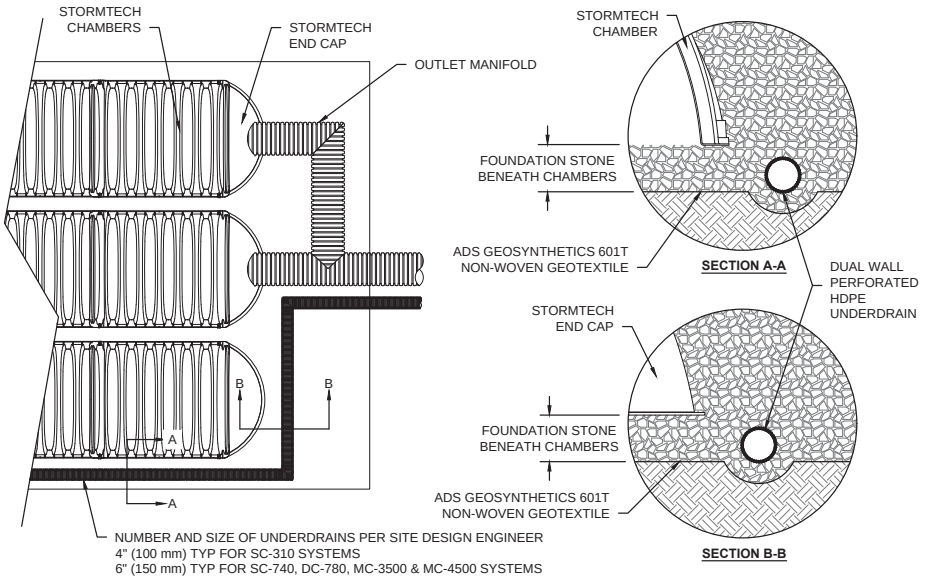
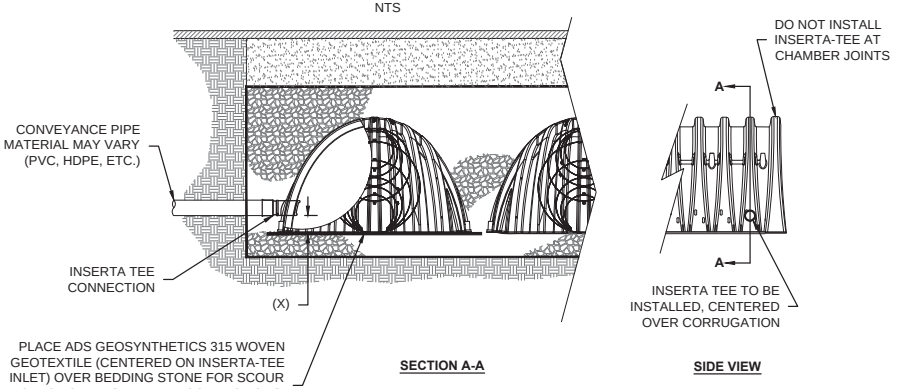


INSERTA TEE DETAIL

NTS

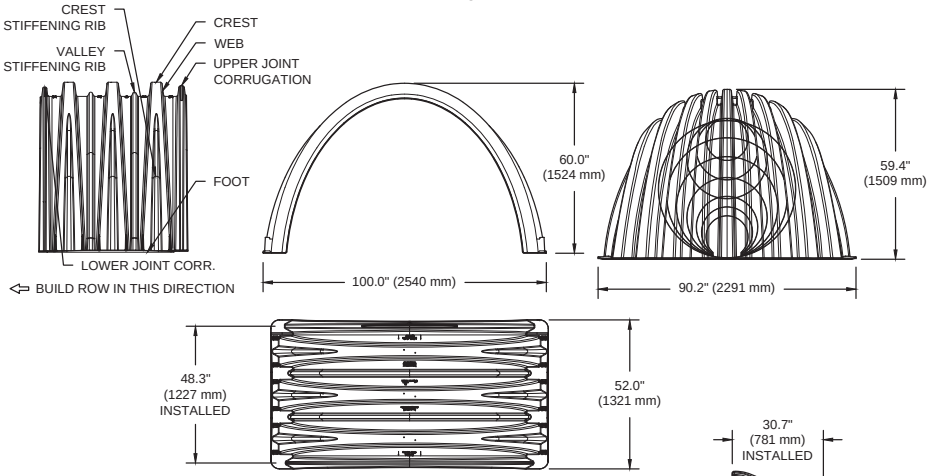


CHAMBER	MAX DIAMETER OF INSERTA TEE	HEIGHT FROM BASE OF CHAMBER (X)
SC-310	6" (150 mm)	4" (100 mm)
SC-740	10" (250 mm)	4" (100 mm)
DC-780	10" (250 mm)	4" (100 mm)
MC-3500	12" (300 mm)	6" (150 mm)
MC-4500	12" (300 mm)	8" (200 mm)
INSERTA TEE FITTINGS AVAILABLE FOR SDR 26, SDR 35, SCH 40 IPS GASKETED & SOLVENT WELD, N-12, HP STORM, C-900 OR DUCTILE IRON		

NOTE:
PART NUMBERS WILL VARY BASED ON INLET PIPE MATERIALS. CONTACT STORMTECH FOR MORE INFORMATION.

MC-4500 TECHNICAL SPECIFICATION

NTS



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	100.0" X 60.0" X 48.3"	(2540 mm X 1524 mm X 1227 mm)
CHAMBER STORAGE	106.5 CUBIC FEET	(3.01 m³)
MINIMUM INSTALLED STORAGE*	162.6 CUBIC FEET	(4.60 m³)
WEIGHT	130.0 lbs.	(59.0 kg)

NOMINAL END CAP SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	90.2" X 59.4" X 30.7"	(2291 mm X 1509 mm X 781 mm)
END CAP STORAGE	35.7 CUBIC FEET	(1.01 m³)
MINIMUM INSTALLED STORAGE*	108.7 CUBIC FEET	(3.08 m³)
WEIGHT	135.0 lbs.	(61.2 kg)

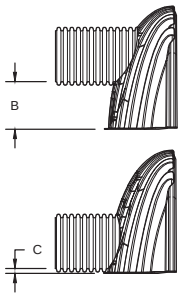
*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION AND BETWEEN CHAMBERS, 12" (305 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY.

STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"

PART #	STUB	B	C
MC4500REPE06T	6" (150 mm)	42.54" (1.081 m)	---
MC4500REPE06B		---	0.86" (22 mm)
MC4500REPE08T	8" (200 mm)	40.50" (1.029 m)	---
MC4500REPE08B		---	1.01" (26 mm)
MC4500REPE10T	10" (250 mm)	38.37" (975 mm)	---
MC4500REPE10B		---	1.33" (34 mm)
MC4500REPE12T	12" (300 mm)	35.69" (907 mm)	---
MC4500REPE12B		---	1.55" (39 mm)
MC4500REPE15T	15" (375 mm)	32.72" (831 mm)	---
MC4500REPE15B		---	1.70" (43 mm)
MC4500REPE18TC	18" (450 mm)	29.36" (746 mm)	---
MC4500REPE18BC		---	1.97" (50 mm)
MC4500REPE24TC	24" (600 mm)	23.05" (585 mm)	---
MC4500REPE24BC		---	2.26" (57 mm)
MC4500REPE30BC	30" (750 mm)	---	2.95" (75 mm)
MC4500REPE36BC	36" (900 mm)	---	3.25" (83 mm)
MC4500REPE42BC	42" (1050 mm)	---	3.55" (90 mm)

NOTE: ALL DIMENSIONS ARE NOMINAL

CUSTOM PRECORED INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 15-48" (375-1200 mm) ECCENTRIC MANIFOLDS.
CUSTOM INVERT LOCATIONS ON THE MC-4500 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm)
THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHTEST POSSIBLE FOR THE PIPE SIZE.



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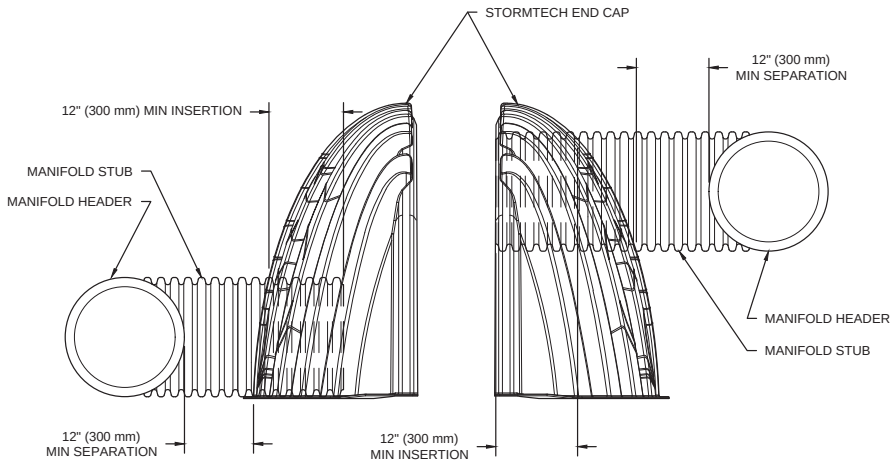
MC-SERIES END CAP INSERTION DETAIL

NTS



NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

Fellowship Village - Fitness Center
Bernards, NJ

DATE: 11/02/2020 | DRAWN: AD
PROJECT #: Tool | CHECKED: ---

REV	DRW	CHK	DESCRIPTION

StormTech
Detention•Retention•Water Quality
70 INWOOD ROAD, SUITE 3 | ROCKY HILL | CT | 06067
860-529-8188 | 888-892-2694 | WWW.STORMTECH.COM

ADS
ADVANCED DRAINAGE SYSTEMS, INC.
4640 TRUEMAN BLVD
HILLIARD, OH 43026
1-800-733-7473

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Appendix C

NRCS Soil Report

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 Somerset County, New Jersey

Fellowship Village

November 13, 2020

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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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: 1:6,280 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 300 600 1200 1800

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N 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 1:24,000.

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: Somerset County, New Jersey
Survey Area Data: Version 18, Jun 1, 2020

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

Date(s) aerial images were photographed: Jul 26, 2019—Jul 31, 2019

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
PbpAt	Parsippany silt loam, 0 to 3 percent slopes, frequently flooded	2.4	3.3%
PeoB	Penn channery silt loam, 2 to 6 percent slopes	35.4	48.8%
PeoC	Penn channery silt loam, 6 to 12 percent slopes	10.5	14.5%
RehA	Reaville silt loam, 0 to 2 percent slopes	23.9	32.9%
WATER	Water	0.4	0.5%
Totals for Area of Interest		**72.6**	**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.

Somerset County, New Jersey

PbpAt—Parsippany silt loam, 0 to 3 percent slopes, frequently flooded

Map Unit Setting

National map unit symbol: 1j501
Elevation: 150 to 220 feet
Mean annual precipitation: 30 to 64 inches
Mean annual air temperature: 46 to 79 degrees F
Frost-free period: 131 to 178 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Parsippany, Frequently Flooded

Setting

Landform: Lake terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Fine glaciolacustrine deposits derived from basalt, shale and granitic gneiss material

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A1 - 1 to 4 inches: silt loam
A2 - 4 to 7 inches: silt loam
BAt - 7 to 11 inches: silty clay loam
Btg1 - 11 to 17 inches: silty clay loam
Btg2 - 17 to 22 inches: silty clay
Bt1 - 22 to 32 inches: silty clay
Bt2 - 32 to 36 inches: silty clay
BCg - 36 to 41 inches: fine sandy loam
Cg1 - 41 to 53 inches: loamy fine sand
Cg2 - 53 to 64 inches: loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: 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: FrequentNone
Frequency of ponding: Frequent
Available water capacity: Moderate (about 8.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: D

Hydric soil rating: Yes

Minor Components

Great piece

Percent of map unit: 10 percent
Landform: Outwash plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

PeoB—Penn channery silt loam, 2 to 6 percent slopes

Map Unit Setting

National map unit symbol: 1j52v
Elevation: 250 to 1,300 feet
Mean annual precipitation: 30 to 64 inches
Mean annual air temperature: 46 to 79 degrees F
Frost-free period: 131 to 178 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Penn and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Penn

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Fine-loamy residuum weathered from acid reddish shale, siltstone, and fine-grain sandstone

Typical profile

Ap - 0 to 9 inches: channery silt loam
Bt - 9 to 22 inches: channery silt loam
C - 22 to 30 inches: very channery loam
R - 30 to 80 inches: weathered bedrock

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: 20 to 39 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)

Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.2 inches)

Interpretive groups

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

Minor Components

Klinesville

Percent of map unit: 5 percent
Landform: Hills
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Reaville

Percent of map unit: 5 percent
Landform: Interfluves
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Bucks

Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

PeoC—Penn channery silt loam, 6 to 12 percent slopes

Map Unit Setting

National map unit symbol: 1j52w
Elevation: 250 to 1,300 feet
Mean annual precipitation: 30 to 64 inches
Mean annual air temperature: 46 to 79 degrees F
Frost-free period: 131 to 178 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Penn and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Penn

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Fine-loamy residuum weathered from acid reddish shale, siltstone, and fine-grain sandstone

Typical profile

Ap - 0 to 8 inches: channery silt loam
Bt - 8 to 20 inches: channery silt loam
C - 20 to 25 inches: very channery silt loam
R - 25 to 80 inches: weathered bedrock

Properties and qualities

Slope: 6 to 12 percent
Depth to restrictive feature: 20 to 39 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Klinesville

Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Shoulder
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Reaville

Percent of map unit: 5 percent
Landform: Interfluves
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Readington

Percent of map unit: 5 percent
Landform: Hillsides
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Base slope

Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

RehA—Reaville silt loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 1j535
Elevation: 300 to 1,000 feet
Mean annual precipitation: 30 to 64 inches
Mean annual air temperature: 46 to 79 degrees F
Frost-free period: 131 to 178 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Reaville and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Reaville

Setting

Landform: Interfluves
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Interbedded fine-grained fine-loamy residuum weathered from sandstone and siltstone and/or shale

Typical profile

A - 0 to 10 inches: silt loam
BA - 10 to 15 inches: channery silt loam
Bt - 15 to 22 inches: channery silt loam
C - 22 to 28 inches: very channery silt loam
R - 28 to 80 inches: weathered bedrock

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 20 to 39 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Runoff class: Very 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 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C

Hydric soil rating: No

Minor Components

Readington

Percent of map unit: 4 percent
Landform: Hillsides
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Bucks

Percent of map unit: 4 percent
Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Reaville, poorly drained

Percent of map unit: 4 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Croton

Percent of map unit: 3 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

WATER—Water

Map Unit Setting

National map unit symbol: ldsl
Mean annual precipitation: 30 to 64 inches
Mean annual air temperature: 46 to 79 degrees F
Frost-free period: 131 to 178 days
Farmland classification: Not prime farmland

Map Unit Composition

Water: 100 percent

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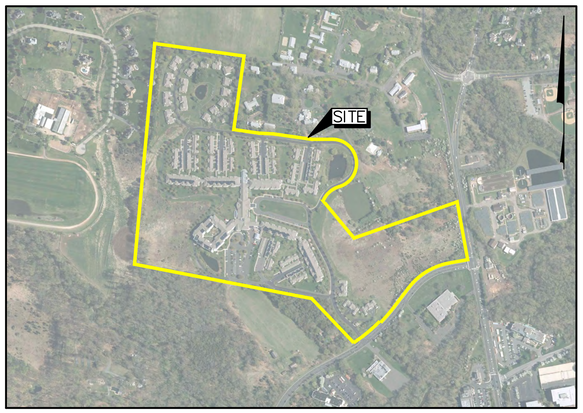
DRAWN ON 11/20/2020, LAST MODIFIED ON 12/7/2020

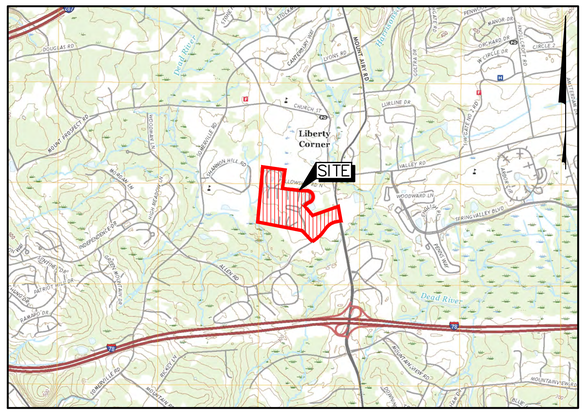
PRELIMINARY & FINAL SITE PLAN

SHEET 93, BLOCK 9301, LOT 33

TOWNSHIP OF BERNARDS, SOMERSET COUNTY, NEW JERSEY



AERIAL MAP
SCALE: 1" = 500'



USGS QUAD MAP
SCALE: 1" = 2000'

APPLICANT:

FELLOWSHIP SENIOR LIVING, INC.

8000 FELLOWSHIP ROAD

BASKING RIDGE, NJ 07920

MARATHON

Engineering & Environmental Services

3 Killdeer Court, Suite 302, Swedesboro, NJ 08085

1616 Pacific Avenue, Suite 501, Atlantic City, NJ 08401

EXISTING UTILITY INFORMATION SHOWN ON THESE PLANS IS FURNISHED BY THE UTILITY COMPANIES AND/OR THE SURVEYOR AND THE ACCURACY THEREOF IS NOT THE RESPONSIBILITY OF MARATHON ENGINEERING & ENVIRONMENTAL SERVICES, INC. IT IS THE RESPONSIBILITY OF THE OWNERS AND/OR CONTRACTOR TO CALL 1-800-272-1000 FOR FIELD LOCATION OF UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.

G:\PROJECTS\2020\20-001.01 FELLOWSHIP\C0001.dwg

OWNER/APPLICANT

FELLOWSHIP SENIOR LIVING, INC.
8000 FELLOWSHIP ROAD
BASKING RIDGE, NJ 07920
PHONE: 908-580-3800

APPLICANT'S INTENT

THE APPLICANT, FELLOWSHIP SENIOR LIVING, INC. SEEKS PRELIMINARY AND FINAL SITE PLAN APPROVAL TO CONSTRUCT AN ADDITION TO FUNCTION AS A FITNESS CENTER, CREATE AN OUTDOOR WALKING TRAIL FOR RECREATION, DOG PARK, AS WELL AS MODIFY THE SEATING AREA AT THE "SPRUCE GROVE" AND CONSTRUCT AN OVERLOOK DECK PLATFORM AT THE ENTRANCE BASIN POND, ON THE PROPERTY SHOWN ON TAX MAP SHEET 93, BLOCK 9301, LOT 33, SITUATED IN TOWNSHIP OF BERNARDS, SOMERSET COUNTY, NEW JERSEY.

CERTIFICATION OF APPROVALS

SITE PLAN OF PRELIMINARY & FINAL SITE PLAN
LOT 33 BLOCK 9301 ZONE CCRC
DATE 11/13/2020 SCALE AS NOTED
APPLICANT FELLOWSHIP SENIOR LIVING, INC.
ADDRESS 8000 FELLOWSHIP ROAD
BASKING RIDGE, NJ 07920
SITE PLAN CONTROL NO. _____

I HEREBY CERTIFY THAT I AM THE OWNER OF RECORD OF THE PROPERTY HEREIN DEPICTED AND THAT I CONCUR WITH THIS PLAN. I CONSENT TO THE FILING OF THIS SITE PLAN WITH THE PLANNING BOARD OF TOWNSHIP OF BERNARDS.

OWNER: _____ DATE _____

OWNER: _____ DATE _____

OWNER: _____ DATE _____

I HEREBY CERTIFY THAT THIS SITE PLAN HAS BEEN APPROVED BY RESOLUTION _____ OF THE TOWNSHIP OF BERNARDS PLANNING BOARD.

CHAIRPERSON _____ DATE _____

SECRETARY _____ DATE _____

BOARD ENGINEER _____ DATE _____

TOWNSHIP CLERK _____ DATE _____

THIS SITE PLAN IS HEREBY APPROVED BY THE SOMERSET COUNTY PLANNING BOARD.

CHAIRPERSON _____ DATE _____

SECRETARY _____ DATE _____

SHEET INDEX

SHEET NO.	DWG. NO.	SHEET TITLE
1 OF 14	C0001	COVER SHEET
2 OF 14	C0002	ZONING & OVERVIEW PLAN
3 OF 14	C0101	SITE PLAN – FITNESS CENTER ADDITION
4 OF 14	C0102	SITE PLAN – RECREATION & SPRUCE GROVE
5 OF 14	C0103	SITE PLAN – DOG PARK & WALKING TRAILS
6 OF 14	C0301	GRADING & UTILITY PLAN – FITNESS CENTER ADDITION
7 OF 14	C0302	GRADING & UTILITY PLAN – RECREATION & SPRUCE GROVE
8 OF 14	C0303	GRADING & UTILITY PLAN – DOG PARK & WALKING TRAILS
9 OF 14	C1101	SITE DETAILS
10 OF 14	C1201	SOIL EROSION & SEDIMENT CONTROL PLAN – FITNESS CENTER ADDITION
11 OF 14	C1202	SOIL EROSION & SEDIMENT CONTROL PLAN – RECREATION & SPRUCE GROVE
12 OF 14	C1203	SOIL EROSION & SEDIMENT CONTROL PLAN – DOG PARK & WALKING TRAILS
13 OF 14	C1301	SOIL EROSION AND SEDIMENT CONTROL NARRATIVE SHEET
14 OF 14	C1302	SOIL EROSION AND SEDIMENT CONTROL DETAIL SHEET

ISSUE DATE	ISSUE NO.	SUBMISSION/REVISION	BY	APPR.
12/11/2020	1	INITIAL SUBMISSION	ACD	DF

PRELIMINARY & FINAL SITE PLAN
SHEET 93, BLOCK 9301, LOT 33
TOWNSHIP OF BERNARDS, SOMERSET COUNTY, NEW JERSEY

COVER SHEET

FELLOWSHIP SENIOR LIVING, INC.
8000 FELLOWSHIP ROAD
BASKING RIDGE, NJ 07920

DAVID J. FLEMING, P.E.
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 24GE03321600
12/11/2020
FVG 001.01

MARATHON
Engineering & Environmental Services
Swedesboro Office
3 Killdeer Court, Suite 302, Swedesboro, NJ 08085
ph (856) 241-9705 fax (856) 241-9709
Certificate of Authorization #24GA27995700

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SCALE	APPROVED
AS SHOWN	JDD
DRAWN BY	SHEET
SK	1 OF 14

DRAWING NO.
C0001

CREATED ON 11/23/2020, LAST MODIFIED ON 12/11/2020

U.S.G.S. BERNARDSVILLE QUAD LOCATION MAP

SCALE: 1" = 2,000'

N.R.C.S. U.S. DEPARTMENT OF AGRICULTURE SOILS MAP

SCALE: 1" = 500'

OFFICIAL ZONING MAP OF BERNARDS TOWNSHIP

SCALE: 1" = 1000'

OFFICIAL TAX MAP OF BERNARDS TOWNSHIP

SCALE: 1" = 500'

PROJECT NOTES

A. GENERAL SITE NOTES

1. TRACT FOR DEVELOPMENT CONSISTS OF SHEET 93, BLOCK 9301, LOT 33 OF THE OFFICIAL TAX MAP OF BERNARDS TOWNSHIP.
2. TRACT FOR DEVELOPMENT IS ZONED CCRC AS INDICATED ON THE OFFICIAL ZONING MAP OF BERNARDS TOWNSHIP.
3. TOTAL AREA OF TRACT = 72.56± ACRES OF LAND.
4. THE PROPOSED DEVELOPMENT SHALL BE SERVED BY PUBLIC SEWER AND WATER.
5. THE PROPOSED DEVELOPMENT SHALL COMPLY WITH THE CURRENT RECYCLING PROGRAM IN EFFECT IN BERNARDS TOWNSHIP.
6. THE OWNER, OR HIS REPRESENTATIVE, SHALL DESIGNATE AN INDIVIDUAL RESPONSIBLE FOR CONSTRUCTION SITE SAFETY DURING THE COURSE OF SITE IMPROVEMENTS PURSUANT TO N.J.A.C. 5:23–2.21 (E) OF THE N.J. UNIFORM CONSTRUCTION CODE AND CFR 1926.32 (F) (OSHA COMPETENT PERSON).
7. GRADING AROUND BUILDING AND FINISHED FLOOR ELEVATION IS SUBJECT TO CHANGE UPON REVIEW OF CONSTRUCTION PLANS OF PROPOSED BUILDING.
8. T.C. AND B.C. DESIGNATIONS INDICATE TOP OF CURB ELEVATIONS AND BOTTOM OF CURB ELEVATIONS AT THE PAVED FINISHED GRADE.
9. ALL BARRIER FREE DESIGN AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST A.D.A. AND N.J.D.O.T. STANDARDS.
10. ANY VARIATIONS FROM THE PLANS MUST BE AUTHORIZED BY THE DESIGN ENGINEER AND APPROVED BY THE TOWNSHIP ENGINEER.
11. THIS SET OF PLANS SHALL NOT BE UTILIZED AS CONSTRUCTION DOCUMENTS UNTIL EACH PLAN HAS BEEN REVISED TO INDICATE "ISSUED FOR CONSTRUCTION".
12. CONSTRUCTION DETAILS/SHOP DRAWINGS UTILIZED BY THE CONTRACTOR SHALL BE REVIEWED AND APPROVED BY THE TOWNSHIP ENGINEER.
13. THIS SET OF DRAWINGS AND ALL INFORMATION CONTAINED HEREIN IS AUTHORIZED FOR THE USE ONLY BY THE PARTY FOR WHOM THE WORK IS CONTRACTED OR WHOM IT IS CERTIFIED. THIS SET OF DRAWINGS MAY NOT BE COPIED, REUSED, DISCLOSED, DISTRIBUTED, OR RELIED UPON FOR ANY OTHER PURPOSE WITHOUT THE WRITTEN CONSENT OF MARATHON ENGINEERING & ENVIRONMENTAL SERVICES, INC.
14. ANY DEMOLITION MATERIAL SHALL BE PROPERLY DISPOSED OF AND NO ON–SITE BURIAL IS PERMITTED.
15. THE APPLICANT SHALL NOTIFY THE BERNARDS TOWNSHIP ENGINEER A MINIMUM OF 24 HOURS PRIOR TO THE START OF ANY CONSTRUCTION.

B. SURVEY NOTES

1. VERTICAL DATUM IS IN FEET AND APPROXIMATES NGVD 1929 (SUBTRACT 1.145 FEET TO ADJUST TO NAVD 1988, PER CORPSCON 6.0.1).

ZONING SCHEDULE

ZONE CCRC	PERMITTED OR REQUIRED	EXISTING	PROPOSED IMPROVEMENTS	CONFORMITY STATUS
MIN. LOT AREA	60 AC.	72.569 AC.	72.569 AC.	CONFORMS
MIN. LOT WIDTH	200 FT	1568.27 FT	1568.27 FT	CONFORMS
MIN. TRACT FRONT SETBACK (BUILDINGS)	100 FT	100 FT	100 FT	CONFORMS
MIN. TRACT FRONT SETBACK (PARKING)	75 FT	75 FT	75 FT	CONFORMS
MIN. TRACT SIDE SETBACK (BUILDING)	75 FT	75 FT	75 FT	CONFORMS
MIN. TRACT SIDE SETBACK (PARKING)	75 FT	75 FT	75 FT	CONFORMS
MIN. REAR TRACT SETBACK (BUILDING)	100 FT	100 FT	100 FT	CONFORMS
MIN. REAR TRACT SETBACK (PARKING)	75 FT	75 FT	75 FT	CONFORMS
MAX. IMPERVIOUS COVERAGE (%)	40 %	26.8 %	27.2 %	CONFORMS
MAX. BUILDING COVERAGE (%)	20 %	14.8 %	15.0 %	CONFORMS
MAX. BUILDING HEIGHT	35 FT 50 FT	49.7 FT	49.7 FT	CONFORMS
MAX. INDEPENDENT & ASSISTED UNITS/ACRE	5	4.72	4.71	CONFORMS
MIN. INDEPENDENT UNITS / NURSING UNIT	4	5.2	5.10	CONFORMS
MAX. % SINGLE UNITS TO INDEPENDENT	30%	2.3 %	2.3 %	CONFORMS
MIN. TOTAL PARKING	613.1	614	617	CONFORMS
MIN. PARKING SETBACK	75 FT	75 FT	75 FT	CONFORMS
MIN. BUFFER	25 FT	25 FT	25 FT	CONFORMS

PARKING ANALYSIS

PARKING REQUIREMENTS:

- INDEPENDENT LIVING — 1.0 SPACES/UNIT — 1.0 x 256 = 256 SPACES
- ASSISTED LIVING — 0.35 SPACES/UNIT — 0.35 X 86 = 30.1 SPACES
- LONG–TERM CARE / NURSING — 0.35 SPACES/BED — 0.35 x 67 = 23.5 SPACES
- STAFF (FULL TIME, MAX SHIFT) — 1.0 SPACE/EMP. — 1.0 x 165 = 165 SPACES
- STAFF (PART–TIME) — 0.5 SPACES/EMP. — 0.5 x 20 = 10 SPACES
- +10% FOR VISITOR PARKING — 10% REQUIRED — 0.10 x 485 = 48.5 SPACES
- AUDITORIUM PARKING — 1 SPACE/3 SEATS — 240 / 3 = 80 SPACES

TOTAL REQUIRED PARKING SPACES (PER ORDINANCE) = 613.1 SPACES

TOTAL PARKING PROVIDED ON–SITE = 617 SPACES

OVERALL FELLOWSHIP VILLAGE MAP

SCALE: 1" = 150'

PUBLIC UTILITIES

ALGONQUIN GAS TRANSMISSION CO.
1 LINDBERGH ROAD
STONY POINT, NY 10980
(908) 757–1212

JCP&L/GPU
SERVICE TAX DEPT.
P.O. BOX 1911
MORRISTOWN, NJ 07962–1911

PUBLIC SERVICE ELECTRIC & GAS
MANAGER – CORPORATE PROPERTIES
80 PARK PLAZA, T6B
NEWARK, NJ 07102

VERIZON COMMUNICATIONS
ENGINEERING
6000 HADLEY ROAD
SOUTH PLAINFIELD, NJ 07080

CABLEVISION OF RARITAN VALLEY
275 CENTENNIAL AVE: CN6805
PISCATAWAY, NJ 08855
ATTN: MARGURITE PRENDERVILLE
CONSTRUCTION DEPT.

LIBERTY CORNER FIRE COMPANY
P.O. BOX 98, CHURCH STREET
LIBERTY CORNER, NJ 07938

BERNARDS TOWNSHIP CERTIFIED OWNER'S LIST WITHIN 200'

"Block–Lot: 11201–8
HBB PROPERTY LLC C/O ALLEN RD LLC PO BOX 74
LIBERTY CORNER NJ 07938
RE: 50 ALLEN RD"

"Block–Lot: 9401–9
BRISTLECONE, INC.
P.O. BOX 328
LIBERTY CORNER NJ 07938 RE: 55 ALLEN RD"

"Block–Lot: 11201–9
JLJ PROPERTY INVESTMENTS LLC 2051 SE 3RD ST UNIT 508
DEERFIELD BEACH FL 33441
RE: 701 MARTINSVILLE RD"

"Block–Lot: 9204–2
BERNARDS TWP SEWERAGE AUTHORITY MARTINSVILLE RD; BOX 247
LIBERTY CORNER NJ 07938
RE: 726 MARTINSVILLE RD"

"Block–Lot: 9301–35
LEONARDO, RAFAEL C & MILAGROS B 100 SHANNON HILL RD
BASKING RIDGE NJ 07920
RE: 100 SHANNON HILL RD"

"Block–Lot: 9301–34
SHANNON HILL FARMS HOMEOWNERS ASSOC
RE: 102 SHANNON HILL RD"

"Block–Lot: 9401–7
SCHEHERAZADE ENTERPRISES INC 15 SHANNON HILL RD
BASKING RIDGE NJ 07920
RE: 15 SHANNON HILL RD"

"Block–Lot: 9301–36
BRADLEY,KENNETH O &ANDERSON,LYNNE A 92 SHANNON HILL RD
BASKING RIDGE NJ 07920
RE: 92 SHANNON HILL RD"

"Block–Lot: 9301–38
GALUSHA, CHRISTOPHER M & ALYSON E 80 SHANNON HILL RD
BASKING RIDGE NJ 07920
RE: 80 SHANNON HILL RD"

"Block–Lot: 9301–37 BARR, LARRY & JUNE 86 SHANNON HILL RD
BASKING RIDGE NJ 07920
RE: 86 SHANNON HILL RD"

"Block–Lot: 9301–39 BUWEN, JAMES & LEIGH 76 SHANNON HILL RD BASKING RIDGE NJ 07920
RE: 76 SHANNON HILL RD"

"Block–Lot: 9301–40
KLIPPEL, JON & CROWE, MARGARET F 70 SHANNON HILL RD
BASKING RIDGE NJ 07920
RE: 70 SHANNON HILL RD"

"Block–Lot: 9301–32 FELLOWSHIP DEACONRY INC PO BOX 204
LIBERTY CORNER NJ 07938
RE: 3575 VALLEY RD"

"Block–Lot: 9301–9.01
ENGLISH FARM ASSOCIATES, LP PO BOX 183
LIBERTY CORNER NJ 07938
RE: 3613 VALLEY RD"

"Block–Lot: 9401–8
PINSON, ELLEN
658 HOYDEN HILL RD FAIRFIELD CT 06824 RE: 99 ALLEN RD"

"Block–Lot: 9204–1 BRISTLECONE INC PO BOX 328
LIBERTY CORNER NJ 07938
RE: 706 MARTINSVILLE RD"

"Block–Lot: 9204–2–CELL
BERNARDS TWP SEWERAGE AUTHORITY MARTINSVILLE RD; BOX 247
LIBERTY CORNER NJ 07938
RE: 726 MARTINSVILLE RD"

"Block–Lot: 9401–7–Q0065 SCHEHERAZADE ENTERPRISES INC PO BOX 139
LIBERTY CORNER NJ 07938
RE: 15 SHANNON HILL RD"

"Block–Lot: 9301–9.01–Q0012 ENGLISH FARM ASSOCIATES, LP PO BOX 183
LIBERTY CORNER NJ 07938
RE: CHURCH ST"

"Block–Lot: 9401–8–Q0036
PINSON, ELLEN
658 HOYDEN HILL RD FAIRFIELD CT 06824 RE: 99 ALLEN RD"

811 Know what's below. Call before you dig.

EXISTING UTILITY INFORMATION SHOWN ON THESE PLANS IS FURNISHED BY THE UTILITY COMPANIES AND/OR THE SURVEYOR AND THE ACCURACY THEREOF IS NOT THE RESPONSIBILITY OF MARATHON ENGINEERING & ENVIRONMENTAL SERVICES, INC. IT IS THE RESPONSIBILITY OF THE OWNERS AND/OR CONTRACTOR TO CALL 1–800–272–1000 FOR FIELD LOCATION OF UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.

ISSUE DATE	ISSUE NO.	SUBMISSION/REVISION	BY	APPR.
12/11/2020	1	INITIAL SUBMISSION	ACD	DF

PRELIMINARY & FINAL SITE PLAN
SHEET 93, BLOCK 9301, LOT 33
TOWNSHIP OF BERNARDS, SOMERSET COUNTY, NEW JERSEY

ZONING & OVERVIEW PLAN

FELLOWSHIP SENIOR LIVING, INC.
8000 FELLOWSHIP ROAD
BASKING RIDGE, NJ 07920

DAVID J. FLEMING, P.E.
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 24GE03321600
12/11/2020

FVG 001.01

MARATHON
Engineering & Environmental Services
Swedesboro Office
3 Killdeer Court, Suite 302, Swedesboro, NJ 08085
ph (856) 241-9705 fax (856) 241-9709
Certificate of Authorization #24GA27995700

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SCALE	APPROVED
AS NOTED	DJF
DRAWN BY	SHEET
ACD	2 OF 14

DRAWING NO. C0002

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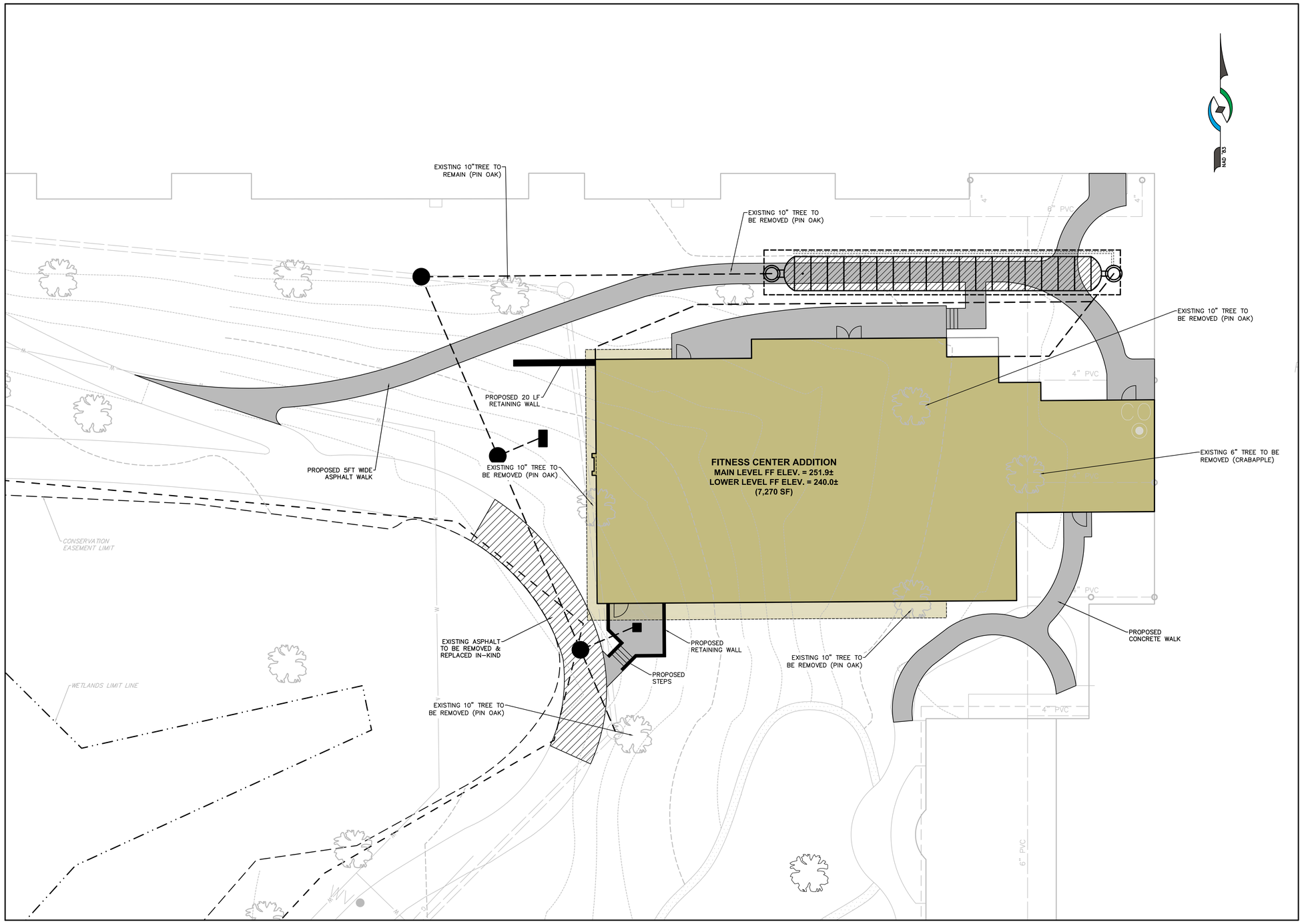

FITNESS CENTER ADDITION PLAN VIEW
SCALE: 1"=10'

TREE REMOVALS:

(6)10" TREES – PIN OAKS
(1)6" TREE – CRABAPPLE

GRAPHIC SCALE

10 0 5 10 20 40

1 INCH = 10 FEET

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PRELIMINARY & FINAL SITE PLAN
SHEET 93, BLOCK 9301, LOT 33
TOWNSHIP OF BERNARDS, SOMERSET COUNTY, NEW JERSEY

SITE PLAN
FITNESS CENTER ADDITION

FELLOWSHIP SENIOR LIVING, INC.
8000 FELLOWSHIP ROAD
BASKING RIDGE, NJ 07920

DAVID J. FLEMING, P.E.
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 24GE03321600

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1"=10'	DJF
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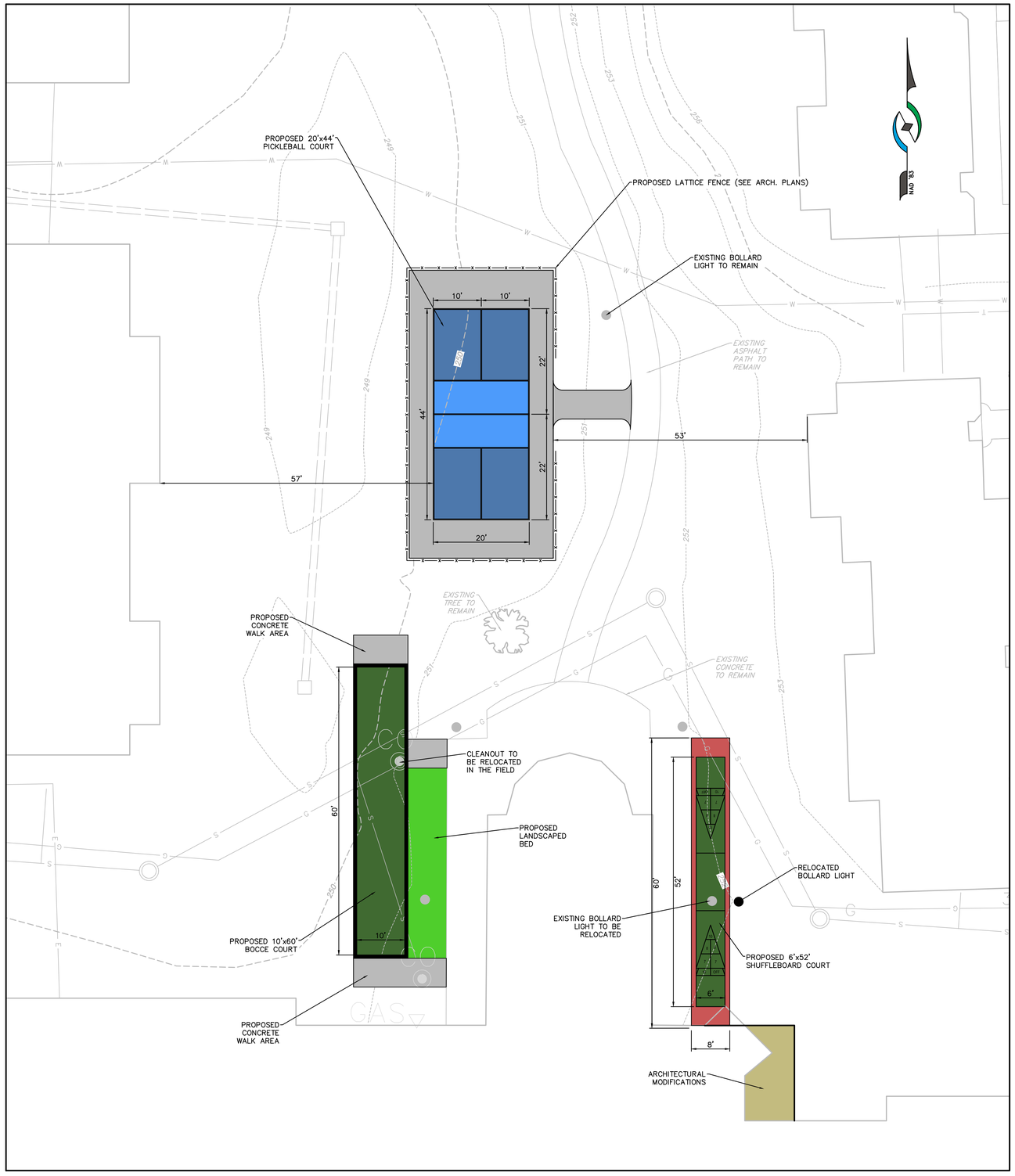
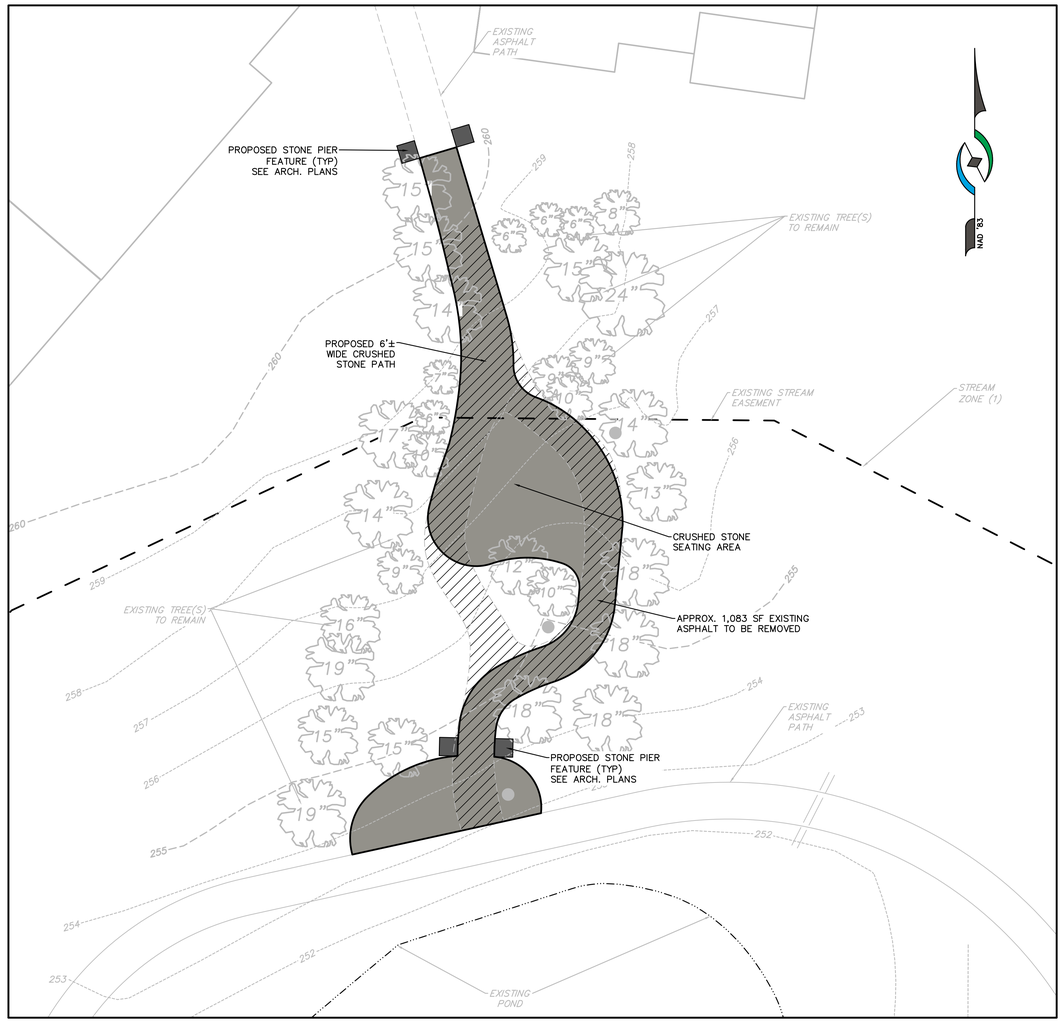
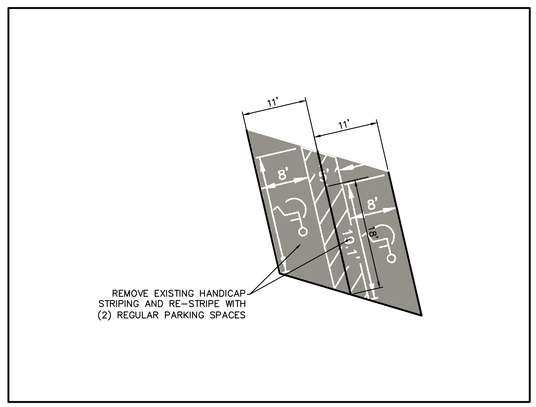
ACD	3 OF 14
DRAWING NO.	
C0101	



OUTDOOR RECREATION PLAN VIEW
SCALE: 1"=10'



"SPRUCE GROVE" PLAN VIEW
SCALE: 1"=10'



ENTRANCE PARKING MODIFICATION
SCALE: 1"=10'

GRAPHIC SCALE

10 0 5 10 20 40

1 INCH = 10 FEET

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PRELIMINARY & FINAL SITE PLAN

SHEET 93, BLOCK 9301, LOT 33
TOWNSHIP OF BERNARDS, SOMERSET COUNTY, NEW JERSEY

SITE PLAN
RECREATION & SPRUCE GROVE

FELLOWSHIP SENIOR LIVING, INC.
8000 FELLOWSHIP ROAD
BASKING RIDGE, NJ 07920

DAVID J. FLEMING, P.E.
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 24GE03321600

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SCALE	APPROVED
1"=10'	DJF
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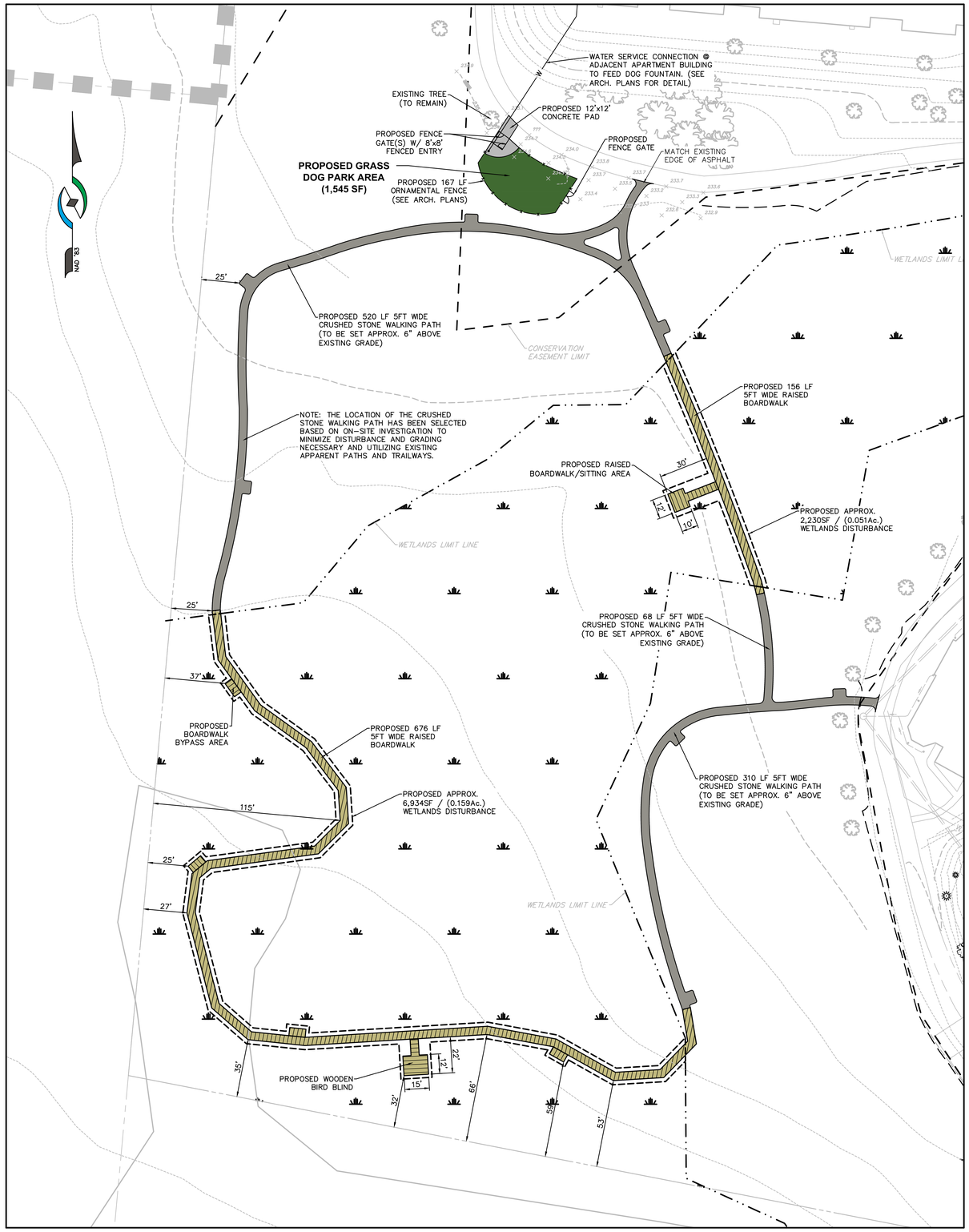
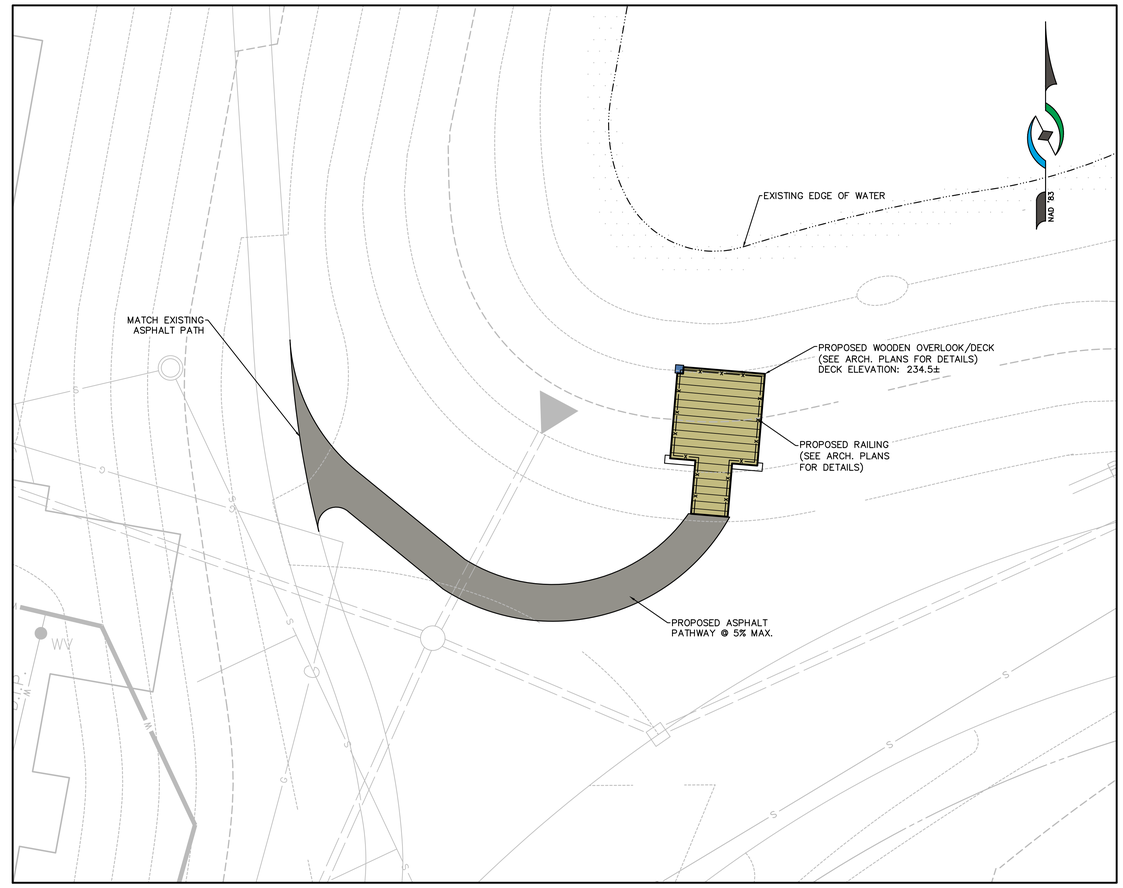
ACD	4 OF 14
DRAWING NO.	
C0102	

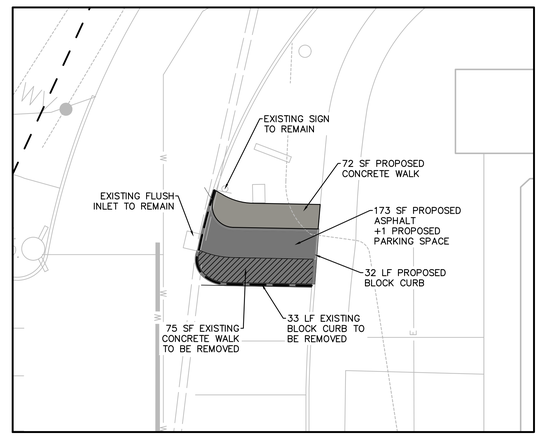
DRAWN ON 12/11/2020, LAST MODIFIED ON 12/11/2020



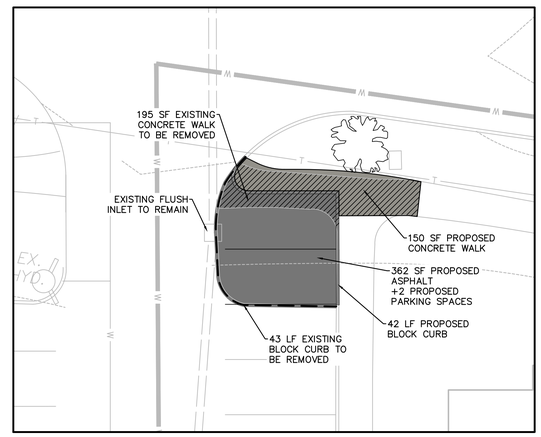
DOG PARK & WALKING TRAIL PLAN VIEW
SCALE: 1"=30'



DECK OVERLOOK PLAN VIEW
SCALE: 1"=10'



ANTIOCH COURT PARKING MODIFICATION
SCALE: 1"=10'



BEERSHEBA COURT PARKING MODIFICATION
SCALE: 1"=10'

GRAPHIC SCALE
30 0 15 30 60 120
1 INCH = 30 FEET

GRAPHIC SCALE
10 0 5 10 20 40
1 INCH = 10 FEET

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PRELIMINARY & FINAL SITE PLAN

SHEET 93, BLOCK 9301, LOT 33
TOWNSHIP OF BERNARDS, SOMERSET COUNTY, NEW JERSEY

SITE PLAN
DOG PARK & WALKING TRAILS
FELLOWSHIP SENIOR LIVING, INC.

8000 FELLOWSHIP ROAD
BASKING RIDGE, NJ 07920

DAVID J. FLEMING, P.E.
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SCALE	APPROVED
AS NOTED	DJF
DRAWN BY	SHEET
ACD	5 OF 14
DRAWING NO.	
C0103	

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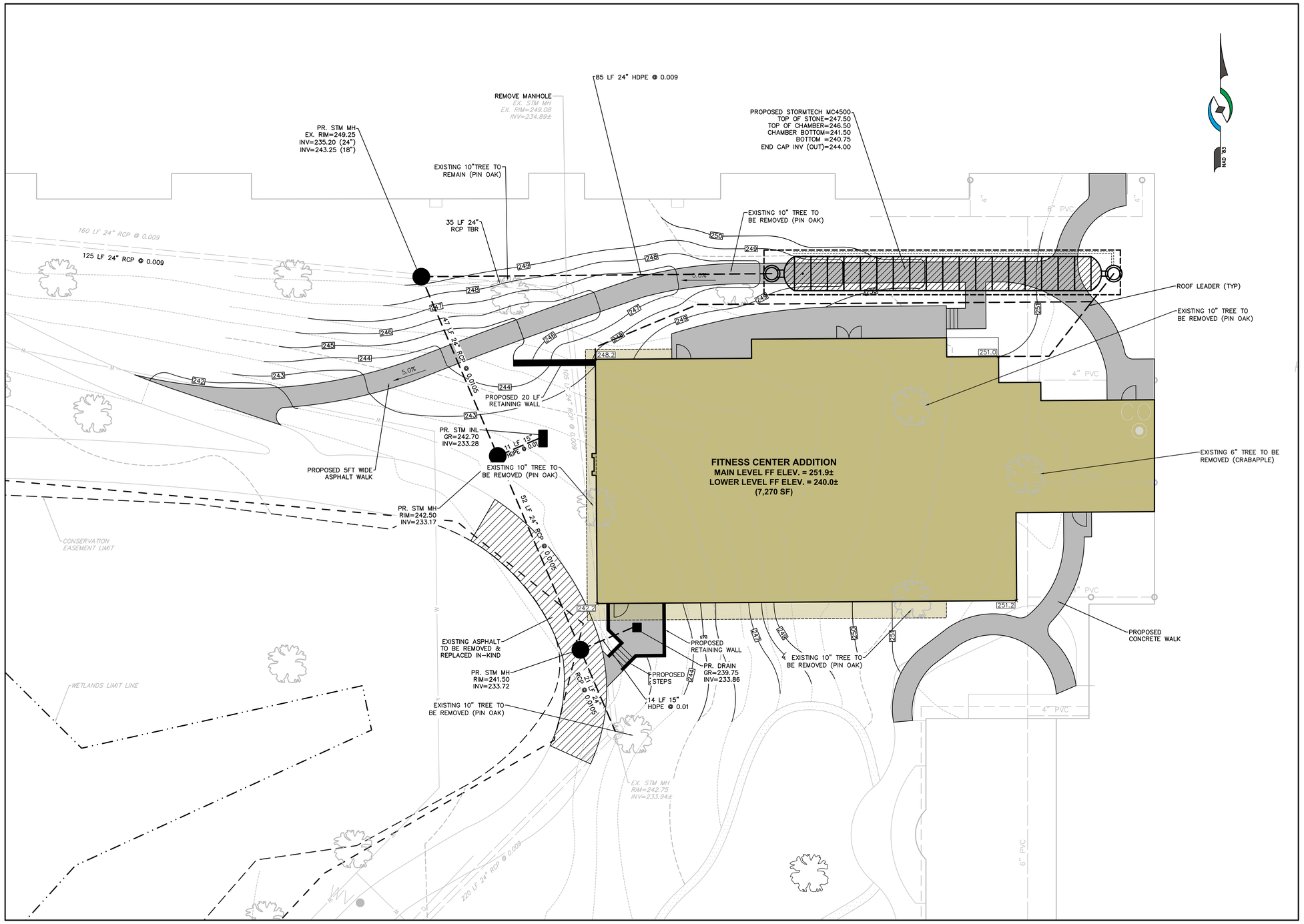

FITNESS CENTER ADDITION PLAN VIEW
SCALE: 1"=10'

GRAPHIC SCALE

10 0 5 10 20 40

1 INCH = 10 FEET

EXISTING UTILITY INFORMATION SHOWN ON THESE PLANS IS FURNISHED BY THE UTILITY COMPANIES AND/OR THE SURVEYOR AND THE ACCURACY THEREOF IS NOT THE RESPONSIBILITY OF MARATHON ENGINEERING & ENVIRONMENTAL SERVICES, INC. IT IS THE RESPONSIBILITY OF THE OWNERS AND/OR CONTRACTOR TO CALL 1-800-272-1000 FOR FIELD LOCATION OF UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.

ISSUE DATE	ISSUE NO.	SUBMISSION/REVISION	BY	APPR.
12/11/2020	1	INITIAL SUBMISSION	ACD	DF

PRELIMINARY & FINAL SITE PLAN

SHEET 93, BLOCK 9301, LOT 33
TOWNSHIP OF BERNARDS, SOMERSET COUNTY, NEW JERSEY

GRADING & UTILITY PLAN
FITNESS CENTER ADDITION

FELLOWSHIP SENIOR LIVING, INC.
8000 FELLOWSHIP ROAD
BASKING RIDGE, NJ 07920

DAVID J. FLEMING, P.E.
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 24GE03321600

12/11/2020

FVG 001.01

MARATHON
Engineering & Environmental Services
Swedesboro Office
3 Killdeer Court, Suite 302, Swedesboro, NJ 08085
ph (856) 241-9705 fax (856) 241-9709
Certificate of Authorization #24GA27995700

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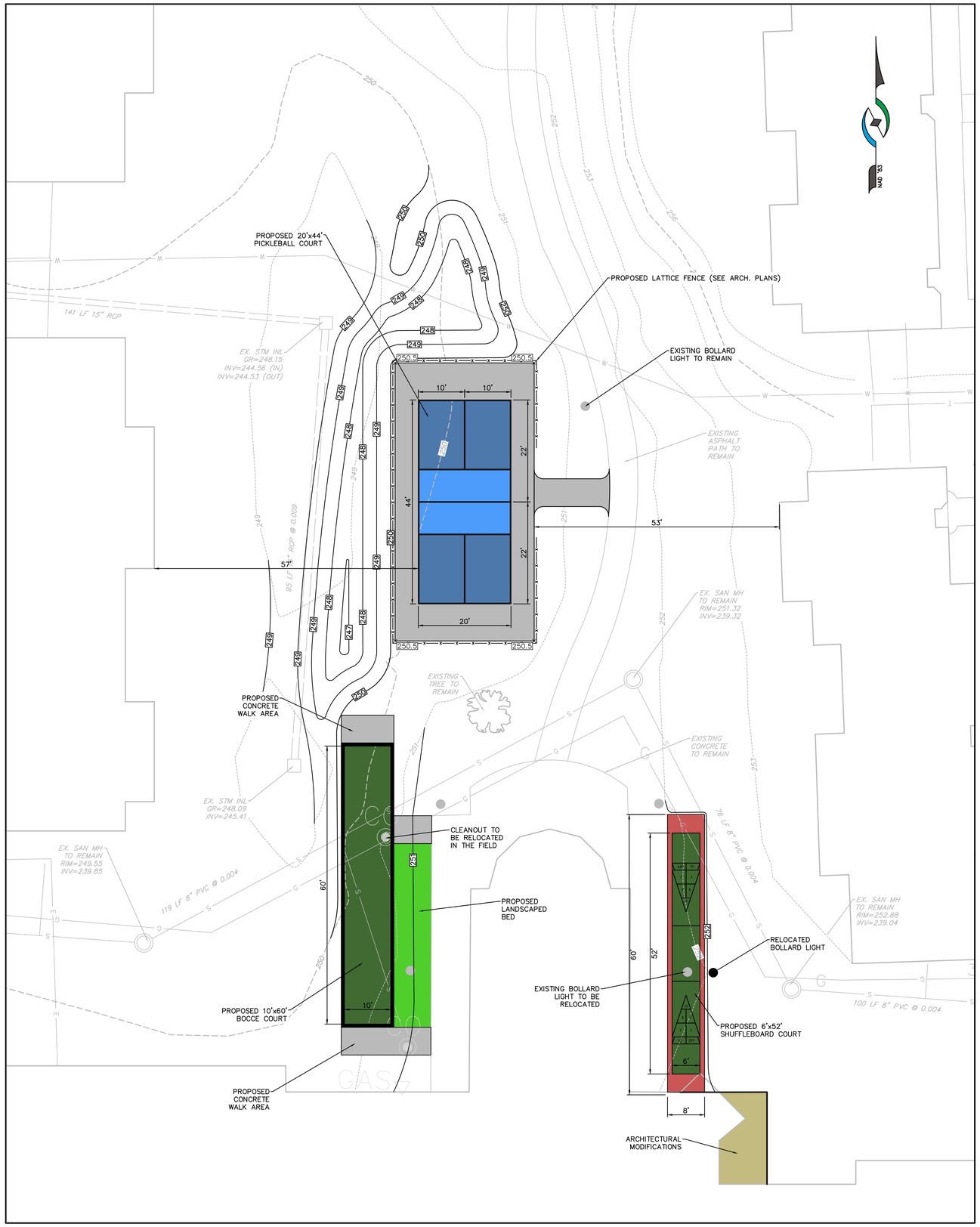
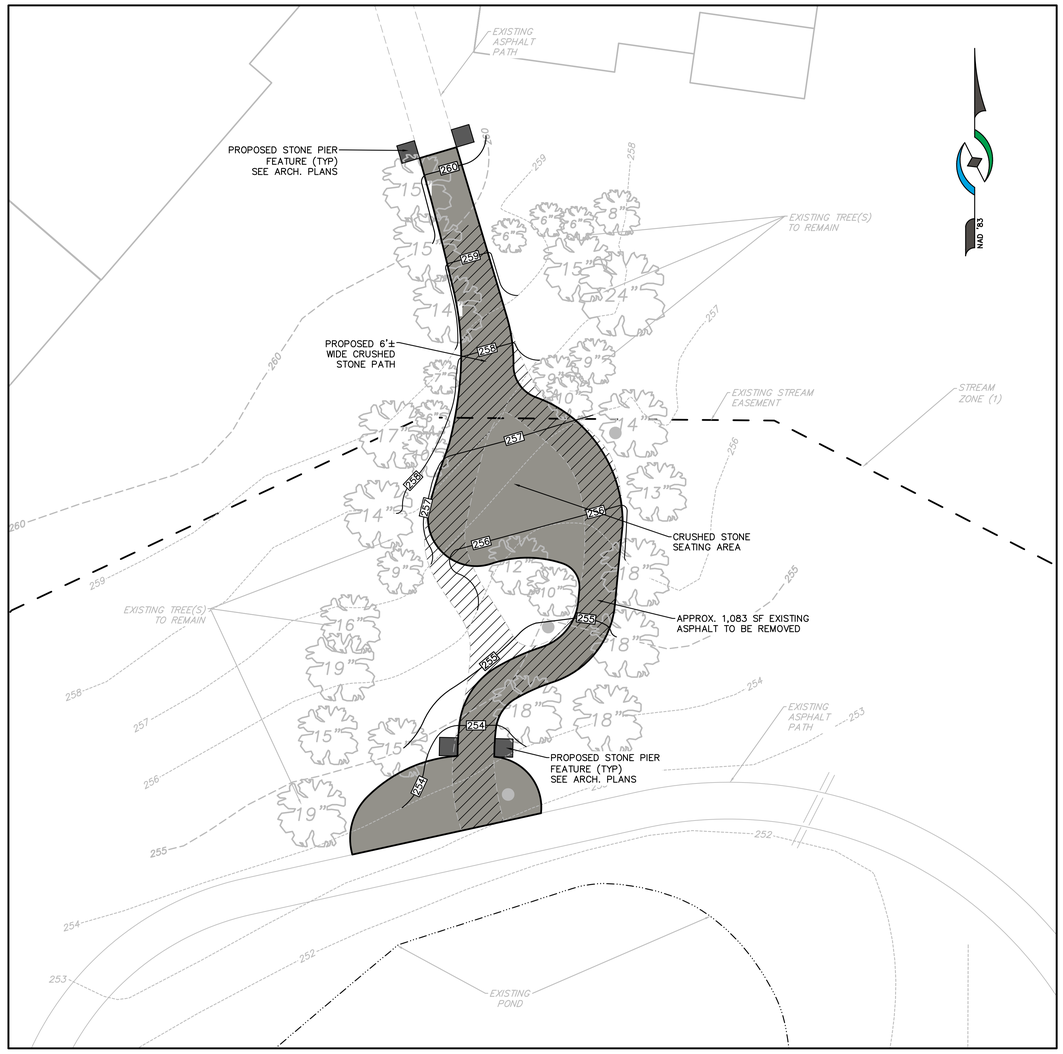
SCALE	APPROVED
1"=10'	DJF
DRAWN BY	SHEET
ACD	6 OF 14
DRAWING NO.	
C0301	

DRAWING ON 11/25/2020, LAST MODIFIED ON 12/1/2020



OUTDOOR RECREATION PLAN VIEW
SCALE: 1"=10'



"SPRUCE GROVE" PLAN VIEW
SCALE: 1"=10'

GRAPHIC SCALE
10 0 5 10 20 40
1 INCH = 10 FEET

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PRELIMINARY & FINAL SITE PLAN

SHEET 93, BLOCK 9301, LOT 33
TOWNSHIP OF BERNARDS, SOMERSET COUNTY, NEW JERSEY

GRADING & UTILITY PLAN
RECREATION & SPRUCE GROVE

FELLOWSHIP SENIOR LIVING, INC.

8000 FELLOWSHIP ROAD
BASKING RIDGE, NJ 07920

DAVID J. FLEMING, P.E.
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 24GE03321600
12/11/2020
FVG 001.01

MARATHON
Engineering & Environmental Services
Swedesboro Office
3 Killdeer Court, Suite 302, Swedesboro, NJ 08085
ph (856) 241-9705 fax (856) 241-9709
Certificate of Authorization #24GA27995700

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SCALE	APPROVED
1"=10'	DJF
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ACD	7 OF 14
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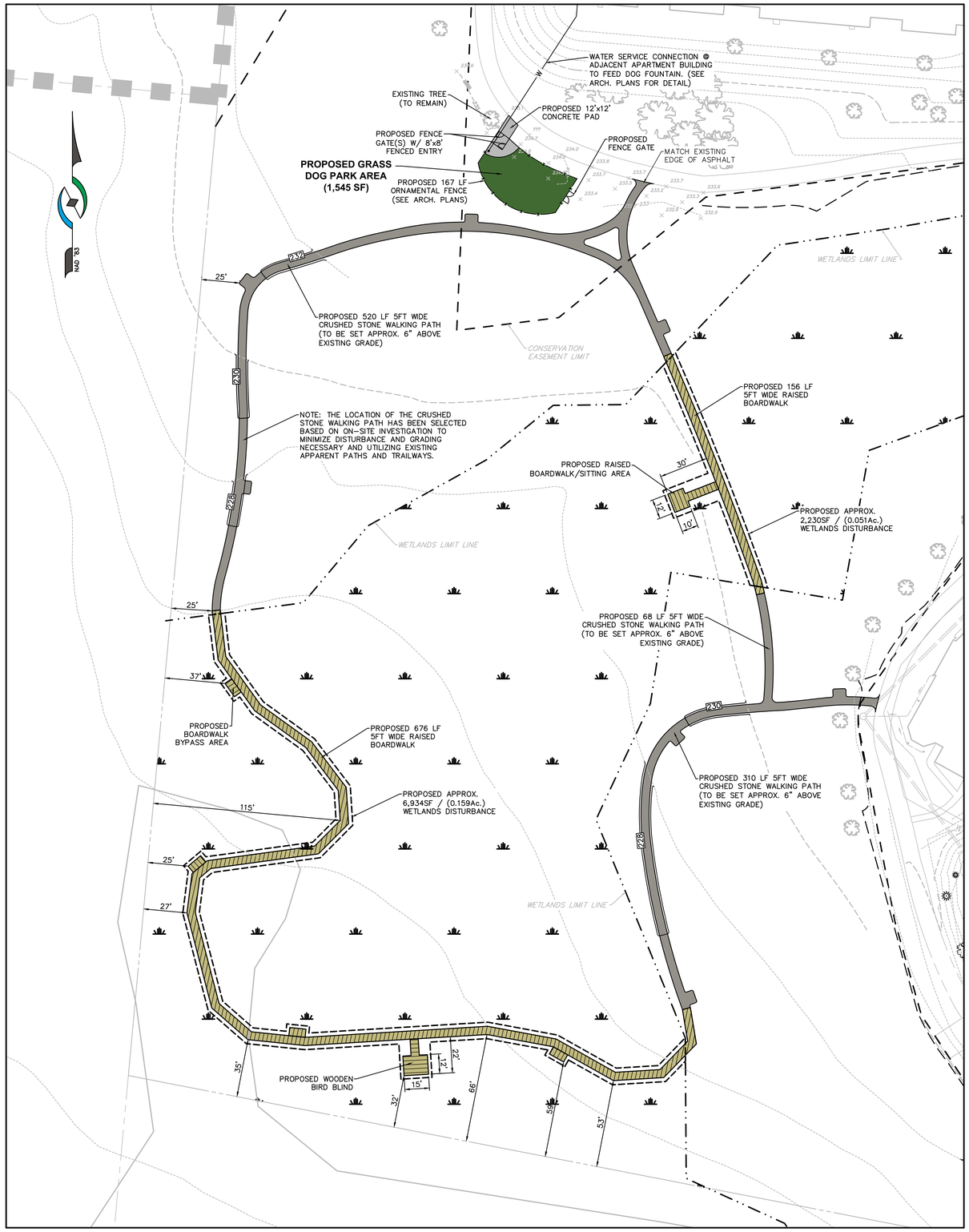
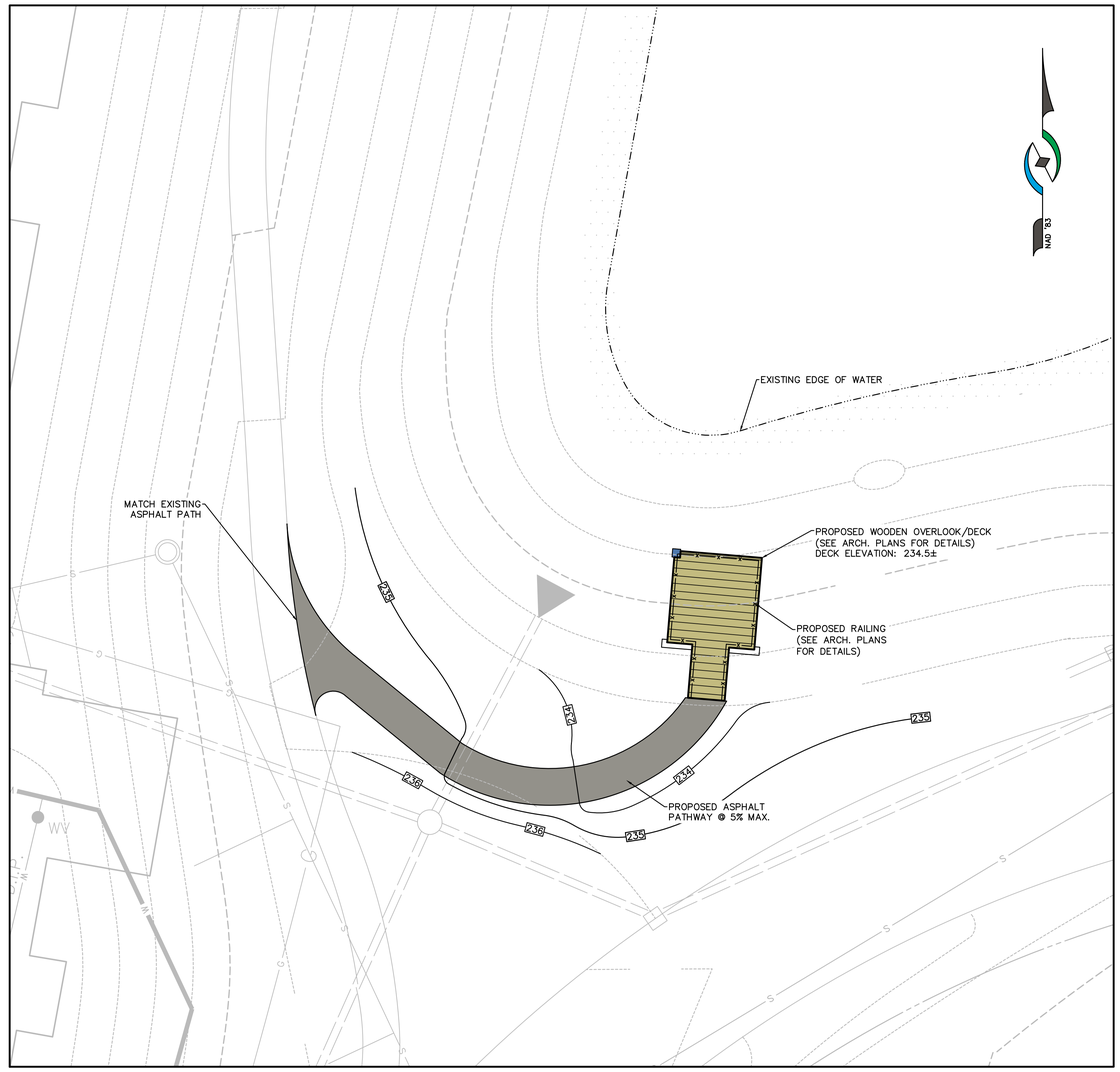
DRAWN ON 11/20/2020, LAST MODIFIED ON 12/7/2020



DOG PARK & WALKING TRAIL PLAN VIEW
SCALE: 1"=30'



DECK OVERLOOK PLAN VIEW
SCALE: 1"=10'

GRAPHIC SCALE
30 0 15 30 60 120
1 INCH = 30 FEET

GRAPHIC SCALE
10 0 5 10 20 40
1 INCH = 10 FEET

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PRELIMINARY & FINAL SITE PLAN

SHEET 93, BLOCK 9301, LOT 33
TOWNSHIP OF BERNARDS, SOMERSET COUNTY, NEW JERSEY

GRADING & UTILITY PLAN
DOG PARK & WALKING TRAILS

FELLOWSHIP SENIOR LIVING, INC.

8000 FELLOWSHIP ROAD
BASKING RIDGE, NJ 07920

DAVID J. FLEMING, P.E.
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SCALE	APPROVED
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ACD	8 OF 14
DRAWING NO.	
C0303	

CREATED ON 11/13/2020, LAST MODIFIED ON 12/11/2020

STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH MC-4500 OR APPROVED EQUAL.
2. CHAMBERS SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORT PANELS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
4. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
5. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
6. CHAMBERS SHALL BE DESIGNED AND ALLOWABLE LOADS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
7. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. THE CHAMBER MANUFACTURER SHALL SUBMIT THE FOLLOWING UPON REQUEST TO THE SITE DESIGN ENGINEER FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE:
   a. A STRUCTURAL EVALUATION SEALED BY A REGISTERED PROFESSIONAL ENGINEER THAT DEMONSTRATES THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY AASHTO FOR THERMOPLASTIC PIPE.
   b. A STRUCTURAL EVALUATION SEALED BY A REGISTERED PROFESSIONAL ENGINEER THAT DEMONSTRATES THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET. THE 50 YEAR CREEP MODULUS DATA SPECIFIED IN ASTM F2418 MUST BE USED AS PART OF THE AASHTO STRUCTURAL EVALUATION TO VERIFY LONG-TERM PERFORMANCE.
   c. STRUCTURAL CROSS SECTION DETAIL ON WHICH THE STRUCTURAL EVALUATION IS BASED.
8. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-4500 CHAMBER SYSTEM

1. STORMTECH MC-4500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTITIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH MC-4500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".^J
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR EXCAVATOR SITUATED OVER THE CHAMBERS.

   STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 9" (230 mm) SPACING BETWEEN THE CHAMBER ROWS.^J
7. INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
8. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE 3/4-2" (20-50 mm) MEETING THE AASHTO M43 DESIGNATION OF #3 OR #4.^J
9. STONE SHALL BE BROUGHT UP EVENLY AROUND CHAMBERS SO AS NOT TO DISTORT THE CHAMBER SHAPE. STONE DEPTHS SHOULD NEVER DIFFER BY MORE THAN 12" (300 mm) BETWEEN ADJACENT CHAMBER ROWS.^J
10. STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.^J
11. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH MC-4500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".^J
2. THE USE OF EQUIPMENT OVER MC-4500 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.^J
CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW THROUGH OUTLET PIPE^Ji) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY^Jii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.^J
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

NOTES:

1. MC-4500 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".^J
2. MC-4500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".^J
3. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.^J
4. THE "SITE DESIGN ENGINEER" REFERS TO THE ENGINEER RESPONSIBLE FOR THE DESIGN AND LAYOUT OF THE STORMTECH CHAMBERS FOR THIS PROJECT.^J
5. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.^J
6. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
7. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.

MC-SERIES END CAP INSERTION DETAIL
NTS

MC-4500 ISOLATOR ROW DETAIL
NTS

INSERTA TEE DETAIL
NTS

MC-4500 6" INSPECTION PORT DETAIL
NTS

UNDERDRAIN DETAIL
NTS

ADVANCED DRAINAGE SYSTEMS, INC.

SiteASSIST by StormTech
FOR STORMTECH INSTRUCTIONS, DOWNLOAD THE INSTALLATION APP

NOTE:
LOCATE FENCE AT DRIPLINE OF TREE (MIN. 5' FROM TRUNK)

TREE PROTECTION FENCE DETAIL
N.T.S.

NOTES:
1. SIDEWALK SHALL BE MINIMUM 4' WIDE AND 4" THICK
2. EXPANSION JOINTS SHALL BE 1/2" WIDE AND PROVIDED AT INTERVALS NO GREATER THAN 20 FEET AND SHALL BE FILLED WITH 1/2" THICK CELLULAR COMPRESSION MATERIAL TO WITHIN 1/4" OF TOP OF WALK.
3. SURFACE GROVES SHALL BE CUT AT LEAST 1/4" DEEP AT RIGHT ANGLES TO THE LINE OF SIDEWALK AND AT INTERVALS EQUAL TO SIDEWALK WIDTH.
4. SURFACE EDGES SHALL BE ROUNDED TO 1/2" RADIUS.
5. FINISH SHALL BE WOOD FLAT, FOLLOWED BY BROOMING TO A NEAT, WORKMANLIKE SURFACE.

CONCRETE SIDEWALK DETAIL
N.T.S.

NOTES:
1. ALL MANHOLES SHALL BE CONSTRUCTED WATERTIGHT.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTING ADEQUATE BALLAST TO OFFSET FLOATATION FORCES ACTING ON MANHOLES CONSTRUCTED IN WET AREAS.

STORM SEWER MANHOLE DETAIL
N.T.S.

NOTES:
ALL TRENCHING OPERATIONS SHALL CONFORM TO THE LATEST O.S.H.A. REQUIREMENTS.

STORM SEWER BEDDING
FOR UNSUITABLE MATERIAL DETAIL
N.T.S.

NOTES:
ALL TRENCHING OPERATIONS SHALL CONFORM TO THE LATEST O.S.H.A. REQUIREMENTS.

STORM SEWER BEDDING
FOR SUITABLE MATERIAL DETAIL
N.T.S.

NOTES:
1. JOINTS 1/2" WIDE USING I–2 MIX CEMENT MORTAR STRUCK WITH CONCRETE TOOL.

GRANITE/BELGIAN BLOCK CURB
N.T.S.

STABILIZED DECOMPOSED GRANITE
N.T.S.

STORM SEWER NOTES

1. STORMWATER MANAGEMENT SHALL BE IN ACCORDANCE WITH STANDARDS SET FORTH BY LOGAN TOWNSHIP, AND THE STATE OF NEW JERSEY B.M.P. MANUAL AND NJAC 7:8.
2. CONCRETE PIPE SHALL BE CLASS III, WALL B, UNLESS OTHERWISE NOTED.
3. ALL HDPE PIPE SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M252 AND M294, AND TO THE REQUIREMENTS SET FORTH IN THE LOGAN TOWNSHIP U.D.O. ORDINANCE 02–08. HDPE PIPE SHALL BE PLACED ON 12" OF CLASS "C" SIZE 57 STONE BEDDING AND SHALL HAVE A MINIMUM COVER OF 24" FROM FINISHED GRADE.
4. DRAINAGE INLET STRUCTURES AND ENDWALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH N.J.D.O.T. STANDARD DETAILS.
5. INLETS SHALL BE N.J.D.O.T. STANDARD AS SPECIFIED ON THE PLANS.
6. ALL INLETS SHALL HAVE BICYCLE SAFE GRATES.
7. BEDDING AND BACKFILL FOR THE REINFORCED CONCRETE PIPE SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
8. CCTV INSPECTION OF THE STORM SEWER SYSTEM, AT NO EXPENSE TO THE TOWNSHIP, WILL BE REQUIRED PRIOR TO FINAL ACCEPTANCE BY THE TOWNSHIP.
9. CONCRETE STORM PIPE IS TO HAVE EITHER RUBBER GASKET OR BUTYL TAPE JOINTS AND BE WRAPPED WITH MORTAR AND FABRIC ON THE OUTSIDE. A" 36" AND LARGER PIPE SHALL HAVE THE INSIDE OF THE JOINT MORTARED.

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NOTE:
ALL CONCRETE TO BE 4,000 PSI OR CLASS "B".

ISSUE DATE	ISSUE NO.	SUBMISSION/REVISION	BY	APPR.
12/11/2020	1	INITIAL SUBMISSION	ACD	DF

PRELIMINARY & FINAL SITE PLAN
SHEET 93, BLOCK 9301, LOT 33
TOWNSHIP OF BERNARDS, SOMERSET COUNTY, NEW JERSEY

SITE DETAILS

FELLOWSHIP SENIOR LIVING, INC.
8000 FELLOWSHIP ROAD
BASKING RIDGE, NJ 07920

DAVID J. FLEMING, P.E.
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 24GE03321600
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MARATHON
Engineering & Environmental Services
Swedesboro Office
3 Killdeer Court, Suite 302, Swedesboro, NJ 08085
ph (856) 241-9705 fax (856) 241-9709
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SCALE	APPROVED
AS SHOWN	DJF
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ACD	9 OF 14
DRAWING NO.	
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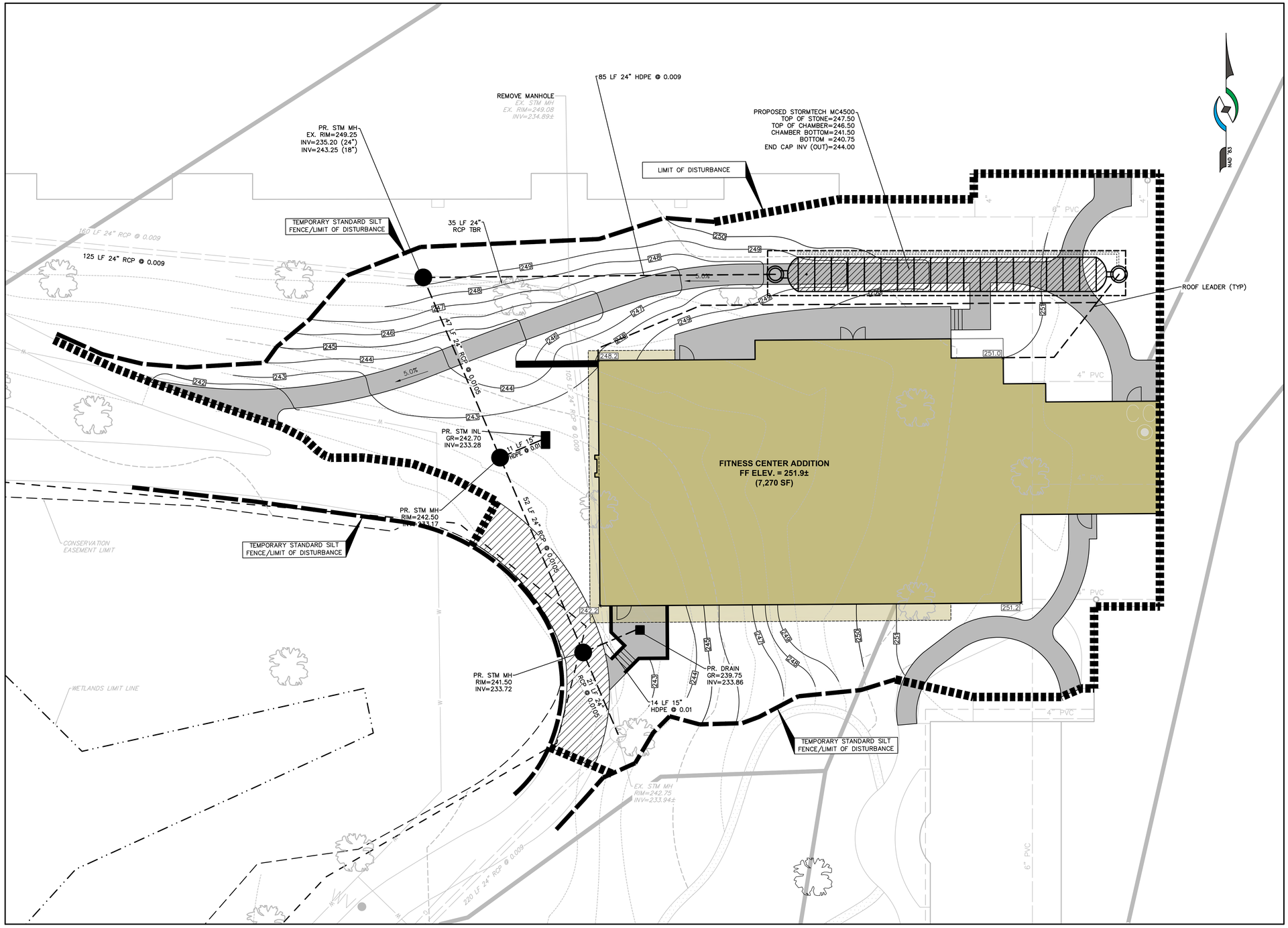

FITNESS CENTER ADDITION PLAN VIEW
SCALE: 1"=10'

EROSION NOTES

1. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL APPLY TO SUBSEQUENT OWNERS IF TITLE IS CONVEYED.
2. THIS PLAN IS TO BE USED FOR SOIL EROSION AND SEDIMENT CONTROL PURPOSES ONLY.
3. SOIL EROSION AND SEDIMENT CONTROL IMPLEMENTATION SHALL BE IN ACCORDANCE WITH STANDARDS SET FORTH BY THE CUMBERLAND SALEM CONSERVATION DISTRICT.
4. ALL TOPSOIL STORAGE AREAS SHALL BE REMOVED PRIOR TO FINAL OCCUPANCY OF THE BUILDING AND AREA RESTORED TO PRE-DEVELOPMENT CONDITIONS.
5. SOIL HAVING A PH OF 4.0 OR LESS OR CONTAINING IRON SULFIDE MUST BE COVERED WITH A MINIMUM OF 12 INCHES OF SOIL HAVING A PH OF 5.0 OR MORE BEFORE SEEDBED PREPARATION.
6. NJSA 4:24-39, ET SEQ. REQUIRES THAT UPON PERMANENT SITE STABILIZATION AND COMPLETION OF CONSTRUCTION THE CONTRACTOR SHALL APPLY TO THE SOIL CONSERVATION DISTRICT FOR FINAL COMPLIANCE INSPECTION TO CHECK THAT ALL THE PROVISIONS OF THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLAN HAVE BEEN COMPLIED WITH FOR PERMANENT MEASURES.
7. SEE DRAWING NUMBER C1301 FOR SOIL EROSION AND SEDIMENT CONTROL NOTES.
8. SEE DRAWING NUMBER C1302 FOR SOIL EROSION AND SEDIMENT CONTROL DETAILS.

EXISTING UTILITY INFORMATION SHOWN ON THESE PLANS IS FURNISHED BY THE UTILITY COMPANIES AND/OR THE SURVEYOR AND THE ACCURACY THEREOF IS NOT THE RESPONSIBILITY OF MARATHON ENGINEERING & ENVIRONMENTAL SERVICES, INC. IT IS THE RESPONSIBILITY OF THE OWNERS AND/OR CONTRACTOR TO CALL 1-800-272-1000 FOR FIELD LOCATION OF UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.

SOIL EROSION LEGEND

- TEMPORARY STANDARD SILT FENCE/LIMIT OF DISTURBANCE
- TEMPORARY SUPER SILT FENCE/LIMIT OF DISTURBANCE
- LIMIT OF DISTURBANCE
- SOILS LIMIT LINE
- TEMPORARY STABILIZED CONSTRUCTION ENTRANCE
- TEMPORARY STOCKPILE AREA

LIMIT OF DISTURBANCE

TOTAL AREA OF PROPOSED DISTURBANCE = **1.50** AC.

GRAPHIC SCALE

10 0 5 10 20 40

1 INCH = 10 FEET

ISSUE DATE	ISSUE NO.	SUBMISSION/REVISION	BY	APPR.
12/11/2020	1	INITIAL SUBMISSION	ACD	DF

PRELIMINARY & FINAL SITE PLAN
SHEET 93, BLOCK 9301, LOT 33
TOWNSHIP OF BERNARDS, SOMERSET COUNTY, NEW JERSEY

SOIL EROSION & SEDIMENT CONTROL PLAN
FITNESS CENTER ADDITION

FELLOWSHIP SENIOR LIVING, INC.
8000 FELLOWSHIP ROAD
BASKING RIDGE, NJ 07920

DAVID J. FLEMING, P.E.
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 24GE03321600
12/11/2020
FVG 001.01

MARATHON
Engineering & Environmental Services
Swedesboro Office
3 Killdeer Court, Suite 302, Swedesboro, NJ 08085
ph (856) 241-9705 fax (856) 241-9709
Certificate of Authorization #24GA27995700

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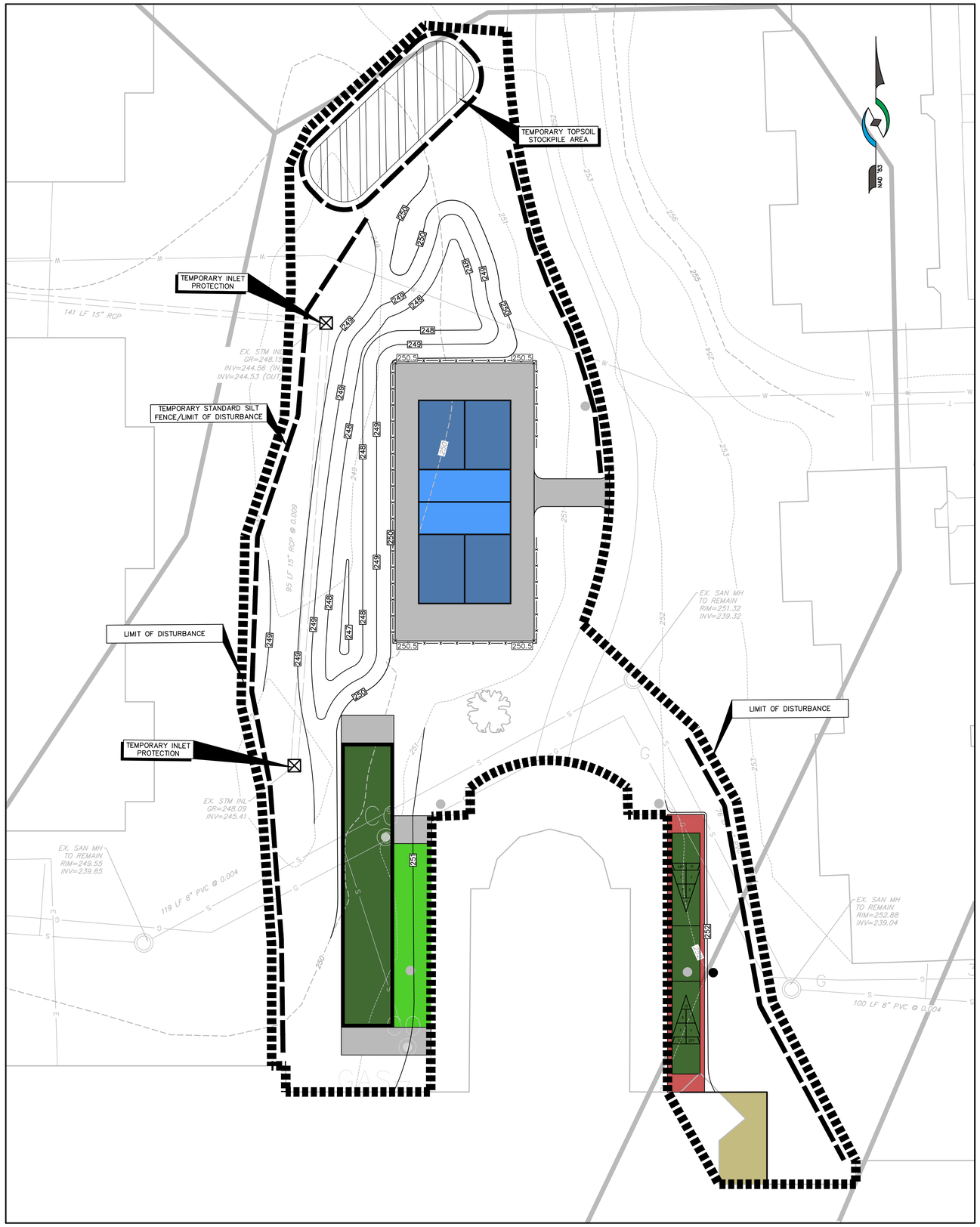
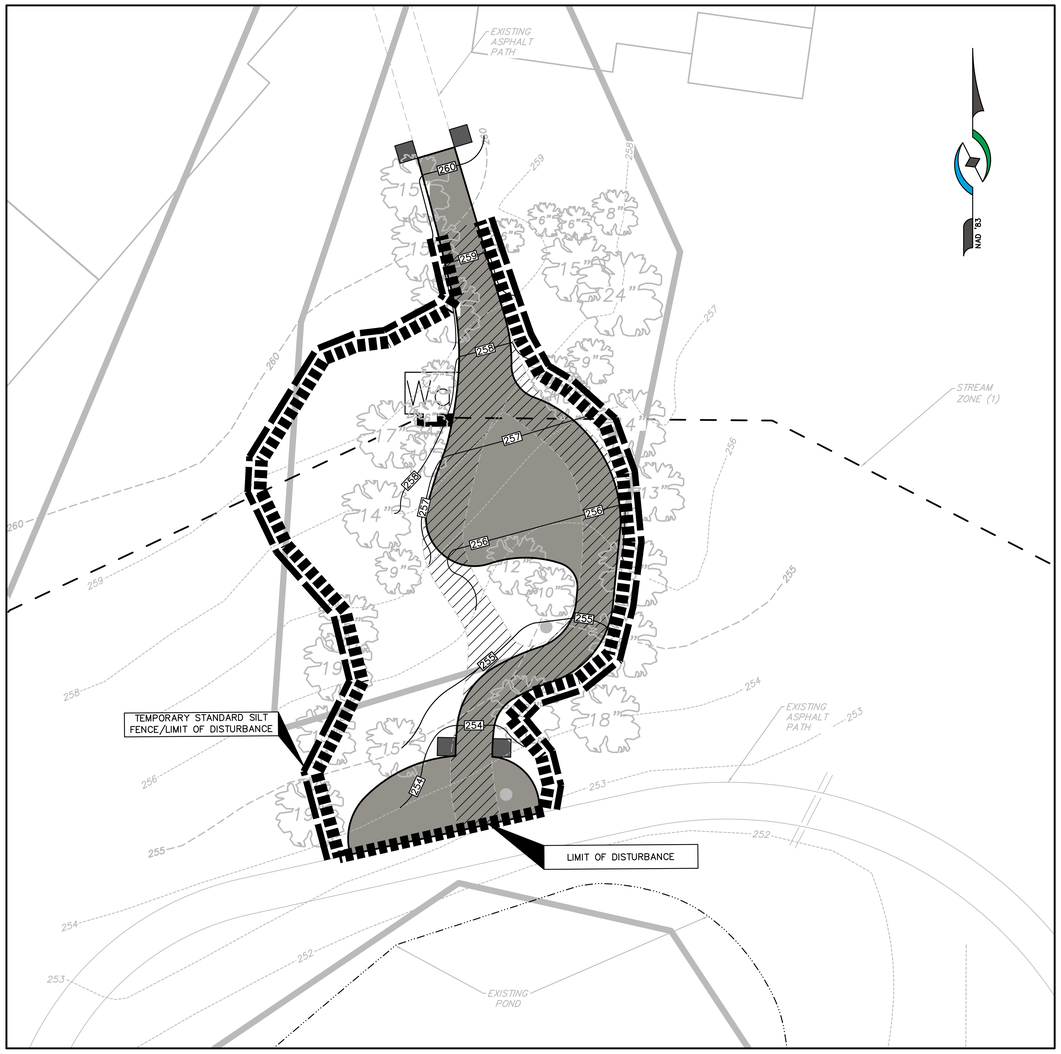
SCALE	APPROVED
1"=10'	DJF
DRAWN BY	SHEET
ACD	10 OF 14
DRAWING NO.	
C1201	

DRAWN ON 11/13/2020, LAST MODIFIED ON 12/7/2020



OUTDOOR RECREATION PLAN VIEW
SCALE: 1"=10'



"SPRUCE GROVE" PLAN VIEW
SCALE: 1"=10'

EROSION NOTES

1. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL APPLY TO SUBSEQUENT OWNERS IF TITLE IS CONVEYED.
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8. SEE DRAWING NUMBER C1302 FOR SOIL EROSION AND SEDIMENT CONTROL DETAILS.

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- TEMPORARY SUPER SILT FENCE/LIMIT OF DISTURBANCE
- LIMIT OF DISTURBANCE
- SOILS LIMIT LINE
- TEMPORARY STABILIZED CONSTRUCTION ENTRANCE
- TEMPORARY STOCKPILE AREA

LIMIT OF DISTURBANCE

TOTAL AREA OF PROPOSED DISTURBANCE = **1.50** AC.

GRAPHIC SCALE
10 0 5 10 20 40
1 INCH = 10 FEET

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PRELIMINARY & FINAL SITE PLAN

SHEET 93, BLOCK 9301, LOT 33
TOWNSHIP OF BERNARDS, SOMERSET COUNTY, NEW JERSEY

SOIL EROSION & SEDIMENT CONTROL PLAN RECREATION & SPRUCE GROVE

FELLOWSHIP SENIOR LIVING, INC.

8000 FELLOWSHIP ROAD
BASKING RIDGE, NJ 07920

DAVID J. FLEMING, P.E.
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 24GE03321600
12/11/2020
FVG 001.01

MARATHON
Engineering & Environmental Services
Swedesboro Office
3 Killdeer Court, Suite 302, Swedesboro, NJ 08085
ph (856) 241-0705 fax (856) 241-9709
Certificate of Authorization #24GA27995700

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SCALE	APPROVED
1"=10'	DJF
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ACD	11 OF 14
DRAWING NO.	
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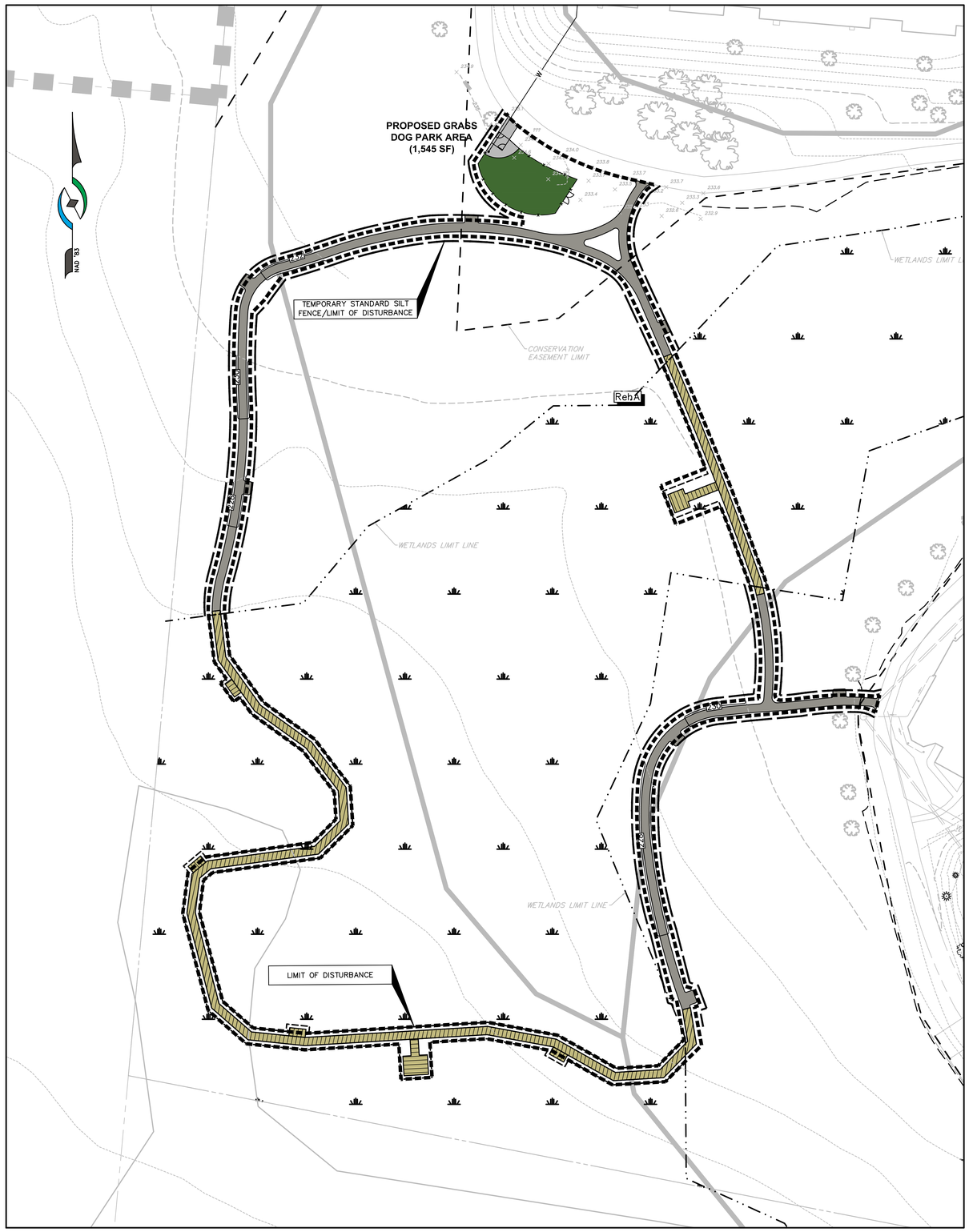
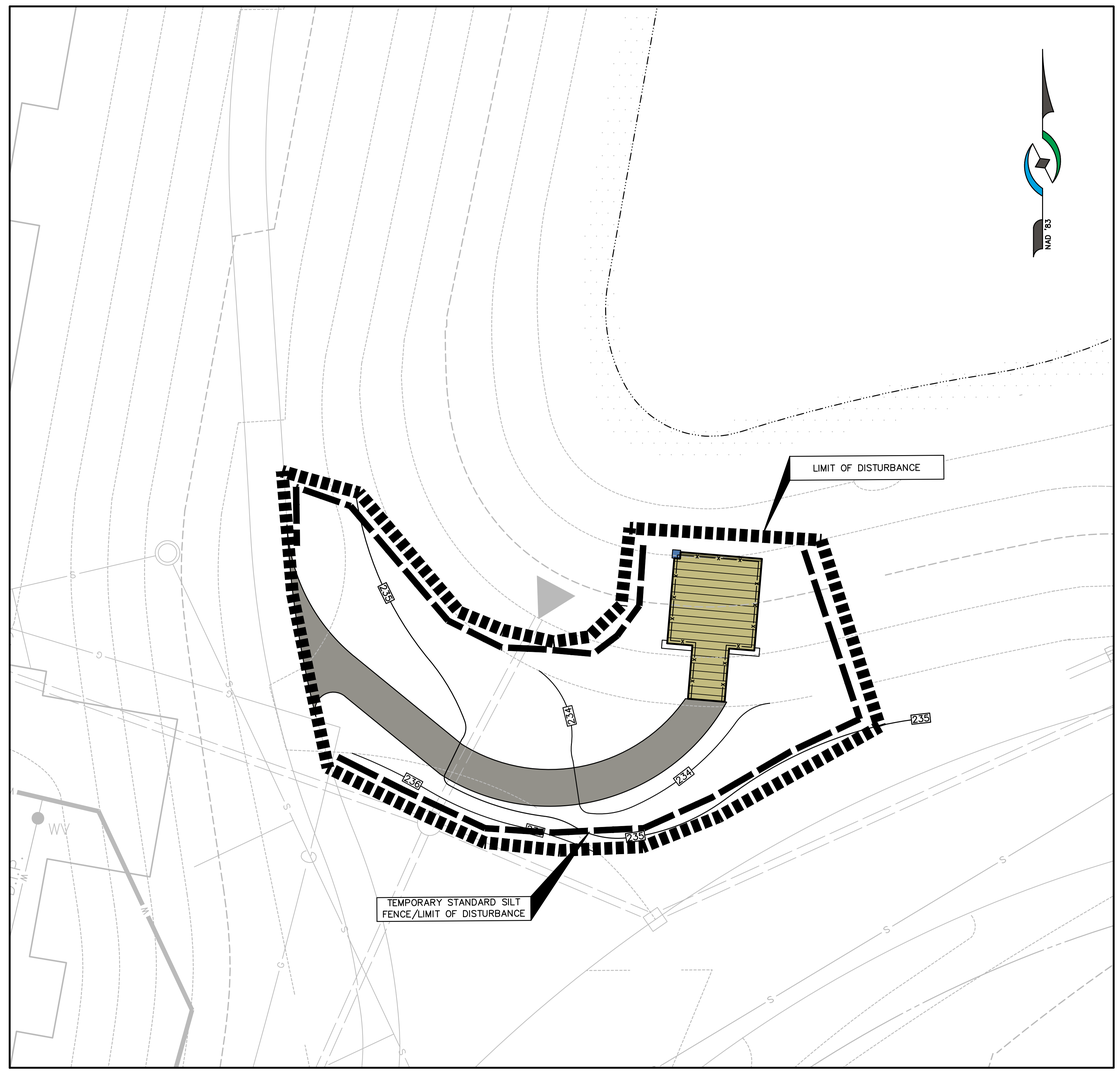
DRAWING ON 11/12/2020, LAST MODIFIED ON 12/7/2020



DOG PARK & WALKING TRAIL PLAN VIEW
SCALE: 1"=30'



DECK OVERLOOK PLAN VIEW
SCALE: 1"=10'

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- TEMPORARY SUPER SILT FENCE/LIMIT OF DISTURBANCE
- LIMIT OF DISTURBANCE
- SOILS LIMIT LINE
- TEMPORARY STABILIZED CONSTRUCTION ENTRANCE
- TEMPORARY STOCKPILE AREA

LIMIT OF DISTURBANCE

TOTAL AREA OF PROPOSED DISTURBANCE = **1.50** AC.

GRAPHIC SCALE
30 0 15 30 60 120
1 INCH = 30 FEET

GRAPHIC SCALE
10 0 5 10 20 40
1 INCH = 10 FEET

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12/11/2020	1	INITIAL SUBMISSION	ACD	DF

PRELIMINARY & FINAL SITE PLAN

SHEET 93, BLOCK 9301, LOT 33
TOWNSHIP OF BERNARDS, SOMERSET COUNTY, NEW JERSEY

SOIL EROSION & SEDIMENT CONTROL PLAN
DOG PARK & WALKING TRAILS

FELLOWSHIP SENIOR LIVING, INC.

8000 FELLOWSHIP ROAD
BASKING RIDGE, NJ 07920

DAVID J. FLEMING, P.E.
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 24GE03321600
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MARATHON
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SCALE	APPROVED
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ACD	12 OF 14
DRAWING NO.	
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CREATED ON 11/13/2020, LAST MODIFIED ON 12/11/2020

GENERAL NOTES

1. THE SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED 48 HOURS PRIOR TO ANY LAND DISTURBANCE.

   SOMERSET–UNION COUNTY SOIL CONSERVATION DISTRICT
   308 MILLTOWN ROAD
   BRIDGEWATER, NJ 08807
   PHONE (908) 526–2701
   FAX (908) 575–3977

2. SOIL EROSION AND SEDIMENT CONTROL PRACTICES ON THIS PLAN SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY.
3. A COPY OF THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLAN INCLUDING REVISION THEREOF MUST BE MAINTAINED ON THE PROJECT SITE DURING CONSTRUCTION.
4. IN NO CASE SHALL THE CERTIFICATION OF THE PROJECT BY THE DISTRICT EXTEND BEYOND THREE AND ONE HALF YEARS OF THE ORIGINAL CERTIFICATION DATE.
5. PRIOR TO ANY GRADING OPERATION AND/OR INSTALLATION OF PROPOSED STRUCTURES OR UTILITIES, A NJPDES REQUEST FOR AUTHORIZATION ("RFA") FORM FOR STORMWATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITY MUST BE FILED WITH NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION ("NJDEP") IF THE CONSTRUCTION WILL DISTURB MORE THAN ONE ACRE. THE APPLICATION MUST BE COMPLETED BY THE ENTITY RESPONSIBLE FOR MAINTENANCE OF SOIL EROSION CONTROL MEASURES DURING CONSTRUCTION, TYPICALLY THE DEVELOPER OR CONTRACTOR. THE APPLICATION IS A SIMPLE FORM FILED ON THE NJDEP WEBSITE USING PROJECT CODES PROVIDED BY THE SOIL CONSERVATION DISTRICT. IF REQUIRED, THE ENGINEER WILL ASSIST THE DEVELOPER OR CONTRACTOR BY PROVIDING TECHNICAL INFORMATION TO COMPLETE THE APPLICATION.
6. ALL APPLICABLE SOIL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE IN PLACE PRIOR TO ANY GRADING OPERATION AND/OR INSTALLATION OF PROPOSED STRUCTURES OR UTILITIES.
7. ANY CHANGES TO THE SITE PLAN WILL REQUIRE THE SUBMISSION OF A REVISED SOIL EROSION AND SEDIMENT CONTROL PLAN TO THE DISTRICT. THE REVISED PLAN MUST BE IN ACCORDANCE WITH THE CURRENT NEW JERSEY STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL.
8. THE CONTRACTOR SHALL PERFORM ALL WORK, FURNISH ALL MATERIALS AND INSTALL ALL MEASURES REQUIRED TO REASONABLY CONTROL SOIL EROSION RESULTING FROM CONSTRUCTION OPERATIONS AND PREVENT EXCESSIVE FLOW OF SEDIMENT FROM THE CONSTRUCTION SITE.
9. THE DISTRICT MAY REQUIRE ADDITIONAL SOIL EROSION MEASURES TO BE INSTALLED, AS DETERMINED BY THE DISTRICT
10. OFFSITE LAND DISTURBANCE MAY REQUIRE ADDITIONAL SOIL EROSION AND SEDIMENT CONTROL MEASURES TO BE DETERMINED BY THE DISTRICT.
11. STAGED CONSTRUCTION METHODS TO MINIMIZE EXPOSED SURFACES, WHERE APPLICABLE.
12. THE SITE SHALL AT ALL TIMES BE GRADED AND MAINTAINED SUCH THAT STORMWATER RUNOFF IS DIVERTED TO SOIL EROSION AND SEDIMENT CONTROL FACILITIES.
13. SOIL EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSPECTED AND MAINTAINED ON A REGULAR BASIS AND AFTER EVERY STORM EVENT.
14. APPLICABLE SOIL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE LEFT IN PLACE UNTIL CONSTRUCTION IS COMPLETED AND/OR THE AREA IS STABILIZED.
15. NJSA 4:24–39, ET SEQ. REQUIRES THAT NO CERTIFICATE OF OCCUPANCY, TEMPORARY OR PERMANENT, BE ISSUED BEFORE ALL PROVISIONS OF THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLAN HAVE BEEN COMPLIED WITH PERMANENT MEASURES. ALL SITE WORK FOR THE PROJECT MUST BE COMPLETED PRIOR TO THE DISTRICT ISSUING A REPORT OF COMPLIANCE AS A PREREQUISITE TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY BY THE MUNICIPALITY. INSPECTION FOR THE CERTIFICATE OF OCCUPANCY MUST BE SCHEDULED AT LEAST A WEEK IN ADVANCE.
16. NJSA 4:24–39, ET SEQ., REQUIRES THAT UPON PERMANENT SITE STABILIZATION AND COMPLETION OF THE CONTRACTOR SHALL APPLY TO THE DISTRICT FOR FINAL COMPLIANCE INSPECTION TO CHECK THAT ALL THE PROVISIONS OF THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLAN HAVE BEEN COMPLIED WITH FOR PERMANENT MEASURES.
17. ANY CONVEYANCE OF THIS PROJECT, OR PORTION THEREOF, PRIOR TO ITS COMPLETION WILL TRANSFER FULL RESPONSIBILITY FOR COMPLIANCE WITH THE CERTIFIED PLAN TO ANY SUBSEQUENT OWNERS. THE DISTRICT MUST BE NOTIFIED IN WRITING OF ANY CHANGE IN OWNERSHIP.
18. A CRUSHED STONE, TIRE CLEANING PAD WILL BE INSTALLED WHEREVER A CONSTRUCTION ACCESS EXISTS. THE STABILIZED PAD WILL BE INSTALLED ACCORDING TO THE STANDARD FOR STABILIZED CONSTRUCTION ACCESS. THE PAD MUST BE 100 FEET IN LENGTH AND THE STONE MUST BE 1.5 – 4 INCHES IN SIZE, PLACED 12" THICK AND THE FULL WIDTH OF THE ENTRANCE. THE PAD SHALL BE UNDERLAIN WITH A SUITABLE SYNTHETIC FILTER FABRIC AND MAINTAINED. IF A CONSTRUCTION ACCESS IS TO BE USED AS AN EXIT ONTO A MAJOR HIGHWAY, A THIRTY (30) PAVED TRANSITION AREA SHALL BE INSTALLED. CONSTRUCTION ACCESS ONTO INDIVIDUAL LOTS MUST BE STABILIZED WITH 2.5" CRUSHED STONE OR SUBBASE.
19. PAVED ROADWAYS MUST BE KEPT CLEAN AT ALL TIMES.
20. ALL CATCH BASIN INLETS WILL BE PROTECTED ACCORDING TO THE CERTIFIED PLAN.
21. ALL STORM DRAINAGE OUTLETS SHALL BE STABILIZED AS REQUIRED BEFORE THE DISCHARGE POINT BECOMES OPERATION.
22. NATURAL VEGETATION AND SPECIES SHALL BE RETAINED WHERE SPECIFIED ON THE LANDSCAPE PLAN.
23. ADJOINING PROPERTIES SHALL BE PROTECTED FROM EXCAVATION AND FILLING OPERATIONS ON THE CONSTRUCTION SITE.
24. THE DEVELOPER SHALL BE RESPONSIBLE FOR ANY EROSION OR SEDIMENTATION THAT MAY OCCUR BELOW STORMWATER OUTFALLS OR OFFSITE AS A RESULT OF CONSTRUCTION OF THE PROJECT.
25. IMMEDIATELY AFTER THE COMPLETION OF STRIPPING AND STOCKPILING OF TOPSOIL, THE STOCKPILE MUST BE STABILIZED ACCORDING TO THE STANDARD FOR TEMPORARY VEGETATIVE COVER. STABILIZE TOPSOIL PILE WITH STRAW MULCH FOR PROTECTION IF THE SEASON DOES NOT PERMIT THE APPLICATION AND ESTABLISHMENT OF TEMPORARY SEEDING.
26. ALL SOIL STOCKPILES ARE NOT TO BE LOCATED WITHIN FIFTY (50) FEET OF A FLOODPLAIN, SLOPE, ROADWAY OR DRAINAGE FACILITY AND THE BASE MUST BE PROTECTED WITH SEDIMENT BARRIER.
27. MAXIMUM SIDE SLOPES OF ALL EXPOSED SURFACES SHALL NOT BE CONSTRUCTED STEEPER THAN 3:1 UNLESS OTHERWISE APPROVED BY THE SOIL CONSERVATION DISTRICT.
28. ALL CRITICAL AREAS SUBJECT TO SOIL EROSION WILL RECEIVE A TEMPORARY SEEDING IN COMBINATION WITH STRAW MULCH AT A RATE OF 92 POUNDS PER 1000 SQUARE FEET ACCORDING TO THE NEW JERSEY STANDARDS IMMEDIATELY FOLLOWING ROUGH GRADING.
29. TEMPORARY AND PERMANENT SEEDING MEASURES MUST BE APPLIED ACCORDING TO THE NEW JERSEY STANDARDS, AND MULCHED WITH SALT HAY OR EQUIVALENT AND ANCHORED IN ACCORDANCE WITH THE NEW JERSEY STANDARDS (I.E. PEG AND TWINE, MULCH NETTING OR LIQUID MULCH BINDER)
30. MAXIMUM SIDE SLOPES OF ALL EXPOSED SURFACES SHALL NOT BE CONSTRUCTED STEEPER THAN 3:1 UNLESS OTHERWISE APPROVED BY THE SOIL CONSERVATION DISTRICT.
31. ANY DISTURBED AREA THAT IS TO BE LEFT EXPOSED FOR MORE THAN THIRTY (30) DAYS AND NOT SUBJECT TO CONSTRUCTION TRAFFIC SHALL IMMEDIATELY RECEIVE A TEMPORARY SEEDING AND FERTILIZATION IN ACCORDANCE WITH THE NEW JERSEY STANDARDS AND THEIR RATES SHOULD BE IN ACCORDANCE WITH THE TEMPORARY SEEDING SPECIFICATION. IF THE SEASON PROHIBITS TEMPORARY SEEDING, THE DISTURBED AREAS WILL BE MULCHED WITH SALT HAY OR THE EQUIVALENT AND ANCHORED IN ACCORDANCE WITH THE NEW JERSEY STANDARDS (I.E. PEG AND TWINE, MULCH NETTING OR LIQUID MULCH BINDER).
32. MULCHING IS REQUIRED ON ALL SEEDED AREAS TO ENSURE AGAINST SOIL EROSION BEFORE GRASS IS ESTABLISHED TO PROMOTE EARLIER VEGETATION COVER.
33. IT SHALL BE THE RESPONSIBILITY OF THE DEVELOPER TO PROVIDE CONFIRMATION OF LIME, FERTILIZER AND SEED APPLICATION AND RATES OF APPLICATION AT THE REQUEST OF THE SOIL CONSERVATION DISTRICT.
34. ALL VEGETATIVE MATERIAL SHALL BE SELECTED IN ACCORDANCE WITH AMERICAN STANDARDS FOR NURSERY STOCK OF THE AMERICAN ASSOCIATION OF THE NURSERYMEN AND IN ACCORDANCE WITH THE NEW JERSEY STANDARDS.
35. ALL DEWATERING OPERATIONS MUST DISCHARGE DIRECTLY INTO A SEDIMENT FILTER AREA. THE SEDIMENT FILTER SHOULD BE COMPOSED OF A SUITABLE FILTER FABRIC. (SEE DETAIL) THE SEDIMENT FILTER MUST BE CAPABLE OF FILTERING THE SEDIMENT AND BE PLACED SO AS NOT TO CAUSE EROSION OF THE DOWNSTREAM AREA. FIELD PLACEMENT AND USE OF THE STRUCTURE MUST BE APPROVED BY THE DISTRICT PRIOR TO COMMENCEMENT OF DEWATERING ACTIVITIES. THE WATER QUALITY BASIN MUST BE DEWATERED TO NORMAL POOL WITHIN 10 DAYS OF THE DESIGN STORM.
36. DUST IS TO BE CONTROLLED BY AN APPROVED METHOD ACCORDING TO THE NEW JERSEY STANDARDS AND INCLUDE WATERING WITH A SOLUTION OF CALCIUM CHLORIDE AND WATER.
37. METHODS FOR THE MANAGEMENT OF HIGH ACID PRODUCING SOILS SHALL BE IN ACCORDANCE WITH THE NEW JERSEY STANDARDS. HIGH ACID PRODUCING SOILS ARE THOSE FOUND TO CONTAIN IRON SULFIDES OR HAVE A PH OF 4 OR LESS.

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WORK HOURS AND NOISE CONTROL

1. CONSTRUCTION HOURS
   A. MONDAY THRU FRIDAY: 7:00AM–6:00PM
   B. SATURDAY: 8:00AM–4:30PM
   C. SUNDAY: NO WORK TO BE PERFORMED.
   D. THE HOURS STATED SHALL BE ADHERED TO UNLESS DUE TO WEATHER AND OR SCHEDULE CHANGES. THE CITY OF ABSECON SHALL BE NOTIFIED OF ALL TIME CHANGES.
2. NOISE CONTROL EQUIPMENT TO BE UTILIZED SHALL BE STANDARD EARTH MOVING EQUIPMENT, CRANES, MIXERS, ETC. WHICH MEET STANDARDS ESTABLISHED BY STATE AND FEDERAL LAWS REGARDING THE AMOUNT OF NOISE PRODUCED.

DETAILED CONSTRUCTION SEQUENCE

1. INSTALL SILT FENCE AND SOIL EROSION MEASURES.
2. STRIP TOPSOIL FROM EXISTING GRASS AREAS.
3. STRIP TOPSOIL AND STOCKPILE WHERE INDICATED ON PLAN IN ACCORDANCE WITH STOCKPILE DETAIL.
4. CONSTRUCTION OF BASIN.
5. BEGIN ROADWAY AND SITE ROUGH GRADING.
6. BEGIN BUILDING CONSTRUCTION (INCLUDING CURBS, AND FINAL PAVING).
7. PRIOR TO FINAL GRADING, TOPSOILING AND STABILIZATION OF GRASSED SWALES, GRASSED AREAS AND OTHER PERVIOUS AREAS, DECOMPACTION SHALL TAKE PLACE AND BE APPROVED BY THE GCSCD INSPECTOR.
8. INSTALL LANDSCAPING AS INDICATED.
9. CONSTRUCTED BASIN WILL BE CLEANED OF ALL SEDIMENT AND STABILIZED.
10. UPON FINAL APPROVAL OF THE SOMERSET–UNION COUNTY SOIL CONSERVATION DISTRICT, ALL TEMPORARY MEASURES SHALL BE REMOVED.

TEMPORARY AND PERMANENT STABILIZATION

STABILIZATION COVER SHALL BE ACCOMPLISHED BY THE FOLLOWING METHODS AND MATERIALS:

A. SITE PREPARATION

1) PREPARE SUBGRADE AS NEEDED AND FEASIBLE TO ALLOW USE OF CONVENTIONAL EQUIPMENT FOR TOPSOILING, SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING.

2) INSTALL NEEDED SOIL EROSION CONTROL PRACTICES OR MEASURES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, CHANNEL STABILIZATION MEASURES, SEDIMENT BASINS, AND WATERWAYS.

3) THE SUBGRADE SHALL BE FREE OF EXCESSIVE COMPACTION TO A DEPTH OF 6 INCHES TO ENHANCE THE ESTABLISHMENT OF VEGETATIVE COVER. IF TESTING INDICATES EXCESSIVE SUBGRADE COMPACTION, THE SUBGRADE SHALL BE DE–COMPACTED TO A DEPTH OF 6 INCHES PRIOR TO THE APPLICATION OF TOPSOIL. THE SUBGRADE SHALL BE SCARIFIED TO A DEPTH OF 6" TO 12" WHERE THERE HAS BEEN EXCESSIVE SOIL COMPACTION. THIS PRACTICE IS PERMISSIBLE ONLY IN AREAS WHERE THERE IS NO DANGER TO UNDERGROUND UTILITIES (CABLES, IRRIGATION SYSTEMS, ETC.).

4) THE SUBGRADE SHALL BE TESTED TO DETERMINE WHETHER COMPACTION EXCEEDS THE MAXIMUM THRESHOLDS INDICATED FOR THE SIMPLIFIED TESTING METHODS. THE TEST SHALL BE PREFORMED AT ONE–HALF ACRE INTERVALS FOR SITES ONE ACRE OR MORE. FOR SITES LESS THAN ONE ACRE, AT LEAST TWO TESTS ARE REQUIRED REGARDLESS OF THE SIZE. CONTIGUOUS AREAS OF 500 SQUARE FEET OR LESS ARE EXEMPT FROM TESTING OR REMEDIATION. COMPACTION TESTING METHODS SHALL INCLUDE (1) PROBING WIRE TEST, (2) HAND–HELD PENETROMETER TEST, (3) TUBE BULK DENSITY TEST, OR (4) NUCLEAR DENSITY TEST. THE MAXIMUM THRESHOLD FOR THE PROBING WIRE TEST IS DETERMINED IF A 15 GAGE WIRE BENDS WHEN INSERTED INTO THE SUBGRADE TO A DEPTH OF 6 INCHES OR FOR THE PENETROMETER TEST IF THE PRESSURE AT A DEPTH OF 6 INCHES IS 300 PSI OR MORE. IF COMPACTION EXCEEDS THE MAXIMUM THRESHOLD, THE CONTRACTOR SHALL HAVE THE OPTION TO PERFORM EITHER (1) COMPACTION MITIGATION OVER THE ENTIRE MITIGATION AREA, OR (2) PERFORM ADDITIONAL MORE DETAILED TESTING TO ESTABLISH THE LIMITS OF EXCESSIVE COMPACTION WHEREUPON ONLY THE EXCESSIVELY COMPACTED AREAS WOULD REQUIRE COMPACTION MITIGATION. ADDITIONAL DETAILED TESTING SHALL BE PERFORMED BY A TRAINED, LICENSED PROFESSIONAL.

B. STRIPPING AND STOCKPILING

1) FIELD EXPLORATION SHOULD BE MADE TO DETERMINE WHETHER QUANTITY AND/OR QUALITY OF SURFACE SOIL JUSTIFIES STRIPPING.

2) STRIPPING SHOULD BE CONFINED TO THE IMMEDIATE CONSTRUCTION AREA.

3) WHERE FEASIBLE, LIME MAY BE APPLIED BEFORE STRIPPING AT A RATE DETERMINED BY SOIL TEST TO BRING THE SOIL PH TO APPROXIMATELY 6.5. IN LIEU OF SOIL TEST, SEE LINE RATE GUIDE IN SEEDBED PREPARATION.

4) A 4 TO 6 INCH STRIPPING DEPTH IS COMMON, BUT MAY VARY DEPENDING ON THE PARTICULAR SOIL.

5) STOCKPILES OF TOPSOIL SHOULD BE SITUATED SO AS NOT TO OBSTRUCT NATURAL DRAINAGE OR CAUSE OFF–SITE ENVIRONMENTAL DAMAGE.

6) STOCKPILES OF TOPSOIL SHOULD BE VEGETATED IN ACCORDANCE WITH STANDARDS FOR PERMANENT OR TEMPORARY STABILIZATION. WEEDS SHOULD NOT BE ALLOWED TO GROW ON STOCKPILES.

C. TOPSOILING – THE CONTRACTOR SHALL PREPARE AREAS TO BE STABILIZED WITH PERMANENT VEGETATIVE COVER BY APPLYING TOPSOIL TO A UNIFORM DEPTH OF 6 INCHED. TOPSOIL SHOULD BE FRIABLE, LOAMY, FREE OF DEBRIS, OBJECTIONABLE WEEDS AND STONES, AND CONTAIN NO TOXIC SUBSTANCE OR ADVERSE CHEMICAL OR PHYSICAL CONDITION THAT MAY BE HARMFUL TO PLANT GROWTH. SOLUBLE SALTS SHOULD NOT BE EXCESSIVE (CONDUCTIVITY LESS THAN 0.5 MILLIMHOS PER CENTIMETER. MORE THAN 0.5 MILLIMHOS MAY DESICATE SEEDLINGS AND ADVERSELY IMPACT GROWTH). TOPSOIL HAULED IN FROM OFFSITE SHOULD HAVE A MINIMUM ORGANIC MATTER CONTENT OF 2.75 PERCENT. ORGANIC MATTER CONTENT MAY BE RAISED BY ADDITIVES.

TOPSOIL SUBSTITUTES MAY BE UTILIZED ON SITES WITH INSUFFICIENT TOPSOIL FOR ESTABLISHING PERMANENT VEGETATION. TOPSOIL SUBSTITUTE IS A SOIL MATERIAL WHICH MAY HAVE BEEN AMENDED WITH SAND, SILT, CLAY, ORGANIC MATTER, FERTILIZER OR LIME AND HAS THE APPEARANCE OF TOPSOIL. ALL TOPSOIL SUBSTITUTE MATERIALS SHALL MEET THE REQUIREMENTS OF TOPSOIL NOTED ABOVE. SOIL TESTS SHALL BE PERFORMED TO DETERMINE THE COMPONENTS OF SAND, SILT, CLAY, ORGANIC MATTER, SOLUBLE SALTS AND PH LEVEL.

D. SEEDBED PREPARATION – APPLY LIMESTONE AND FERTILIZER ACCORDING TO SOIL TESTS SUCH AS THOSE OFFERED BY RUTGERS UNIVERSITY SOIL TESTING LABORATORY. SOIL SAMPLE MAILERS ARE AVAILABLE FROM THE LOCAL COOPERATIVE EXTENSION SERVICE OFFICE. IF SOIL TESTING IS NOT FEASIBLE ON SMALL OR VARIABLE SITES, OR WHERE TIMING IS CRITICAL, THE CONTRACTOR MAY APPLY PULVERIZED DOLOMITIC LIMESTONE AT THE RATE OF 90 POUNDS PER 1000 SQUARE FEET. APPLY 10–20–10 FERTILIZER OR EQUIVALENT AT THE RATE OF 11 POUNDS PER 1000 SQUARE FEET. IN ADDITION, 300 POUNDS 38–0–0 PER ACRE OR EQUIVALENT OF SLOW RELEASE NITROGEN MAY BE USED IN LIEU OF TOPDRESSING. APPLY LIMESTONE (EQUIVALENT TO 50 PERCENT CALCIUM PLUS MAGNESIUM OXIDES) AS FOLLOWS:

SOIL TEXTURE	TONS / ACRE
CLAY, CLAY LOAM & HIGH ORGANIC SOIL	4
SANDY LOAM, LOAM & SILT LOAM	3
LOAMY SAND, SAND	2

THE LIME AND FERTILIZER SHALL THEN BE "WORKED" INTO THE SOIL TO A DEPTH OF 4" WITH A DISC, SPRINGTOOTH HARROW OR OTHER SUITABLE EQUIPMENT.

E. TEMPORARY VEGETATION SEEDING – ESTABLISH TEMPORARY VEGETATIVE COVER ON SOILS EXPOSED FOR PERIODS OF TWO TO SIX MONTHS WHICH ARE NOT BEING GRADED, NOT UNDER ACTIVE CONSTRUCTION OR NOT SCHEDULED FOR PERMANENT SEEDING WITHIN 60 DAYS. SEEDING SHALL CONSIST OF PERENNIAL RYEGRASS APPLIED AT THE RATE OF 1 POUND PER 1000 SQUARE FEET DURING COOL SEASON OR WEEPING LOVEGRASS AT 5 LBS. PER ACRE DURING WARM SEASON PLANTING.

F. PERMANENT VEGETATION SEEDING – IMMEDIATELY FOLLOWING THE COMPLETION OF CONSTRUCTION ACTIVITIES AT THE SITE, THE CONTRACTOR SHALL STABILIZE WITH PERMANENT VEGETATIVE COVER, ALL EXPOSED AND DISTURBED SOILS.

#15 MIXTURE (LAWN)	LBS/ACRE	LBS/1000 S.F.
HARD FESCUE	130	3.00
CHEWING FESCUE	45	1.00
STRONG CREEPING RED FESCUE	45	1.00
PERENNIAL RYEGRASS	10	0.25

#11 MIXTURE (SWALE)	LBS/ACRE	LBS/1000 S.F.
KENTUCKY BLUEGRASS	45	1.00
TURF–TYPE TALL FESCUE	22	0.50

IF HYDROSEEDING IS USED ALL SEEDING RATES SHALL BE INCREASED BY 25%. IF SODDING IS USED SEE SOD SPECIFICATIONS.

G. SEEDING DATES – SEEDING DATES FOR VEGETATION SHALL OCCUR BETWEEN MARCH 1 AND APRIL 30 (OPTIMAL PLANTING PERIOD) OR BETWEEN AUGUST 15 AND NOVEMBER 15. IF SEED IS NOT PLANTED WITHIN THESE DATES, THE CONTRACTOR SHALL STABILIZE WITH MULCH AS SPECIFIED ABOVE.

E. MULCHING – THE CONTRACTOR SHALL MULCH ALL NEWLY SEEDED AREAS WITH UNROTTED SMALL GRAIN STRAW OR HAY FREE OF SEEDS AT THE RATE OF 70 TO 90 POUNDS PER 1,000 SQUARE FEET. IT SHALL BE ANCHORED THROUGH THE USE OF THE PEG AND TWINE METHOD. THE PEG AND TWINE METHOD OF MULCH ANCHORING SHALL CONSIST OF DRIVING 8–10 INCH WOODEN PEGS TO WITHIN 2–3 INCHES OF THE SOIL SURFACE EVERY 4 FEET IN ALL DIRECTIONS. STAKES MAY BE DRIVEN BEFORE OR AFTER APPLYING MULCH. SECURE MULCH TO SOIL SURFACE BY STRETCHING TWINE BETWEEN PEGS IN A CRISS–CROSS AND A SQUARE PATTERN. SECURE TWINE AROUND EACH PEG WITH TWO OR MORE ROUND TURNS.

F. SODDING

1) CULTIVATED SOD IS PREFERRED OVER NATIVE SOD. SPECIFY "CERTIFIED SOD", OR OTHER HIGH QUALITY CULTIVATED SOD. SOD SHOULD BE FREE OF WEEDS AND UNDESIRABLE COARSE WEEDY GRASSES. SOD SHOULD BE OF UNIFORM THICKNESS, APPROXIMATELY 5/8 INCH, PLUS OR MINUS 1/4 INCH, AT TIME OF CUTTING. (EXCLUDES TOP GROWTH). SOD SHOULD BE VIGOROUS AND DENSE AND BE ABLE TO RETAIN ITS OWN SHAPE AND WEIGHT WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP FROM THE UPPER 10 PERCENT OF THE STRIP. BROKEN PADS OR TORN OR UNEVEN ENDS WILL NOT BE ACCEPTED. FOR DROUGHTY SITES, A SOD OF KENTUCKY 31 TALL FESCUE AND BLUEGRASS IS PREFERRED OVER A STRAIGHT BLUEGRASS SOD. ONLY MOIST, FRESH, UNHEATED SOD SHOULD BE USED. SOD SHOULD BE HARVESTED, DELIVERED AND INSTALLED WITHIN A PERIOD OF 36 HOURS.

2) REMOVE FROM THE SURFACE ALL OBJECTS THAT WOULD PREVENT GOOD SOD TO SOIL CONTACT AND REMOVE ALL OTHER DEBRIS SUCH AS WIRE, CABLE, TREE ROOTS, PIECES OF CONCRETE, CLODS, LUMPS OR OTHER UNSUITABLE MATERIAL.

3) INSPECT SITE JUST BEFORE SEEDING. IF TRAFFIC HAS LEFT THE SOIL COMPACTED, THE AREA MUST BE RETILLED AND FIRMED AS ABOVE.

4) SOD PLACEMENT:

A) SOD STRIPS SHOULD BE LAID ON THE CONTOUR, NEVER UP AND DOWN THE SLOPE, STARTING AT THE BOTTOM OF THE SLOPE AND WORKING UP. ON STEEP SLOPES, THE USE OF LADDERS WILL FACILITATE THE WORK AND PREVENT DAMAGE TO THE SOD. DURING PERIODS OF HIGH TEMPERATURE, LIGHTLY IRRIGATE THE SOIL IMMEDIATELY PRIOR TO LAYING THE SOD.

B) PLACE SOD STRIPS WITH SNUG, EVEN JOINTS THAT ARE STAGGERED. OPEN SPACES INVITE EROSION.

C) ROLL OR TAMP SOD IMMEDIATELY FOLLOWING PLACEMENT TO INSURE SOLID CONTACT OF ROOT MAT AND SOIL SURFACE. DO NOT OVERLAP SOD. ALL JOINTS SHOULD BE BUTTED TIGHTLY IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE DRYING OF THE ROOTS.

D) ON SLOPES GREATER THAN 3:1, SECURE SOD TO SURFACE SOIL WITH WOOD PEGS, WIRE STAPLES, OR SPLIT SHINGLES (8" TO 10" LONG BY 3/4" WIDE).

SURFACE WATER CANNOT ALWAYS BE DIVERTED FROM FLOWING OVER THE FACE OF THE SLOPE, BUT A CAPPING STRIP OF HEAVY JUTE OR PLASTIC NETTING, PROPERLY SECURED, ALONG THE CROWN OF THE SLOPE AND EDGES WILL PROVIDE EXTRA PROTECTION AGAINST LIFTING AND UNDERCUTTING OF SOD. THE SAME TECHNIQUE CAN BE USED TO ANCHOR SOD IN WATER–CARRYING CHANNELS AND OTHER CRITICAL AREAS. WIRE STAPLES MUST BE USED TO ANCHOR NETTING IN CHANNEL WORK.

E) IMMEDIATELY FOLLOWING INSTALLATION, SOD SHOULD BE WATERED UNTIL MOISTURE PENETRATES THE SOIL LAYER BENEATH SOD TO A DEPTH OF 4 INCHES. MAINTAIN OPTIMUM MOISTURE FOR AT LEAST TWO WEEKS.

F) TOPDRESSING – IF SLOW RELEASE NITROGEN (300 POUNDS 38–0–0 PER ACRE OR EQUIVALENT) IS USED IN ADDITION TO SUGGESTED FERTILIZER, THEN A FOLLOW–UP OF TOPDRESSING IS NOT MANDATORY.

FALL INSTALLATION OF SOD WILL REQUIRE AN APPLICATION OF FERTILIZER SUCH AS 10–20–10 OR EQUIVALENT AT 400 POUNDS PER ACRE OR 10 POUNDS PER 1000 SQUARE FEET BETWEEN SEPTEMBER 1 AND OCTOBER 15.

MANAGEMENT OF HIGH ACID–PRODUCING SOILS

HIGH ACID–PRODUCING SOILS ARE SOILS WITH A PH OF 4.0 OR LESS OR CONTAIN IRON SULFIDE. HIGH ACID–PRODUCING SOILS MAY BE PRESENT IN UNDISTURBED SOILS AT VARYING DEPTHS, INCLUDING NEAR THE SOIL SURFACE TO EXCAVATIONS OR DEEP DISTURBANCES. ITS PRESENCE ON A SITE MAY BE SIGNIFICANT OR LIMITED IN THE SOIL PROFILE. HIGH ACID–PRODUCING SOILS ARE COMMONLY BLACK, DARK BROWN, GRAY OR GREENISH WITH SILVERY PYRITE OR MARCASITE NUGGETS OR FLAKES. ALTERNATIVELY, SANDY SOILS OR REDDISH, YELLOWISH OR LIGHT TO MEDIUM BROWN SOIL MATERIALS ARE USUALLY FREE OF HIGH ACID–PRODUCING DEPOSITS.

TO PREVENT OR LIMIT EXPOSURE AREA, TIME, AND SPREADING BY EQUIPMENT OR RAINFALL ON– AND OFF–SITE AND TO MINIMIZE EROSION, SEDIMENTATION AND ACID LEACHATE–RELATED DAMAGES. HIGH ACID–PRODUCING SOIL MAY BE EXPOSED DURING EXCAVATION AND LAND GRADING ACTIVITIES, OR MAY BE INTRODUCED IN DREDGED SEDIMENT, SOILS AND SEDIMENT CONTAINING IRON SULFIDE, CHARACTERIZED BY PYRITE OR MARCASITE NUGGETS OR GREENSANDS, ARE CHEMICALLY OXIDIZED WHEN EXPOSED TO AIR, PRODUCING SULFURIC ACID AND RESULT IN SOIL PH LEVELS FALLING TO PH 4.0 AND LOWER. MOST VEGETATION IS INCAPABLE OF GROWTH AT THIS PH LEVEL. ADJACENT LAND AND RECEIVING WATERS WILL BE NEGATIVELY IMPACTED BY THE ACID LEACHATE. CALCIUM–CONTAINING MATERIALS SUCH AS SIDEWALKS, CULVERTS AND OTHER STRUCTURES AND SOME METALLIC MATERIALS ARE ALSO SUSCEPTIBLE TO DEGRADATION. AGRICULTURAL LIMESTONE MATERIALS APPLIED AT RATES OF 8 TONS PER ACRE HAVE RESULTED IN ONLY A TEMPORARY BUFFERING EFFECT, AND "LIMING–ONLY" IS THEREFORE NOT CONSIDERED AN ACCEPTABLE MITIGATION PRACTICE.

METHODS AND MATERIALS OF MANAGING HIGH ACID–PRODUCING SOILS

1. LIMIT THE EXCAVATION AREA AND EXPOSURE TIME WHEN HIGH ACID–PRODUCING SOILS ARE ENCOUNTERED.
2. TOPSOIL STRIPPED FROM THE SITE SHALL BE STORED SEPARATELY FROM TEMPORARILY STOCKPILED HIGH ACID–PRODUCING SOILS.
3. STOCKPILES OF HIGH ACID–PRODUCING SOIL SHOULD BE LOCATED ON LEVEL LAND TO MINIMIZE ITS MOVEMENT, ESPECIALLY WHEN THIS MATERIAL HAS A HIGH CLAY CONTENT.
4. TEMPORARILY STOCKPILED HIGH ACID–PRODUCING SOIL MATERIAL TO BE STORED MORE THAN 48 HOURS SHOULD BE COVERED WITH PROPERLY ANCHORED, HEAVY GRADE SHEETS OF POLYETHYLENE WHERE POSSIBLE. IF NOT POSSIBLE, STOCKPILES SHALL BE COVERED WITH A MINIMUM OF 3 TO 6 INCHES OF WOOD CHIPS TO MINIMIZE EROSION OF THE STOCKPILE. SILT FENCE SHALL BE INSTALLED AT THE TOE OF THE SLOPE TO CONTAIN MOVEMENT OF THE STOCKPILED MATERIAL. TOPSOIL SHALL NOT BE APPLIED TO THE STOCKPILES TO PREVENT TOPSOIL CONTAMINATION WITH HIGH ACID–PRODUCING SOIL.
5. HIGH ACID–PRODUCING SOILS WITH A PH OF 4.0 OR LESS OR CONTAINING IRON SULFIDE (INCLUDING BORROW FROM CUTS OR DREDGED SEDIMENT) SHALL BE ULTIMATELY PLACED OR BURIED WITH LIMESTONE APPLIED AT THE RATE OF 10 TONS PER ACRE (OR 450 POUNDS PER 1,000 SQUARE FEET OF SURFACE AREA) AND COVERED WITH A MINIMUM OF 12 INCHES OF SETTLED SOIL WITH A PH OF 5.0 OR MORE EXCEPT AS FOLLOWS:
   A. AREAS WHERE TREES OR SHRUBS ARE TO BE PLANTED SHALL BE COVERED WITH A MINIMUM OF 24 INCHES OF SOIL WITH A PH OR 5 OR MORE.
   B. DISPOSAL AREAS SHALL NOT BE LOCATED WITHIN 24 INCHES OF ANY SURFACE OF A SLOPE OR BANK, SUCH AS BERMS, STREAM BANKS, DITCHES, AND OTHERS, TO PREVENT POTENTIAL LATERAL LEACHING DAMAGES.
6. EQUIPMENT USED FOR MOVEMENT OF HIGH ACID–PRODUCING SOILS SHOULD BE CLEANED AT THE END OF EACH DAY TO PREVENT SPREADING OF HIGH ACID–PRODUCING SOIL MATERIALS TO OTHER PARTS OF THE SITE, INTO STREAMS OR STORMWATER CONVEYANCES, AND TO PROTECT MACHINERY FROM ACCELERATED RUSTING.
7. NON–VEGETATIVE EROSION CONTROL PRACTICES (STONE TRACKING PADS, STRATEGICALLY PLACED LIMESTONE CHECK DAM, SEDIMENT BARRIER, WOOD CHIPS) SHOULD BE INSTALLED TO LIMIT THE MOVEMENT OF HIGH ACID–PRODUCING SOILS FROM, AROUND, OR OFF THE SITE.
8. FOLLOWING BURIAL OR REMOVAL OF HIGH ACID–PRODUCING SOIL, TOPSOILING AND SEEDING OF THE SITE (SEE TEMPORARY VEGETATIVE COVER FOR SOIL STABILIZATION, PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION, AND TOPSOILING), MONITORING MUST CONTINUE FOR A MINIMUM OF 6 MONTHS TO ENSURE THERE IS ADEQUATE STABILIZATION AND THAT NO HIGH ACID–PRODUCING SOIL PROBLEMS EMERGE. IF PROBLEMS STILL EXIST, THE AFFECTED AREA MUST BE TREATED AS INDICATED ABOVE TO CORRECT THE PROBLEM.

DUST CONTROL:

DUST CONTROL SHALL BE ACCOMPLISHED BY THE METHODS DESCRIBED BELOW.

MATERIAL	WATER DILUTION	TYPE OF NOZZLE	APPLY GALLONS/AC
ANIONIC ASPHALT EMULSION	7:1	COARSE SPRAY	1200
LATEX EMULSION	12,5:1	FINE SPRAY	235
RESIN IN WATER	4:1	FINE SPRAY	300
POLYACRYLAMIDE (PAM) – SPRAY ON POLYACRYLAMIDE (PAM) – DRY SPREAD	APPLY ACCORDING TO MANUFACTURER'S INSTRUCTIONS. MAY ALSO BE USED AS AN ADDITIVE TO SEDIMENT BASINS TO FLOCCULATE AND PRECIPITATE SUSPENDED COLLOIDS. SEE SEDIMENT BASIN STANDARD, P. 26–1		
ACIDULATED SOY BEAN SOAP STICK	NONE	COARSE SPRAY	1200

TILLAGE: TO ROUGHEN SURFACE AND BRING CLODS TO THE SURFACE. THIS IS A TEMPORARY EMERGENCY MEASURE WHICH SHOULD BE USED BEFORE SOIL BLOWING STARTS. BEGIN PLOWING ON WINDWARD SIDE OF SITE. CHISEL–TYPE PLOWS PLACED ABOUT 12 INCHES APART, AND SPRING TOOTHED HARROWS ARE EXAMPLES OF EQUIPMENT WHICH MAY PRODUCE THE DESIRED EFFECT.

SPRINKLING: SITE IS SPRINKLED UNTIL THE SURFACE IS WET.

BARRIERS: SOLID BOARD FENCES, SNOW FENCES, BURLAP FENCES, CRATE WALLS, BALES OF HAY AND SIMILAR MATERIAL CAN BE USED TO CONTROL AIR CURRENTS AND SOIL BLOWING.

CALCIUM CHLORIDE: SHALL BE IN THE FORM OF LOOSE, DRY GRANULES OR FLAKES FINE ENOUGH TO FEED THROUGH COMMONLY USED SPREADERS AT A RATE THAT WILL KEEP SURFACE MOIST BUT NOT CAUSE POLLUTION OR PLANT DAMAGE. IF USED ON STEEPER SLOPES, THEN USE OTHER PRACTICES TO PREVENT WASHING INTO STREAMS, OR ACCUMULATION AROUND PLANTS.

STONE: COVER SURFACE WITH CRUSHED STONE OR COARSE GRAVEL.

ISSUE DATE	ISSUE NO.	SUBMISSION/REVISION	BY	APPR.
12/11/2020	1	INITIAL SUBMISSION	ACD	DF

PRELIMINARY & FINAL SITE PLAN
SHEET 93, BLOCK 9301, LOT 33
TOWNSHIP OF BERNARDS, SOMERSET COUNTY, NEW JERSEY

SOIL EROSION AND SEDIMENT CONTROL NARRATIVE SHEET

FELLOWSHIP SENIOR LIVING, INC.
8000 FELLOWSHIP ROAD
BASKING RIDGE, NJ 07920

DAVID J. FLEMING, P.E.
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 24GE03321600
12/11/2020
FVG 001.01

MARATHON
Engineering & Environmental Services
Swedesboro Office
3 Killdeer Court, Suite 302, Swedesboro, NJ 08085
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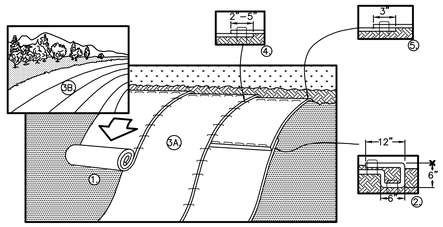
SCALE	APPROVED
AS SHOWN	DJF
DRAWN BY	SHEET
ACD	13 OF 14

DRAWING NO. C1301



1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.

2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.

3. ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.

4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.

5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE BLANKET WIDTH.

NOTE:
IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

SLOPE BLANKET INSTALLATION DETAIL
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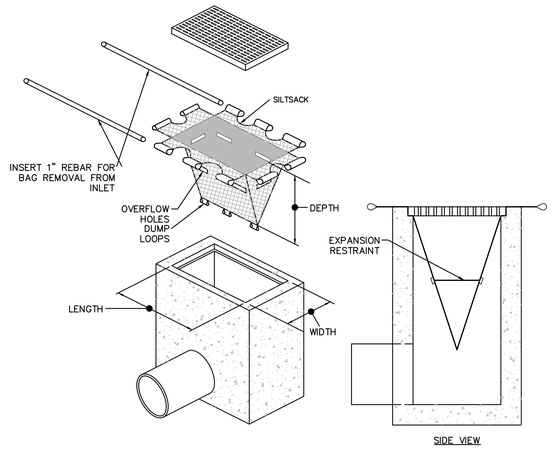

ACF ENVIRONMENTAL INLET SEDIMENT CONTROL DEVICE OR APPROVED EQUAL

INLET PROTECTION DETAIL
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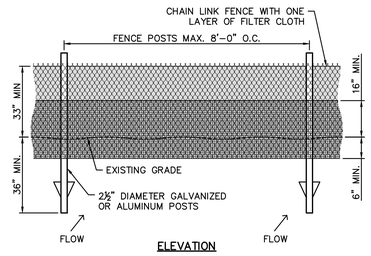
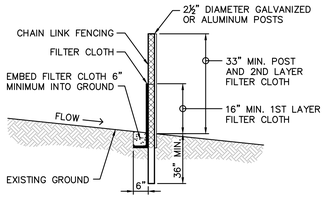


ELEVATION



SUPER SILT FENCE DETAIL
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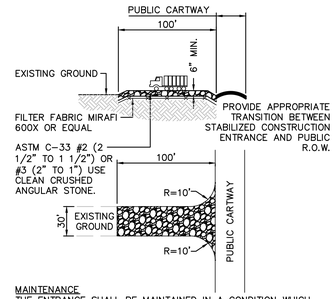

MAINTENANCE
THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR ADDITIONAL LENGTH AS CONDITIONS DEMAND AND REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.

STABILIZED CONSTRUCTION ENTRANCE DETAIL
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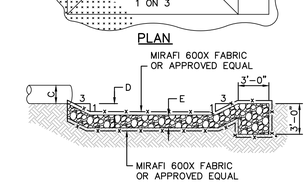


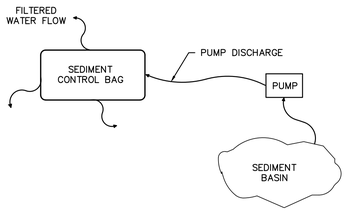
PLAN

SECTION A-A

PREFORMED SCOUR HOLE TABLE						
ENDWALL	LA	W	C	D	D50	E
FES-1	xx.x'	xx.x'	xx"	xx"	4"	8"

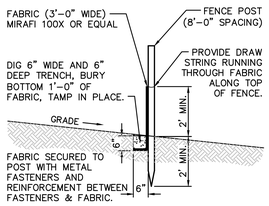
NOTES
1. FIFTY PERCENT, BY WEIGHT, OF THE RIP-RAP MIXTURE SHALL BE SMALLER THAN MEDIAN STONE SIZE DESIGNATED AS D_{50}. THE LARGEST STONE SIZE IN THE MIXTURE SHALL BE 1.5 TIMES THE D_{50} SIZE.
2. A THREE FOOT WIDE BY THREE FOOT DEEP TOE WALL SHALL BE CONSTRUCTED AT THE END OF THE SCOUR HOLE.
3. THE D50 SIZE SHOWN IS THE MINIMUM SIZE CALCULATED.

PREFORMED SCOUR HOLE DETAIL
N.T.S.

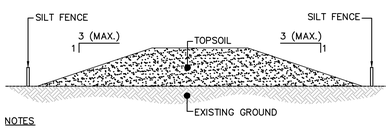


NOTES:
1. BAG MUST BE LOCATED AWAY FROM RECEIVING WATERS AND/OR CONSTRUCTION ACTIVITIES.
2. BAG MUST BE DISPOSED OF ACCORDING TO MANUFACTURER'S INSTRUCTIONS. BAGS MAY NOT BE REUSED.

SEDIMENT CONTROL BAG FOR DEWATERING DETAIL
N.T.S.



STANDARD SILT FENCE DETAIL
N.T.S.



NOTES
1. TOPSOIL STOCKPILE SHALL BE SURROUNDED BY SILT FENCE.
2. STOCKPILE SHALL RECEIVE TEMPORARY VEGETATIVE STABILIZATION IN ACCORDANCE WITH THE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY IMMEDIATELY AFTER COMPLETION OF STOCKPILE.
3. STOCKPILES ARE NOT TO BE LOCATED WITHIN FIFTY FEET OF A FLOODPLAIN, SLOPES, ROADWAY, OR DRAINAGE FACILITY.

TOPSOIL STOCKPILE DETAIL
N.T.S.

EXISTING UTILITY INFORMATION SHOWN ON THESE PLANS IS FURNISHED BY THE UTILITY COMPANIES AND/OR THE SURVEYOR AND THE ACCURACY THEREOF IS NOT THE RESPONSIBILITY OF MARATHON ENGINEERING & ENVIRONMENTAL SERVICES, INC. IT IS THE RESPONSIBILITY OF THE OWNERS AND/OR CONTRACTOR TO CALL 1-800-272-1000 FOR FIELD LOCATION OF UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.

ISSUE DATE	ISSUE NO.	SUBMISSION/REVISION	BY	APPR.
12/11/2020	1	INITIAL SUBMISSION	ACD	DF

PRELIMINARY & FINAL SITE PLAN
SHEET 93, BLOCK 9301, LOT 33
TOWNSHIP OF BERNARDS, SOMERSET COUNTY, NEW JERSEY

SOIL EROSION AND SEDIMENT CONTROL DETAIL SHEET

FELLOWSHIP SENIOR LIVING, INC.
8000 FELLOWSHIP ROAD
BASKING RIDGE, NJ 07920

DAVID J. FLEMING, P.E.
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 24GE03321600
12/11/2020
FVG 001.01

MARATHON
Engineering & Environmental Services
Swedesboro Office
3 Killdeer Court, Suite 302, Swedesboro, NJ 08085
ph (856) 241-9705 fax (856) 241-9709
Certificate of Authorization #24GA27995700

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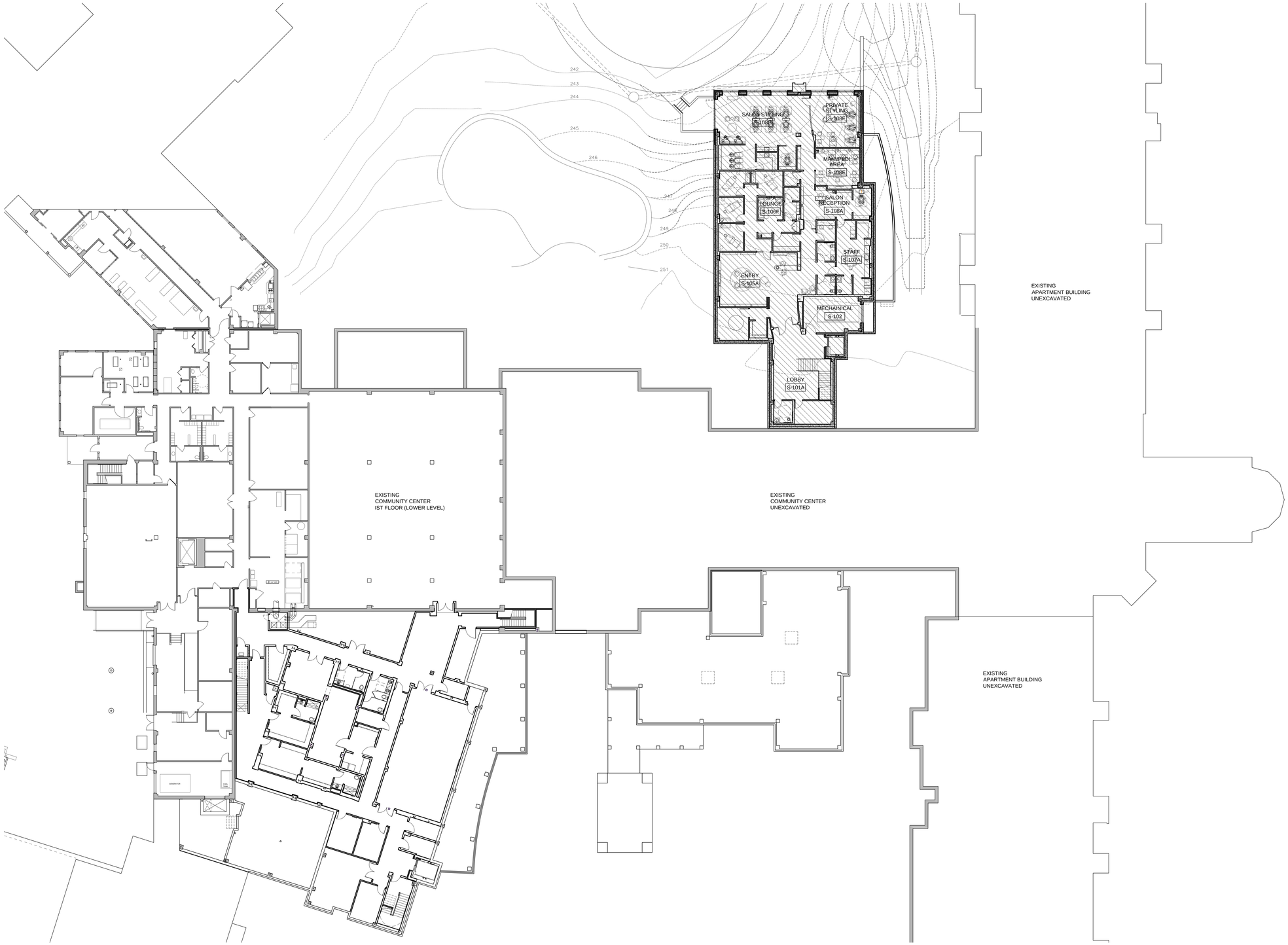
SCALE	APPROVED
AS SHOWN	DJF
DRAWN BY	SHEET
ACD	14 OF 14
DRAWING NO.	
C1302	

DRAWING ON 11/13/2020, LAST MODIFIED ON 12/7/2020



1 / A0.1 FLOOR PLAN - 1ST FLOOR / LOWER LEVEL

1/16" = 1' - 0"

NORTH

NEW FLOOR AREA BREAKDOWN BY USE:

FITNESS/SALON BUILDING ADDITION:

2ND FLOOR (UPPER/MAIN COMMONS LEVEL):
FITNESS STUDIO
GROUP FITNESS STUDIO
STORAGE
FITNESS RECEPTION AND OFFICE
FITNESS LOBBY

1ST FLOOR (LOWER LEVEL):
SALON SUITE
SALON RECEPTION
SALON SUPPORT SPACES
MASSAGE ROOMS
MECHANICAL AND ELECTRICAL

WOMENS CLUB LOCKER ROOM:
LOUNGE AREA
SAUNA
LOCKER AREA
SHOWER AND TOILET STALLS

BUILDING AREA SUMMARY:

FLOOR AREA (SF):
FITNESS/SALON BUILDING ADDITION:

1ST FLOOR (LOWER LEVEL)	7,187 S.F.
2ND FLOOR (UPPER/MAIN LEVEL)	7,260 S.F.
BUILDING ADDITION TOTAL	14,447 S.F.
FITNESS PATIO AREA	1,256 S.F.

NEW WOMEN'S CLUB LOCKER ROOM:
NEW ADDITION AREA TO EXISTING COMMONS AREA 1B 180 S.F.

AREA OF NEW ADDITION

AREA OF NEW RENOVATION

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f: 856.770.1059
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The Trusted Choice

Fellowship Village

Renovations, Additions and Outdoor Amenities

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Bernards Township, Somerset County
New Jersey

Block 9301, Lot 33

Issued for:
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Date: 11.23.2020

ISSUES	REVISIONS

Proj. No: 1161.07.33/43

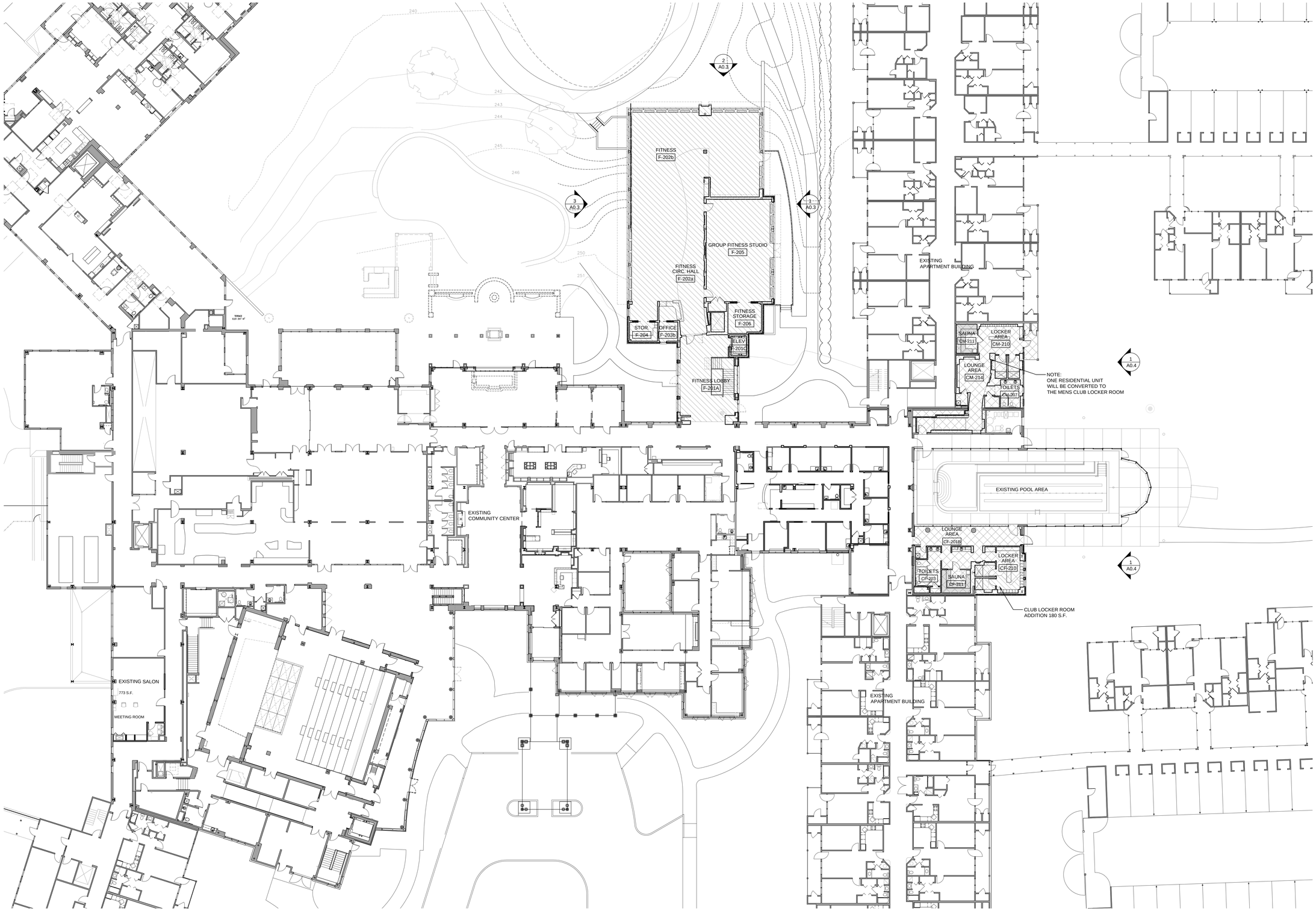
Drawing Title:

FIRST FLOOR PLAN
LOWER LEVEL

A0.1

DAVID S. FOWLES, AIA
NJ:21A0181700
NY:042978-1

JOSEPH M. SCANLON, AIA
NJ:21A1666 · PA:RA009644-X



1 A0.2 FLOOR PLAN - 2ND FLOOR / MAIN LEVEL
1/16" = 1' - 0"

NORTH

NEW FLOOR AREA BREAKDOWN BY USE:

FITNESS/SALON BUILDING ADDITION:

2ND FLOOR (UPPER/MAIN COMMONS LEVEL):
FITNESS STUDIO
GROUP FITNESS STUDIO
STORAGE
FITNESS RECEPTION AND OFFICE
FITNESS LOBBY

1ST FLOOR (LOWER LEVEL):
SALON SUITE
SALON RECEPTION
SALON SUPPORT SPACES
MASSAGE ROOMS
MECHANICAL AND ELECTRICAL

WOMENS CLUB LOCKER ROOM:
LOUNGE AREA
SAUNA
LOCKER AREA
SHOWER AND TOILET STALLS

BUILDING AREA SUMMARY:

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NEW ADDITION AREA TO EXISTING COMMONS AREA 1B 180 S.F.

AREA OF NEW ADDITION

AREA OF NEW RENOVATION

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ISSUES	REVISIONS

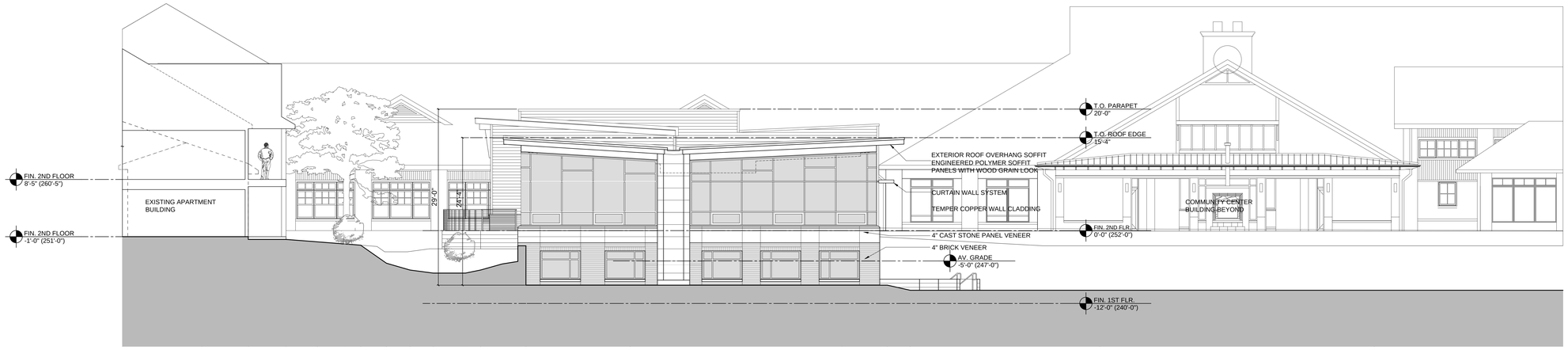
Proj. No: 1161.07.33/43

Drawing Title:
SECOND FLOOR PLAN

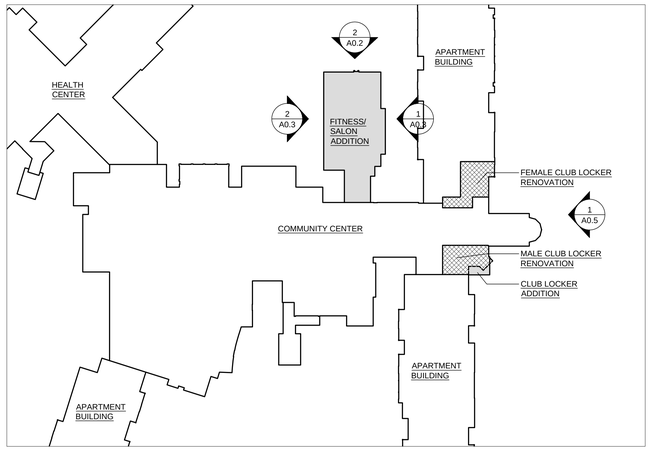
A0.2

DAVID S. FOWLES, AIA
NJ-21AI01617700
NY-042978-1

JOSEPH M. SCANLON, AIA
NJ-21A11666 - PA-RA009946-X

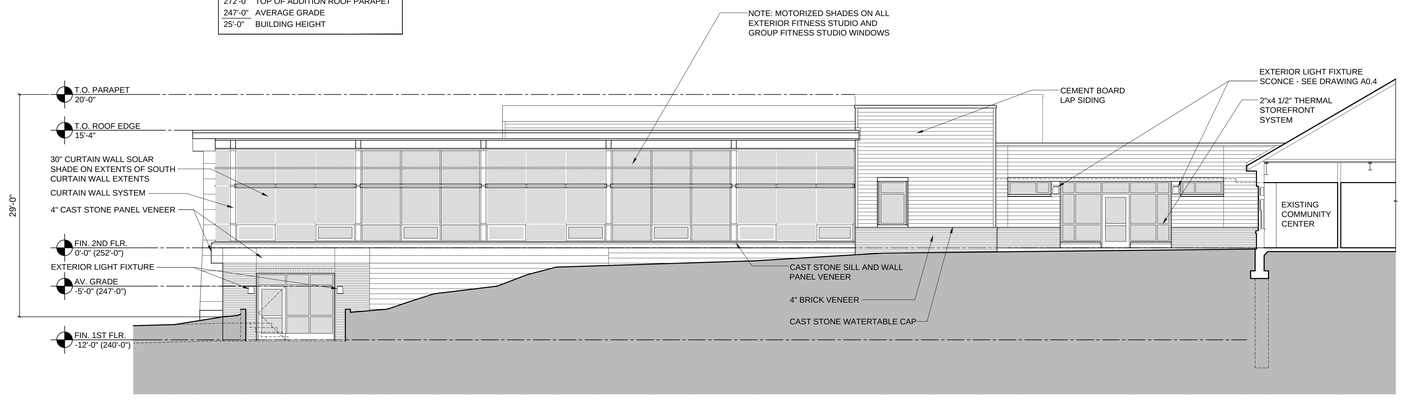


3 A0.3 EXTERIOR ELEVATION - WEST SIDE
1/8" = 1' - 0"

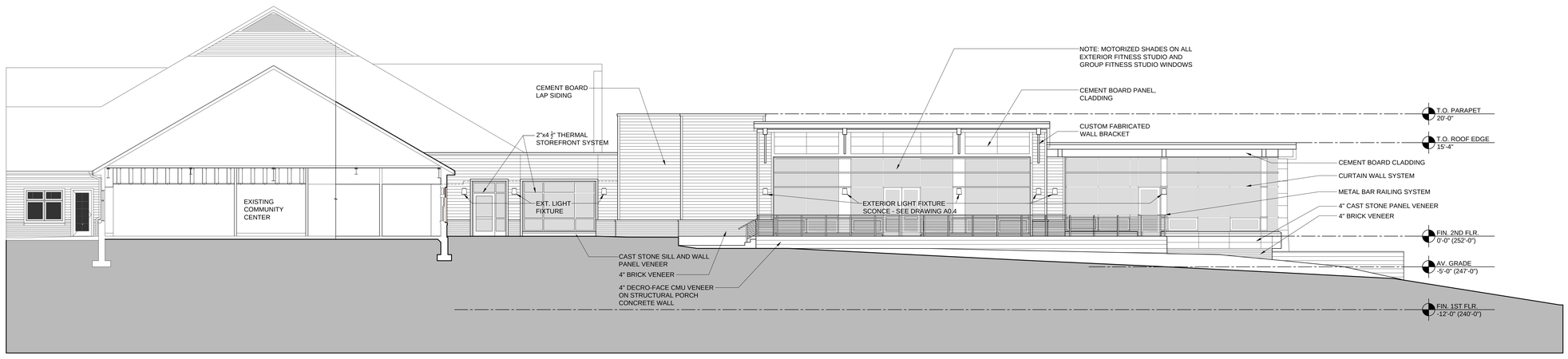


KEY PLAN
NTS
NORTH

CALCULATED BUILDING HEIGHT:
272'-0" TOP OF ADDITION ROOF PARAPET
247'-0" AVERAGE GRADE
25'-0" BUILDING HEIGHT



2 A0.3 EXTERIOR ELEVATION - SOUTH SIDE
1/8" = 1' - 0"



1 A0.3 EXTERIOR ELEVATION - NORTH SIDE
1/8" = 1' - 0"

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ISSUES	REVISIONS

Proj. No: 1161.07.33/43

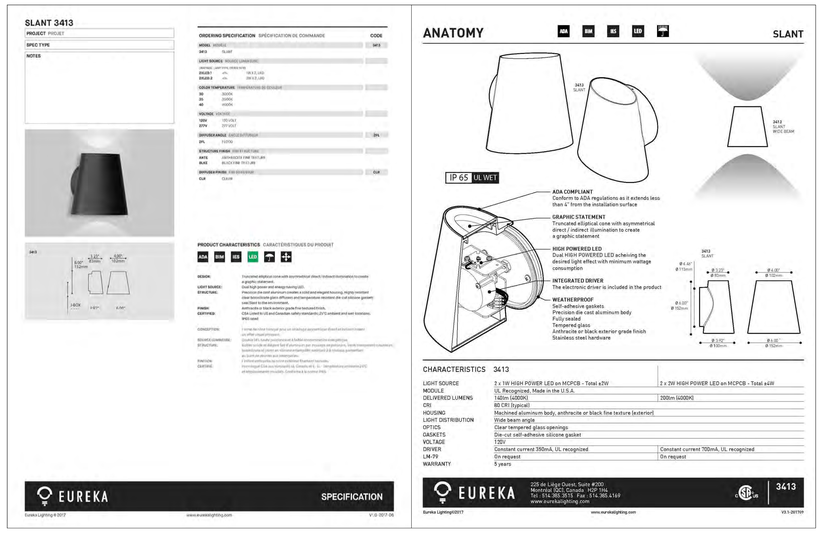
Drawing Title:

FITNESS/SALON ADDITION ELEVATIONS

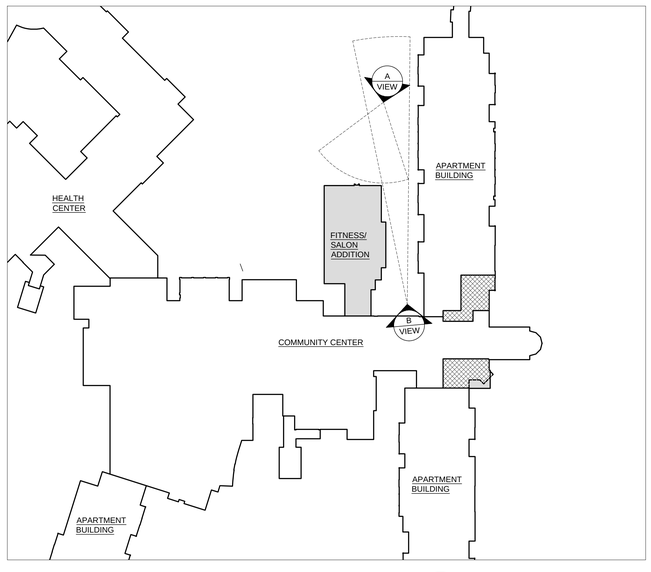
A0.3

DAVID S. FOWLES, AIA
NJ 21AI01611700
NY 04297B-1

JOSEPH M. SCANLON, AIA
NJ 21A11666 PA-RA009844-X



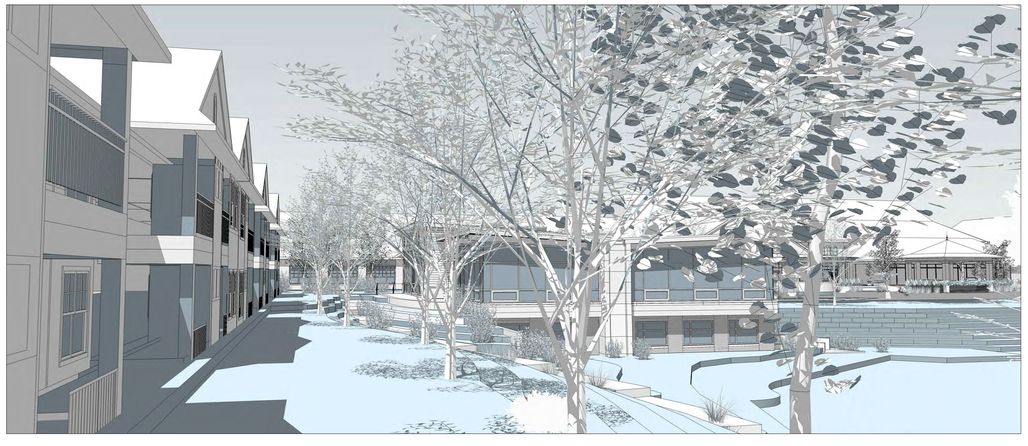
EXTERIOR LIGHT FIXTURE
FITNESS/SALON ADDITION



KEY PLAN
NTS

NORTH

VIEW-B
NTS



VIEW-A
NTS

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Proj. No: 1161.07.33/43

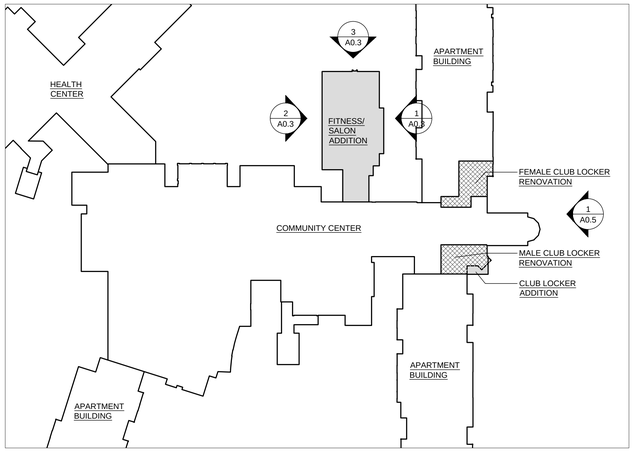
Drawing Title:

FITNESS/SALON
ADDITION
VIEWS

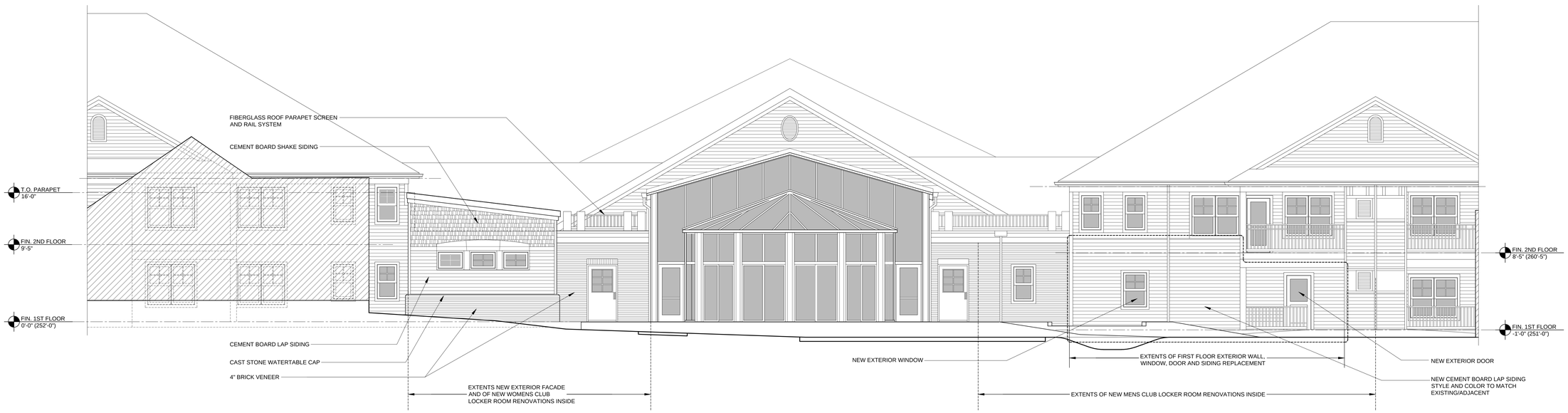
A0.4

DAVID S. FOWLES, AIA
NJ 21AI00611700
NY 040978-1

JOSEPH M. SCANLON, AIA
NJ 21A11666 PA-RA009944-X



KEY PLAN
NTS



1 A0.5 EXTERIOR ELEVATION - NORTH SIDE OF POOL AND NEW CLUB LOCKER ROOMS
3/16" = 1' - 0"

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Proj. No: 1161.07.33/43

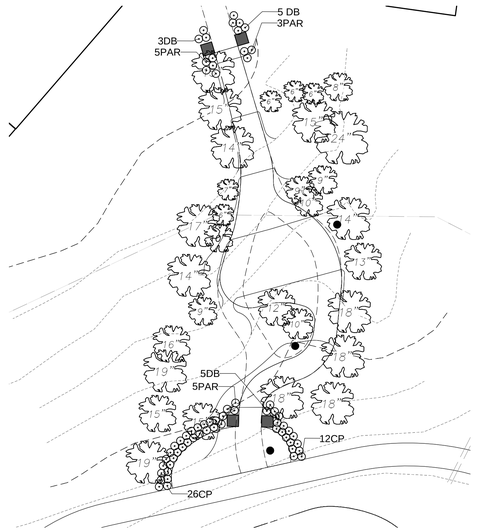
Drawing Title:

CLUB LOCKER ROOMS
EXTERIOR
ELEVATIONS

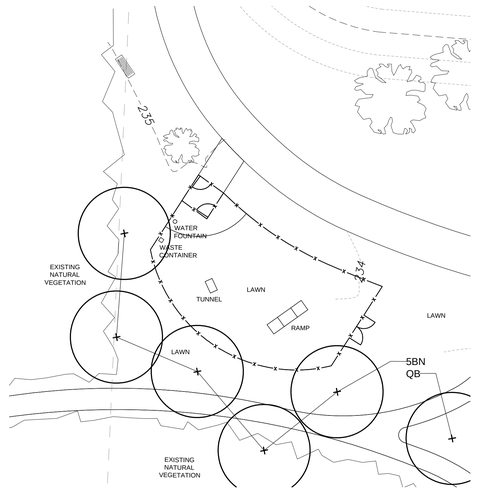
A0.5

DAVID S. FOWLES, AIA
NJ-21AI01611700
NY-042978-1

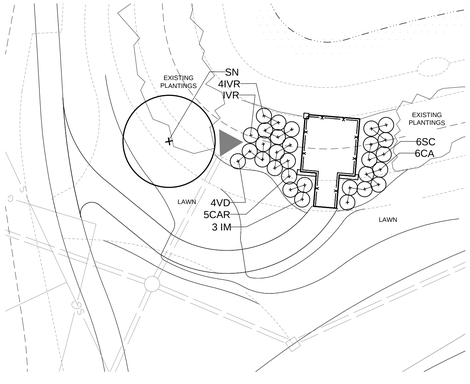
JOSEPH M. SCANLON, AIA
NJ-21A11666 PA-RA009944-X



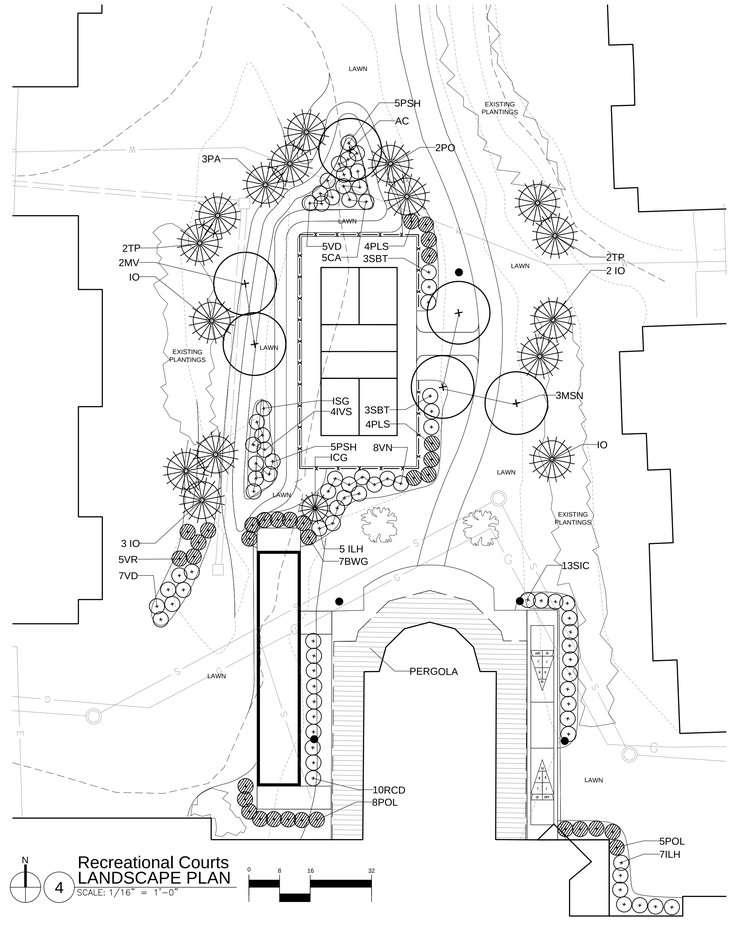
1 Spruce Grove LANDSCAPE PLAN
SCALE: 1/16" = 1'-0"



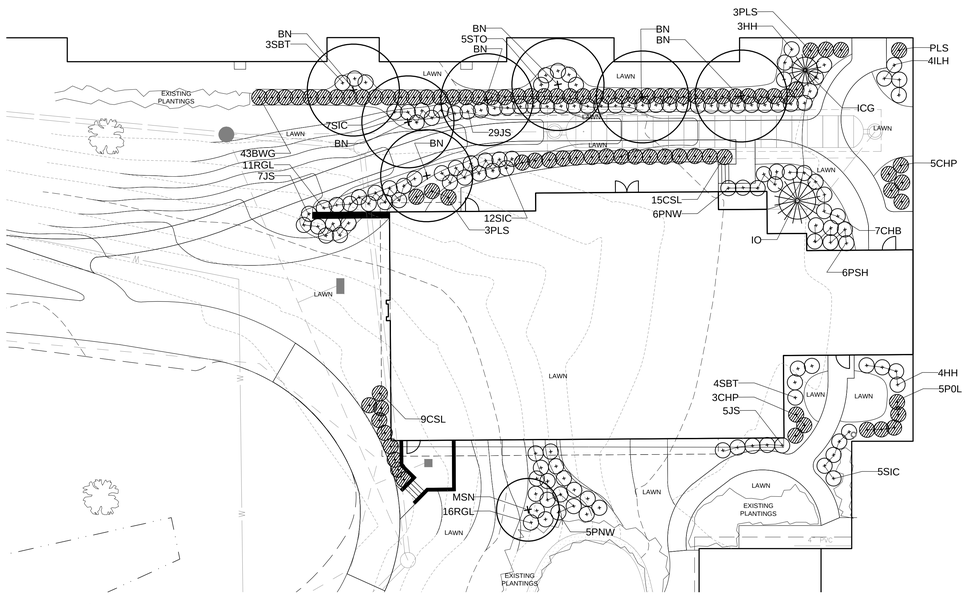
2 Dog Park LANDSCAPE PLAN
SCALE: 1/16" = 1'-0"



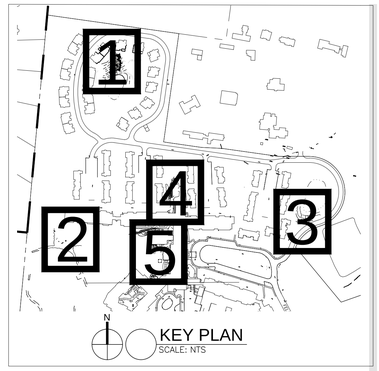
3 Ephesus Deck LANDSCAPE PLAN
SCALE: 1/16" = 1'-0"



4 Recreational Courts LANDSCAPE PLAN
SCALE: 1/16" = 1'-0"



5 Fitness Center LANDSCAPE PLAN
SCALE: 1/16" = 1'-0"



KEY PLAN
SCALE: NTS

KDA architects
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Proj. No: 1161.07.33/43

Drawing Title:

LANDSCAPE PLAN

L0.0

DAVID S. FOWLES, AIA
NJ 21AR0161700
NY 04297B-1
JOSEPH M. SCANLON, AIA
NJ 21A11666 PA-RA009944-X

LANDSCAPE SPECIFICATIONS

PLANT MATERIAL

1. All plants shall meet or exceed the minimum requirements as noted in the latest edition of the American standard for nursery stock by American association of nurserymen, ANSI Z60.1. All plant materials installed shall meet the latest specifications of the "American Standards for Nursery Stock."
2. Plant sizes shown in planting schedule are the size at time of planting.
3. Plant material shall be well-grown and true to form for size and species. Stunted or leggy plant material will be rejected.
4. Plant materials that have damaged or crooked leaders, deformed growth habit, abrasions of the bark, sunscald, windburn, disfiguring knots, insect or disease pests shall be rejected. In addition, trees having their central leaders headed back will also be rejected.
5. All plants (B&B or container) shall be properly identified by weather-proof labels securely attached thereto before delivery to project site. Labels shall identify plants by name, species and size. Labels shall not be removed until the final inspection by the landscape architect or engineer.
6. All trees shall be balled and burlapped, unless otherwise noted in the drawings or specification, or approved by the owner's representative.
7. Final quantity for each plant type shall be as graphically shown on the plan. This number shall take precedence in case of any discrepancy between quantities shown on the plant list and on the plan. The contractor shall report any discrepancies between the number of plants shown on the plant list and plant labels prior to bidding.
8. Any proposed plant substitutions must be reviewed by landscape architect and approved in writing by the owner's representative. No substitutions shall be made without written consent of the architect.
9. All specified plant material is subject to inspection and approval by the landscape architect at both the nursery and jobsite prior to installation
10. All B&B materials (i.e. burlap, twine, etc) shall be all bio-degradable materials.
11. All plant materials shall be guaranteed for two years following date of final acceptance.

PROTECTION

1. Existing trees to remain within the development area shall be selectively pruned of any dead or dying limbs. Existing trees located at the edge of wooded areas to be cleared shall be evaluated for preservation or removal based on survivability and safety considerations. Trees within existing wooded areas to remain shall not be pruned.
2. Existing trees and other vegetation indicated to remain in place shall be protected against unnecessary cutting, breaking or skinning of roots, skinning or bruising of bark, smothering of roots by stock piling construction materials or excavated material within drip line, excess foot or vehicle traffic or parking of vehicles within drip line.
3. Provide a temporary guard to protect trees and vegetation to be left standing as shown on civil drawings prior to start of construction.
4. Every possible safeguard shall be taken to protect building surfaces, equipment and furnishings. The contractor shall be responsible for any damage or injury to person or property which may occur as a result of his negligence in the execution of the work.

UTILITIES

1. Landscape plan shall be used for landscape purposes only. Refer to civil engineering drawings for utility, grading, storm water management, and soil erosion control information that may need to be coordinated with landscape work. This plan is intended for planting purposes. Refer to site / civil drawings for all other site construction information.
2. The contractor shall review architectural/engineering plans to become familiar with grading and surface utilities.
3. The contractor shall ensure that work does not interrupt established or projected drainage patterns.
4. Contractor shall verify locations of all below grade and above ground utilities and notify owners representative of conflicts.
5. The contractor shall verify the existence of underground utilities on the site prior to any excavation. Their exact location shall be verified in the field with the owner or general contractor prior to the commencement of any digging operations. In the event utilities are uncovered, the contractor shall be held responsible for all damage to the utilities and such damage shall not result in any additional expenses to the owner. Any damage of reported lines shall not be the responsibility of the contractor.
6. Should location of trees be within 5' of underground utilities, relocate said trees to a minimum of 5' from ball to utilities.

EXECUTION

1. No plant materials shall be installed until all grading and construction has been completed in the immediate area. Contractor shall notify owner's representative of any conflict.
2. All plantings shall be contained within mulched beds. Double-shredded hardwood bark or root mulch should be applied at depth of three inches. Planting beds shall be constructed as shown in the "planting bed edge detail" on this sheet. Mulch must be pulled back at least 2" from any plant stem, twig or trunk.
3. A 3-inch deep mulch per specification shall be installed under all trees and shrubs, and in all planting beds, unless otherwise indicated on the plans, or as directed by owner's representative.
4. All planting backfill soils shall receive certified weed-free fully composted leaf mold soil amendment at a rate of 33% (1 part compost to 2 parts planting soil). Submit compost certification & product data prior to ordering for approval.
5. All disturbed areas not otherwise noted on contract documents shall be topsoil and seeded or mulched as directed by owner's representative.
6. Carefully disrupt circling roots from all container-grown plants, except plugs, via tool scarification or by hand.
7. One year guarantee shall be provided on all plant materials from date of final acceptance.
8. The contractor shall stakeout plantings for the owner's representative's approval prior to beginning work. All proposed planting locations shall be staked as shown on the plans for field review and approval by the landscape architect prior to installation.
9. During planting operations, excess waste materials shall be promptly and frequently removed from the site.
10. All proposed trees shall be installed either entirely in or entirely out of planting beds. Planting bed lines are not to be obstructed. All shrubs and ground cover area shall be planted in continuous prepared bed and top dressed with 3-inch shredded hardwood mulch. Mulch shall have been shredded within the last six months.
11. All planting beds adjacent to lawn, sod or seeded areas shall be spade edged.
12. Maintenance shall begin after each plant has been installed and shall continue until 90 days after final acceptance by the architect or owner representative. Maintenance includes: watering, pruning, fertilizing, weeding, mulching, replacement of sick or dead plants, and any other care necessary for the proper growth of the plant material. The contractor must be able to provide continued maintenance if requested by the owner.
13. Upon completion of all landscaping, an acceptance meeting of the work shall be held. The contractor shall notify the landscape architect or engineer or owner for scheduling the inspection at least (7) days prior to the anticipated inspection date.
14. The contractor is responsible for testing project soils. The contractor is to provide a certified soils report to the owner. The contractor shall verify that the soils on site are acceptable for the proper growth of the proposed plant material. Should the contractor find poor soil conditions, the contractor shall be required to provide soil amendments as necessary. The amendments shall include, but not be limited to, fertilizers, lime and topsoil. Proper planting soils must be verified prior to planting of materials.
15. Bulbs planting shall be in accordance with Section 11 of the American Association of Nurserymen Standards.
16. All tree stakes and wires will be removed by the applicant after 1 year from the date of installation.
17. Trees and shrubs must be planted only when the soil is frost- free and friable.
18. Contractor shall partially fill with water a representative number of pits in each area of the project prior to planting to determine if there is adequate percolation. If percolation does not occur, measures must be taken to assure proper drainage before planting.

TURF

1. Areas designated "topsoil & seed" shall receive minimum 6" of topsoil and specified seed mix. Lawns over 2:1 slope shall be protected with erosion control fabric.
2. All unsurfaced areas are to receive six inches of topsoil, seed, mulch, and water until a healthy stand of grass is obtained.
3. All disturbed area of the site not planted with shrubs or ground cover shall be fine graded and seeded or sodded.
4. All sod shall be obtained from areas having growing conditions familiar to areas to be covered. Areas to be sodded shall be raked of stones and debris. Debris and stones over 1 inch in diameter shall be removed from the site. All damaged sod will be rejected. All sod must be placed with staggered joints, butted with no inequalities in grade. Place all sod in rows at right angles to slopes (where applicable).
5. See seeding specifications for lawn restoration and new seeding information.
6. Unless otherwise noted, all disturbed landscape areas not being planted, shall be seeded with the following seed mix: 33.27% Bullseye turf type tall fescue, 33.15% Cochise IV turf type tall fescue and 33.08% LS 1200 turf type tall fescue. Mix shall include no more than 0.50% inert matter.
7. Seeding rate shall be 8 lbs. Per 1,000.00 sq. ft.
8. All seeding shall be hydro-seeded with the following engineered wood fiber hydromulch as per manufacturer's specifications. Submit sample & product data for approval prior to ordering.
9. Alternate bid - unless otherwise noted, all disturbed landscape areas not being planted or mulched, shall be sodded with a turf-type tall fescue blend sod product.
10. Contractor shall submit source, sample, and certified seed analysis for landscape architect approval prior to ordering.

TREE PROTECTION

1. Existing trees to remain shall be protected with temporary construction fence. Erect fence at edge of the tree dripline prior to start of construction.
2. Contractor shall not operate vehicles within the tree protection area. Contractor shall not store vehicles or materials, or dispose of any waste materials, within the tree protection area.
3. Damage to existing trees caused by the contractor shall be repaired by a certified arborist at the contractor's expense.
4. No unauthorized tree removals, unless as specified on contract documents, approved by local municipalities, and architect.
5. Edge of woods clearing
6. Existing trees to remain shall be protected with temporary erosion control fence and hay bale barrier. Erect barrier at edge of the earthwork cut line prior to tree clearing. Lay out this line by field survey.

Plant List

QTY	Key	Botanical Name	Common Name	Size	Remarks
		Canopy Trees (Replacement Trees)			
12	BN	Betula nigra 'Duraheat'	Duraheat River Birch	10-12'	B&B
1	QB	Quercus bicolor	Swamp White Oak	2.5-3"c.	B&B
1	SN	Salix alba 'Tristis'	Golden Weeping Willow	2.5-3"c.	B&B
		Ornamental Trees			
1	AC	Amelanchier x 'Autumn Brilliance'	Autumn Brilliance Serviceberry	7-8'	B&B
4	MSN	Malus 'Snowdrift'	Snowdrift Crab	2.5-3"C.	B&B
2	MV	Magnolia virginiana	Sweetbay	7-8'	B&B
		Evergreen Trees			
2	ICG	Ilex 'Centennial Girl'	Centennial Girl Holly	7-8'	B&B
8	IO	Ilex opaca 'Greenleaf'	Greenleaf American Holly	7-8'	B&B
3	PAB	Picea abies	Norway Spruce	7-8'	B&B
2	PO	Picea omorika	Serbian Spruce	7-8'	B&B
4	TP	Thuja plicata 'Steeplechase'	Steeplechase Giant Arborvitae	7-8'	B&B
		Evergreen Shrubs			
58	BWG	Buxus 'Winter Gem'	Winter Gem Boxwood	18-24"	#5 container
8	CHD	Cephalotaxus harringtonia 'Duke Gardens'	Duke Gardens Plum Yew	24-30"	#5 container
24	CSL	Cotoneaster 'Scarlet Leader'	Scarlet Leader Cotomeaster	18-24"	#3 container
41	JS	Juniperus ch. 'Sargentii'	Sargent Juniper	18-24"	#3 container
15	PLS	Prunus l. 'Schipkaensis'	Schip Laurel	30-36"	#5 container
18	POL	Prunus l. 'Otto Luyken'	Compact Cherry Laurel	24-30"	#5 container
5	VR	Viburnum rhytidophyllum 'Cree'	Cree Leatherleaf Viburnum	4-5'	B&B
		Deciduous Shrubs			
11	CA	Clethra alnifolia 'Sixteen Candles'	Sixteen Candles Summersweet	24-30"	#5 container
5	CAR	Clethra alnifolia 'Ruby Spice'	Ruby Spice Summersweet	24-30"	#5 container
7	CHB	Clethra 'Hummingbird'	Dwarf Summersweet	18-24"	#3 container
7	HH	Hypericum x 'Hidcote'	Hidcote St. Johnswort	18-24"	#3 container
3	IM	Itea virginica 'Merlot'	Merlot Sweetspire	18-24"	#3 container
16	ILH	Itea virginica 'Little Henry'	Little Henry Sweetspire	18-24"	#3 container
4	IVS	Ilex verticillata 'Sparkleberry'	Southern Gentleman Winterberry	24-30"	#5 container
4	IVR	Ilex verticillata 'Red Sprite'	Red Sprite Winterberry	24-30"	#5 container
2	ISG	Ilex verticillata 'Southern Gentleman'	Southern Gentleman Winterberry	24-30"	#5 container
27	RGL	Rhus aromatica 'Gro Low'	Gro Low Fragrant Sumac	18-24"	#3 container
10	RCD	Rosa 'Coral Drift'	Coral Drift Rose	15-18"	#3 container
6	SC	Sambucus canadensis	Common Elderberry	30-36"	#5 container
13	SBT	Spiraea betulifolia 'Tor'	Birchleaf Spiraea	18-24"	#3 container
5	STO	Spiraea thunbergii 'Ogon'	Ogon Spirea	18-24"	#3 container
37	SIC	Stepanadra incisa 'Crispa'	Cutleaf Stephanandra	18-24"	#3 container
16	VD	Viburnum dentatum	Arrowwood	4-5'	B&B
8	VN	Viburnum nudum 'Winterthur'	Winterthur Viburnum	4-5'	B&B
		Ferns			
13	DB	Dryopteris erythrosora 'Brilliance'	Brilliance Autumn Fern		#3 container
13	PAR	Polystichum arcostichoides	Christmas Fern		#3 container
		Ornamental grasses			
38	CP	Carex pensylvanica	Pennsylvania Sedge		#2 container
11	PNW	Panicum 'Northwind'	Northwind' Switchgrass		#5 container
16	PSH	Panicum 'Shenandoah'	Shenandoah Switchgrass		#5 container

PLANTING BED EDGE
NTS

SHRUB PLANTING
NTS

MULTI-STEMMED TREE PLANTING
NTS

DECIDUOUS TREE PLANTING
NTS

EVERGREEN TREE PLANTING
NTS

KDA architects

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New Jersey

Block 9301, Lot 33

Issued for:
SITE PLAN APPLICATION
Date: 11.23.2020

ISSUES | REVISIONS

Proj. No: 1161.07.33/43

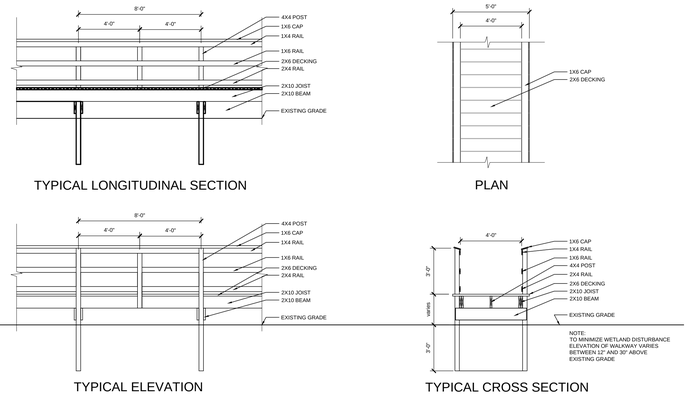
Drawing Title:

Landscape Details

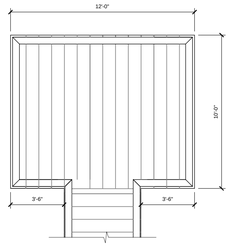
L0.1

DAVID S. FOWLES, AIA
NJ-21AI01611700
NY-042978-1

JOSEPH M. SCANLON, AIA
NJ-21A11666 · PA-RA009944-X



1 ELEVATED WALKWAY - TYPICAL DETAILS
SCALE: 1/4" = 1'-0"



2 ELEVATED WALKWAY - NORTH SITTING AREA
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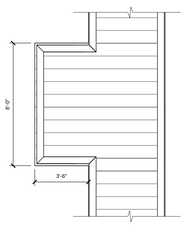

3 ELEVATED WALKWAY - TYPICAL BYPASS / SITTING AREA
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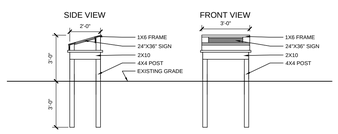

4 FREESTANDING INTERPRETIVE SIGN
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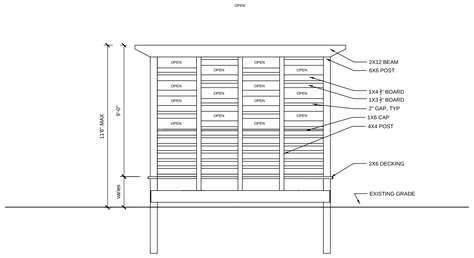

5 OBSERVATION DECK - EAST AND WEST ELEVATION
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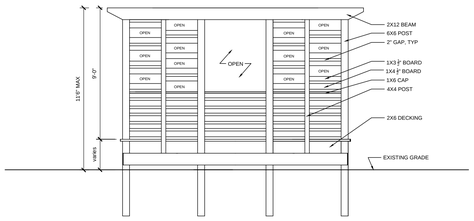

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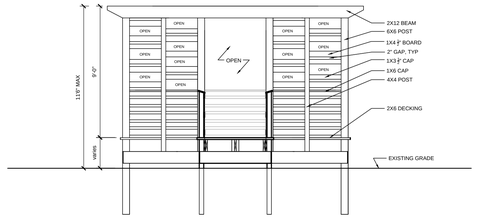

7 OBSERVATION DECK - NORTH ELEVATION
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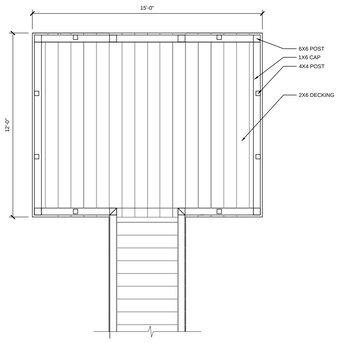

8 OBSERVATION DECK - PLAN
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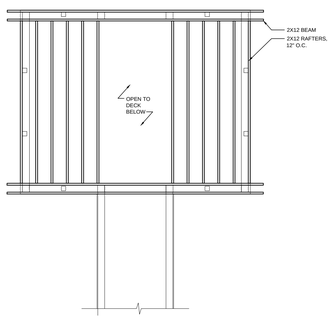

9 OBSERVATION DECK - OPEN ARBOR STRUCTURE
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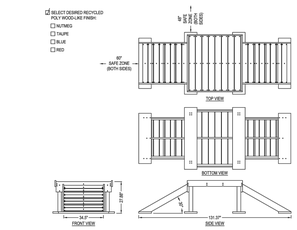
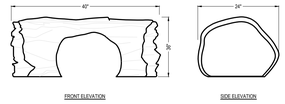
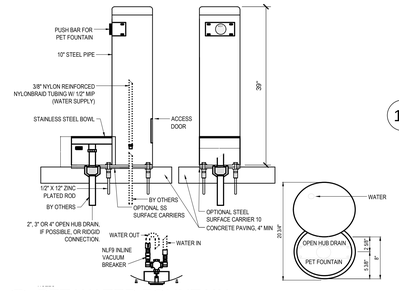


10 PET RAMP AND PLATFORM
SCALE: NTS

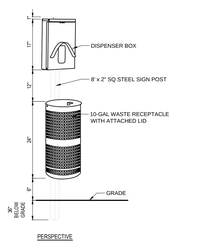


PRODUCTS DIMENSIONS:
DIMENSIONS (L X W X H): 40" X 24" X 30"
-WEIGHT (LBS): 320 LBS
-MOUNT TYPE: SURFACE
MATERIALS:
-THE TUNNEL IS MADE OF GLASS FIBER REINFORCED CONCRETE OF GFRC. CONCRETE THICKNESS RANGES FROM A MINIMUM OF 1" TO A MAXIMUM OF 3.5" THICK. THE ELEMENTS ARE ALL IPEMA CERTIFIED AND MEET ASTM A-82A-185.

11 PET TUNNEL
SCALE: NTS



12 PET WATER FOUNTAIN
SCALE: NTS



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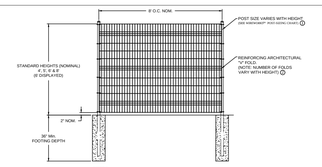
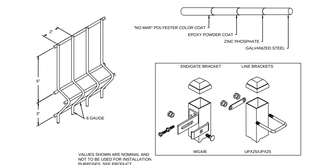
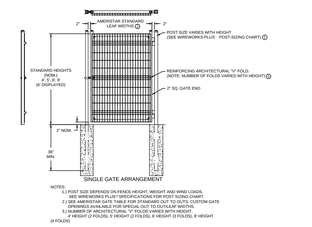
SCALE: NTS

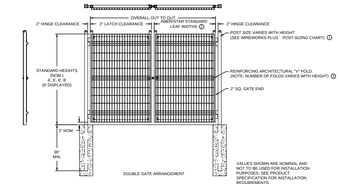




14 WIRE FENCE
SCALE: NTS NOTES: 4' HEIGHT



15 WIRE FENCE SINGLE GATE AT DOG PARK ENTRANCE
SCALE: NTS
NOTES: 4' HEIGHT, 3.5' OPENING, 42" LEAF WIDTH



16 WIRE FENCE MAINTENANCE GATE AT DOG PARK
SCALE: NTS
NOTES:
4' HEIGHT, 7' OPENING, 42" LEAF WIDTH

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f: 856.770.1059
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Block 9301, Lot 33

Issued for:
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ISSUES	REVISIONS

Proj. No: 1161.07.33/43

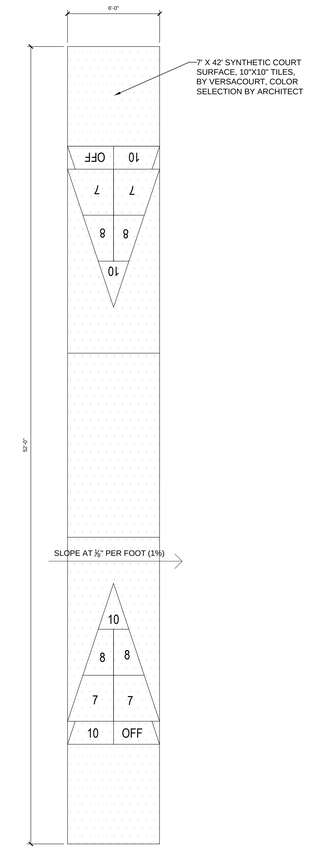
Drawing Title:

DETAILS

Outdoor Amenities

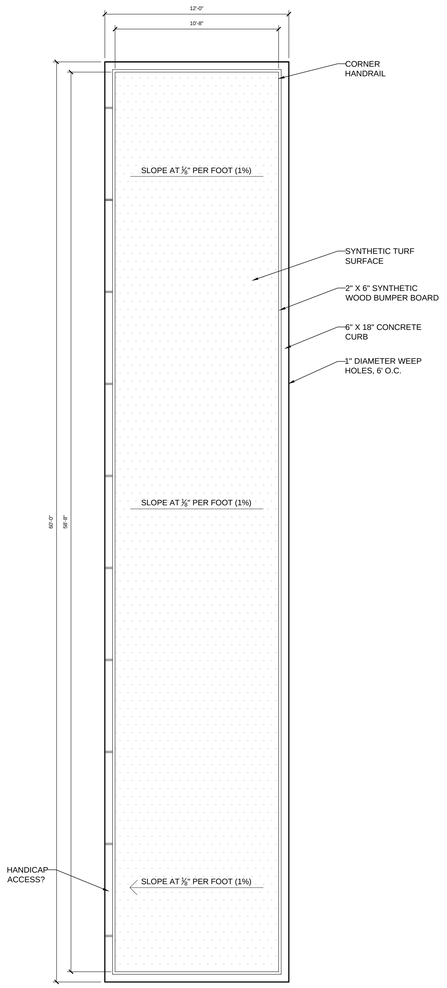
L1.0

DAVID S. FOWLES, AIA
NJ-21AI00121700
NY-042079-1
JOSEPH M. SCANLON, AIA
NJ-21A11666 · PA-RA009644-X

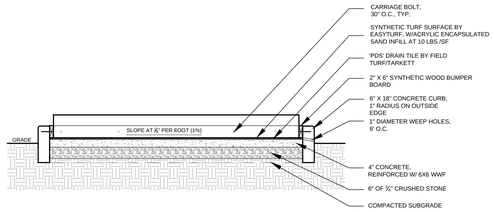


1 SHUFFLEBOARD COURT PLAN DETAIL
SCALE: 1/4" = 1'-0"

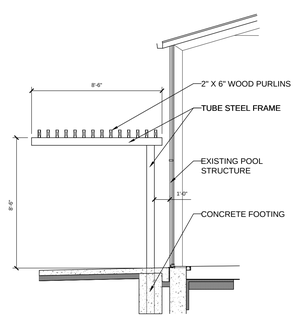
2 SHUFFLEBOARD COURT SECTION DETAIL
SCALE: 3/8" = 1'-0"



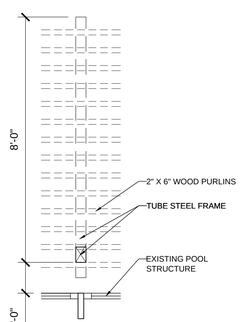
3 BOCCE COURT PLAN DETAIL
SCALE: 1/4" = 1'-0"



4 BOCCE COURT SECTION DETAIL
SCALE: 3/8" = 1'-0"



5 PERGOLA SECTION DETAIL
SCALE: 1/4" = 1'-0"



6 PERGOLA PLAN DETAIL
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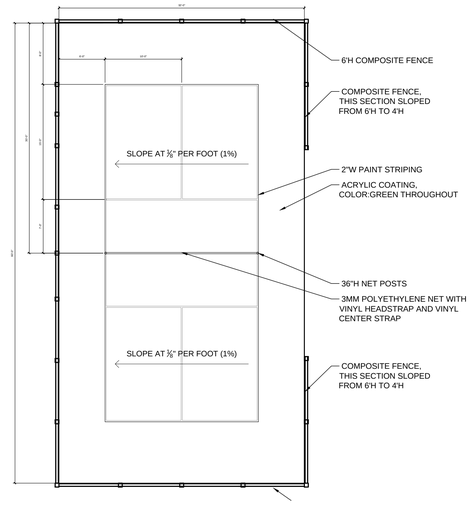
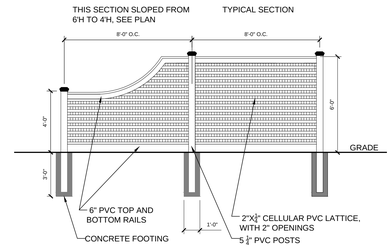
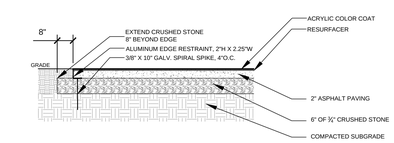


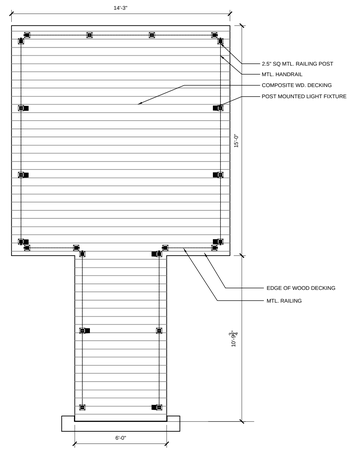
7 PICKLEBALL COURT DETAIL
SCALE: NTS



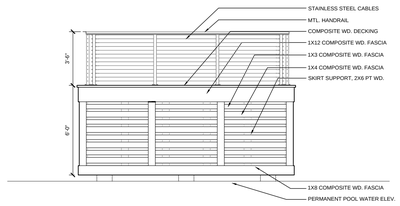
8 PICKLEBALL COURT FENCE DETAIL
SCALE: NTS



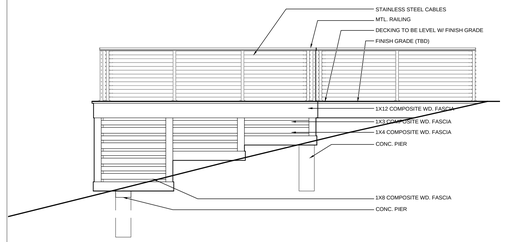
9 PICKLEBALL COURT DETAIL
SCALE: NTS



10 EPHESUS POND DECK - PLAN
SCALE: 1/4" = 1'-0"



11 EPHESUS POND DECK - FRONT ELEVATION
SCALE: 1/4" = 1'-0"



12 EPHESUS POND DECK - TYPICAL SIDE ELEVATION
SCALE: 1/4" = 1'-0"

Louvered Down Rail Deck Light Centennial Brass 15066CBR

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SPECIFICATIONS

Certifications/Qualifications	
Prop65	Yes
	www.kichler.com/warranty
Dimensions	
Height	6.00"
Length	1.50"
Width	1.50"
Electrical	
Operating Voltage Range	12 VAC
Voltage	12V
Mounting/Installation	
Lead Wire Length	72
Location Rating	Wet

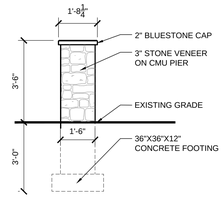
FIXTURE ATTRIBUTES

Housing	
Primary Material	BRASS
Product/Ordering Information	
SKU	15066CBR
Finish	Centennial Brass
UPC	783927586344

ALSO IN THIS FAMILY

13 EPHESUS POND DECK POST MOUNTED LIGHT FIXTURE
SCALE: NTS

1.5" SQ x 6.5" L DOWNWARD FACING LIGHT FIXTURES MOUNTED ON RAILING POSTS AT 36" ABOVE DECK SURFACE; 6.5 WATT XENON BULB



14 SPRUCE GROVE MASONRY PIER DETAIL
SCALE: 1/4" = 1'-0"

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Proj. No: 1161.07.33/43

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DETAILS

Outdoor Amenities

L1.1

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