

ASM FACILITY SITE PLAN

SP# 13-22 (FOLLOW UP TO MSP# 03-22)

STAFF REPORT

October 26, 2022

SITE: 7 Security Drive, Map 251 Lot 018

ZONING: General-1 (G-1)

PURPOSE OF PLAN: Enclosure of the 25' x 50' concrete equipment pad, extension of existing driveway to improve truck traffic movements, replace existing 41 imperious parking stalls with porous surface area, and add 13 parking stalls (porous surface area).

PLANS UNDER REVIEW:

Site Plan / ASM Facility, Map 251 Lot 018, 7 Security Drive, Hudson, NH 03051; prepared by: Gale Associates, Inc. 6 Bedford Farms Drive, Bedford, NH 03110; prepared for: JMC Hudson Properties, LLC, 5 Lehoux Drive, Hooksett, NH 03106; consisting of 13 sheets including a cover sheet and general notes 1-27 on Sheet 4; dated September 19, 2022.

ATTACHMENTS:

- A. Notice of Decision for MSP #03-22
- B. Department Comments
- C. CAP Fee worksheet

APPLICATION TRACKING:

- September 19, 2022 – Application received.
- October 26, 2022 – Public hearing scheduled.

COMMENTS & RECOMMENDATIONS:

The existing 2.84 acre site consists of a 20,160 SF light industrial slab-on-grade building with 40 parking spaces (two of which are ADA Van accessible) and 2 loading docks located along the rear (south side) of the facility. The building is served by public water service and has a private septic.

Minor Site Plan # 03-22 was approved on June 20, 2022 for the installation of a 25' x 50' concrete pad with frost wall and footings located along the rear (southeast corner) of the existing facility building.

The intent of this application is to enclose the concrete pad, extend the driveway, repave the exiting 41 parking stalls with pervious pavers, and add 13 additional parking stalls.

While much of the industrial development exists today, the expansion of the improved part of the industrial development is increasing in proximity to a residential use. Per §276-11.1.B(12)(a), a 200-foot distance is required from the residential property line to any improved part of the industrial development. The proposed design requires a waiver from this provision.

The application proposes an additional driveway curb cut, requiring a waiver from §193-10.G that permits only one.

The Minor Site Plan Notice of Approval MSP #03-22 (**Attachment A**) stipulated that the Applicant shall “submit construction details sufficient to evaluate the sound insulation performance as part of future site plan application.” The Applicant has communicated that they have not submitted sound insulation details because the previously planned sandblasting booth operation is no longer being implemented at this location; instead, the enclosed pad will house incoming and outgoing metal products.

The new steel structure will have metal corrugated paneling to match the current building.

Note: Peer review of this application is pending, but expected to be received in advance of the meeting.

DEPARTMENT COMMENTS

See **Attachment B** for comments from town departments.

1. Engineering: Applicant shall provide a maintenance/cleaning schedule and plan for the pervious pavement, and applicant shall provide soil testing results prior to installing the pervious pavement.
2. Zoning: Applicant should identify the “light industrial” uses with the Table of Permitted Principal Uses §334-21 and should specify if the enclosure has a roof, and if so, its height. Also, there has been a recent Code Enforcement complaint about outdoor fabrication operations, potentially in violation of §249 Noise and possible §334-16.1 Site Plan. Zoning recommends that the applicant should have the fence and tree buffer along the southerly property line installed/completed as approved in the original 1997 site plan.

DRAFT MOTIONS

ACCEPT the site plan application:

I move to accept the site plan application for the Site Plan / ASM Facility, 7 Security Drive, Map 251 Lot 018.

Motion by: _____ Second: _____ Carried/Failed: _____

CONTINUE the public hearing to a date certain:

I move to continue the site plan application for the Site Plan / ASM Facility, 7 Security Drive, Map 251 Lot 018, to date certain, _____, 2022.

Motion by: _____ Second: _____ Carried/Failed: _____

DEFER the public hearing to a date certain:

I move to defer the site plan application for the Site Plan / ASM Facility, 7 Security Drive, Map 251 Lot 018, to date certain, _____, 2022.

Motion by: _____ Second: _____ Carried/Failed: _____

Motions continue on the following page

APPROVE the site plan application:

I move to approve the site plan application entitled: Site Plan / ASM Facility, Map 251 Lot 018, 7 Security Drive, Hudson, NH 03051; prepared by: Gale Associates, Inc. 6 Bedford Farms Drive, Bedford, NH 03110; prepared for: JMC Hudson Properties, LLC, 5 Lehoux Drive, Hooksett, NH 03106; consisting of 13 sheets including a cover sheet and general notes 1-27 on Sheet 4; dated September 19, 2022; subject to, and revised per, the following stipulations:

1. All stipulations of approval shall be incorporated into the Development Agreement, which shall be recorded at the HCRD, together with the Plan.
2. A cost allocation procedure (CAP) amount of \$1,825 shall be paid prior to the issuance of a Certificate of Occupancy.
3. Prior to the issuance of a final certificate of occupancy, an L.L.S. Certified “as-built” site plan shall be provided to the Town of Hudson Land Use Division confirming that the development conforms to the Plan approved by the Planning Board.
4. Prior to the Planning Board endorsement of the Plan, it shall be subject to final administrative review by Town Planner and Town Engineer.
5. Prior to application for a building permit, the Applicant shall schedule a pre-construction meeting with the Town Engineer.
6. Construction activities involving the subject lot shall be limited to the hours between 7:00 A.M. and 5:00 P.M. No construction activities shall be allowed on Saturdays or Sundays.
7. Hours of refuse removal shall be exclusive to the hours between 7:00 A.M. and 7:00 P.M., Monday through Friday only.
8. Applicant shall provide a maintenance schedule and plan for the pervious pavement prior to construction.
9. Applicant shall provide soil testing results for the pervious pavement area prior to recording the plan.
10. The site plan shall be revised to include the full extension of the stockade fence and planting of arborvitaes in accordance with the previously approved site plan, HCRD #28977.

Motion by: _____ Second: _____ Carried/Failed: _____



TOWN OF HUDSON

Planning Board

Timothy Malley, Chairman Robert Guessferd, Selectmen Liaison



12 School Street · Hudson, New Hampshire 03051 · Tel: 603-886-6008 · Fax: 603-594-1142

NOTICE OF APPROVAL

June 25, 2022

Owner or Applicant: JMC HUDSON PROPERTIES
 C/O NICK MERCIER
 5 LEHOUX DRIVE
 HOOKSETT, NH 03106

On Monday, June 20, 2022, the Special Site Review Committee of the Hudson Planning Board heard subject case **MSP #03-22 “ASM Facility Pad”**.

SUBJECT: INSTALLATION OF A 25’ X 50’ CONCRETE EQUIPMENT PAD WITH FROST WALL AND FOOTINGS LOCATED ALONG THE REAR (SOUTHEAST CORNER) OF THE EXISTING FACILITY BUILDING.

LOCATION: 7 SECURITY DRIVE, MAP 251/LOT 018

On June 20, 2022, the Special Site Review Committee of the Planning Board accepted the minor site plan application for 7 Security Drive Map 251-Lot 18.

Plan Approval:

On June 20, 2022, the Special Site Review Committee of the Planning Board approved the minor site plan application for the ASM Facility Pad, 7 Security Drive, Map 251 Lot 18, as depicted in:

Site Plan, 25’ x 50’ Concrete Equipment Pad, ASM Facility, 7 Security Drive, Hudson, NH 03051; prepared by Gale Associates, Inc., 6 Bedford Farms Drive, Bedford, NH 03110; prepared for JMC Hudson Properties, LLC, 5 Lehoux Drive, Hooksett, NH 03106; consisting of a single sheet with General Notes 1-24; dated May 9, 2022; subject to, and revised per, the following stipulations:

1. All stipulations of approval shall be incorporated into the Notice of Decision, which shall be recorded at the HCRD, together with the Plan.
2. Prior to the recording of the Plan, it shall be subject to final administrative review by Town Planner and Town Engineer.

3. Prior to application for a building permit, the Applicant shall schedule a pre-construction meeting with the Town Engineer.
4. Construction activities involving the subject lot shall be limited to the hours between 7:00 A.M. and 5:00 P.M. No construction activities shall be allowed on Saturdays or Sundays.
5. No fabrication operations in violation of Hudson Town Code, particularly § 249 Noise and § 334-16.1 Site Plan Expansion, shall occur on-site. Nor shall such operations occur on the proposed concrete pad until the pad is enclosed within a structure so that operations comply with the Noise Ordinance, Hudson Town Code § 249, as part of a separate approved site plan.
6. Applicant shall submit construction details sufficient to evaluate the sound insulation performance as part of future site plan application.
7. A note shall be added to the plan to indicate that the use of the pad is for dry storage in the event the pad is not enclosed.

Signed: _____ Date: _____
Brian Groth, Town Planner

cc: Gale Associates, Inc.

Dubowik, Brooke

From: Dhima, Elvis
Sent: Wednesday, October 12, 2022 8:55 AM
To: Dubowik, Brooke; Groth, Brian
Subject: RE: Dept Sign Off - SP# 13-22 ASM Facility Site Plan

Brian / Brooke

My comments are listed below

1. Applicant shall provide a maintenance / cleaning schedule and plan for the pervious pavement
2. Applicant shall provide soil testing results prior to installing the pervious pavement

Thanks

E

Elvis Dhima, P.E.
Town Engineer

12 School Street
Hudson, NH 03051
Phone: (603) 886-6008
Mobile: (603) 318-8286



SITE PLAN APPLICATION

Date of Application: September 16, 2022 Tax Map #: 251 Lot #: 018

Site Address: 7 Security Drive, Hudson, NH

Name of Project: ASM Facility

Zoning District: G1 - General General SP#: 13-22
(For Town Use Only)

Z.B.A. Action: _____

PROPERTY OWNER:

Name: JMC Hudson Properties, LLC

Address: 5 Lehoux Drive, Hooksett, NH 03106

Address: _____

Telephone # 603-674-8239

Email: nick@macyind.com

PROJECT ENGINEER:

Name: Gale Associates, Inc.

Address: 6 Bedford Farms Drive, Suite 101

Address: Bedford, NH 03110

Telephone # 603-471-1887

Email: smb@gain.com

DEVELOPER:

None

SURVEYOR:

Promised Land Survey, LLC

60 Crystal Avenue, Unit A

Derry, New Hampshire 03038

603-432-2112

tap@promisedlandsurvey.com

PURPOSE OF PLAN:

Enclosure of the 25' x 50' concrete equipment pad, extension of existing driveway to improve truck traffic movements, replace existing 41 impervious parking stalls with porous surface area, and add 13 parking stalls (porous surface area).

(For Town Use Only)

Routing Date: 10/6/22 Deadline Date: 10/14/22 Meeting Date: _____

_____ I have no comments I have comments (attach to form)

DRH Title: Fire Marshal Date: 10/12/22

(Initials)

Department: No building permit has been applied for or issued for the concrete pad to be built upon referenced in the project narrative

Zoning: ___ Engineering: ___ Assessor: ___ Police: ___ Fire: DPW: ___ Consultant: ___

SITE PLAN APPLICATION

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Site Address: 7 Security Drive, Hudson, NH

Name of Project: ASM Facility

Zoning District: G1 - General General SP#: 13-22
(For Town Use Only)

Z.B.A. Action: _____

PROPERTY OWNER:

Name: JMC Hudson Properties, LLC

Address: 5 Lehoux Drive, Hooksett, NH 03106

Address: _____

Telephone # 603-674-8239

Email: nick@macyind.com

DEVELOPER:

None

PROJECT ENGINEER:

Name: Gale Associates, Inc.

Address: 6 Bedford Farms Drive, Suite 101

Address: Bedford, NH 03110

Telephone # 603-471-1887

Email: smb@gain.com

SURVEYOR:

Promised Land Survey, LLC

60 Crystal Avenue, Unit A

Derry, New Hampshire 03038

603-432-2112

tap@promisedlandsurvey.com

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(For Town Use Only)

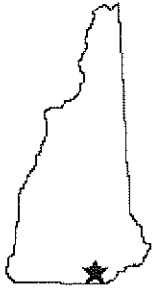
Routing Date: 10/6/22 Deadline Date: 10/14/22 Meeting Date: _____

_____ I have no comments BB I have comments (attach to form)

BB Title: ZONING ADMINISTRATOR Date: 10-11-22
(Initials)

Department: _____

Zoning: Engineering: _____ Assessor: _____ Police: _____ Fire: _____ DPW: _____ Consultant: _____



TOWN OF HUDSON

Land Use Division



12 School Street • Hudson, New Hampshire 03051 • Tel: 603-886-6008 • Fax: 603-594-1142

Site Plan Review #13-22

JB 10-11-22

October 11, 2022

Re: Map 251 Lot 018
Address: 7 Security Dr
Zoning district: (G1) General One
Proposal: enclose a 25 x 50 concrete equipment pad, extension of existing driveway, and additional associated parking.

Submitted plans reviewed: Sheet 1 of 1 dated Aug 16, 2022 and C101 dated 9/13/2022.

My comments as follows:

(1) Please identify the "light industrial" uses (existing and proposed) with the Table of Permitted Principal Uses §334-21.

(2) Does the enclosure around the 25 x 50 concrete pad have a roof? If so, how high is that roof?

(2) There had been a recent Code Enforcement complaint about outside/outdoor fabrication operations, in possible violation of Hudson Town Code §249 Noise and possible §334-16.1 Site Plan. See attached Sept 22, 2022 letter.

I would recommend adherence to the original site plan of 1997 HCRD # 28977 and have the fence and tree buffer along the southerly property line installed/completed as approved on that 1997 plan.

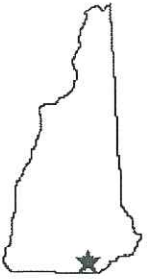
Sincerely,

Bruce Buttrick,
Zoning Administrator/Code Enforcement Officer

Encl: Attachment A: Sept 22, 2022 complaint close out letter, and Attachment B: 1997 approved site plan HCRD # 28977.

cc: B. Groth - Town Planner
file

NOTE: this determination may be appealed to the Hudson Zoning Board of Adjustment within 30 days of the receipt of this letter.



TOWN OF HUDSON

Land Use Division



12 School Street • Hudson, New Hampshire 03051 • Tel: 603-886-6008 • Fax: 603-594-1142

Sept 22, 2022

(Noise) Complaint # 22-00057

Follow-up/9-21-22 site meeting

RE: 7 Security Dr Map 251 Lot 018-000
District: General One (G-1)

Attendees:

Nick Mercier – Owner

Tom Mitchell – General Manager

Elvis Dhima – Town Engr

Bruce Buttrick – Zoning Administrator/Code Enforcement Officer

Sgt. Corey – Hudson PD

We met on site @ 9:00am and walked through the ongoing operation(s), and conferred/discussed the following just outside the open garage style door entry to facility on the “southerly side” of the building.

We discussed the complaints to date:

1) The outside sandblasting operation (was an earlier/separate complaint this past May).

That operation has ceased outdoors.

2) The time card/shift break alarm/speakers.

The device was exercised during the site visit, the owner has/had turned the volume down (from level 7 to level 3).

The owner will evaluate installing loading dock “curtains”, to minimize sound traveling while the door facing the residential area, remains open.

A

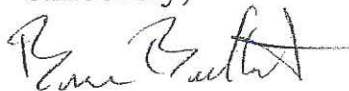
In addition, the owner will evaluate the location of the sound devices and look into the possibility of repositioning them within the facility to point in the opposite direction of the residential area.

3) The compressed air/gas tank blow-down (purge).
The refilling of that tank has occurred off hours (early am). The owner has recently requested that the supplier do the refill during business hours.

The property owner is interested in continuing to help address the concerns of the abutters and the town, and is willing to improve their site and process. The owner indicated they will be installing/continuing a fence along the south side of property.

These noise complaints are not Zoning Ordinance (Chapter 334) violations however, I am encouraged these complaints/issues are being and or have been addressed/mitigated.

Sincerely,



Bruce Buttrick

Zoning Administrator/Code Enforcement Officer
(603) 816-1275
bbuttrick@hudsonnh.gov

cc: Public Folder
B. Groth, Town Planner
M, Davis, Hudson PD
Complainant
File

A₂

ABUTTERS:

- MAP 2/LOT 14-8 @ 14-7 (OWNER)
NORMAND FARM DEV. CO.
60 PINE ROAD
HUDSON, NH 03051
- MAP 2/LOT 14-6 (DEVELOPER)
NASHUA FABRICATION CORP.
11 REDMOND STREET
NASHUA, NH 03080
- MAP 2/LOT 2-32
DAVID COCHRAN
76 WINSLOW FARM ROAD
HUDSON, NH 03051
- MAP 2/LOT 2-33
EDWARD & MEREDITH MILLEN
14 WINSLOW FARM ROAD
HUDSON, NH 03051
- MAP 2/LOT 2-34
CHARLES & KARLA SNOW
28 KESSLER FARM DRIVE, APT. 806
NASHUA, NH 03083
- MAP 2/LOT 2-35
KENNETH & CAROL GIFFIN
10 WINSLOW FARM DRIVE
HUDSON, NH 03051
- MAP 2/LOT 12
ROBERT & SUSAN MACGRATH
30 BLOSSOM STREET
NASHUA, NH 03080
- MAP 2/LOT 13
TOWN OF HUDSON
12 SCHOOL STREET
HUDSON, NH 03051
- MAP 2/LOT 14-1
ALAN & LYNETTE VIGNOLA
60 PINE ROAD
HUDSON, NH 03051
- MAP 2/LOT 14-2
BRUCE & JEANNE VIGNOLA
58 PINE ROAD
HUDSON, NH 03051

PLAN REFERENCE:

- SUBDIVISION PLAN, LOT 14/MAP 2, "NORMAND FARM DEVELOPMENT", PREPARED FOR: ALAN VIGNOLA, NORMAND FARM DEVELOPMENT CO.; SCALE: 1"=50'; DATED: NOVEMBER 1, 1986; PREPARED BY THIS OFFICE.

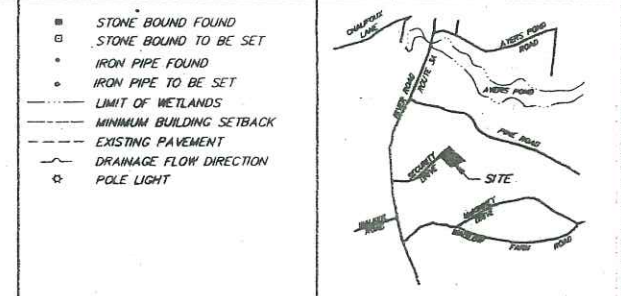
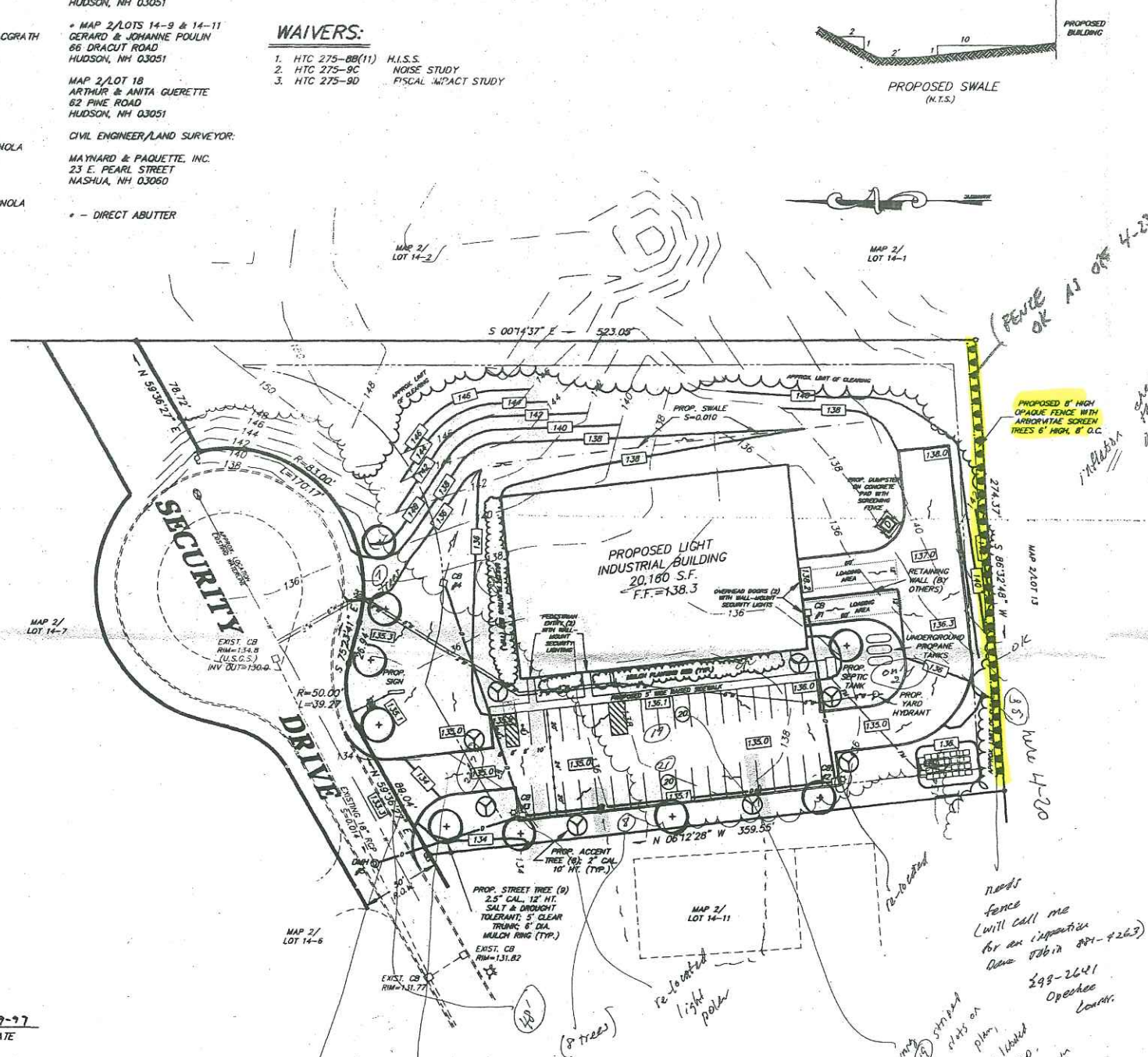
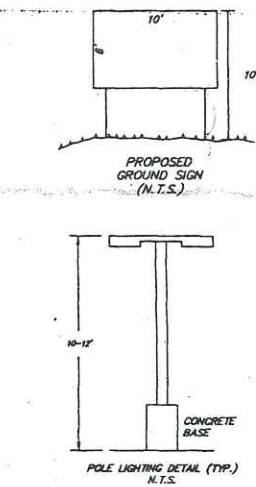
WAIVERS:

- HTC 275-88(11) H.I.S.S. NOISE STUDY
- HTC 275-8C FISCAL IMPACT STUDY
- HTC 275-90

CIVIL ENGINEER/LAND SURVEYOR:
MAYNARD & PAQUETTE, INC.
23 E. PEARL STREET
NASHUA, NH 03080

— DIRECT ABUTTER

NO.	DATE	DESCRIPTION	BY
1	10/26/22	PER STIMULATIONS OF PLANNING BOARD APPROVAL	MPP
2	11-25-97	PER TOWN STAFF REVIEW	MPP
3	12-29-97	PER TOWN STAFF REVIEW	MPP
4	1-13-98	PER TOWN STAFF REVIEW	MPP



NOTES:

- PRESENT ZONING: "G" GENERAL
- PROPOSED USE: LIGHT INDUSTRIAL
- THE PURPOSE OF THIS PLAN IS TO CONSTRUCT A 20,160 S.F. LIGHT INDUSTRIAL BUILDING WITH PAVED PARKING AND MANEUVERING AREAS.
- TOTAL AREA OF PARCEL: 123,731 S.F. OR 2.84 ACRES.
- IRON PIPES TO BE SET AT ALL LOT CORNERS AND STONE BOUNDS TO BE SET AT ALL POINTS OF TANGENCY AND CURVATURE ALONG THE RIGHT-OF-WAY BY A LICENSED LAND SURVEYOR PRIOR TO ISSUANCE OF CERTIFICATE OF OCCUPANCY.
- LOT IS SERVICED BY EXISTING CONSUMER'S NH WATER AND PRIVATE SEPTIC SYSTEM. STREET ADDRESS TO BE ACQUIRED FROM THE HUDSON FIRE DEPARTMENT PRIOR TO THE ISSUANCE OF BUILDING PERMIT.
- DEVELOPMENT AGREEMENT DATED 1/19/98 IS ON FILE WITH THE TOWN OF HUDSON AND IS RECORDED AT THE H.C.R.D.
- C.A.P. AMOUNT OF \$18,748.80 TO BE PAID PRIOR TO THE ISSUANCE OF CERTIFICATE OF OCCUPANCY, SUBJECT TO ANNUAL INFLATION INDEXING.
- MINIMUM BUILDING REQUIREMENTS:
LOT SIZE = 30,000 S.F.
ROAD FRONTAGE = 150 FT.
BUILDING SETBACKS: FRONT YARD = 50 FT.
SIDE AND REAR YARD = 15 FT.
TOP OF BANK = 50 FT.
- SOIL CONSERVATION SERVICE MAP 28 LISTS SOILS AS:
"W8B" - WINDSOR LOAMY SAND, 3-8% SLOPES
"W8D" - WINDSOR LOAMY SAND, 15-35% SLOPES
- GREEN SPACE REQUIRED: 40%
GREEN SPACE PROVIDED: 65%
- PARKING REQUIREMENTS: 1 SF/600 S.F. X 20,160 SF = 33.6 SPACES
PARKING PROVIDED: 40 SPACES INCL. 2 H/C
- N.H.L.P. FIRM COMMUNITY-PANEL NUMBER 330092 0010 B INDICATES THAT THIS SITE IS NOT LOCATED WITHIN A 100-YEAR FLOOD PLAIN.
- APPROPRIATE EROSION CONTROL MEASURES (HAY BALES, SILT SCREEN FENCE, ETC.) SHALL BE INSTALLED PRIOR TO INITIATION OF ANY SITE WORK AND SHALL BE MAINTAINED BY THE DEVELOPER UNTIL ADEQUATE VEGETATIVE COVER IS ESTABLISHED ON ALL GRADED AREAS.
- ALL DISTURBED AREAS SHALL BE LOAMED AND SEEDED UPON COMPLETION OF SITE GRADING.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING AND DETERMINING THE LOCATION, SIZE, AND ELEVATION OF ALL EXISTING UTILITIES, SHOWN OR NOT SHOWN ON THIS PLAN, PRIOR TO THE START OF ANY CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES FOUND TO BE INTERFERING WITH THE PROPOSED CONSTRUCTION, AND APPROPRIATE REMEDIAL ACTION SHALL BE TAKEN BEFORE PROCEEDING WITH THE WORK.
- ALL SITE LIGHTING TO BE HOODED AND DIRECTED ON SITE.
- ALL HANDICAPPED PARKING SPACES SHALL CONFORM TO A.D.A. REQUIREMENTS FOR SIGNAGE AND STRIPING.
- N.H.D.E.S. SUBDIVISION APPROVAL # 35101-A (11/3/87)
- N.H.D.E.S. SEPTIC CONSTRUCTION APPROVAL # CA1977006521(2/19/97)
- N.H.D.O.T. DRIVEWAY PERMIT # 229-97-1
- ALL PAVED AREAS ARE TO BE ASPHALT PAVEMENT.
- DRIVEWAYS WITHIN THE R.O.W. TO BE CONSTRUCTED IN ACCORDANCE WITH THE SPECIFICATIONS OUTLINED IN THE STREET OPENING PERMIT TO BE FILED WITH THE D.P.W. PRIOR TO START OF ANY WORK WITHIN THE R.O.W.
- NO OUTDOOR STORAGE PERMITTED.

SITE PLAN
MAP 2 / LOT 14-8
NASHUA FABRICATION CORP.
SECURITY DRIVE
HUDSON, NEW HAMPSHIRE

PREPARED FOR:
NASHUA FABRICATION CORP.
11 REDMOND STREET
NASHUA, NEW HAMPSHIRE 03080

DATE: OCTOBER 31, 1997

SCALE: 1"=40'

Maynard & Paquette, Inc.
Consulting Engineers & Land Surveyors
23 East Pearl Street, Nashua, NH 03080
Phone (603)883-8394, Fax (603)883-7227

APPROVED BY THE HUDSON, N.H. PLANNING BOARD
DATE OF MEETING: DECEMBER 10, 1997

Richard M. Pate SIGNATURE DATE: 1-13-98
SITE PLANS ARE VALID FOR ONE YEAR FROM THE DATE OF PLANNING BOARD MEETING FINAL APPROVAL. FINAL APPROVAL COMMENCES AT THE PLANNING BOARD MEETING DATE AT WHICH THE PLAN RECEIVES FINAL APPROVAL.

PURSUANT TO THE SITE REVIEW REGULATIONS OF THE HUDSON PLANNING BOARD, THE SITE PLAN APPROVAL GRANTED HEREIN EXPIRES ONE (1) YEAR FROM DATE OF APPROVAL.

I CERTIFY THAT THIS PLAN WAS PREPARED FROM BOUNDARY INFORMATION SHOWN ON PLAN REFERENCE 1 AND A FIELD SURVEY MADE ON THE GROUND IN AUGUST 1997 HAVING A MAXIMUM ERROR OF CLOSURE OF 1:10,000, IN ACCORDANCE WITH THE REGULATIONS OF THE TOWN OF HUDSON.



HCRD # 28977

MPP	RAM	554 / 40	D	3756
DESIGNED	DRAFTED	CHECKED	APPROVED	BOOK & PAGE

m 2/L 14-8

SITE INSPECTION
4/20/98
MPP
B



Scott M. Bourcier, P.E.
Project Manager

MEMORANDUM

TO: Brian Groth, Hudson Town Planner
RE: JMC Hudson Properties, LLC (7 Security Drive – Parcel ID 251-018-000)
Project Narrative
DATE: September 16, 2022

Project Narrative

JMC Hudson Properties, LLC is the owner of the existing light-industrial facility located at 7 Security Drive in Hudson, NH. Identified on the Town of Hudson’s assessor’s map as Parcel ID 251-018-000, the 2.84-acre site is located within the Town’s G1 – General zoning district. The existing site consists of a 20,160 square-foot, light industrial, slab-on-grade building; 40 parking spaces (two of which are ADA Van accessible); 2 loading docks located along the rear (south side) of the facility; and is supported by a combination of public and private utilities – including public water service, private sanitary septic, underground electric, underground telephone, and a closed drainage system.

SPECIFIC?

On May 11, 2022 JMC Hudson Properties filed a Minor Site Plan application to construct a 25-foot by 50-foot cast-in-place concrete equipment pad (with frost walls and footings). This request was approved during the June 20, 2022 special site review committee meeting.

Currently, JMC Hudson Properties is filing a Site Plan application to enclose of the 25' x 50' concrete equipment pad, extend the existing driveway to improve truck traffic movements, replace existing 41 impervious parking stalls with porous surface area, and add 13 parking stalls (porous surface area). All improvements are proposed to be constructed within the building set back limits and will not impact/disturb/reduce the approximate 275-foot vegetated buffer between the existing facility and proposed improvements to the adjacent southerly residential building located along Winslow Farm Road.

End of Memorandum

SITE DATA SHEET

PLAN NAME: ASM Facility

PLAN TYPE: SITE PLAN

LEGAL DESCRIPTION: MAP 251 LOT 018

DATE: _____

Location by Street: 7 Security Drive, Hudson, NH

Zoning: G1 - General

Proposed Land Use: Light Industrial - Describe From 334-21 Table

Existing Use: Light Industrial - " " " " "

Surrounding Land Use(s): Industrial and Residential

Number of Lots Occupied: One (1)

Existing Area Covered by Building: 20, 160 S.F. (enclosed) / 1,250 S.F. (open)

Existing Buildings to be removed: None

Proposed Area Covered by Building: 21,410 S.F. (enclosed)

Open Space Proposed: 48.6%

Open Space Required: 40%

Total Area: S.F.: 123,731 Acres: 2.84

Area in Wetland: None Area Steep Slopes: 32,600 S.F.

Required Lot Size: 87,120 S.F. (2.0Ac)

Existing Frontage: 325.42'

Required Frontage: 200'

Building Setbacks:	<u>Required*</u>	<u>Proposed</u>
Front:	<u>30'</u>	<u>96.0'</u>
Side:	<u>15'</u>	<u>69.0'</u>
Rear:	<u>15'</u>	<u>95.5'</u>

NOTES

- 1) THE PURPOSE OF THIS PLAN IS TO DEPICT THE EXISTING CONDITIONS OF MAP 251 LOT 18, LOCATED AT 7 SECURITY DRIVE IN HUDSON, NEW HAMPSHIRE.
- 2) THIS PLAN IS BASED ON FIELD EVIDENCE LAST OBSERVED IN JULY OF 2022.
- 3) THIS PARCEL OF LAND DOES NOT LIE WITHIN A SPECIAL FLOOD HAZARD AREA AS INTERPOLATED FROM THE FLOOD INSURANCE RATE MAP (FIRM) FOR HILLSBOROUGH COUNTY, NEW HAMPSHIRE (ALL JURISDICTIONS) #33011C06580, HAVING AN EFFECTIVE DATE OF SEPTEMBER 25 2009.
- 4) THE SUBJECT LOT IS SERVICED BY A PRIVATE, ONSITE SEPTIC AND PUBLIC WATER.
- 5) THIS PLAN IS INTENDED TO BE AT THE DEPICTED SCALE WHEN PLOTTED ON 22x34 (ANSI D) SIZE PAPER.
- 6) ALL DISTANCES, UNLESS OTHERWISE INDICATED, ARE US SURVEY FEET HORIZONTAL.
- 7) ALL ZONING INFORMATION SHALL BE VERIFIED PRIOR TO ANY BUILDING OR CONSTRUCTION ACTIVITY.
- 8) NO WETLANDS WERE OBSERVED WHILE ON SITE.
- 9) UNDERGROUND UTILITIES EXIST CONTACT DIG SAFE (811) PRIOR TO ANY SITE WORK/CONSTRUCTION.

DATUM
 HORIZONTAL: NAD83-2011
 VERTICAL: NAVD88 - GEOID18

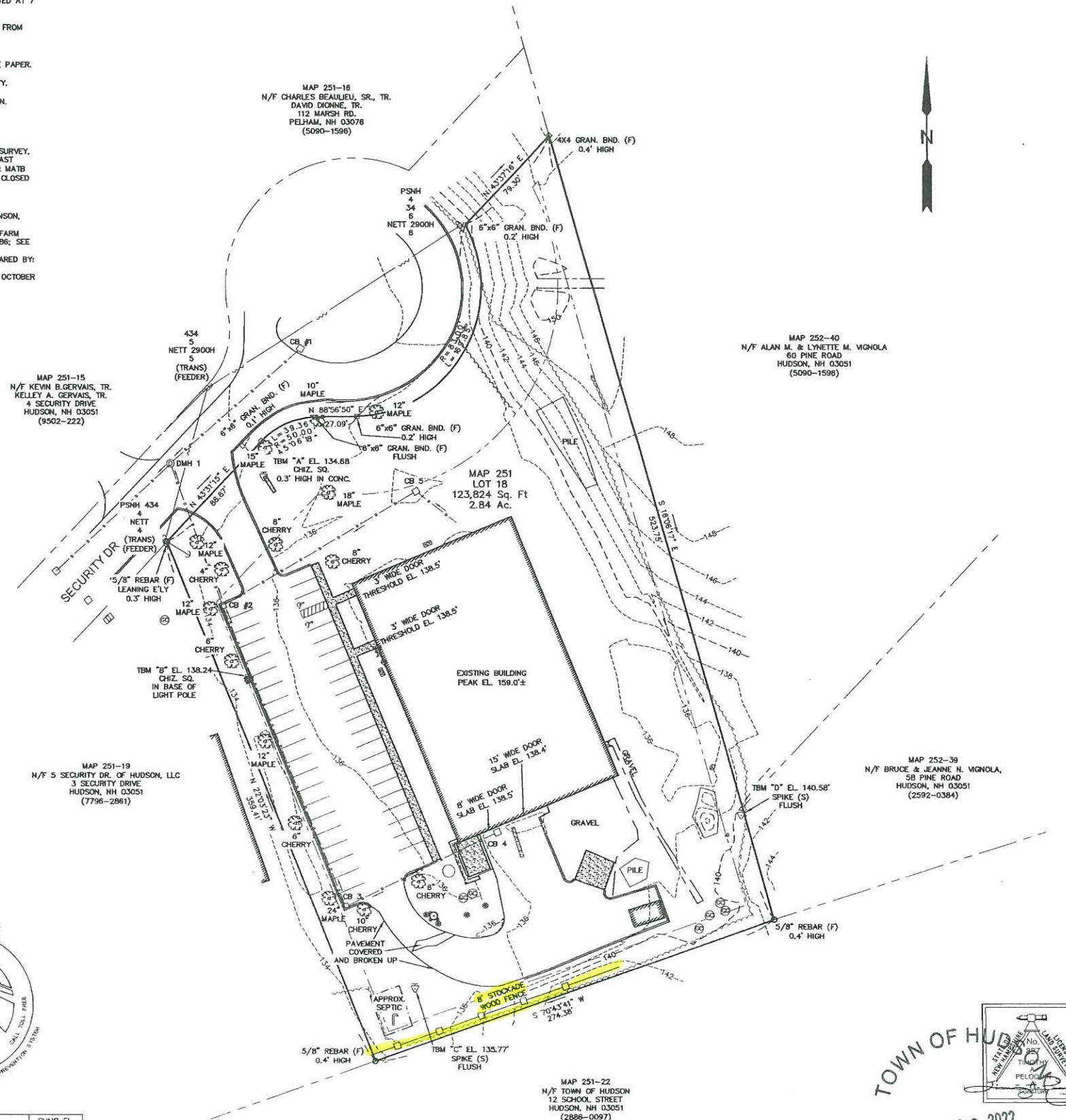
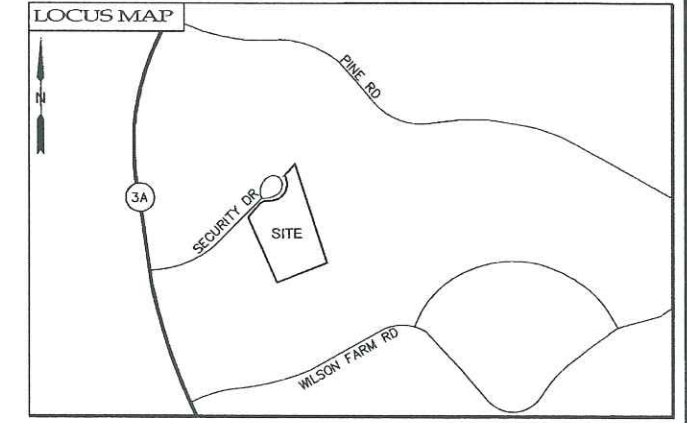
VERTICAL AND HORIZONTAL DATA SHOWN ARE BASED ON GNSS OBSERVATIONS BY PROMISED LAND SURVEY, LLC ON JULY 14, 2022 USING CARLSON BRO7 GPS. OBSERVATIONS WERE ADJUSTED USING A LEAST SQUARES ADJUSTMENT UTILIZING CORS STATIONS ZBW1 (NASHUA NH), WES2 (WESTFORD, MA), & MATB (TEWKSBURY, MA) AND WERE INSTRUMENT (LEICA TS16) VERIFIED AND INCORPORATED INTO THE CLOSED TRAVERSE, WHICH HAD A CLOSURE OF 1:114,517.

PLANS OF REFERENCE

- 1) SUBDIVISION PLAN PINE ROAD; PREPARED FOR: BRUCE MIGNOLA; PREPARED BY: ALLAN H. SWANSON, INC.; DATED: AUGUST 12, 1977; SEE HCR PLAN No. 10954.
- 2) SUBDIVISION PIA LOT 14 / MAP 2 NORMAND FARM DEVELOPMENT; PREPARED FOR: NORMAND FARM DEVELOPMENT COMPANY; PREPARED BY: MAYNARD & PAQUETTE, INC.; DATED: NOVEMBER 1, 1986; SEE HCR PLAN No. 24484.
- 3) SUBDIVISION PLAN POULIN SUBDIVISION; PREPARED FOR: GERARD AND JOHANNE POULIN; PREPARED BY: MAYNARD & PAQUETTE, INC.; DATED: OCTOBER 28, 1996; SEE HCR PLAN No. 28478.
- 4) SITE PLAN NASHUA FABRICATION CORP.; PREPARED BY: MAYNARD & PAQUETTE, INC.; DATED: OCTOBER 31, 1997; SEE HCR PLAN No. 28977.

ZONING

GENERAL-1 MINIMUM:
 SETBACKS:
 FRONT - 50'
 SIDE - 15'
 REAR - 15'



LEGEND

- BOUND
- ⊙ BOLLARD
- CATCH BASIN
- ⊕ DRAIN MANHOLE
- ⊖ ELECTRIC HAND HOLE
- ⊗ ELECTRIC METER
- ⊙ FIRE UTILITY
- ⊕ GAS METER
- ⊙ GAS TANK (LP)
- ⊕ GUYWIRE
- ⊕ HYDRANT-FIRE
- ⊕ IRON PIPE/REBAR
- ⊕ IRRIGATION
- ⊕ TREE - CONIFEROUS
- ⊕ TREE - DECIDUOUS
- ⊕ UTILITY POLE
- ⊕ VENT
- 140--- CONTOUR MAJOR
- 138--- CONTOUR MINOR
- CURBING
- DRAINAGE LINE
- EDGE OF PAVEMENT
- OVERHEAD ELECTRIC
- TREE LINE
- ▨ BUILDING
- ▨ CONCRETE



DRAINAGE INVERT INFORMATION

STRUCTURE	RM. EL.	INV. IN.	INV. IN.	INV. OUT.	SUMP EL.
CB 1	134.3'			18" RCP (W) EL. 129.5'	EL. 126.6'
DMH 1	133.0'	18" RCP (E) EL. 127.6'	18" HDPE (S) EL. 127.7'	18" RCP (W) EL. 127.6'	EL. 125.0'
CB 2	135.1'	18" HDPE (S) EL. 129.8'	15" HDPE (E) EL. 129.9'	18" RCP (N) EL. 130.0'	EL. 127.0'
CB 3	134.8'	12" HDPE (E) EL. 131.1'		18" HDPE (N) EL. 131.0'	EL. 128.5'
CB 4	137.7'			12" HDPE (W) EL. 134.8'	EL. 131.9'
CB 5	135.3'	8" PVC (SE) EL. 132.2'		15" HDPE (W) EL. 132.3'	EL. 129.5'



LAND OWNERS OF RECORD
 JMC HUDSON PROPERTIES, LLC
 5 LEHOUX DRIVE
 HOOKSETT, NH 03106
 HILLSBOROUGH COUNTY REGISTRY OF DEEDS BOOK 9482 / PAGE 759

EXISTING CONDITIONS PLAN
 NASHUA FABRICATION, INC.
 MAP 251 LOT 18
 7 SECURITY DR.
 HUDSON, NEW HAMPSHIRE
 AUGUST 16, 2022
 LAND OWNER: JMC HUDSON PROPERTIES, LLC
 5 LEHOUX DRIVE
 HOOKSETT, NH 03106
 SCALE: 1"=40' SHEET 1 OF 1

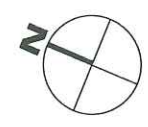
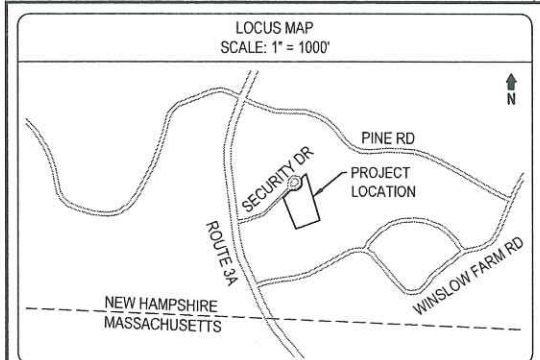
PREPARED BY:

 Promised Land Survey, LLC
 PO Box 447
 Derry, New Hampshire 03038
 Tel: (603) 432-2112
 www.PromisedLandSurvey.com
 Land Surveying • Mapping • Planning • Permitting • Layout

REVISIONS

NO.	DATE	DESCRIPTION	BY

TOWN OF HUDSON
 OCT 06 2022
 Zoning Department



GENERAL NOTES

1. APPLICANT/OWNER: JMC HUDSON PROPERTIES, LLC
5 LEHOUX DRIVE
HOOKSETT, NH 03106
2. LOT SHOWN ON ASSESSOR'S MAP 215-018-000, 7 SECURITY DRIVE IN THE TOWN OF HUDSON, OF HILLSBOROUGH COUNTY, AND THE STATE OF NEW HAMPSHIRE. (NHDES SUBDIVISION #35101-A)
3. PROPERTY LINE AND INFORMATION TAKEN FROM A PLAN ENTITLED "EXISTING CONDITION PLAN, NASHUA FABRICATION INC., MAP 251 LOT 18, 7 SECURITY DRIVE, HUDSON, NEW HAMPSHIRE" DATED AUGUST 16, 2022, PREPARED BY PROMISED LAND SURVEY, LLC.
4. EXISTING CONDITIONS INFORMATION PROVIDED BY PROMISED LAND SURVEY, LLC FROM INFORMATION GATHERED DURING AN IN THE FIELD SURVEY OF THE SITE PERFORMED IN SUMMER 2022
5. FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM) FOR THE TOWN OF HUDSON, HILLSBOROUGH COUNTY, NEW HAMPSHIRE, MAP NUMBER 33011C0658D, EFFECTIVE DATE: SEPTEMBER 25, 2009 INDICATES THE PROJECT PARCEL IS NOT LOCATED WITHIN A DESIGNATED FLOOD HAZARD AREA.
6. SITE IS SERVICE BY MUNICIPAL WATER AND PRIVATE SEPTIC (NHDES #CA1997006527).
7. PURPOSE OF THIS PLAN IS TO SHOW THE EXISTING AND PROPOSED SITE LAYOUT OF NEW PARKING, EXTENSION OF DRIVEWAY, AND ENCLOSURE OF 25' x 50' CONCRETE PAD.

GENERAL NOTES (CONT.)

8. IT SHALL BE UNLAWFUL TO MODIFY, CHANGE, OR ALTER ANY STRUCTURE SHOWN ON THIS PLAN IN ANY WAY, TO CONVERT OR ALTER ANY STRUCTURE SHOWN ON THIS PLAN, OR CHANGE THE USE INDICATED ON THIS PLAN WITHOUT RECEIVING PRIOR APPROVAL FROM THE TOWN OF HUDSON PLANNING BOARD.
9. THE OWNER SHALL BE RESPONSIBLE TO SUBMIT A COPY OF ALL ENVIRONMENTAL PERMITS OBTAINED TO THE TOWN OF HUDSON PLANNING BOARD, INCLUDING ANNUAL UP-DATES OF STORMWATER POLLUTION PREVENTION PLAN (S.W.P.P.) CONTACT INFORMATION.
10. THE OWNER SHALL BE RESPONSIBLE TO OBTAIN ANY NECESSARY RIGHT-OF-WAYS AND EASEMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY THAT THE OWNER HAS SECURED ANY NECESSARY RIGHT-OF-WAYS AND EASEMENTS, INCLUDING BEING FAMILIAR WITH THE APPLICABLE PROVISIONS OF EACH AS THEY APPLY TO THE WORK AND ABIDE BY THESE PROVISIONS DURING CONSTRUCTION.
11. THE CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES BETWEEN THE HOURS OF 7:00 AM TO 5:00 PM MONDAY THROUGH FRIDAY, NO CONSTRUCTION ACTIVITIES SHALL BE PERFORMED SATURDAYS AND SUNDAYS.
12. THE CONTRACTOR SHALL BE RESPONSIBLE TO FURNISH AND MAINTAIN A TELEPHONE NUMBER WHERE THE CONTRACTOR CAN BE REACHED 24-HOURS A DAY, 7 DAYS A WEEK, UNTIL PROJECT COMPLETION.
13. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTACT DIG SAFE (888-DIG-SAFE) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY CONSTRUCTION ACTIVITIES.
14. THE CONTRACTOR SHALL BE RESPONSIBLE TO COMPLY WITH ALL APPLICABLE REGULATIONS OF THE OCCUPATION SAFETY AND HEALTH ADMINISTRATION (O.S.H.A.).
15. THE CONTRACTOR SHALL BE RESPONSIBLE TO REVIEW ALL OF THE DRAWINGS, SPECIFICATIONS, AND PERMIT APPROVALS ASSOCIATED WITH THIS PROJECT'S SCOPE OF WORK PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS, RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE ENGINEER-OF-RECORD, IN WRITING, PRIOR TO THE INITIATION OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE ENGINEER-OF-RECORD SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF WORK DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL, STATE, AND FEDERAL CODES AND REGULATIONS.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION, INCLUDING BEING FAMILIAR WITH THE APPLICABLE PROVISIONS OF EACH PERMIT AS THEY APPLY TO THE WORK AND ABIDE BY THOSE PROVISIONS DURING CONSTRUCTION.
17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING "STREET OPENING PERMIT" FROM THE HUDSON PUBLIC WORKS DEPARTMENT PRIOR TO PERFORMING ANY WORK WITHIN THE MUNICIPALITY'S RIGHT-OF-WAY.
18. THE CONTRACTOR SHALL BE RESPONSIBLE TO INSTALL AND MAINTAIN TRAFFIC CONTROL DEVICES AS NECESSARY AND IN A MANNER CONSISTENT WITH THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.).
19. THE CONTRACTOR SHALL BE RESPONSIBLE TO SUBMIT A TRAFFIC CONTROL PLAN TO THE OWNER AND THE TOWN OF HUDSON PUBLIC WORKS DEPARTMENT PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE TO NOTIFY THE TOWN OF HUDSON POLICE DEPARTMENT (603-886-6011), FIRE DEPARTMENT (603-886-6021), AND PUBLIC WORKS DEPARTMENT (603-886-6018) AT LEAST 24-HOURS IN ADVANCE OF ANY STREET CLOSING OR DETOUR.
20. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DISTURBED AREAS. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE PERFORMED IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL", PUBLISHED BY THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES (LATEST EDITION).
21. ALL EXISTING STORM DRAINAGE INLETS SHALL BE PROTECTED BY STRAW BALE FILTERS AND CATCH BASIN FILTER BASKETS TO PREVENT ENTRY OF SEDIMENT FROM RUNOFF WATERS INTO THE STORM DRAIN SYSTEM.
22. SUITABLE EXCAVATION MATERIALS MAY BE INCORPORATED INTO THE PROJECT. THIS PROVISION SHALL NOT RELIEVE THE CONTRACTOR'S OBLIGATION TO REMOVE AND DISPOSE, IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS, OF ANY EXCESS SUITABLE MATERIAL OR MATERIAL DETERMINED BY THE ENGINEER-OF-RECORD TO BE UNSUITABLE.
23. ALL CONCRETE AND BITUMINOUS PATCH AREAS SHALL MATCH EXISTING GRADES. ALL CURB RADII ARE TO THE OUTSIDE FACE.
24. THERE WILL BE NO EXTERIOR LIGHTING.
25. EXISTING SIGNS IMPACTED BY THIS PROJECT SHALL BE RESET AT NO ADDITIONAL COST TO THE OWNER. RESETTING OF SIGNS SHALL CONFORM TO THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.).
26. NO FABRICATION OPERATION IN VIOLATION OF HUDSON TOWN CODE, PARTICULARLY SS249 NOISE AND SS334-16.1 SITE PLAN EXPANSION, SHALL OCCUR ON-SITE. NO FABRICATION OPERATIONS SHALL OCCUR ON THE PROPOSED CONCRETE EQUIPMENT/DRY STORAGE PAD UNTIL THE PAD IS ENCLOSED AND OPERATIONS COMPLY WITH NOISE ORDINANCE, HUDSON TOWN CODE SS249, AS PART OF A SEPARATE FUTURE APPROVED SITE PLAN.
27. APPLICANT SHALL SUBMIT CONSTRUCTION DETAIL SUFFICIENT TO EVALUATE THE SOUND INSULATION PERFORMANCE AS PART OF THE FUTURE SITE PLAN APPLICATION.

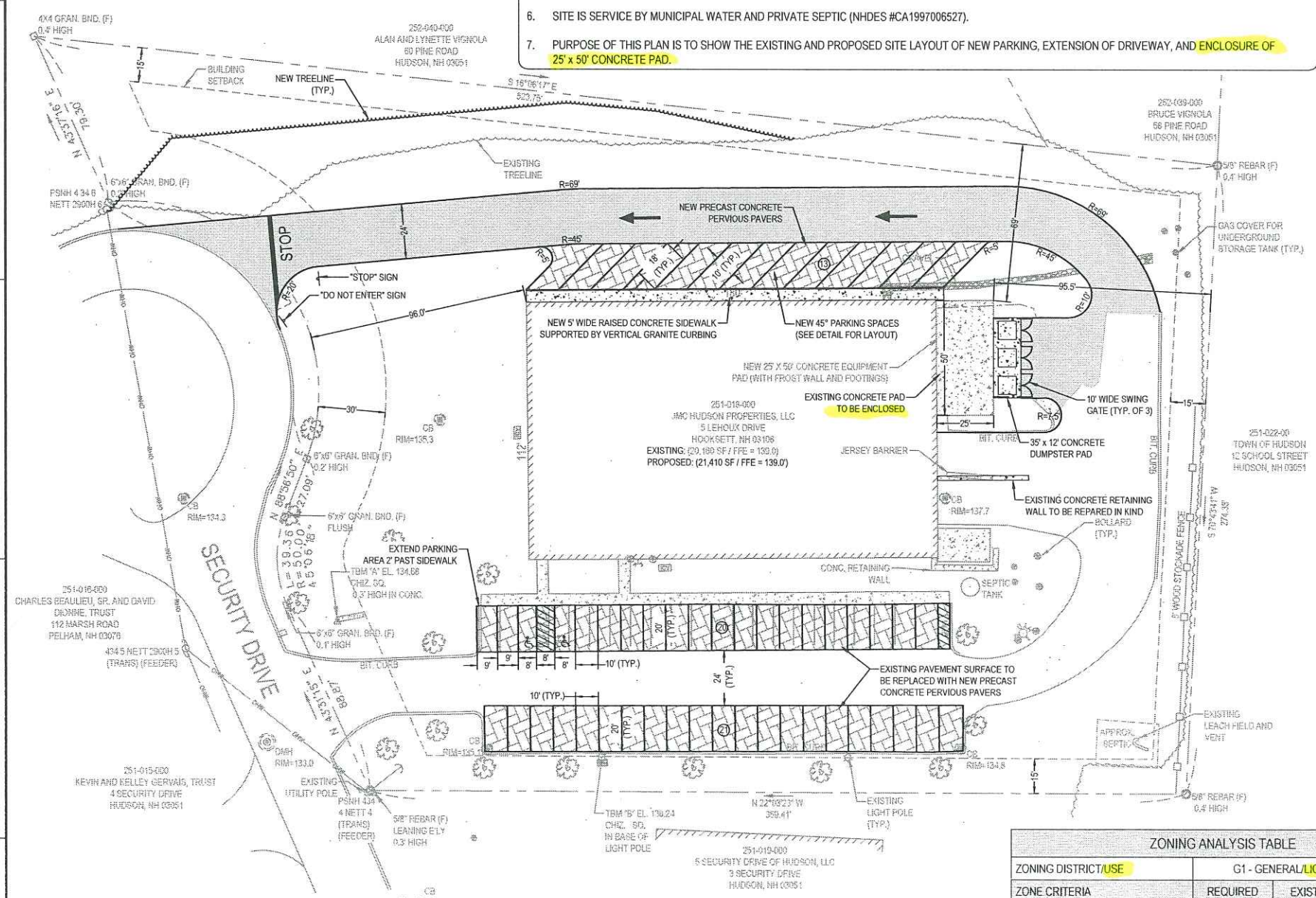
GALE
Gale Associates, Inc.
Engineers and Planners
6 BEDFORD FARMS DRIVE | BEDFORD, NH 03110
P: 603.471.1887 F: 603.471.1809
www.gainc.com
Boston Baltimore Orlando Halifax London

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NOT FOR CONSTRUCTION

PROJECT
**ASM FACILITY
7 SECURITY DRIVE
HUDSON, NH 03051**

OWNER
**JMC HUDSON PROPERTIES, LLC
5 LEHOUX DRIVE
HOOKSETT, NH 03106**



THE UNDERSIGNED HEREBY AGREE TO PERFORM ALL SITE IMPROVEMENTS AS SHOWN ON THIS PLAN AND AS CONDITIONED OR STIPULATED BY THE TOWN OF HUDSON PLANNING BOARD.

NICHOLAS MERCIER
JMC HUDSON PROPERTIES, LLC
5 LEHOUX DRIVE, HOOKSETT, NH

PURSUANT TO THE SITE REVIEW REGULATIONS OF THE HUDSON PLANNING BOARD, THE SITE PLAN APPROVAL GRANTED HEREIN EXPIRES ONE YEAR FROM DATE OF APPROVAL.

APPROVED BY THE HUDSON, NH PLANNING BOARD.

DATE OF MEETING: _____

SIGNATURE DATE: _____
SIGNATURE DATE: _____

SITE PLANS ARE VALID FOR TWO YEARS FROM THE DATE OF PLANNING BOARD MEETING FINAL APPROVAL. FINAL APPROVAL COMMENCES AT THE PLANNING BOARD MEETING DATE AS WHICH THE PLAN RECEIVES FINAL APPROVAL.

ZONING ANALYSIS TABLE			
ZONING DISTRICT/USE	G1 - GENERAL/LIGHT INDUSTRIAL		
ZONE CRITERIA	REQUIRED	EXISTING	PROPOSED
MINIMUM TOTAL LOT SIZE	2.00 AC	2.84 AC	2.84 AC
MINIMUM LOT FRONTAGE	200'	325.42'	325.42'
MINIMUM FRONT SET BACK	30'	96.0'	96.0'
MINIMUM SIDE SET BACK	15'	69.0'	69.0'
MINIMUM REAR SET BACK	15'	114.3'	95.5'
OPEN SPACE	40%	61.5%	58.3%
BUILDING HEIGHT (MAX.)	50'	N/A	N/A
PARKING SPACES:	1 / 600 G.F.A.	40	54
CALCULATION (INDUSTRIAL): 21,410 / 600 = 36 PARKING SPACES			

TOWN OF HUDSON
OCT 06 2022
Zoning Department

SITE PLAN LEGEND		
EXISTING	ITEM	NEW
	EDGE OF PAVEMENT	
	CONCRETE	
	PAVEMENT MARKING	
	BUILDING	
	PERVIOUS PAVERS	
	BITUMINOUS CONCRETE	
	HYDRANT	
	PROPERTY LINE/RIGHT-OF-WAY	
	BUILDING SETBACK	
	WATER	
	ELECTRIC DRAIN	
	BENCHMARK	
	TREELINE	

NO.	DATE	DESCRIPTION	BY
PROJECT NO.	718770		
CADD FILE	718770_C101		
DESIGNED BY	MSK		
DRAWN BY	MSK		
CHECKED BY	SMB		
DATE	9/13/2022		
DRAWING SCALE	1" = 30'		
GRAPHIC SCALE			
SHEET TITLE			
SITE PLAN			
DRAWING NO.			C101
4 OF 13			



TOWN OF HUDSON

Planning Board

Timothy Malley, Chairman



12 School Street · Hudson, New Hampshire 03051 · Tel: 603-886-6008 · Fax: 603-594-1142

CAP FEE WORKSHEET - 2022

Date: 10-21-22 Zone # 2 Map/Lot: 251/018 7 Security Drive

Project Name: ASM Facility Site Plan

Proposed ITE Use #1: Light Industrial

Proposed Building Area (net square footage): 1,250 S.F.

CAP FEES: (ONE CHECK NEEDED)

1.	(Bank 09) 2070-701	Zone 2 (\$1.46 per sf X 1,250 sf)	\$ <u>1,825.00</u>
----	-----------------------	--------------------------------------	--------------------

Check should be made payable to the Town of Hudson.



*Town of Hudson
12 School Street
Hudson, NH 03501*

SITE PLAN APPLICATION

Revised August 1, 2022

The following information must be filed with the Planning Department *at the time of filing a site plan application*:

1. One (1) original completed application with original signatures, and one (1) copy.
2. Three (3) full plan sets (sheet size: 22" x 34").
3. One (1) original copy of the project narrative, and one (1) copy.
4. A list of direct abutters and a list of indirect abutters, and two (2) sets of mailing labels for abutter notifications.
5. All of the above application materials, including plans, shall also be submitted in electronic form as a PDF.
6. All plans shall be folded and all pertinent data shall be attached to the plans with an elastic band or other enclosure.

The following information is required to be filed with the Planning Department *no later than 10:00 A.M., Tuesday ONE WEEK prior to the scheduled Planning meeting. The purpose of these materials is hardcopy distribution to Planning Board members, not review. Any plan revisions that require staff review must be submitted no later than 10:00A.M., Tuesday TWO WEEKS prior to the scheduled Planning meeting. Depending on the complexity of changes, more time may be required for review. Please contact the Town Planner if you have any questions on this matter.*

1. Submission of fifteen (15) 11" X 17" plan sets, revised if applicable.
2. Submission of two (2) full plan sets (sheet size: 22" x 34"), if revised.
3. All of the above application materials, including plans, shall also be submitted in electronic form as a PDF.

Note: Prior to filing an application, it is recommended to schedule an appointment with the Town Planner.

MEMORANDUM

TO: Brian Groth, Hudson Town Planner

RE: JMC Hudson Properties, LLC (7 Security Drive – Parcel ID 251-018-000)
Project Narrative

DATE: September 16, 2022

Project Narrative

JMC Hudson Properties, LLC is the owner of the existing light-industrial facility located at 7 Security Drive in Hudson, NH. Identified on the Town of Hudson's assessor's map as Parcel ID 251-018-000, the 2.84-acre site is located within the Town's G1 – General zoning district. The existing site consists of a 20,160 square-foot, light industrial, slab-on-grade building; 40 parking spaces (two of which are ADA Van accessible); 2 loading docks located along the rear (south side) of the facility; and is supported by a combination of public and private utilities – including public water service, private sanitary septic, underground electric, underground telephone, and a closed drainage system.

On May 11, 2022 JMC Hudson Properties filed a Minor Site Plan application to construct a 25-foot by 50-foot cast-in-place concrete equipment pad (with frost walls and footings). This request was approved during the June 20, 2022 special site review committee meeting.

Currently, JMC Hudson Properties is filing a Site Plan application to enclose of the 25' x 50' concrete equipment pad, extend the existing driveway to improve truck traffic movements, replace existing 41 impervious parking stalls with porous surface area, and add 13 parking stalls (porous surface area). All improvements are proposed to be constructed within the building set back limits and will not impact/disturb/reduce the approximate 275-foot vegetated buffer between the existing facility and proposed improvements to the adjacent southerly residential building located along Winslow Farm Road.

End of Memorandum

SITE PLAN APPLICATION

Date of Application: September 16, 2022 Tax Map #: 251 Lot #: 018

Site Address: 7 Security Drive, Hudson, NH

Name of Project: ASM Facility

Zoning District: G1 - General General SP#: _____
(For Town Use Only)

Z.B.A. Action: _____

PROPERTY OWNER:

Name: JMC Hudson Properties, LLC

Address: 5 Lehoux Drive, Hooksett, NH 03106

Address: _____

Telephone # 603-674-8239

Email: nick@macyind.com

DEVELOPER:

None

PROJECT ENGINEER:

Name: Gale Associates, Inc.

Address: 6 Bedford Farms Drive, Suite 101

Address: Bedford, NH 03110

Telephone # 603-471-1887

Email: smb@gain.com

SURVEYOR:

Promised Land Survey, LLC

60 Crystal Avenue, Unit A

Derry, New Hampshire 03038

603-432-2112

tap@promisedlandsurvey.com

PURPOSE OF PLAN:

Enclosure of the 25' x 50' concrete equipment pad, extension of existing driveway to improve truck traffic movements, replace existing 41 impervious parking stalls with porous surface area, and add 13 parking stalls (porous surface area).

(For Town Use Only)

Routing Date: _____ Deadline Date: _____ Meeting Date: _____

_____ I have no comments _____ I have comments (attach to form)

_____ Title: _____ Date: _____

(Initials)

Department: _____

Zoning: ___ Engineering: ___ Assessor: ___ Police: ___ Fire: ___ DPW: ___ Consultant: ___

SITE DATA SHEET

PLAN NAME: ASM Facility

PLAN TYPE: SITE PLAN

LEGAL DESCRIPTION: MAP 251 LOT 018

DATE: _____

Location by Street: 7 Security Drive, Hudson, NH

Zoning: G1 - General

Proposed Land Use: Light Industrial

Existing Use: Light Industrial

Surrounding Land Use(s): Industrial and Residential

Number of Lots Occupied: One (1)

Existing Area Covered by Building: 20,160 S.F. (enclosed) / 1,250 S.F. (open)

Existing Buildings to be removed: None

Proposed Area Covered by Building: 21,410 S.F. (enclosed)

Open Space Proposed: 48.6%

Open Space Required: 40%

Total Area: S.F.: 123,731 Acres: 2.84

Area in Wetland: None Area Steep Slopes: 32,600 S.F.

Required Lot Size: 87,120 S.F. (2.0Ac)

Existing Frontage: 325.42'

Required Frontage: 200'

Building Setbacks:	<u>Required*</u>	<u>Proposed</u>
Front:	<u>30'</u>	<u>96.0'</u>
Side:	<u>15'</u>	<u>69.0'</u>
Rear:	<u>15'</u>	<u>95.5'</u>

SITE DATA SHEET
(Continued)

Flood Zone Reference: FEMA Map No. 33011C0658D, Dates SEPTEMBER 25, 2009

Width of Driveways: 24'

Number of Curb Cuts: 1 Existing, 2 Proposed

Proposed Parking Spaces: 41 Existing, 54 Proposed

Required Parking Spaces: 36

Basis of Required Parking (Use): Industrial

Dates/Case #/Description/Stipulations
of ZBA, Conservation Commission,
NH Wetlands Board Actions: None
(Attach stipulations on separate sheet)

Waiver Requests

<i>Town Code Reference:</i>	<i>Regulation Description:</i>
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

(For Town Use Only)
Data Sheets Checked By: _____ Date: _____

SITE PLAN APPLICATION AUTHORIZATION

I hereby apply for *Site Plan* Review and acknowledge I will comply with all of the Ordinances of the Town of Hudson, New Hampshire State Laws, as well as any stipulations of the Planning Board, in development and construction of this project. I understand that if any of the items listed under the *Site Plan* specifications or application form are incomplete, the application will be considered rejected.

Pursuant to RSA 674:1-IV, the owner(s) by the filing of this application as indicated above, hereby given permission for any member of the Hudson Planning Board, the Town Planner, the Town Engineer, and such agents or employees of the Town or other persons as the Planning Board may authorize, to enter upon the property which is the subject of this application at all reasonable times for the purpose of such examinations, surveys, tests and inspections as may be appropriate. The owner(s) release(s) any claim to or right he/she (they) may now or hereafter possess against any of the above individuals as a result of any examinations, surveys, tests and/or inspections conducted on his/her (their) property in connection with this applications.

Signature of Owner: _____ Date: _____

Print Name of Owner: Nicholas Mercier

- ❖ If other than an individual, indicate name of organization and its principal owner, partners, or corporate officers.

Signature of Developer: N/A Date: N/A

Print Name of Developer: N/A

- ❖ The developer/individual in charge must have control over all project work and be available to the Code Enforcement Officer/Building Inspector during the construction phase of the project. The individual in charge of the project must notify the Code Enforcement Officer/Building Inspector within two (2) working days of any change.

WAIVER REQUEST FORM

Name of Subdivision/Site Plan: _____

Street Address: _____

I _____ hereby request that the Planning Board waive the requirements of item _____ of the Hudson Land Use Regulations in reference to a plan presented by _____ (name of surveyor and engineer) dated _____ for property tax map(s) _____ and lot(s) _____ in the Town of Hudson, NH.

As the aforementioned applicant, I, herein, acknowledge that this waiver is requested in accordance with the provisions set forth in RSA 674:36, II (n), i.e., without the Planning Board granting said waiver, it would pose an unnecessary hardship upon me (the applicant), and the granting of this waiver would not be contrary to the spirit and intent of the Land Use Regulations.

Hardship reason(s) for granting this waiver (if additional space is needed please attach the appropriate documentation hereto):

Reason(s) for granting this waiver, relative to not being contrary to the spirit and intent of the Land Use Regulations: (if additional space is needed please attach the appropriate documentation hereto):

Signed:

Applicant or Authorized Agent

SCHEDULE OF FEES

A. REVIEW FEES:

<u>1. Site Plan Use</u>	<u>Project Size/Fee</u>	
Multi-Family	\$105.00/unit for 3-50 units \$78.50/unit for each additional unit over 50	\$ <u>0.00</u>
Commercial/Semi Public/Civic or Recreational	\$157.00/1,000 sq. ft. for first 100,000 sq.ft. (bldg. area): \$78.50/1,000 sq.ft. thereafter.	\$ <u>0.00</u>
Industrial	\$150.00/1,000 sq.ft for first 100,000 sq.ft. (bldg. area); \$78.50/1,000 sq.ft thereafter.	\$ <u>187.50</u>
No Buildings	\$30.00 per 1,000 sq.ft. of proposed developed area	\$ <u>0.00</u>

CONSULTANT REVIEW FEE: (Separate Check)

Total 2.48 acres @ \$600.00 per acre, or \$1,250.00, whichever is greater. \$ 1,488.00

This is an estimate for cost of consultant review. The fee is expected to cover the amount. A complex project may require additional funds. A simple project may result in a refund.

LEGAL FEE:

The applicant shall be charged attorney costs billed to the Town for the Town's attorney review of any application plan set documents.

B. POSTAGE:

<u>6</u> Direct Abutters Applicant, Professionals, etc. as required by RSA 676:4.1.d @\$4.60 (or Current Certified Mail Rate)	\$ <u>27.60</u>
<u>7</u> Indirect Abutters (property owners within 200 feet) @\$0.60 (or Current First Class Rate)	\$ <u>4.20</u>

C. TAX MAP UPDATING FEE: (FLAT FEE) \$ 275.00

TOTAL \$ 1,982.30

SCHEDULE OF FEES
(Continued)

(For Town Use)	
AMOUNT RECEIVED: \$ _____	DATE RECEIVED: _____
RECEIPT NO.: _____	RECEIVED BY: _____

NOTE: fees below apply only upon plan approval, not collected at time of application.

D. RECORDING:

*****The applicant shall be responsible for the recording of the approved plan, and all documents as required by an approval, at the Hillsborough County Registry of Deeds (HCRD), located at 19 Temple Street, Nashua, NH 03061. Additional fees associated with recording can be found at HCRD.*****

E. COST ALLOCATION PROCEDURE AMOUNT CONTRIBUTION AND OTHER IMPACT FEE PAYMENTS:

To be determined by the Planning Board at time of plan approval and shall be paid by the applicant at the time of submittal of the Certificate of Occupancy Permit requests.

*****The applicant shall be responsible for all fees incurred by the town for processing and review of the applicant's application, plan and related materials.*****

SITE PLAN

ASM FACILITY

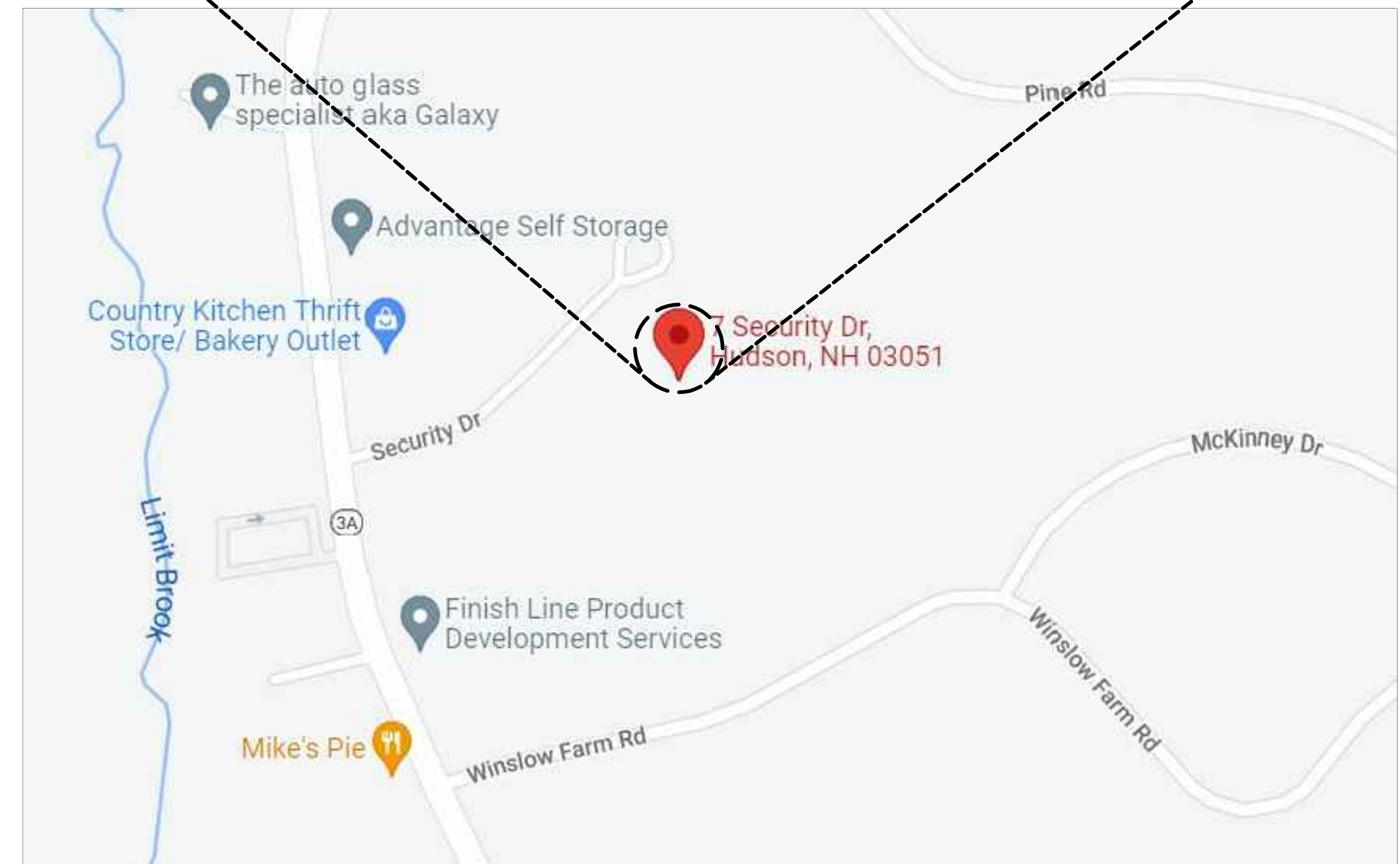
7 SECURITY DRIVE
HUDSON, NH 03051

PREPARED FOR
JMC HUDSON PROPERTIES, LLC
5 LEHOUX DRIVE
HOOKSETT, NH 03106

DRAWING NO	TITLE
G001	COVER SHEET
SHEET 1 OF 1	EXISTING CONDITIONS PLAN
C002	DEMOLITION PLAN
C101	SITE PLAN
C102	TRUCK TURNING MOVEMENT PLAN
C103	DRAINAGE AND GRADING PLAN
C201	DRIVEWAY PROFILE AND CROSS-SECTIONS
C202	DRIVEWAY CROSS-SECTIONS
C301	EROSION CONTROL PLAN
C302	EROSION CONTROL NOTES AND DETAILS
C501	CIVIL CONSTRUCTION DETAILS (SHEET 1 OF 3)
C502	CIVIL CONSTRUCTION DETAILS (SHEET 2 OF 3)
C503	CIVIL CONSTRUCTION DETAILS (SHEET 3 OF 3)



SITE MAP
NOT TO SCALE



LOCATION MAP
NOT TO SCALE



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03110
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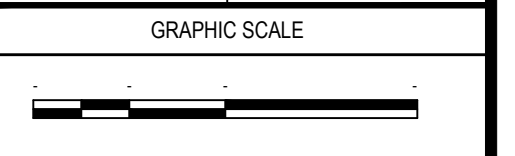
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NOT FOR CONSTRUCTION

PROJECT	ASM FACILITY 7 SECURITY DRIVE HUDSON, NH 03051
OWNER	JMC HUDSON PROPERTIES, LLC 5 LEHOUX DRIVE HOOKSETT, NH 03106

NO.	DATE	DESCRIPTION	BY

PROJECT NO.	718770
CADD FILE	718770_G001
DESIGNED BY	APL
DRAWN BY	APL
CHECKED BY	SMB
DATE	9/19/2022
DRAWING SCALE	NOT TO SCALE



SHEET TITLE
COVER SHEET

DRAWING NO.	G001
1 OF 13	

NOTES

- 1) THE PURPOSE OF THIS PLAN IS TO DEPICT THE EXISTING CONDITIONS OF MAP 251 LOT 18, LOCATED AT 7 SECURITY DRIVE IN HUDSON, NEW HAMPSHIRE.
- 2) THIS PLAN IS BASED ON FIELD EVIDENCE LAST OBSERVED IN JULY OF 2022.
- 3) THIS PARCEL OF LAND DOES NOT LIE WITHIN A SPECIAL FLOOD HAZARD AREA AS INTERPOLATED FROM THE FLOOD INSURANCE RATE MAP (FIRM) FOR HILLSBOROUGH COUNTY, NEW HAMPSHIRE (ALL JURISDICTIONS) #3301100580, HAVING AN EFFECTIVE DATE OF SEPTEMBER 25 2009.
- 4) THE SUBJECT LOT IS SERVICED BY A PRIVATE, ONSITE SEPTIC AND PUBLIC WATER.
- 5) THIS PLAN IS INTENDED TO BE AT THE DEPICTED SCALE WHEN PLOTTED ON 22x34 (ANSI D) SIZE PAPER.
- 6) ALL DISTANCES, UNLESS OTHERWISE INDICATED, ARE US SURVEY FEET HORIZONTAL.
- 7) ALL ZONING INFORMATION SHALL BE VERIFIED PRIOR TO ANY BUILDING OR CONSTRUCTION ACTIVITY.
- 8) NO WETLANDS WERE OBSERVED WHILE ON SITE.
- 9) UNDERGROUND UTILITIES EXIST CONTACT DIG SAFE (811) PRIOR TO ANY SITE WORK/CONSTRUCTION.

DATUM

HORIZONTAL: NAD83-2011
 VERTICAL: NAVD88 - GEOID18

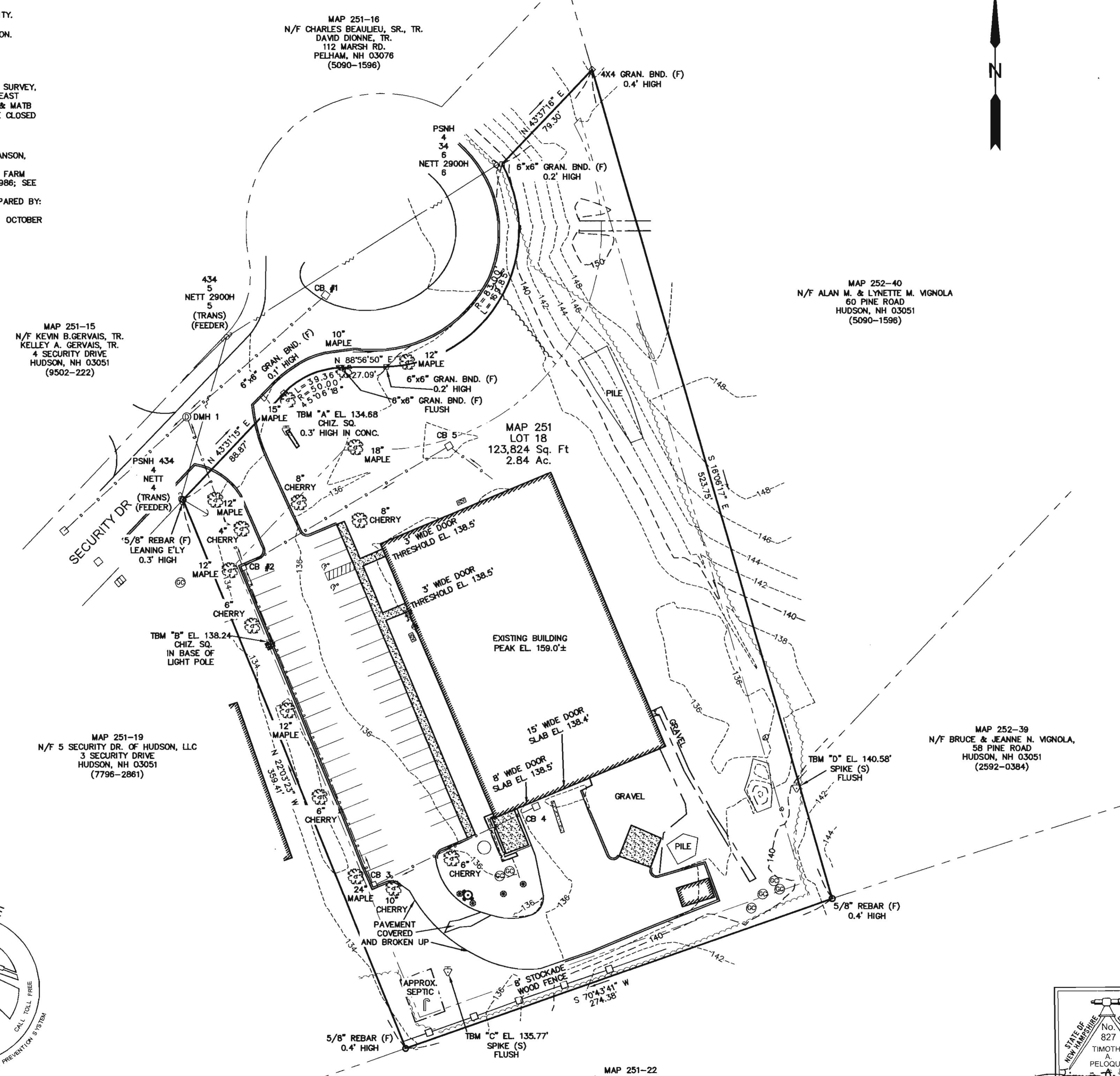
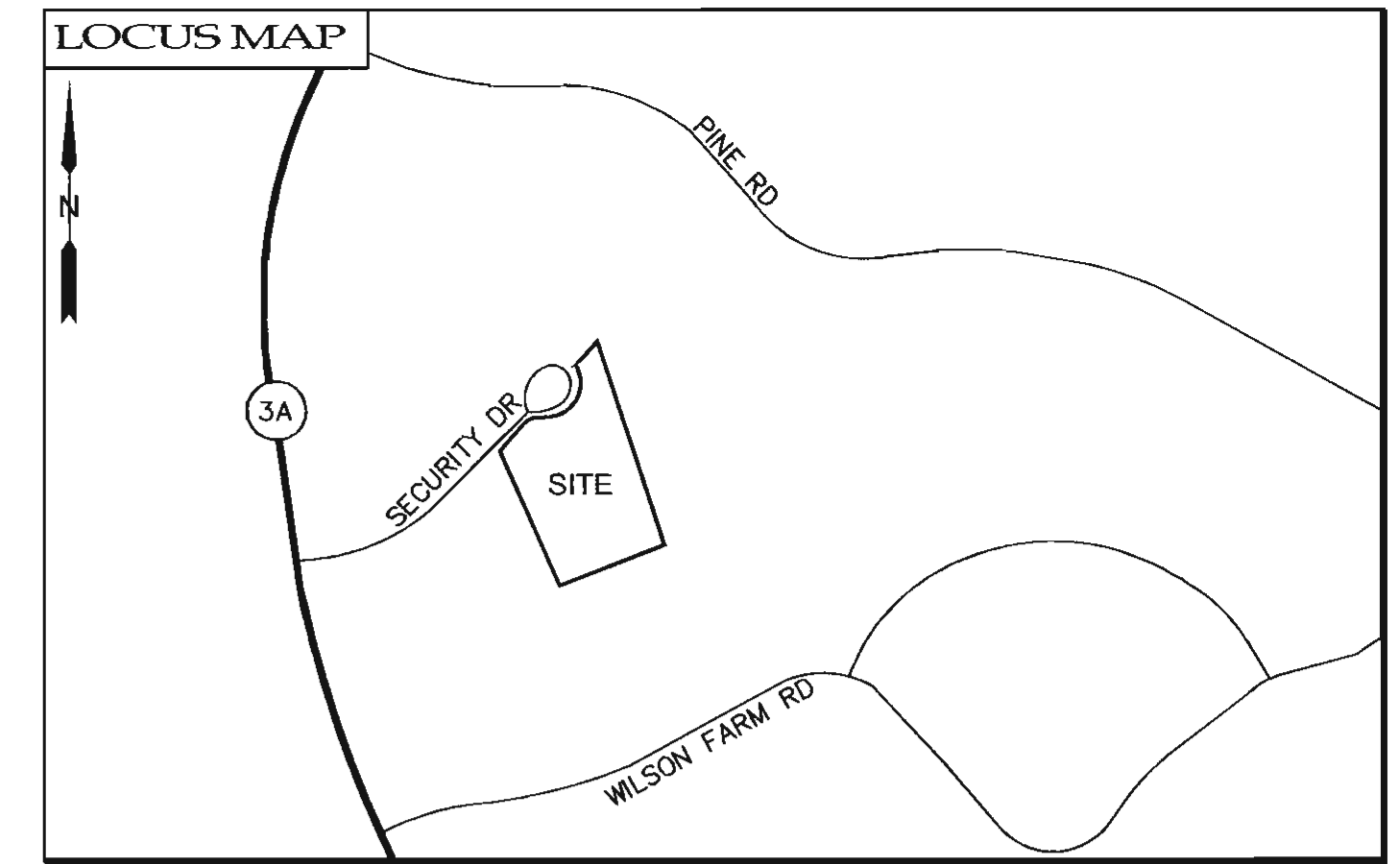
VERTICAL AND HORIZONTAL DATA SHOWN ARE BASED ON GNSS OBSERVATIONS BY PROMISED LAND SURVEY, LLC ON JULY 14, 2022 USING CARLSON BRX7 GPS. OBSERVATIONS WERE ADJUSTED USING A LEAST SQUARES ADJUSTMENT UTILIZING CORS STATIONS ZBW1 (MASHUA NH), WES2 (WESTFORD, MA), & MATB (TEMPESBURY, MA) AND WERE INSTRUMENT (LEICA TS16) VERIFIED AND INCORPORATED INTO THE CLOSED TRAVERSE, WHICH HAD A CLOSURE OF 1:114,517.

PLANS OF REFERENCE

- 1) SUBDIVISION PLAN PINE ROAD"; PREPARED FOR: BRUCE VIGNOLA; PREPARED BY: ALLAN H. SWANSON, INC.; DATED: AUGUST 12, 1977; SEE HCR PLAN No. 10054.
- 2) "SUBDIVISION PLA LOT 14 / MAP 2 NORMAND FARM DEVELOPMENT"; PREPARED FOR: NORMAND FARM DEVELOPMENT COMPANY; PREPARED BY: MAYNARD & PAQUETTE, INC.; DATED: NOVEMBER 1, 1986; SEE HCRD PLAN No. 24484.
- 3) "SUBDIVISION PLAN POULIN SUBDIVISION"; PREPARED FOR: GERARD AND JOHANNE POULIN; PREPARED BY: MAYNARD & PAQUETTE, INC.; DATED: OCTOBER 28, 1998; SEE HCRD PLAN No. 28478.
- 4) "SITE PLAN MASHUA FABRICATION CORP."; PREPARED BY: MAYNARD & PAQUETTE, INC.; DATED: OCTOBER 31, 1997; SEE HCRD PLAN No. 28977.

ZONING

GENERAL-1 MINIMUM:
 SETBACKS:
 FRONT - 50'
 SIDE - 15'
 REAR - 15'



LEGEND

- BOUND
- ⊙ BOLLARD
- CATCH BASIN
- ⊙ DRAIN MANHOLE
- ⊙ ELECTRIC HAND HOLE
- ⊙ ELECTRIC METER
- ⊙ FIRE UTILITY
- ⊙ GAS METER
- ⊙ GAS TANK (LP)
- ⊙ GUYWIRE
- ⊙ HYDRANT-FIRE
- ⊙ IRON PIPE/REBAR
- ⊙ IRRIGATION
- ⊙ TREE - CONIFEROUS
- ⊙ TREE - DECIDUOUS
- ⊙ UTILITY POLE
- ⊙ VENT
- 140 — CONTOUR MAJOR
- 138 — CONTOUR MINOR
- — CURBING
- — DRAINAGE LINE
- — EDGE OF PAVEMENT
- — OVERHEAD ELECTRIC
- — TREE LINE
- ▨ BUILDING
- ▨ CONCRETE



DRAINAGE INVERT INFORMATION

STRUCTURE	RIM EL.	INV. IN	INV. IN	INV. OUT	SUMP EL.
CB 1	134.3'			18" RCP (W) EL. 129.5'	EL. 126.6'
DMH 1	133.0'	18" RCP (E) EL. 127.6'	18" HDPE (S) EL. 127.7'	18" RCP (W) EL. 127.6'	EL. 125.0'
CB 2	135.1'	18" HDPE (S) EL. 129.8'	15" HDPE (E) EL. 129.9'	18" RCP (N) EL. 130.0'	EL. 127.0'
CB 3	134.8'	12" HDPE (E) EL. 131.1'		18" HDPE (N) EL. 131.0'	EL. 128.5'
CB 4	137.7'		12" HDPE (W) EL. 134.8'		EL. 131.9'
CB 5	135.3'	8" PVC (SE) EL. 132.2'		15" HDPE (W) EL. 132.3'	EL. 129.5'



LAND OWNERS OF RECORD
 JMC HUDSON PROPERTIES, LLC
 5 LEHOX DRIVE
 HOOKSETT, NH 03106
 HILLSBOROUGH COUNTY REGISTRY OF DEEDS BOOK 9482 / PAGE 759

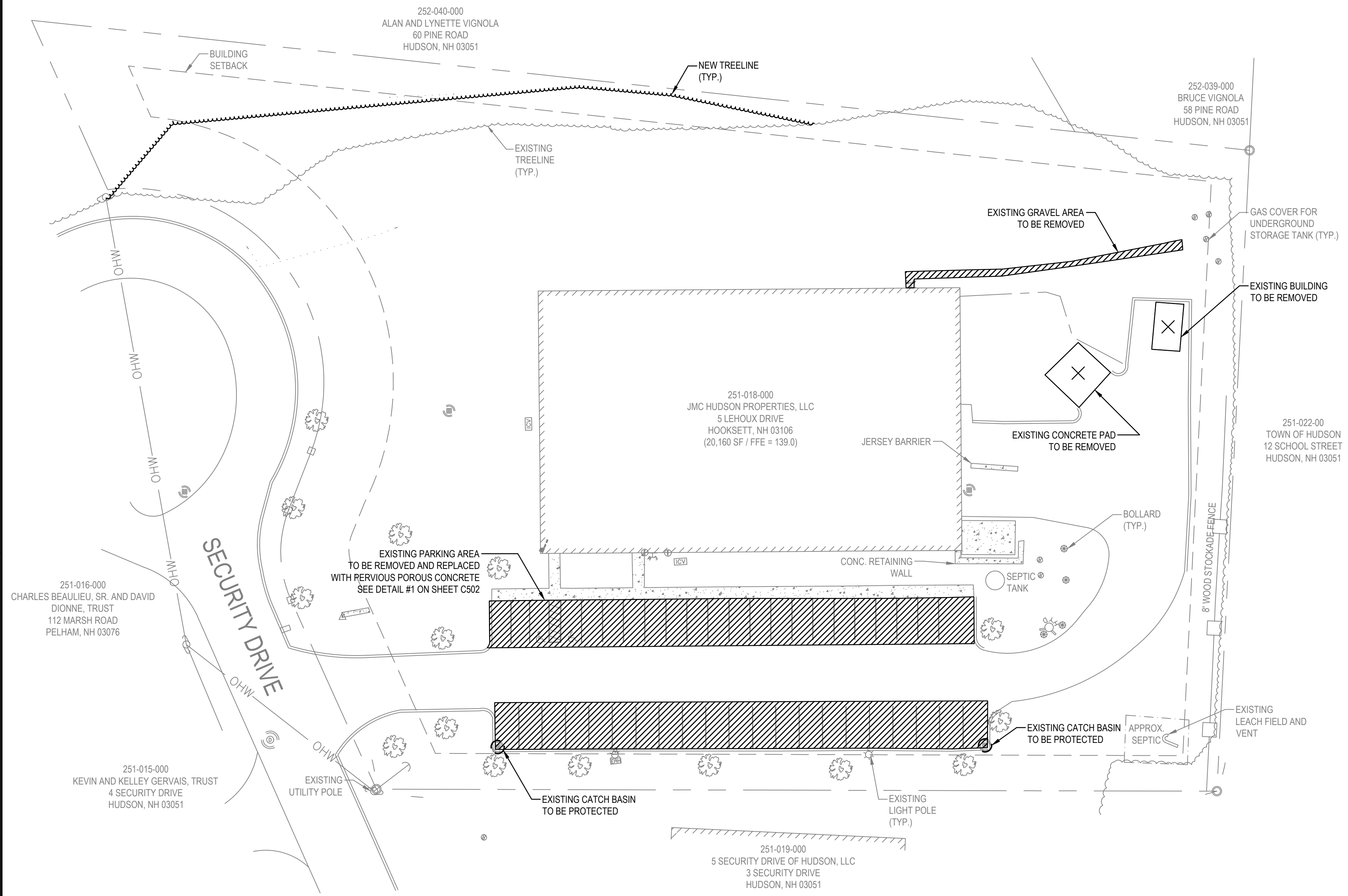
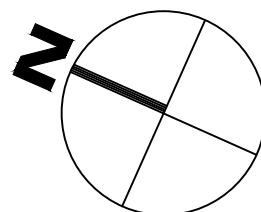
EXISTING CONDITIONS PLAN
NASHUA FABRICATION, INC.
 MAP 251 LOT 18
 7 SECURITY DR.
 HUDSON, NEW HAMPSHIRE
 AUGUST 16, 2022
 LAND OWNER: JMC HUDSON PROPERTIES, LLC
 5 LEHOX DRIVE
 HOOKSETT, NH 03106
 SCALE: 1"=40' SHEET 1 OF 1

PREPARED BY:

Promised Land Survey, LLC
 PO Box 447
 Derry, New Hampshire 03038
 Tel: (603) 432-2112
 www.PromisedLandSurvey.com
 Land Surveying • Mapping • Planning • Permitting • Layout

REVISIONS

NO.	DATE	DESCRIPTION	BY



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 Engineers and Planners
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 P 603.471.1887 F 603.471.1809
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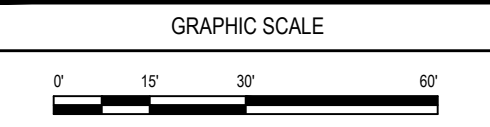
NOT FOR CONSTRUCTION

PROJECT
**ASM FACILITY
 7 SECURITY DRIVE
 HUDSON, NH 03051**

OWNER
**JMC HUDSON PROPERTIES, LLC
 5 LEHOUX DRIVE
 HOOKSETT, NH 03106**

NO.	DATE	DESCRIPTION	BY

PROJECT NO.	718770
CADD FILE	718770_C002
DESIGNED BY	APL
DRAWN BY	APL
CHECKED BY	SMB
DATE	9/19/2022
DRAWING SCALE	1" = 30'

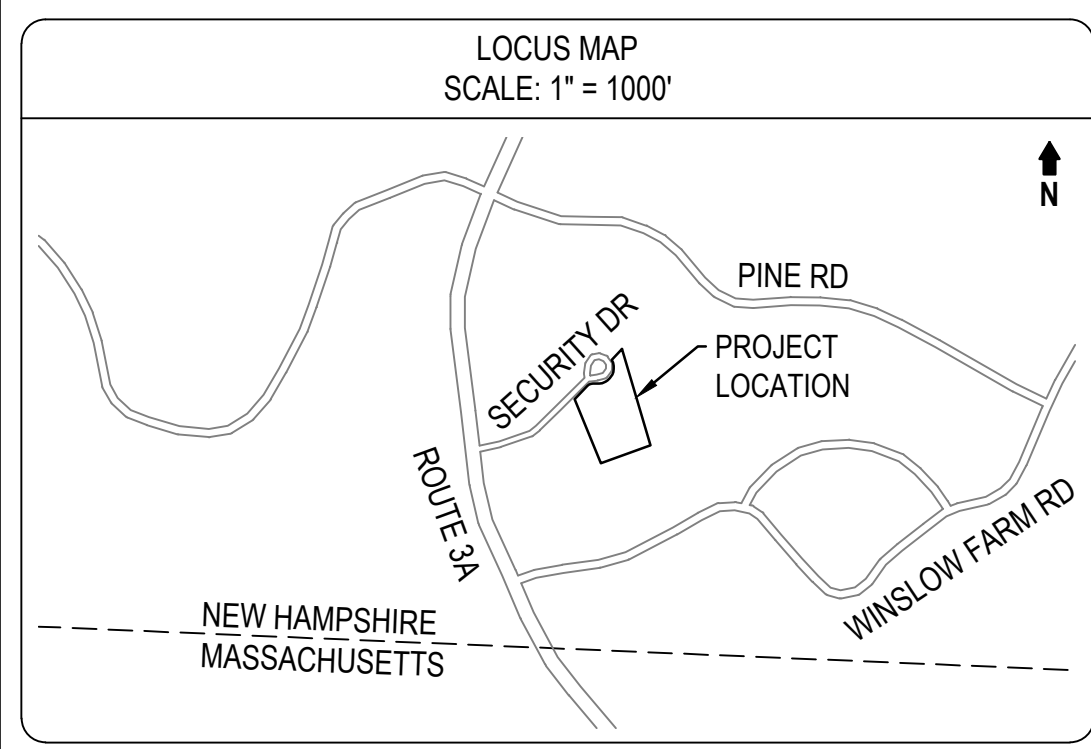


SHEET TITLE

DEMOLITION PLAN

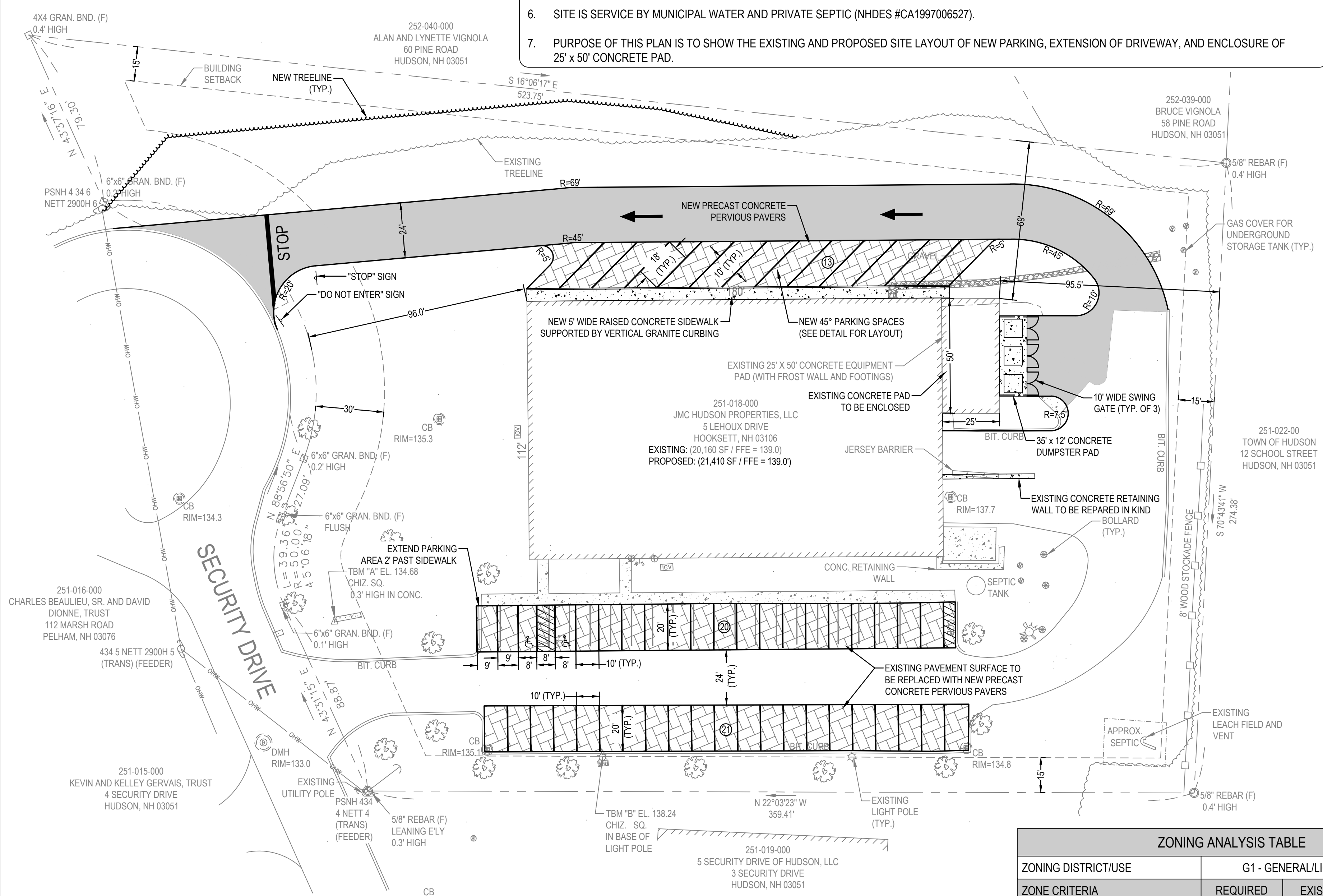
EXISTING	ITEM	DEMO.
	LIMITS OF EXISTING BITUMINOUS CONCRETE PAVEMENT TO BE REPLACED	
	STRUCTURE, UTILITY, OR SITE FEATURE TO BE REMOVED	
	SITE FEATURE TO REMAIN AND BE PROTECTED	
	TREELINE	

DRAWING NO.
C002
 3 OF 13



- ### GENERAL NOTES
- APPLICANT/OWNER: JMC HUDSON PROPERTIES, LLC
5 LEHOUX DRIVE
HOOKSETT, NH 03106
 - LOT SHOWN ON ASSESSOR'S MAP 215-018-000, 7 SECURITY DRIVE IN THE TOWN OF HUDSON, OF HILLSBOROUGH COUNTY, AND THE STATE OF NEW HAMPSHIRE. (NHDES SUBDIVISION #35101-A)
 - PROPERTY LINE AND INFORMATION TAKEN FROM A PLAN ENTITLED "EXISTING CONDITION PLAN, NASHUA FABRICATION INC., MAP 251 LOT 18, 7 SECURITY DRIVE, HUDSON, NEW HAMPSHIRE" DATED AUGUST 16, 2022, PREPARED BY PROMISED LAND SURVEY, LLC.
 - EXISTING CONDITIONS INFORMATION PROVIDED BY PROMISED LAND SURVEY, LLC FROM INFORMATION GATHERED DURING AN IN THE FIELD SURVEY OF THE SITE PERFORMED IN SUMMER 2022
 - FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM) FOR THE TOWN OF HUDSON, HILLSBOROUGH COUNTY, NEW HAMPSHIRE, MAP NUMBER 33011C0658D, EFFECTIVE DATE: SEPTEMBER 25, 2009 INDICATES THE PROJECT PARCEL IS NOT LOCATED WITHIN A DESIGNATED FLOOD HAZARD AREA.
 - SITE IS SERVICE BY MUNICIPAL WATER AND PRIVATE SEPTIC (NHDES #CA1997006527).
 - PURPOSE OF THIS PLAN IS TO SHOW THE EXISTING AND PROPOSED SITE LAYOUT OF NEW PARKING, EXTENSION OF DRIVEWAY, AND ENCLOSURE OF 25' x 50' CONCRETE PAD.

- ### GENERAL NOTES (CONT.)
- IT SHALL BE UNLAWFUL TO MODIFY, CHANGE, OR ALTER ANY STRUCTURE SHOWN ON THIS PLAN IN ANY WAY, TO CONVERT OR ALTER ANY STRUCTURE SHOWN ON THIS PLAN, OR CHANGE THE USE INDICATED ON THIS PLAN WITHOUT RECEIVING PRIOR APPROVAL FROM THE TOWN OF HUDSON PLANNING BOARD.
 - THE OWNER SHALL BE RESPONSIBLE TO SUBMIT A COPY OF ALL ENVIRONMENTAL PERMITS OBTAINED TO THE TOWN OF HUDSON PLANNING BOARD, INCLUDING ANNUAL UP-DATES OF STORMWATER POLLUTION PREVENTION PLAN (S.W.P.P.) CONTACT INFORMATION.
 - THE OWNER SHALL BE RESPONSIBLE TO OBTAIN ANY NECESSARY RIGHT-OF-WAYS AND EASEMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY THAT THE OWNER HAS SECURED ANY NECESSARY RIGHT-OF-WAYS AND EASEMENTS, INCLUDING BEING FAMILIAR WITH THE APPLICABLE PROVISIONS OF EACH AS THEY APPLY TO THE WORK AND ABIDE BY THESE PROVISIONS DURING CONSTRUCTION.
 - THE CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES BETWEEN THE HOURS OF 7:00 AM TO 5:00 PM MONDAY THROUGH FRIDAY, NO CONSTRUCTION ACTIVITIES SHALL BE PERFORMED SATURDAYS AND SUNDAYS.
 - THE CONTRACTOR SHALL BE RESPONSIBLE TO FURNISH AND MAINTAIN A TELEPHONE NUMBER WHERE THE CONTRACTOR CAN BE REACHED 24-HOURS A DAY, 7 DAYS A WEEK, UNTIL PROJECT COMPLETION.
 - THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTACT DIG SAFE (888-DIG-SAFE) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY CONSTRUCTION ACTIVITIES.
 - THE CONTRACTOR SHALL BE RESPONSIBLE TO COMPLY WITH ALL APPLICABLE REGULATIONS OF THE OCCUPATION SAFETY AND HEALTH ADMINISTRATION (O.S.H.A.).
 - THE CONTRACTOR SHALL BE RESPONSIBLE TO REVIEW ALL OF THE DRAWINGS, SPECIFICATIONS, AND PERMIT APPROVALS ASSOCIATED WITH THIS PROJECT'S SCOPE OF WORK PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS, RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE ENGINEER-OF-RECORD, IN WRITING, PRIOR TO THE INITIATION OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE ENGINEER-OF-RECORD SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF WORK DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL, STATE, AND FEDERAL CODES AND REGULATIONS.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION, INCLUDING BEING FAMILIAR WITH THE APPLICABLE PROVISIONS OF EACH PERMIT AS THEY APPLY TO THE WORK AND ABIDE BY THOSE PROVISIONS DURING CONSTRUCTION.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING "STREET OPENING PERMIT" FROM THE HUDSON PUBLIC WORKS DEPARTMENT PRIOR TO PERFORMING ANY WORK WITHIN THE MUNICIPALITY'S RIGHT-OF-WAY.
 - THE CONTRACTOR SHALL BE RESPONSIBLE TO INSTALL AND MAINTAIN TRAFFIC CONTROL DEVICES AS NECESSARY AND IN A MANNER CONSISTENT WITH THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.).
 - THE CONTRACTOR SHALL BE RESPONSIBLE TO SUBMIT A TRAFFIC CONTROL PLAN TO THE OWNER AND THE TOWN OF HUDSON PUBLIC WORKS DEPARTMENT PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE TO NOTIFY THE TOWN OF HUDSON POLICE DEPARTMENT (603-886-6011), FIRE DEPARTMENT (603-886-6021), AND PUBLIC WORKS DEPARTMENT (603-886-6018) AT LEAST 24-HOURS IN ADVANCE OF ANY STREET CLOSING OR DETOUR.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DISTURBED AREAS. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE PERFORMED IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL", PUBLISHED BY THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES (LATEST EDITION).
 - ALL EXISTING STORM DRAINAGE INLETS SHALL BE PROTECTED BY STRAW BALE FILTERS AND CATCH BASIN FILTER BASKETS TO PREVENT ENTRY OF SEDIMENT FROM RUNOFF WATERS INTO THE STORM DRAIN SYSTEM.
 - SUITABLE EXCAVATION MATERIALS MAY BE INCORPORATED INTO THE PROJECT. THIS PROVISION SHALL NOT RELIEVE THE CONTRACTOR'S OBLIGATION TO REMOVE AND DISPOSE, IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS, OF ANY EXCESS SUITABLE MATERIAL OR MATERIAL DETERMINED BY THE ENGINEER-OF-RECORD TO BE UNSUITABLE.
 - ALL CONCRETE AND BITUMINOUS PATCH AREAS SHALL MATCH EXISTING GRADES. ALL CURB RADII ARE TO THE OUTSIDE FACE.
 - THERE WILL BE NO EXTERIOR LIGHTING.
 - EXISTING SIGNS IMPACTED BY THIS PROJECT SHALL BE RESET AT NO ADDITIONAL COST TO THE OWNER. RESETTING OF SIGNS SHALL CONFORM TO THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.).
 - NO FABRICATION OPERATION IN VIOLATION OF HUDSON TOWN CODE, PARTICULARLY SS249 NOISE AND SS334-16.1 SITE PLAN EXPANSION, SHALL OCCUR ON-SITE. NO FABRICATION OPERATIONS SHALL OCCUR ON THE PROPOSED CONCRETE EQUIPMENT/DRY STORAGE PAD UNTIL THE PAD IS ENCLOSED AND OPERATIONS COMPLY WITH NOISE ORDINANCE, HUDSON TOWN CODE SS249, AS PART OF A SEPARATE FUTURE APPROVED SITE PLAN.
 - APPLICANT SHALL SUBMIT CONSTRUCTION DETAIL SUFFICIENT TO EVALUATE THE SOUND INSULATION PERFORMANCE AS PART OF THE FUTURE SITE PLAN APPLICATION.



APPROVED BY THE HUDSON, NH PLANNING BOARD.

DATE OF MEETING: _____

SIGNATURE DATE: _____

SIGNATURE DATE: _____

SITE PLANS ARE VALID FOR TWO YEARS FROM THE DATE OF PLANNING BOARD MEETING FINAL APPROVAL. FINAL APPROVAL COMMENCES AT THE PLANNING BOARD MEETING DATE AS WHICH THE PLAN RECEIVES FINAL APPROVAL.

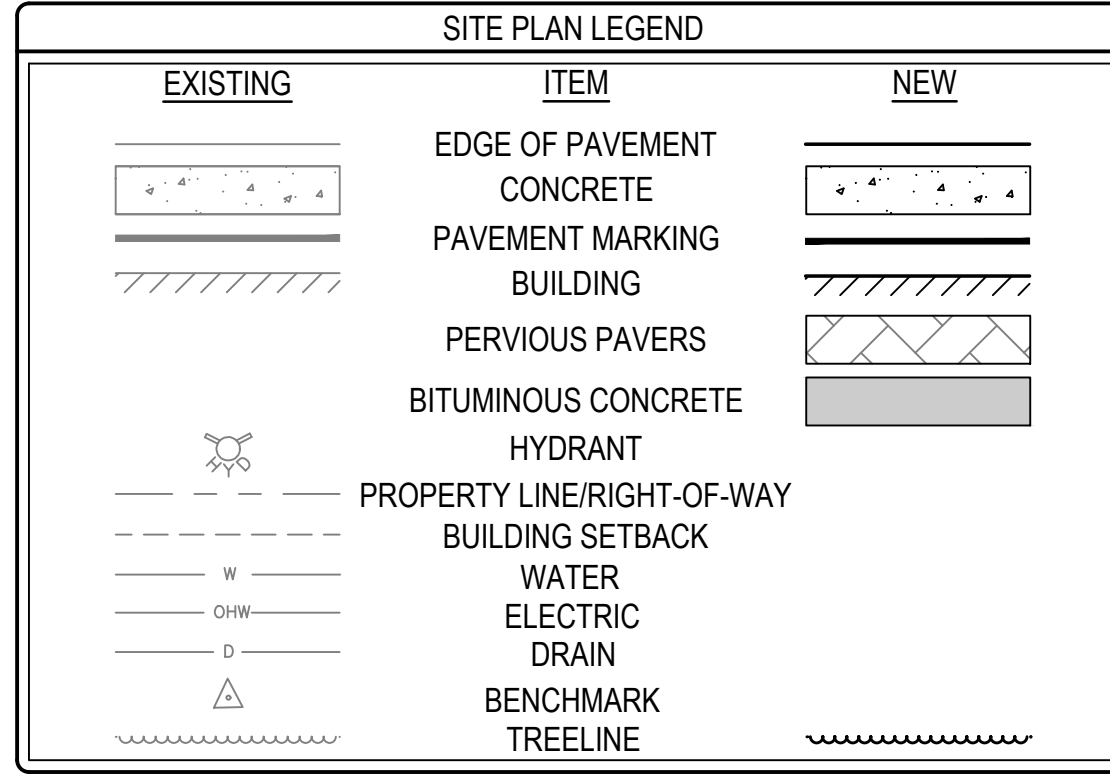
THE UNDERSIGNED HEREBY AGREE TO PERFORM ALL SITE IMPROVEMENTS AS SHOWN ON THIS PLAN AND AS CONDITIONED OR STIPULATED BY THE TOWN OF HUDSON PLANNING BOARD.

NICHOLAS MERCIER
JMC HUDSON PROPERTIES, LLC
5 LEHOUX DRIVE, HOOKSETT, NH

DATE _____

PURSUANT TO THE SITE REVIEW REGULATIONS OF THE HUDSON PLANNING BOARD, THE SITE PLAN APPROVAL GRANTED HEREIN EXPIRES ONE YEAR FROM DATE OF APPROVAL.

ZONING ANALYSIS TABLE			
ZONING DISTRICT/USE	G1 - GENERAL/LIGHT INDUSTRIAL		
ZONE CRITERIA	REQUIRED	EXISTING	PROPOSED
MINIMUM TOTAL LOT SIZE	2.00 AC	2.84 AC	2.84 AC
MINIMUM LOT FRONTAGE	200'	325.42'	325.42'
MINIMUM FRONT SET BACK	30'	96.0'	96.0'
MINIMUM SIDE SET BACK	15'	69.0'	69.0'
MINIMUM REAR SET BACK	15'	114.3'	95.5'
OPEN SPACE	40%	61.5%	58.3%
BUILDING HEIGHT (MAX.)	50'	N/A	N/A
PARKING SPACES:	1 / 600 G.F.A.	40	54
CALCULATION (INDUSTRIAL): 21,410 / 600 = 36 PARKING SPACES			



Gale Associates, Inc.
Engineers and Planners
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Boston Baltimore Orlando Hartford Bedford

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NOT FOR CONSTRUCTION

PROJECT
ASM FACILITY
7 SECURITY DRIVE
HUDSON, NH 03051

OWNER
JMC HUDSON PROPERTIES, LLC
5 LEHOUX DRIVE
HOOKSETT, NH 03106

NO.	DATE	DESCRIPTION	BY
PROJECT NO.		718770	
CADD FILE		718770_C101	
DESIGNED BY		MSK	
DRAWN BY		MSK	
CHECKED BY		SMB	
DATE		9/19/2022	
DRAWING SCALE		1" = 30'	

GRAPHIC SCALE

0 15 30 60

SHEET TITLE

SITE PLAN

DRAWING NO.
C101

4 OF 13

1 2 3 4 5 6

GENERAL NOTES

- 1. DESIGN TRUCK WAS BASED ON THE AASHTO WB-50 CLASS.



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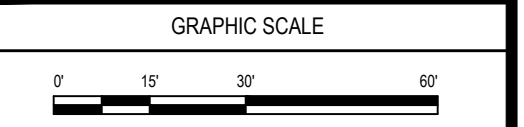
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NOT FOR CONSTRUCTION

PROJECT
**ASM FACILITY
 7 SECURITY DRIVE
 HUDSON, NH 03051**

OWNER
**JMC HUDSON PROPERTIES, LLC
 5 LEHOUX DRIVE
 HOOKSETT, NH 03106**

NO.	DATE	DESCRIPTION	BY
PROJECT NO.	718770		
CADD FILE	718770_C102		
DESIGNED BY	APL		
DRAWN BY	APL		
CHECKED BY	SMB		
DATE	9/19/2022		
DRAWING SCALE	1" = 30'		



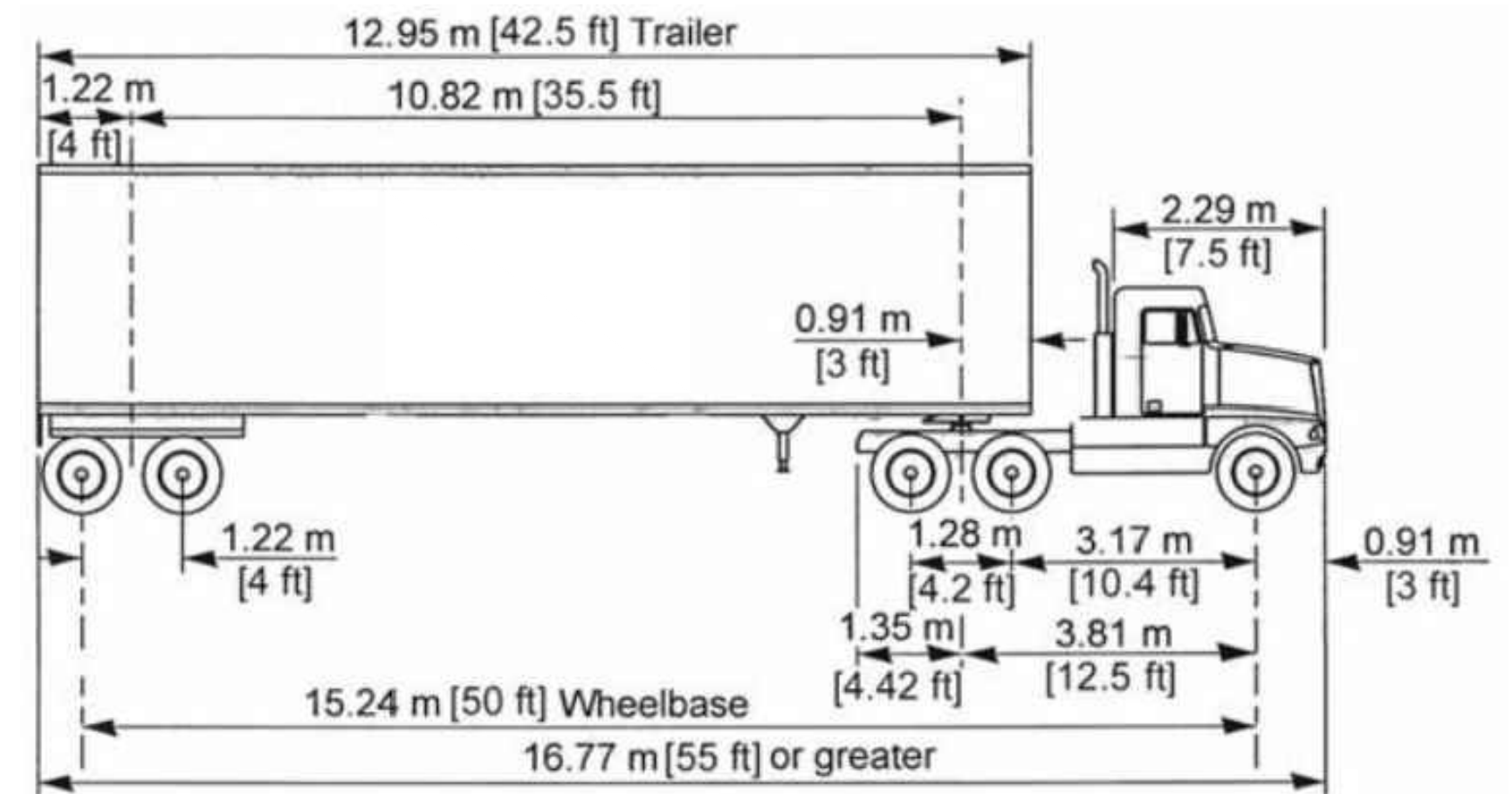
SHEET TITLE

TRUCK TURNING MOVEMENT PLAN

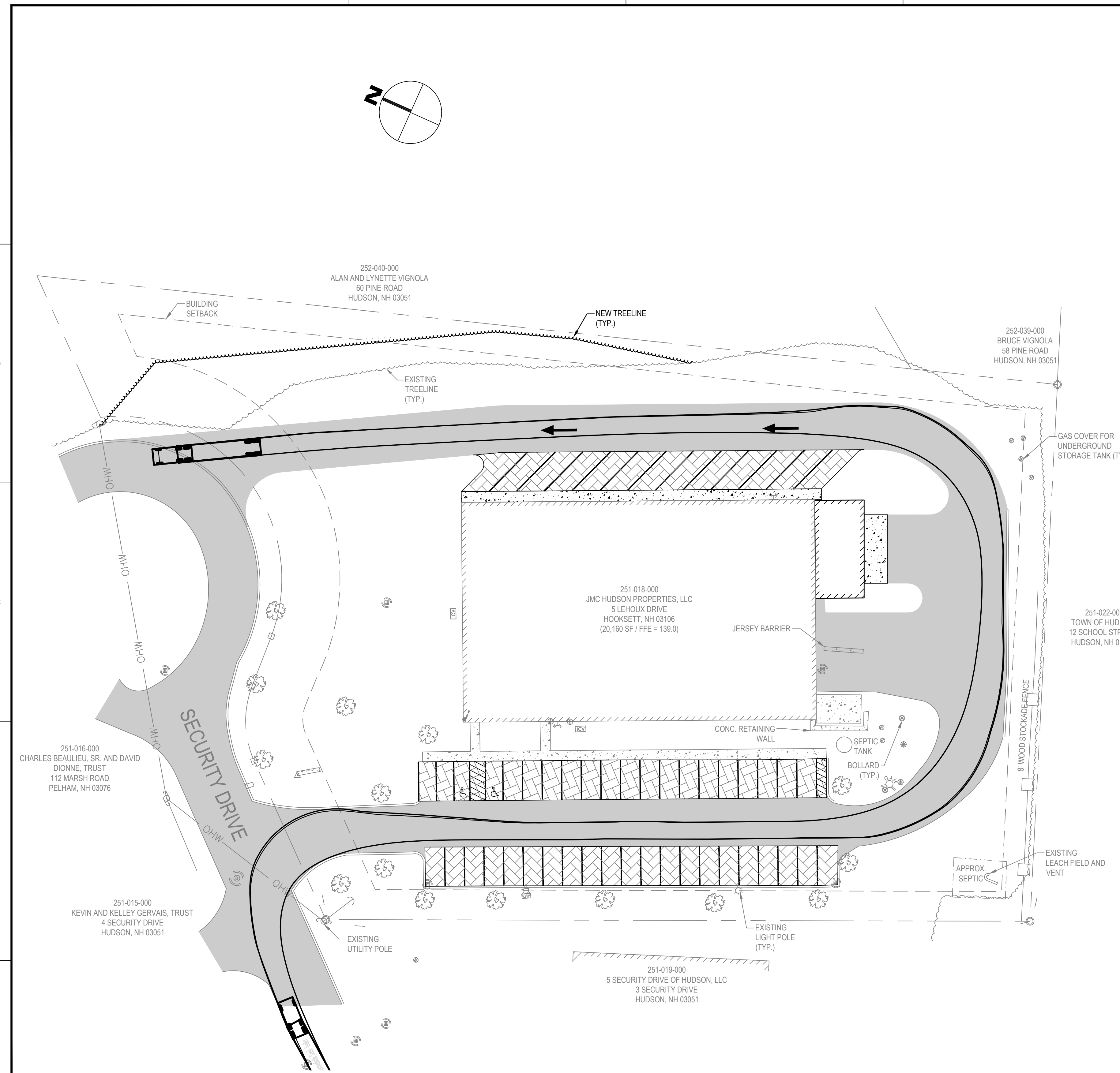
DRAWING NO.

C102

5 OF 13



COMPOSITE WB-50 TRUCK
 NOT TO SCALE



TRUCK TURNING MOVEMENT LEGEND

EXISTING	ITEM	NEW
	PAVEMENT	
	PAVEMENT MARKING	
	CONCRETE PADS AND SIDEWALK	
	PERVIOUS CONCRETE PAVERS	
	TREELINE	

GENERAL NOTES

1. A 24" STORMTECH ARCH WILL BE USED ABOVE 24" DEEP INFILTRATION TRENCH STONE. CONTRACTOR SHALL OBTAIN AND INSTALL A TRASH RACK ON OPEN END OF ARCH.



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 Engineers and Planners
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 P 603.471.1887 F 603.471.1809
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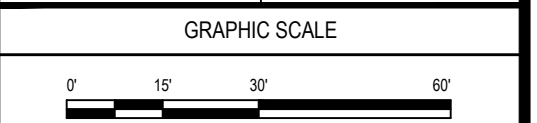
NOT FOR CONSTRUCTION

PROJECT
**ASM FACILITY
 7 SECURITY DRIVE
 HUDSON, NH 03051**

OWNER
**JMC HUDSON PROPERTIES, LLC
 5 LEHOUX DRIVE
 HOOKSETT, NH 03106**

NO.	DATE	DESCRIPTION	BY

PROJECT NO.	718770
CADD FILE	718770_C103
DESIGNED BY	APL
DRAWN BY	APL
CHECKED BY	SMB
DATE	9/19/2022
DRAWING SCALE	1" = 30'



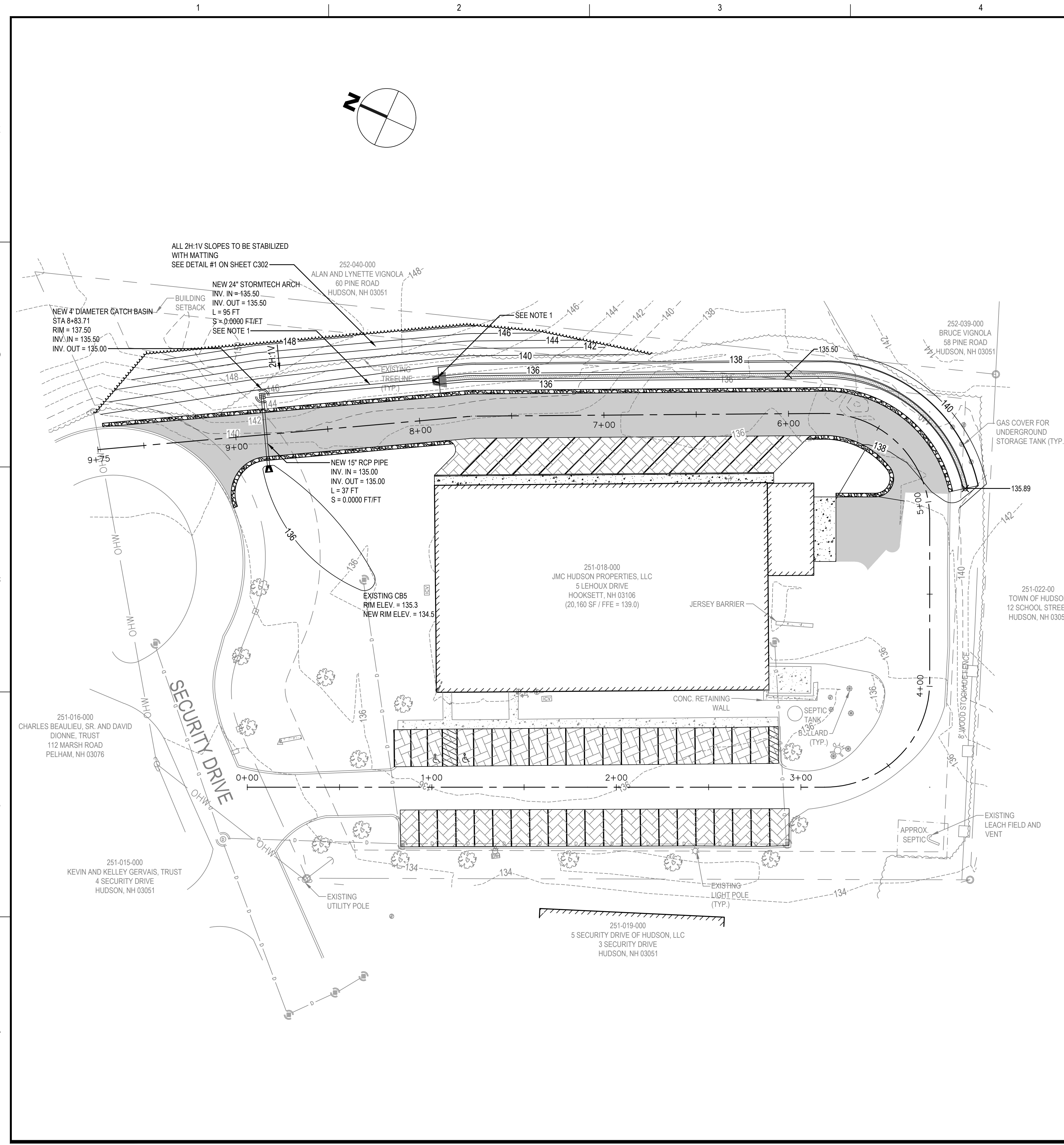
SHEET TITLE

GRADING AND DRAINAGE PLAN

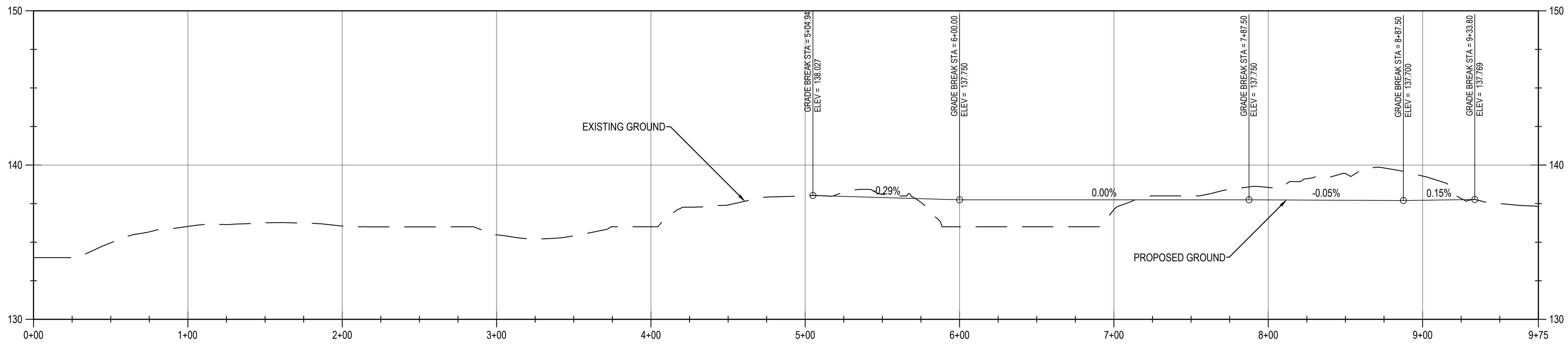
DRAWING NO.

C103

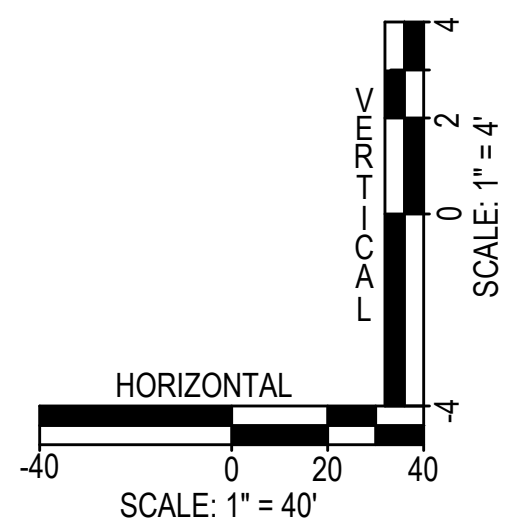
6 OF 13



GRADING AND DRAINAGE LEGEND		
EXISTING	ITEM	NEW
---140---	MAJOR CONTOUR	—140—
---138---	MINOR CONTOUR	—138—
	FLARED END SECTION	▲
	CATCH BASIN	
	TREELINE	
	PAVEMENT SHOULDER STONE	
	INFILTRATION TRENCH STONE	
	PAVEMENT	
	CONCRETE PADS AND SIDEWALK	
	PERVIOUS CONCRETE PAVERS	
	DRAINAGE PIPE	
	PAVEMENT MARKINGS	



PROFILE SCALE



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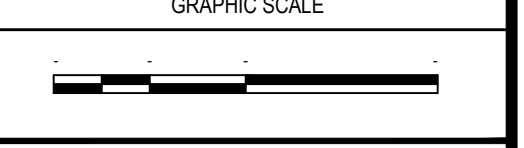
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PROJECT
**ASM FACILITY
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 HUDSON, NH 03051**

OWNER
**JMC HUDSON PROPERTIES, LLC
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 HOOKSETT, NH 03106**

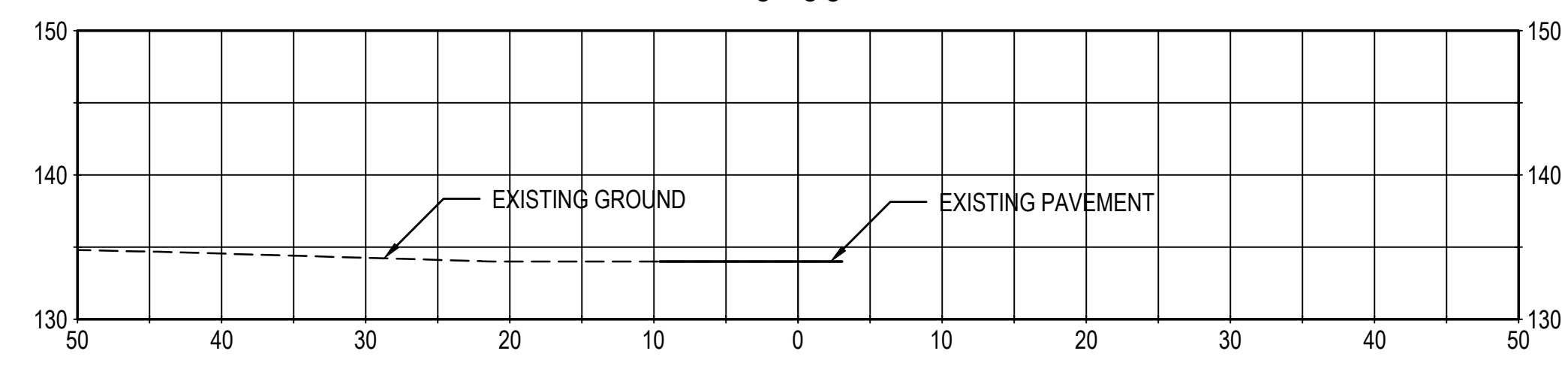
NO.	DATE	DESCRIPTION	BY
PROJECT NO.	718770		
CADD FILE	718770_C103		
DESIGNED BY	APL		
DRAWN BY	APL		
CHECKED BY	SMB		
DATE	9/19/2022		
DRAWING SCALE	AS NOTED		



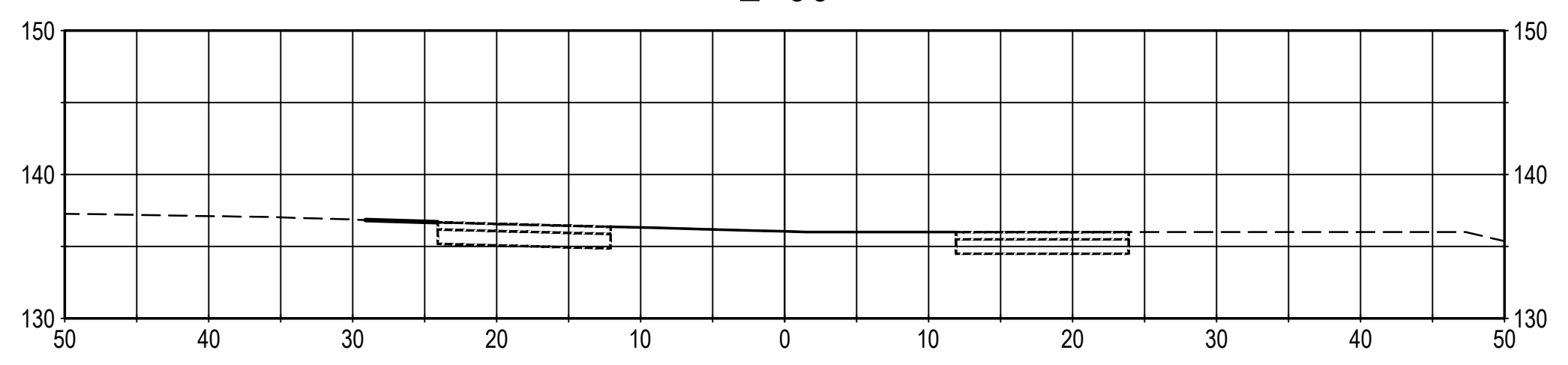
SHEET TITLE
**DRIVEWAY PROFILE
 AND CROSS-SECTIONS**

DRAWING NO.
C201
 7 OF 13

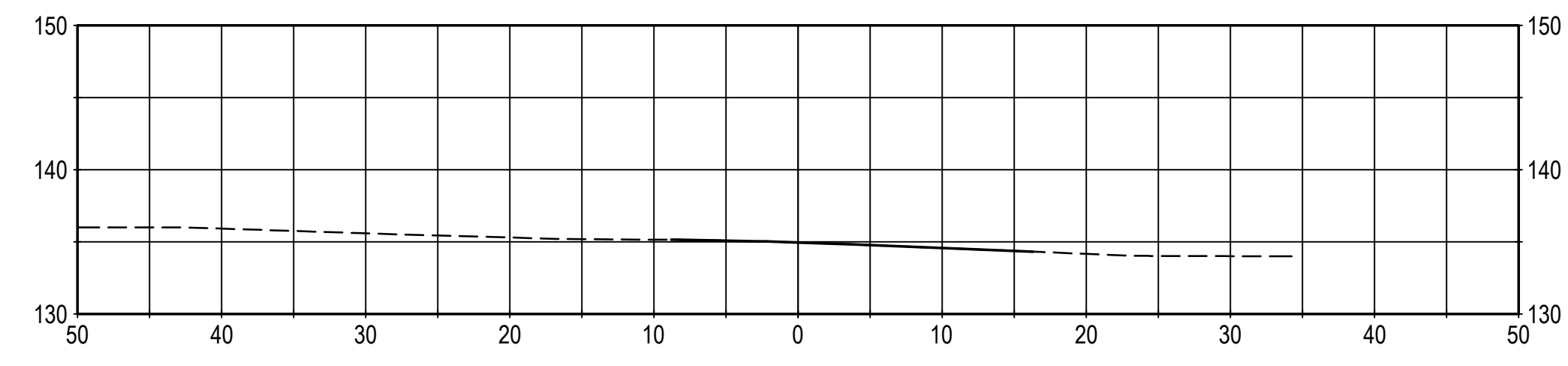
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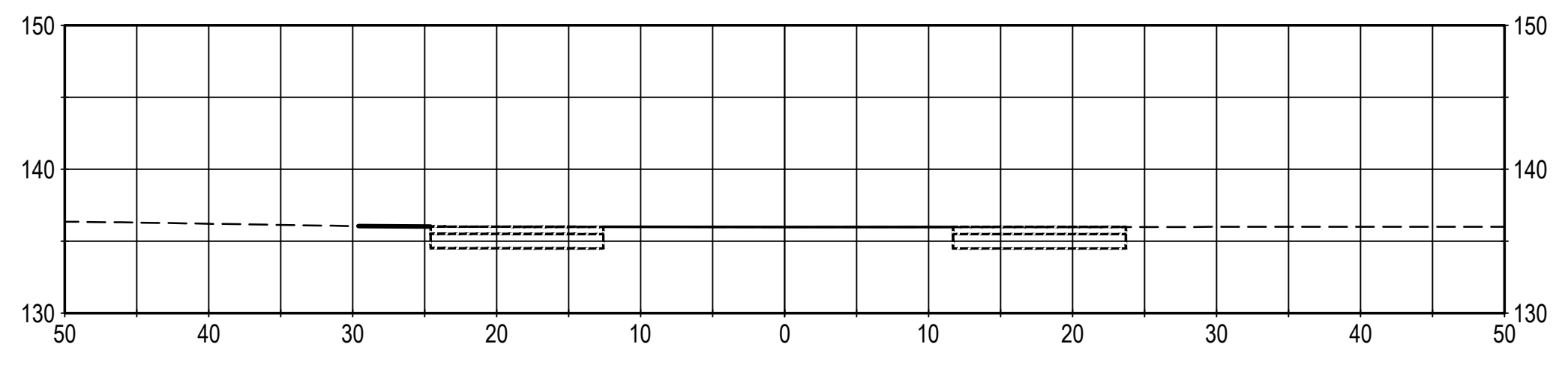
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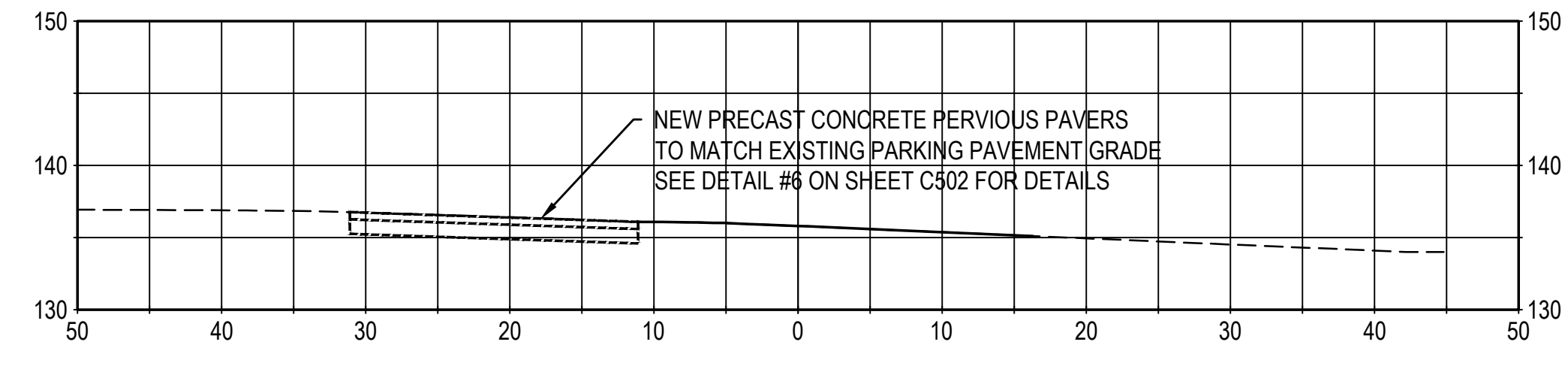
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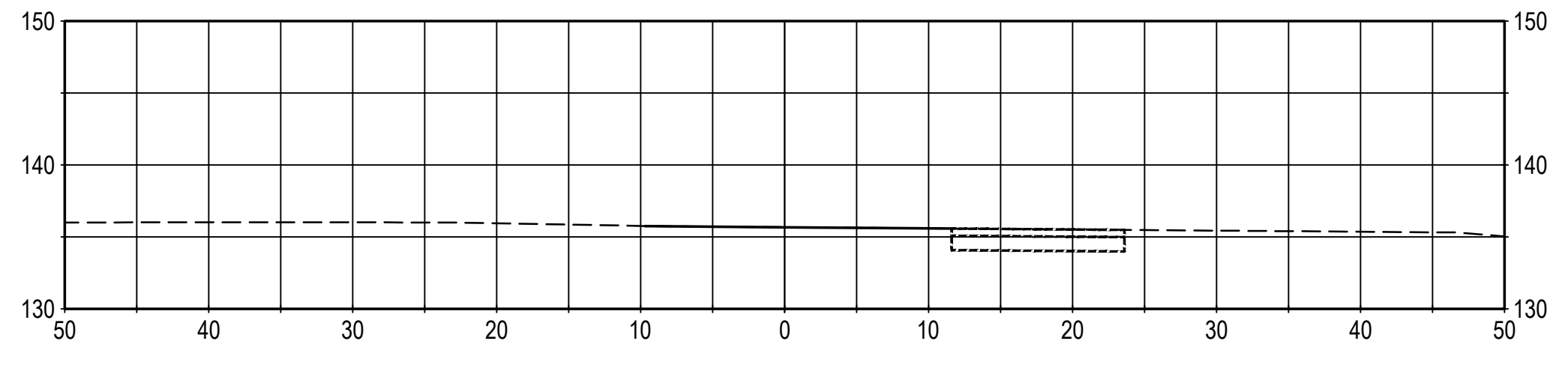
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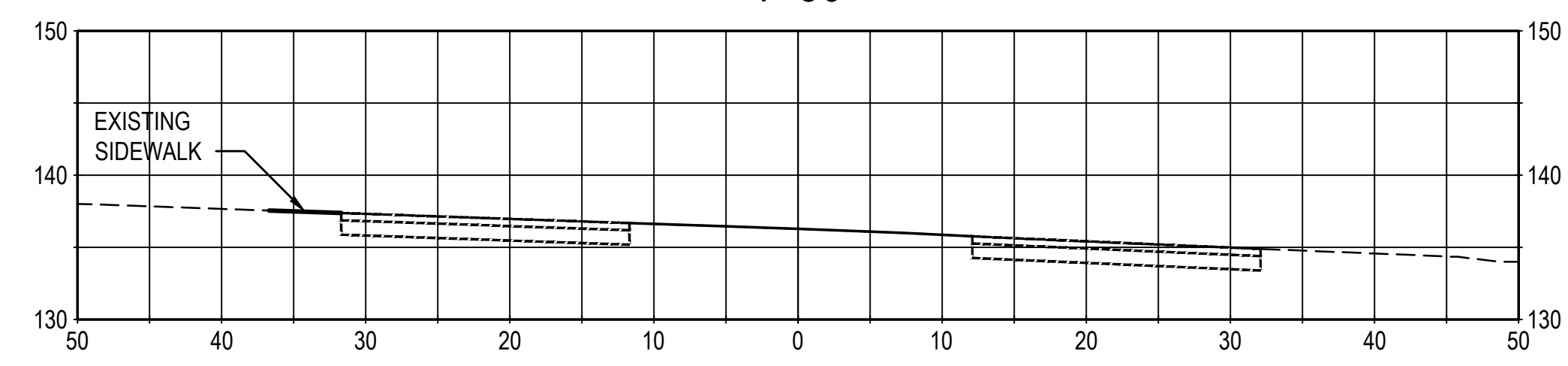
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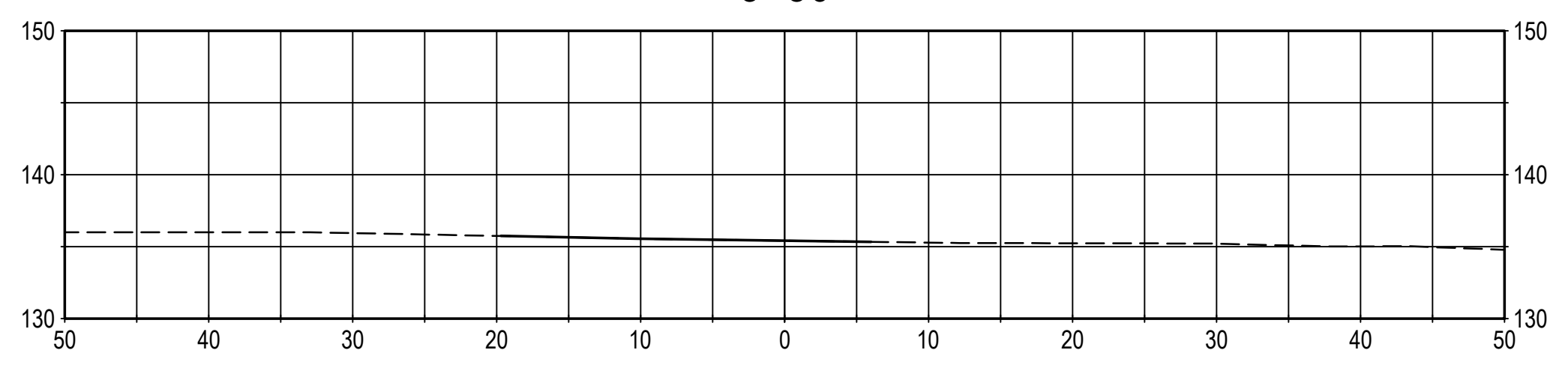
2+94



1+50



3+50





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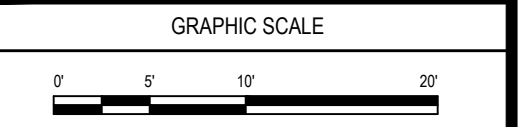
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PROJECT
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OWNER
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NO.	DATE	DESCRIPTION	BY
PROJECT NO.	718770		
CADD FILE	718770_C103		
DESIGNED BY	APL		
DRAWN BY	APL		
CHECKED BY	SMB		
DATE	9/19/2022		
DRAWING SCALE	1" = 10'		



SHEET TITLE

**DRIVEWAY
 CROSS-SECTIONS**

DRAWING NO.
C202
 8 OF 13

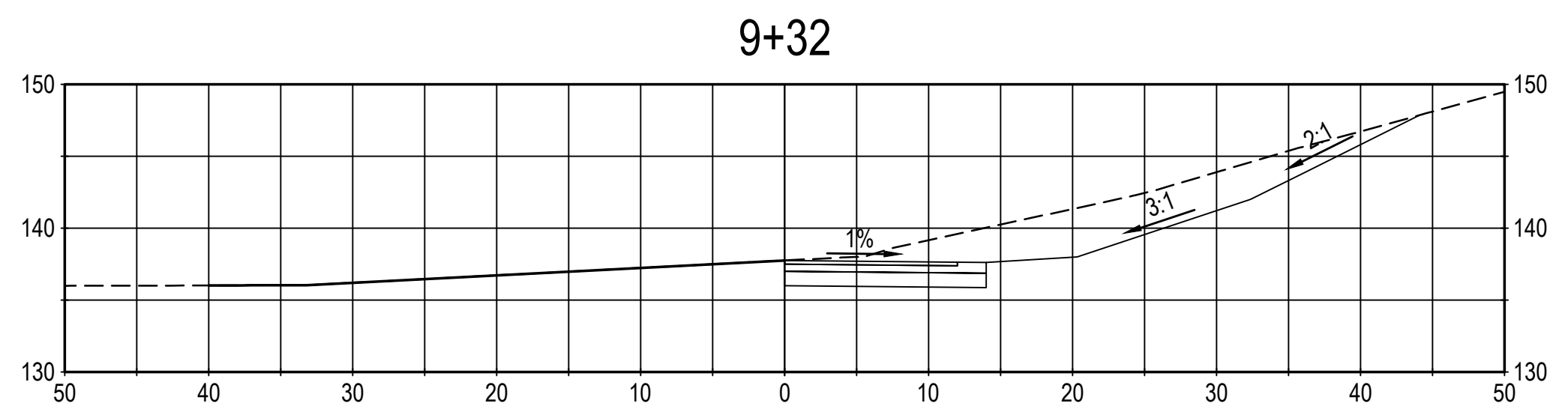
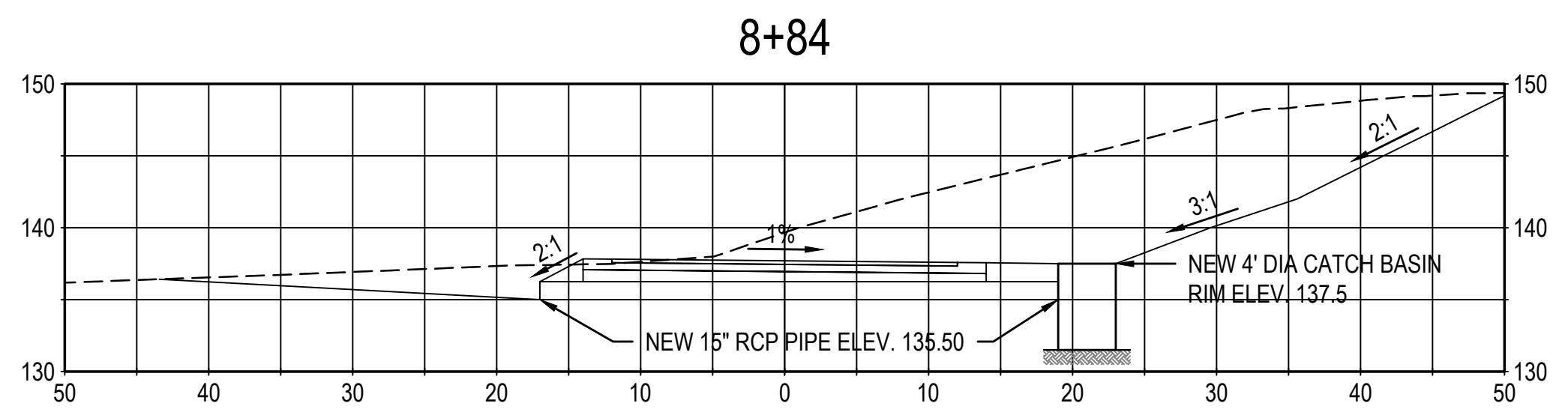
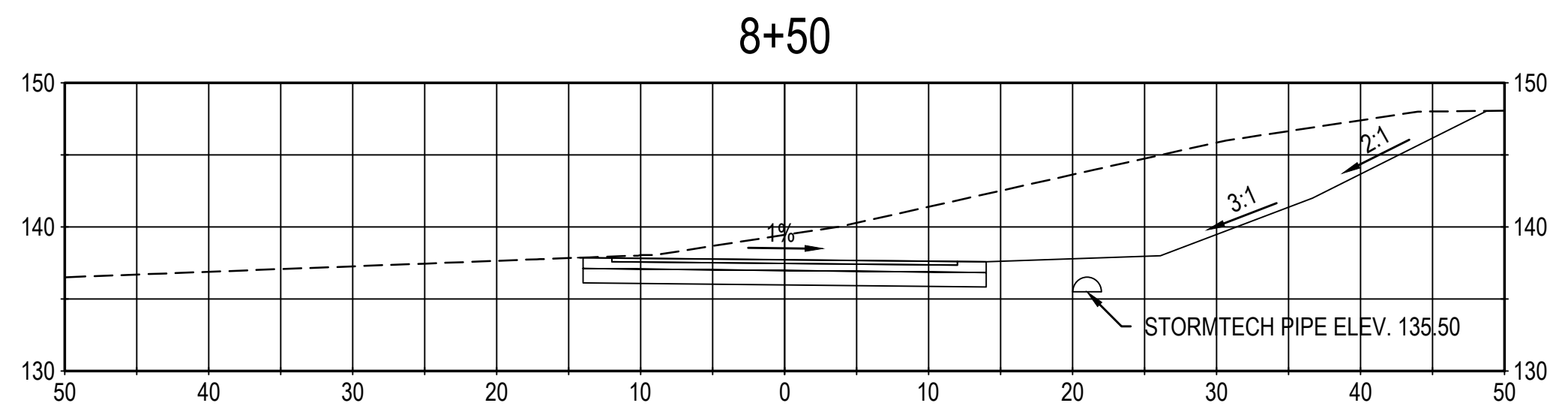
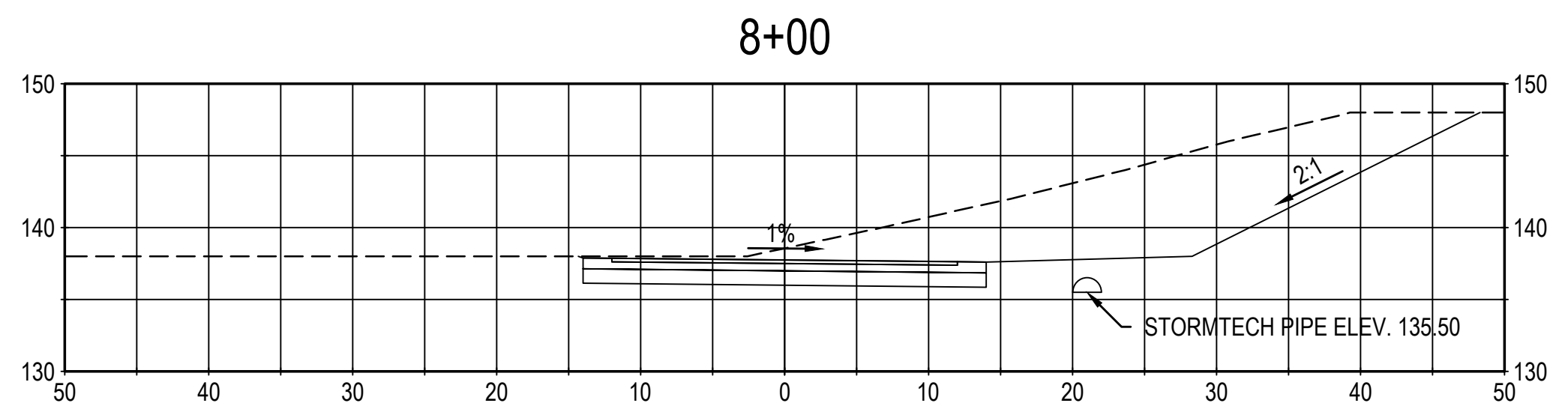
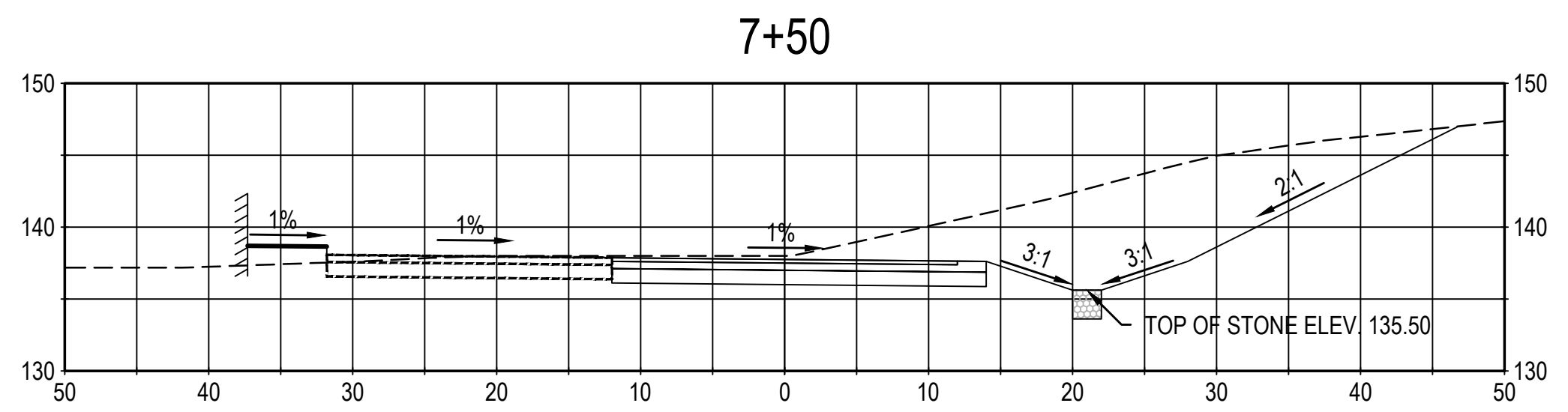
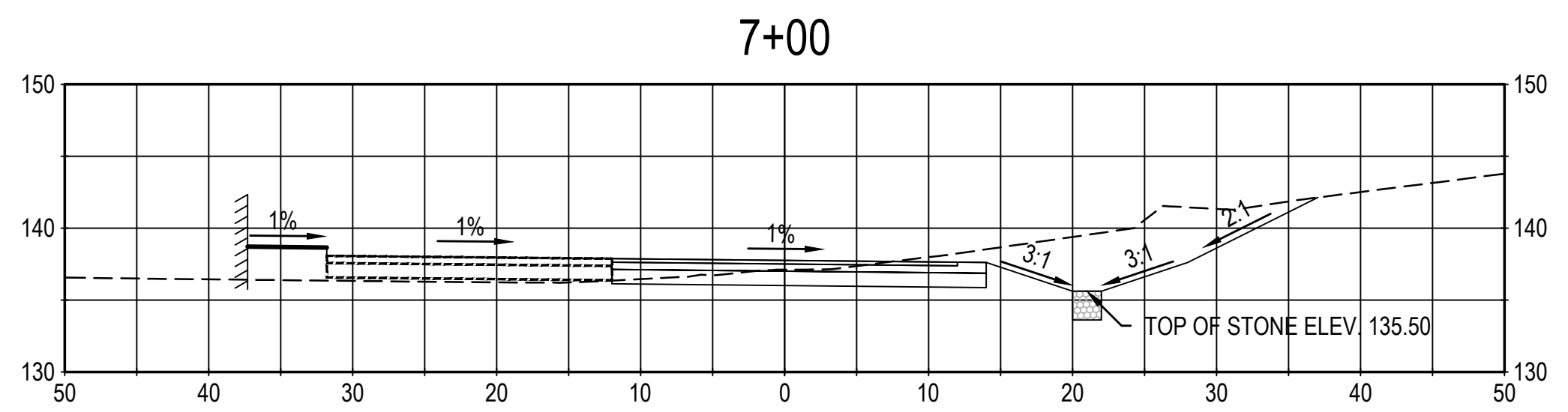
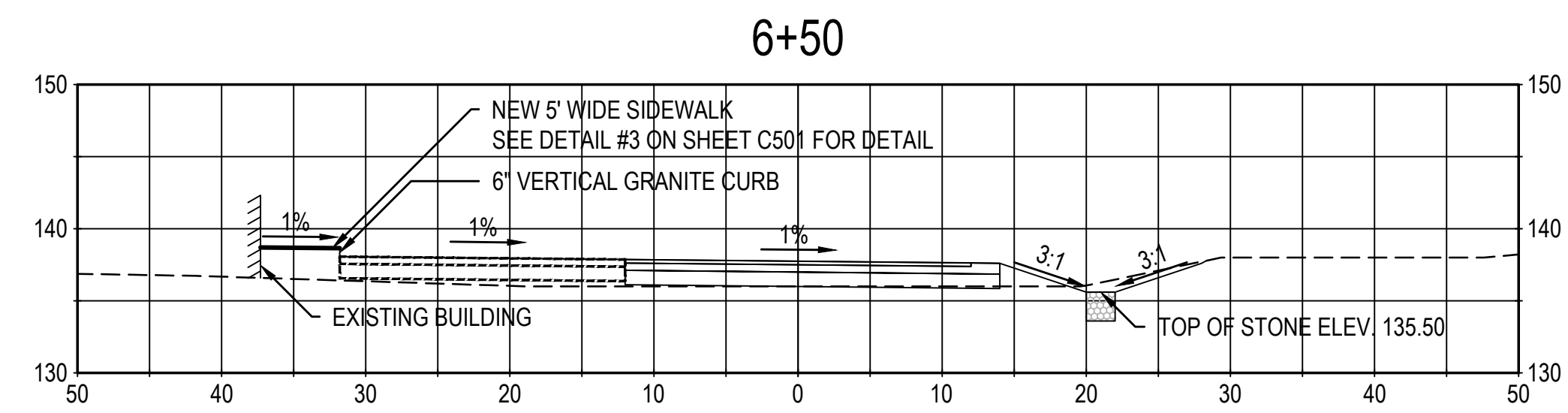
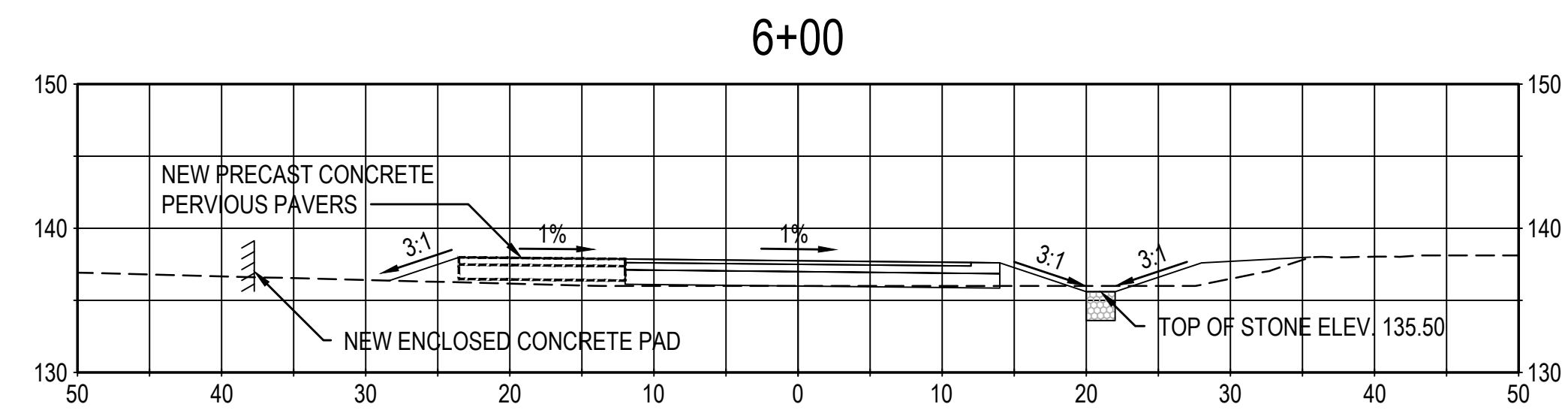
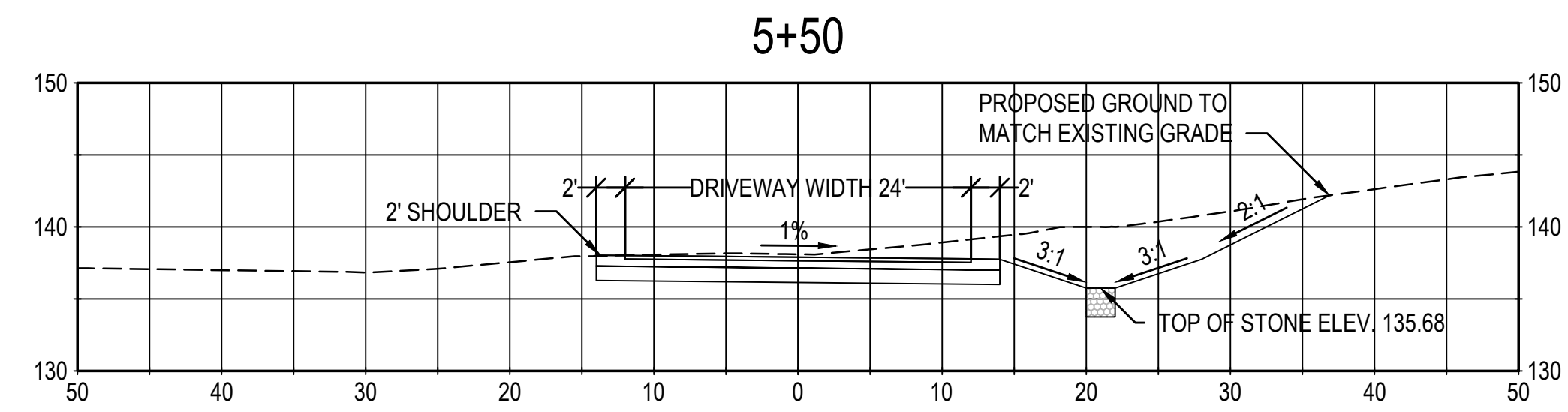
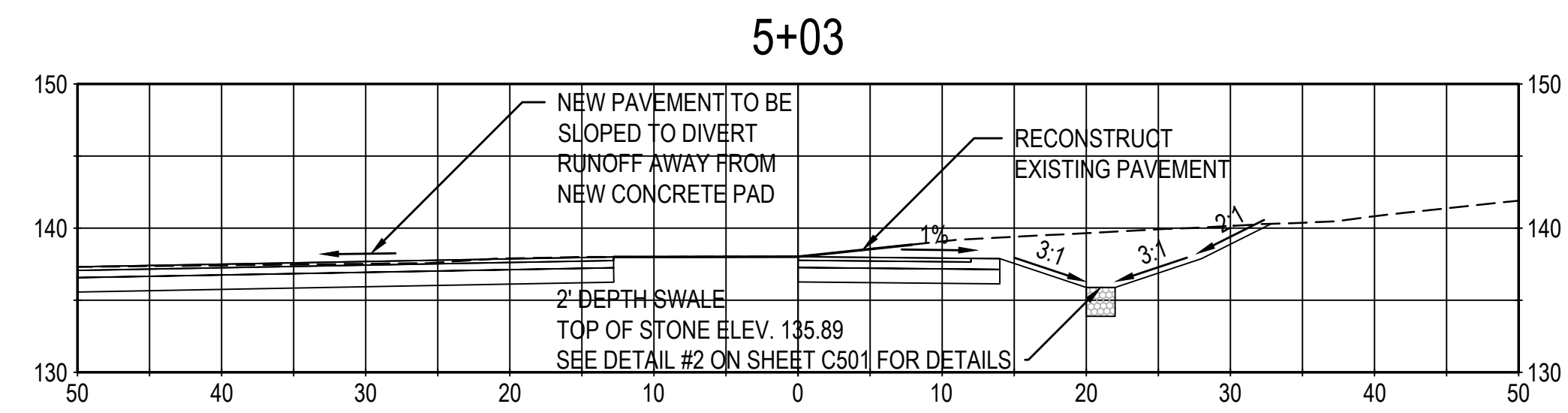
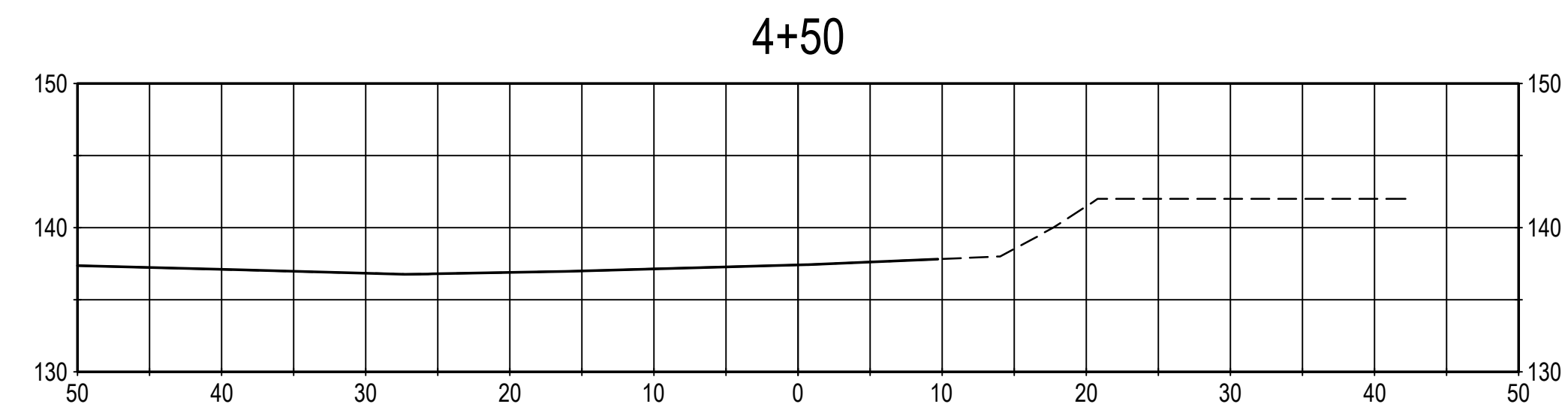
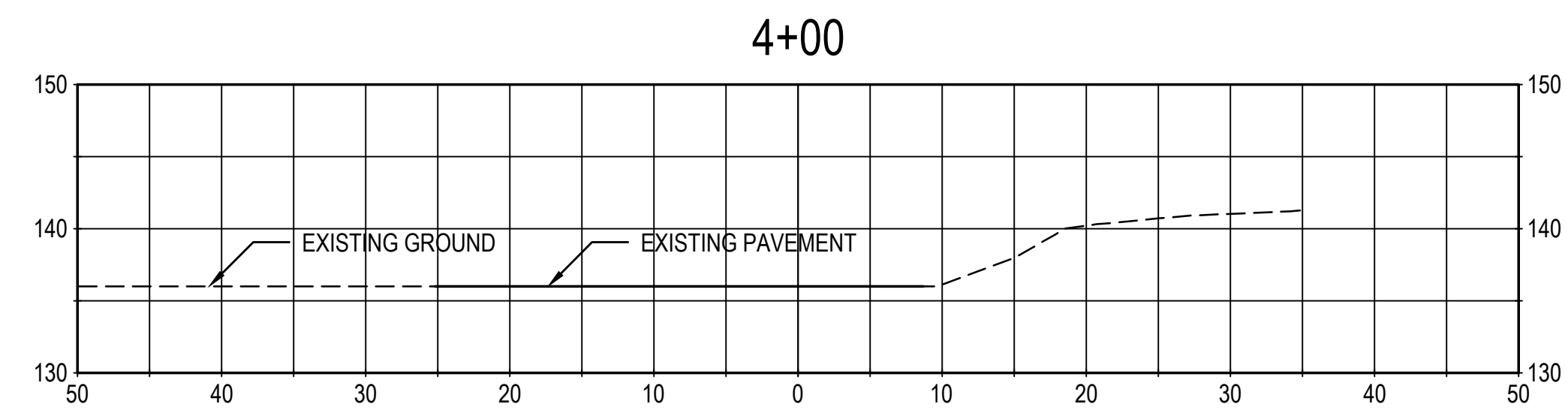
E

D

C

B

A



GENERAL NOTES

- 1. SEE SHEET C302 FOR EROSION CONTROL DETAILS.



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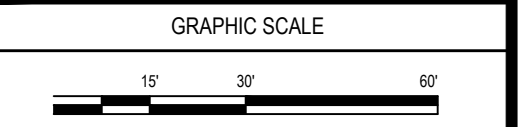
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NO.	DATE	DESCRIPTION	BY
PROJECT NO.	718770		
CADD FILE	718770_C301		
DESIGNED BY	APL		
DRAWN BY	APL		
CHECKED BY	SMB		
DATE	9/19/2022		
DRAWING SCALE	1" = 30'		

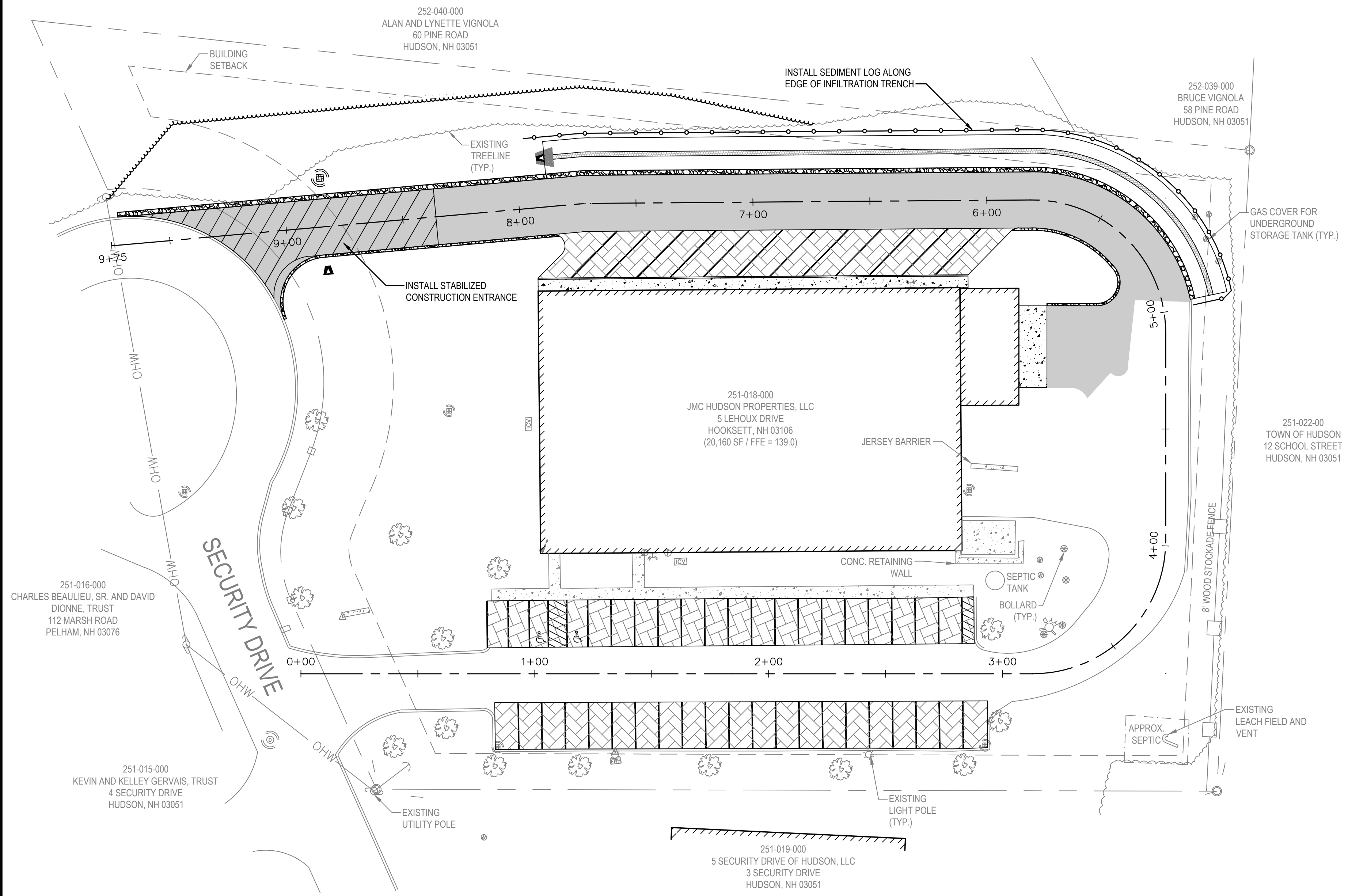
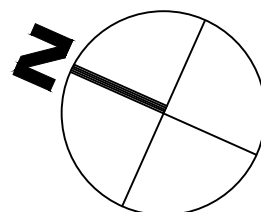


SHEET TITLE

EROSION CONTROL PLAN

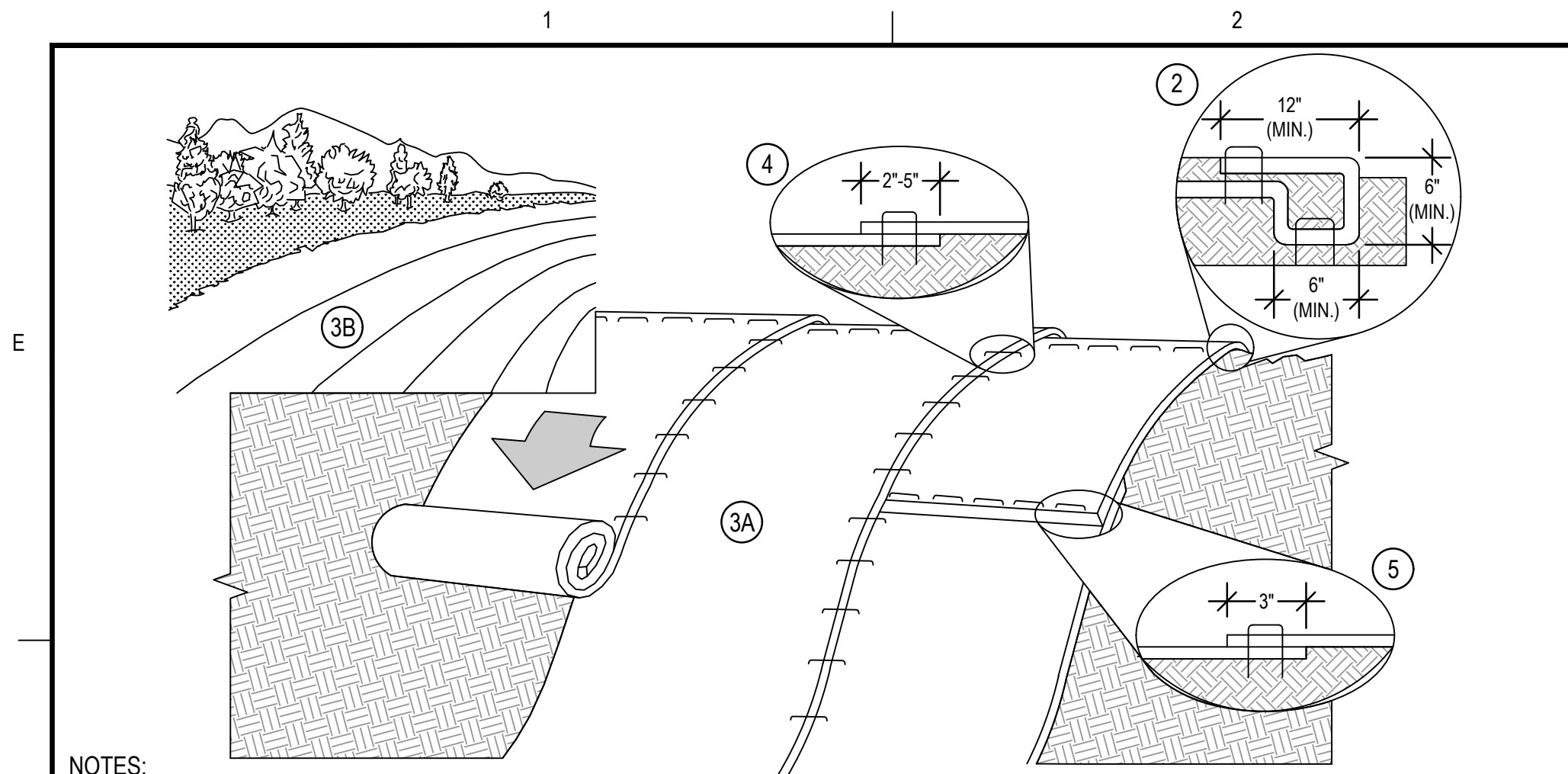
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C301



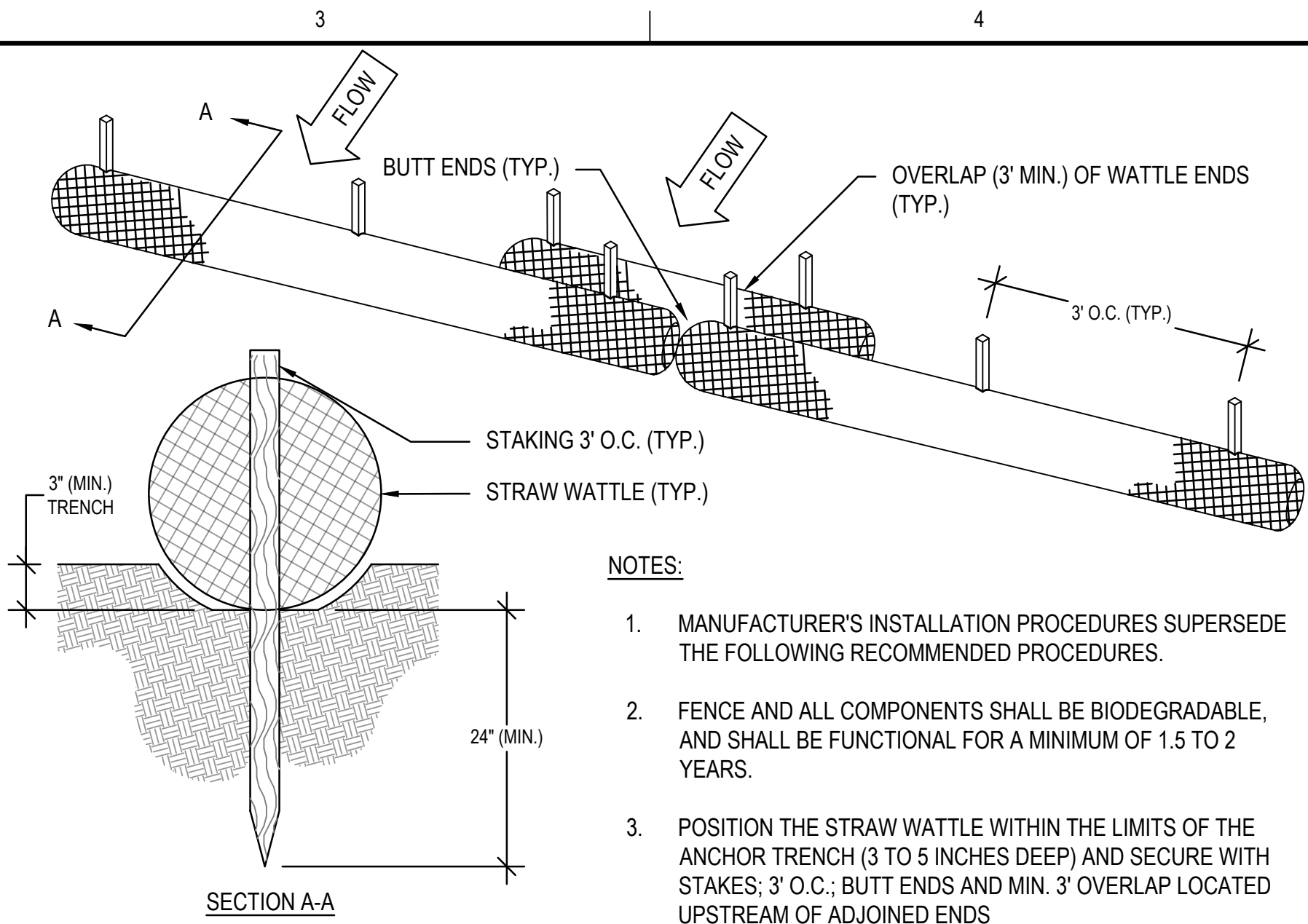
EROSION CONTROL LEGEND

EXISTING	ITEM	NEW
	SEDIMENT LOG	—○—○—○—
	STABILIZED CONSTRUCTION ENTRANCE	▨▨▨▨▨▨▨▨▨▨



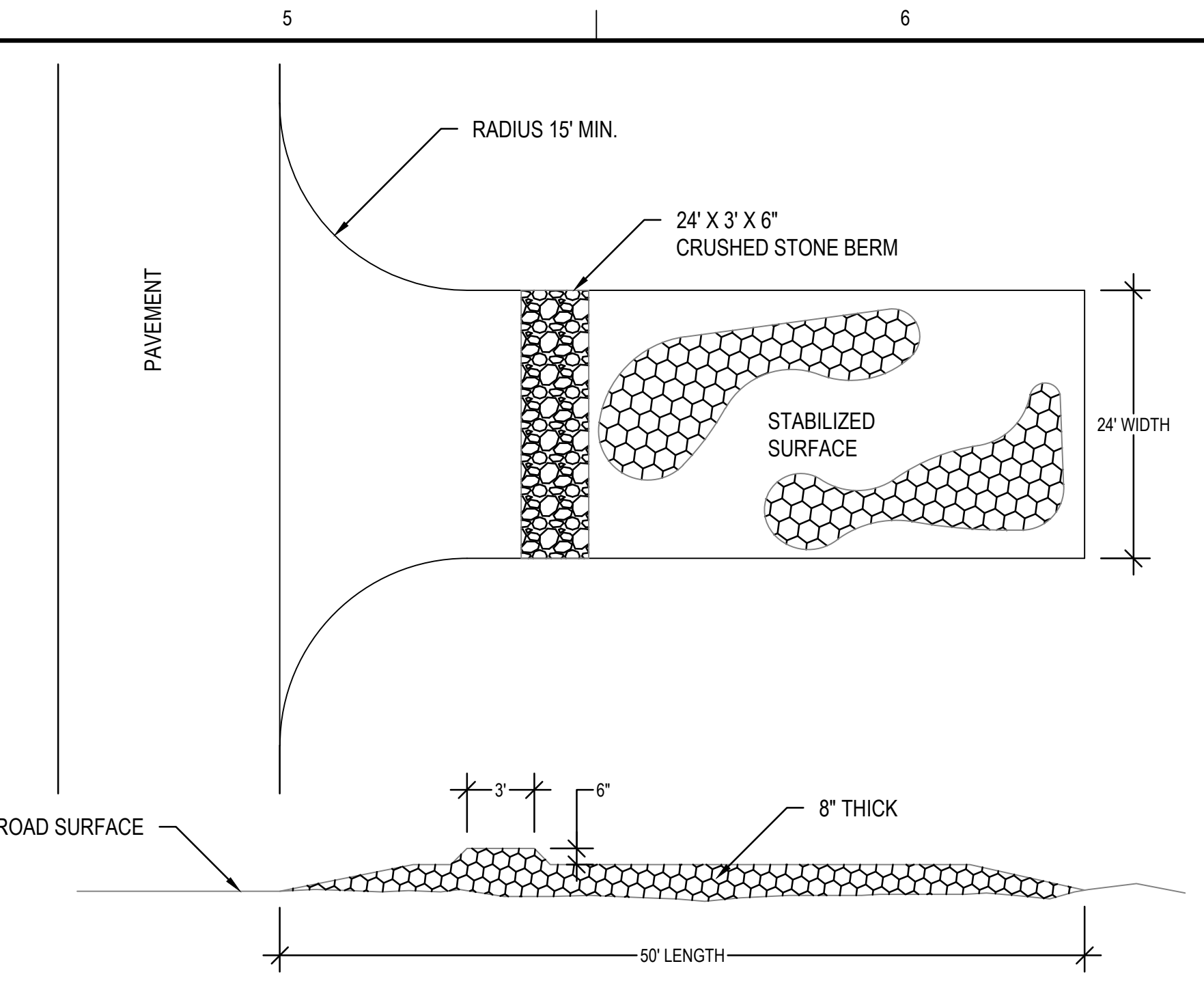
- NOTES:**
- MANUFACTURER'S INSTALLATION PROCEDURES SUPERSEDE THE FOLLOWING RECOMMENDED PROCEDURES.
 - PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP)
 - BEGIN INSTALLATION OF MATTING AT THE TOP OF THE SLOPE BY ANCHORING THE RECP IN A 6" DEEP X 6" WIDE TRENCH WITH 12" (APPROX.) OF RECP EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP WITH A ROW OF STAPLES/STAKES 12" (APPROX.) 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 RECP'S BACK OVER SEED AND COMPACTED SOIL. SECURE RECP OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED 12" (APPROX.) APART ACROSS THE WIDTH OF THE RECP.
 - ROLL THE RECP (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. ALL RECP MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS
 - THE EDGES OF PARALLEL RECP'S SHALL BE STAPLED WITH A 2" TO 5" (APPROX.) OVERLAP.
 - CONSECUTIVE RECP SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH A 3" (APPROX.) OVERLAP. STAPLE THROUGH OVERLAPPED AREA 12" (APPROX.) APART ACROSS ENTIRE RECP WIDTH.
 - IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE RECP.

1 SLOPE STABILIZATION MATTING DETAIL
N.T.S.



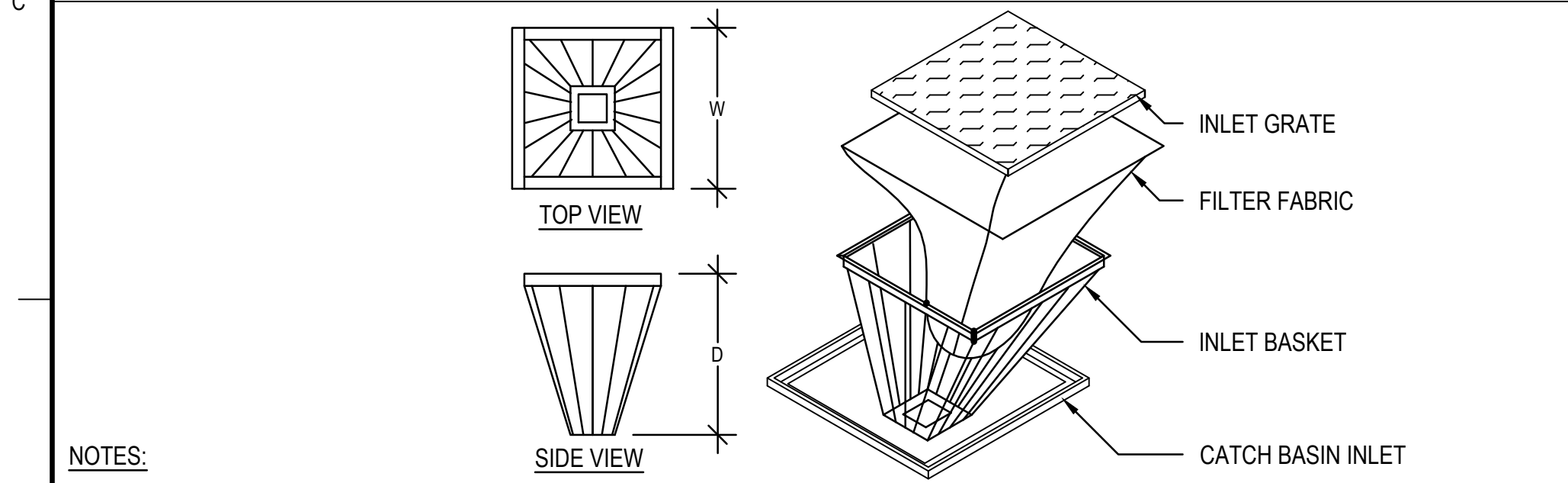
- NOTES:**
- MANUFACTURER'S INSTALLATION PROCEDURES SUPERSEDE THE FOLLOWING RECOMMENDED PROCEDURES.
 - FENCE AND ALL COMPONENTS SHALL BE BIODEGRADABLE, AND SHALL BE FUNCTIONAL FOR A MINIMUM OF 1.5 TO 2 YEARS.
 - POSITION THE STRAW WATTLE WITHIN THE LIMITS OF THE ANCHOR TRENCH (3 TO 5 INCHES DEEP) AND SECURE WITH STAKES; 3' O.C.; BUTT ENDS AND MIN. 3' OVERLAP LOCATED UPSTREAM OF ADJOINED ENDS
- MAINTENANCE:**
- STRAW WATTLES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL EVENTS. ALL REPAIRS, INCLUDING EVIDENCE OF FABRIC DECOMPOSITION OR INEFFECTIVENESS DURING THE EXPECTED LIFE OF THE FWATTLE, SHALL BE MADE IMMEDIATELY.
 - SEDIMENT DEPOSITS LOCATED ALONG THE UP-HILL SIDE SHALL BE REMOVED AFTER EACH STORM EVENT OR WHEN DEPOSITS REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE UP-HILL ORIGINAL INSTALLED BARRIER'S REVEAL. SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL AREAS UPSLOPE ARE PERMANENTLY STABILIZED.
 - SEDIMENT DEPOSITS THAT ARE REMOVED SHALL BE GRADED TO CONFORM WITH THE EXISTING TOPOGRAPHY AND VEGETATED.

2 SILT SOCK/STRAW WATTLE DETAIL
N.T.S.



- MAINTENANCE:**
- IN THE EVENT THAT MUD OR SOIL PARTICLES CLOG THE VOIDS OF THE CONSTRUCTION ENTRANCE, THE CONSTRUCTION ENTRANCE SHOULD BE TOP DRESSED WITH NEW STONE. COMPLETE REPLACEMENT OF THE CONSTRUCTION ENTRANCE MAY BE REQUIRED.
 - IF WASH FACILITIES ARE USED, SEDIIMENTATION TRAPS SHOULD BE CLEANED AS OFTEN AS NECESSARY TO ASSURE THAT ADEQUATE PERFORMANCE OF SEDIMENTATION COLLECTION AND STORAGE IS AVAILABLE.

3 STABILIZED CONSTRUCTION ENTERANCE DETAIL
(TEMPORARY, TO BE REMOVED PRIOR TO FINAL PAVING)
N.T.S.



- NOTES:**
- INLET BASKETS SHALL BE USED ON CATCH BASINS DURING CONSTRUCTION AS INDICATED ON PLANS. INLET BASKETS SHALL BE FURNISHED AND INSTALLED AS MANUFACTURED BY "METAL-ERA, INC.", "WAUKESHA WI., OR APPROVED EQUAL, IN STRICT ACCORDANCE WITH MANUFACTURER'S PRINTED INSTRUCTIONS AND SPECIFICATIONS. BASKET FRAME CONSISTS OF COMMERCIAL GRADE STEEL ANGLES (ASTM A36). SIDES TO BE 3/4" X 2" X 2". BACK AND FRONT 1/2" X 1" X 1" WELDED IN PLACE. LENGTH AND WIDTH OF OPENING TO BE DETERMINED BY INSIDE DIMENSIONS OF EXISTING INLET GRATES OR PRE-CAST CONCRETE OPENINGS. THE SIDES OF THE INLET BASKET SHALL BE A MINIMUM OF 1/4 INCH DIAMETER STEEL RODS, APPROXIMATELY 14 INCHES DEEP. BOTTOM FRAME TO BE 1/2" X 1" FLATS 5" X 5" WELDED. A MINIMUM OF 14 RODS SHALL BE WELDED IN PLACE BETWEEN THE TOP FRAME/BASKET HANGER AND THE BOTTOM FRAME. CERTAIN NON-TYPICAL INLETS MAY REQUIRE SPECIAL CONFIGURATIONS, AND/OR SHALLOWER DEPTH BASKETS.
 - FILTER FABRIC SHALL BE PUSHED DOWN AND FORMED TO THE SHAPE OF THE BASKET. THE SHEET OF FABRIC SHALL BE LARGE ENOUGH TO BE SUPPORTED BY THE BASKET FRAME WHEN HOLDING SEDIMENT AND EXTEND AT LEAST 6 INCHES PAST THE FRAME. THE INLET GRATE SHALL BE PLACED OVER THE BASKET/FRAME AND WILL SERVE AS THE FABRIC ANCHOR.
 - THE FILTER FABRIC SHALL BE A GEO-TEXTILE FABRIC: POLYESTER, POLYPROPYLENE, STABILIZED NYLON, POLYETHYLENE OR POLYVINYLIDENE CHLORIDE MEETING THE FOLLOWING SPECIFICATIONS:
GRAB STRENGTH: 45LB. MINIMUM IN ANY PRINCIPAL DIRECTION (ASTM D1682).
MULLEN BURST STRENGTH: MINIMUM 60 PSI (ASTM D774).
 - THE FABRIC SHALL HAVE AN OPENING NO GREATER THAN A NUMBER 20 U.S. STANDARD SIEVE AND MINIMUM PERMEABILITY OF 120 GPM/SQ.FT.
 - THE INLET BASKET SHALL BE INSPECTED WITHIN 24 HOURS AFTER EACH RAINFALL OR DAILY DURING EXTENDED PERIODS OF PRECIPITATION. REPAIRS SHALL BE MADE IMMEDIATELY, AS NECESSARY, TO PREVENT PARTICLES FROM ENTERING THE DRAINAGE PIPING SYSTEM AND/OR CAUSING SURFACE FLOODING.
 - INLET BASKETS SHALL BE MAINTAINED IN PLACE UNTIL ALL PAVING IS COMPLETED AND ALL UNPAVED AREAS HAVE BEEN STABILIZED WITH VEGETATION. THEY SHALL BE REMOVED UPON COMPLETION.

4 CATCH BASIN FILTER BASKET DETAIL
N.T.S.

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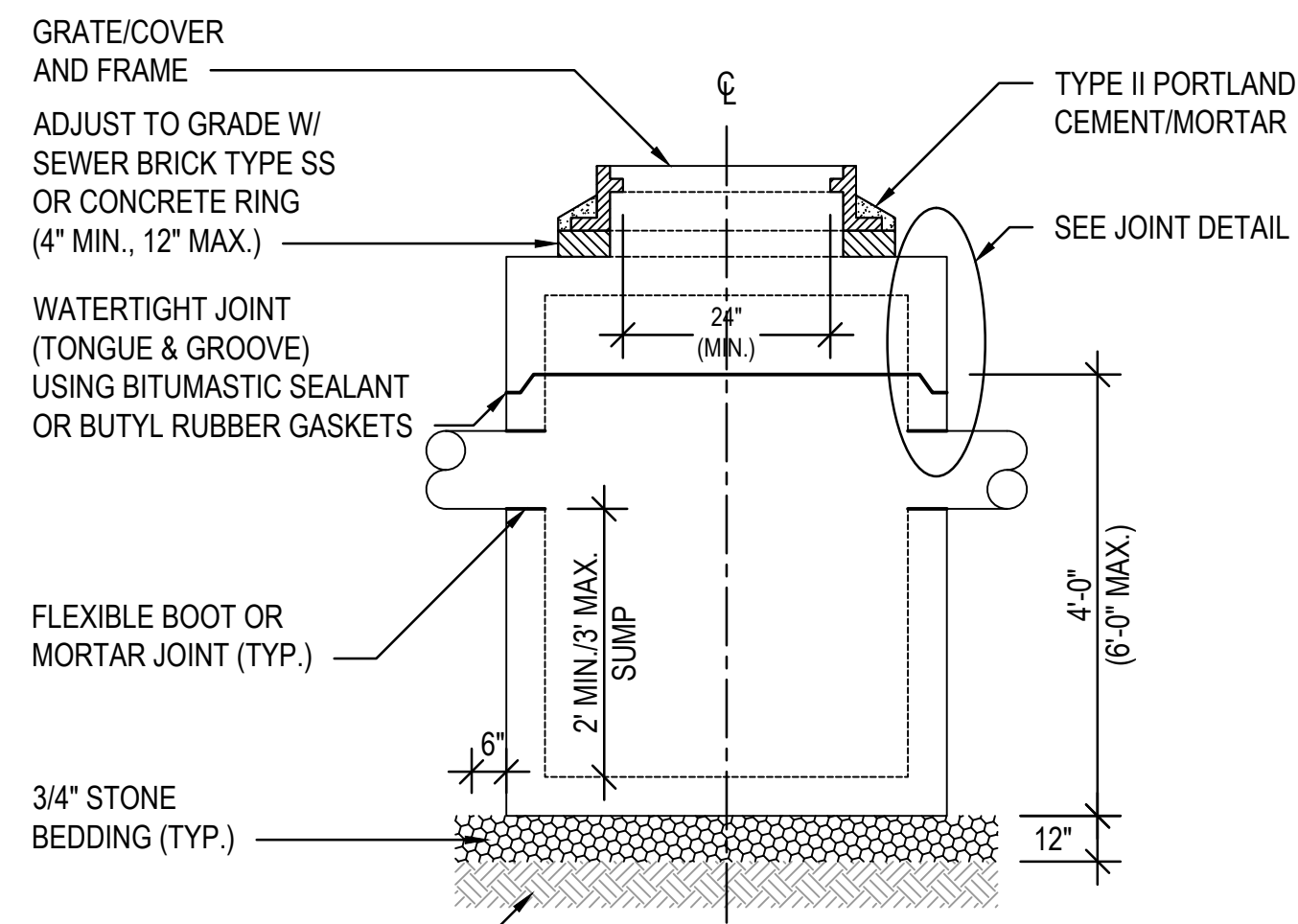
OWNER: **JMC HUDSON PROPERTIES, LLC**
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HOOKSETT, NH 03106

NO.	DATE	DESCRIPTION	BY

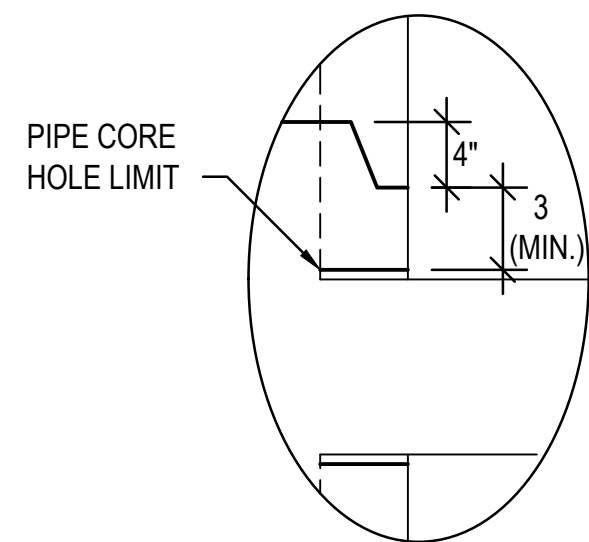
GRAPHIC SCALE

SHEET TITLE
EROSION CONTROL NOTES AND DETAILS

DRAWING NO.
C302
10 OF 13



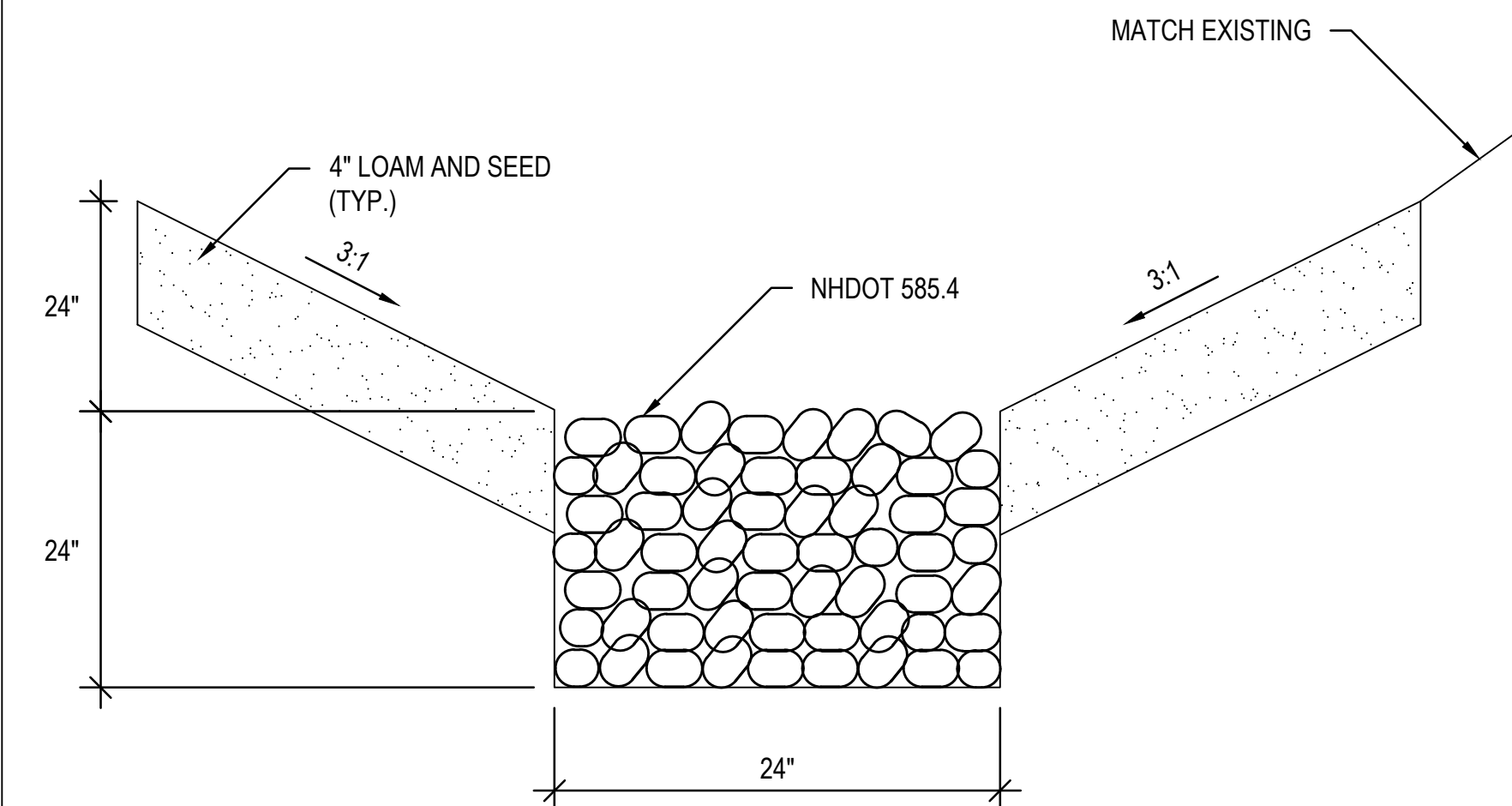
CORE HOLE SCHEDULE		
PIPE SIZE (INCHES)	CORE HOLE DIA. INCHES	FEET
6"	7	0.6
12"	18	1.5
15"	20	1.7
18"	24	2.0
24"	32	2.7
30"	42	3.5
36"	48	4.0
42"	54	4.6
48"	64	5.3



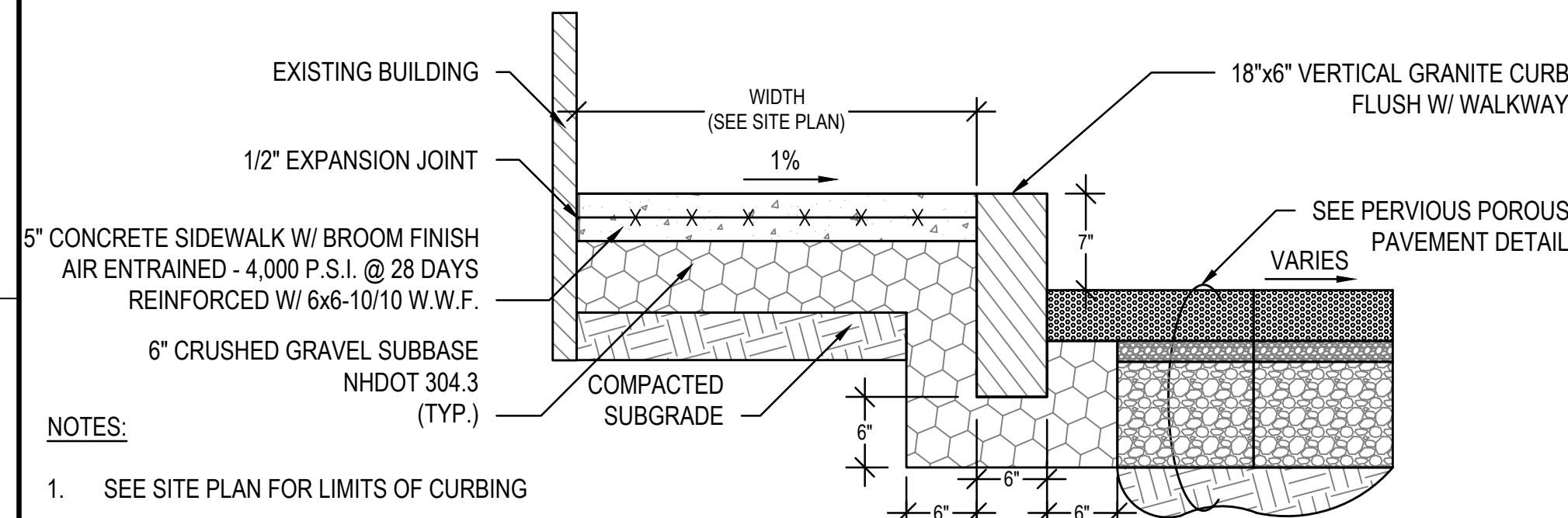
1 CATCH BASIN/DRAIN MANHOLE DETAIL
N.T.S.

NOTES:

1. PRECAST SECTIONS SHALL BE REINFORCED AND BE 5" THICK FOR A 4' DIAMETER STRUCTURE, 6" THICK FOR A 5' DIAMETER STRUCTURE, 7" THICK FOR A 6' DIAMETER STRUCTURE AND 9" THICK FOR A 8' DIAMETER STRUCTURE.
2. PRECAST BASE SECTIONS SHALL BE REINFORCED AND CONSIST OF A FLOOR THICKNESS OF 6" THICK FOR A 4' DIAMETER STRUCTURE, 8" THICK FOR A 5' DIAMETER STRUCTURE, 8" THICK FOR A 6' DIAMETER STRUCTURE AND 10" THICK FOR A 9' DIAMETER STRUCTURE.
3. PRECAST SECTIONS SHALL MEET HS-20 LOADING, CONSIST OF CONCRETE THAT IS A MINIMUM OF 4000psi @ 28 DAYS AND SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM C-478; LATEST REVISION.
4. PRECAST SECTIONS SHALL HAVE TONGUE AND GROOVE JOINT 4" HIGH AT AN 11-DEGREE ANGLE CENTERED IN THE WIDTH OF THE WALL AND SHALL BE ASSEMBLED USING AN APPROVED FLEXIBLE SEALANT IN JOINTS.
5. PRECAST CONE SECTIONS MAY BE EITHER CONCENTRIC, ECCENTRIC OR FLAT SLAB TOPS MAY BE USED WHERE PIPE WOULD OTHERWISE ENTER INTO THE CONE SECTION OF THE STRUCTURE AND WHERE PERMITTED.
6. ALL STRUCTURES WITH MULTIPLE PIPES SHALL HAVE A MINIMUM OF 12" OF INSIDE SURFACE BETWEEN HOLES AND NO MORE THAN 75% OF A HORIZONTAL CROSS-SECTION SHALL BE HOLES, INCLUDING NO HOLES SHALL BE LOCATED CLOSER THAN 3" TO JOINTS.
7. OUTSIDE PIPE EDGES SHALL PROJECT NO MORE THAN 3" BEYOND INSIDE WALL STRUCTURE.
8. SEE PLANS FOR STRUCTURE SIZES.
9. LABEL ON PLANS THE SIZE OF CB'S TO BE INSTALLED (i.e. 4' DIA., 5' DIA., 6' DIA., ETC.).
10. CONTACT LOCAL MANUFACTURERS TO REVIEW CB/DMH LAYOUT & DETERMINE ASSOCIATED SIZES.

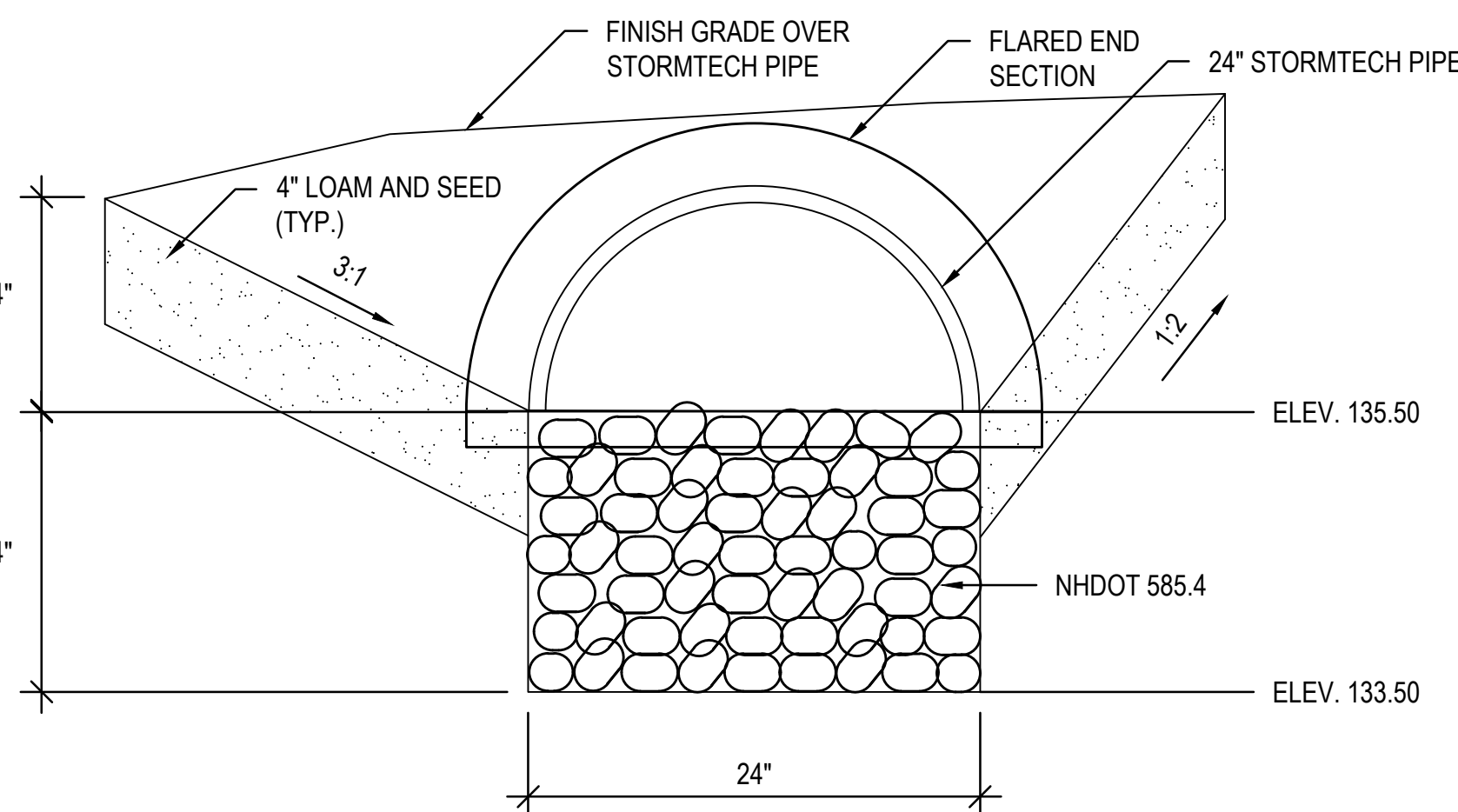


2 INFILTRATION TRENCH DETAIL
N.T.S.

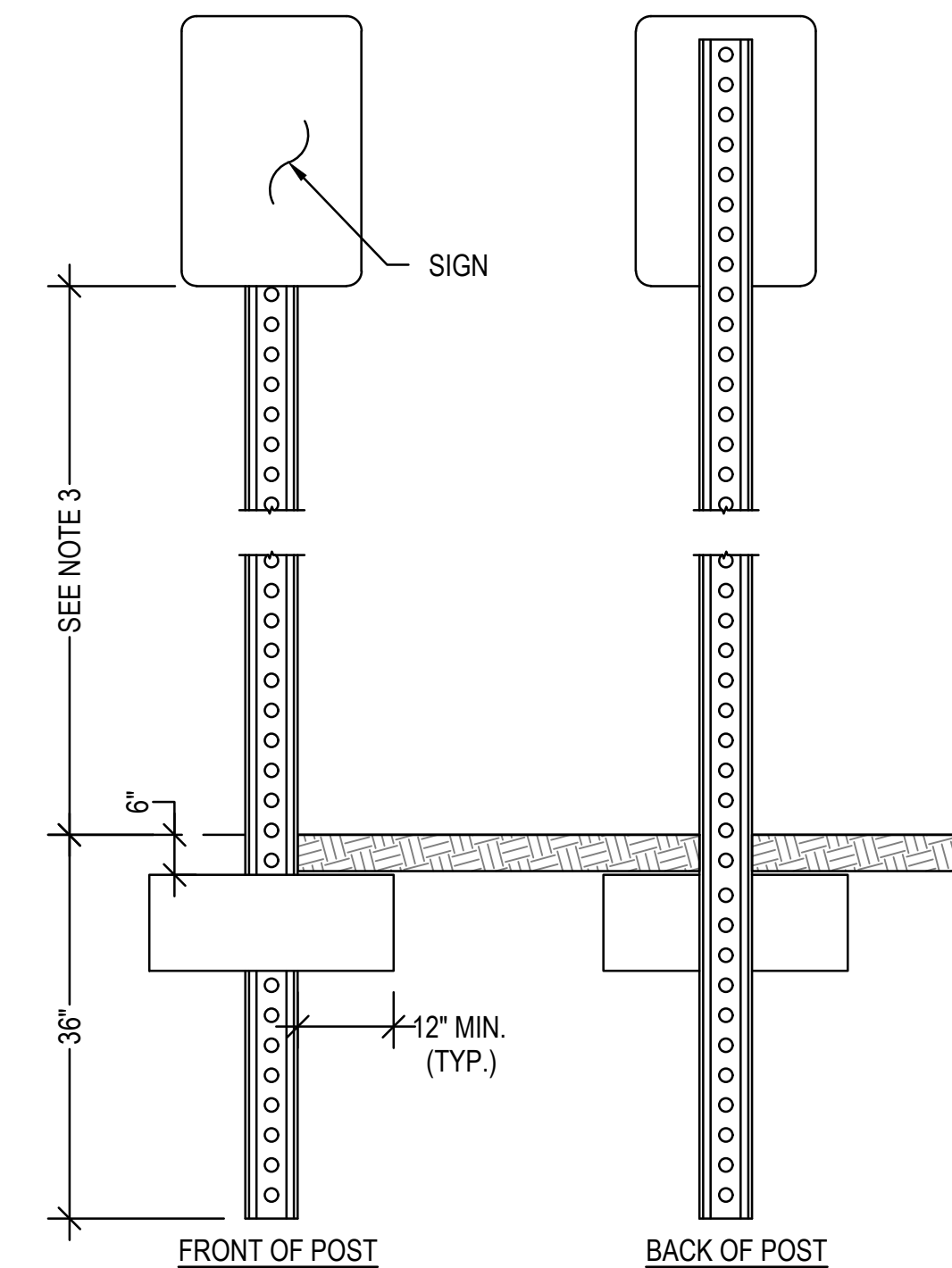


RADIUS	MAX. LENGTH
21'	3'
22'-28'	4'
29'-35'	5'
36'-42'	6'
43'-49'	7'
50'-56'	8'
57'-60'	9'
OVER 60'	10'

3 VERTICAL GRANITE CURB/SIDEWALK/BUILDING DETAIL
N.T.S.



4 INFILTRATION TRENCH WITH STORMTECH PIPE DETAIL
N.T.S.



NOTES:

1. STEEL "U" POSTS AND HARDWARE SHALL BE IN ACCORDANCE WITH NHDOT SECTION 615.
2. ALL POSTS SHALL BE INSTALLED PLUMB AND DRIVEN TO DEPTH IDENTIFIED ABOVE.
3. SIGNS SHALL BE INSTALLED TO A HEIGHT OF 6' MEASURED FROM THE FINISH GRADE OF PAVEMENT TO BOTTOM OF SIGN; IF INSTALL WITHIN SHOULDER. INSTALLATION HEIGHT SHALL INCREASE TO 7' MEASURED FROM FINISH GRADE OF SIDEWALK/RAISED MEDIAN TO BOTTOM OF SIGN; IF INSTALLED WITHIN SIDEWALK OF RAISED MEDIAN.

5 STEEL "U" POST DETAIL
N.T.S.



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NO.	DATE	DESCRIPTION	BY
PROJECT NO.	718770		
CADD FILE	718770_C501		
DESIGNED BY	APL		
DRAWN BY	APL		
CHECKED BY	SMB		
DATE	9/19/2022		
DRAWING SCALE	N.T.S.		

GRAPHIC SCALE

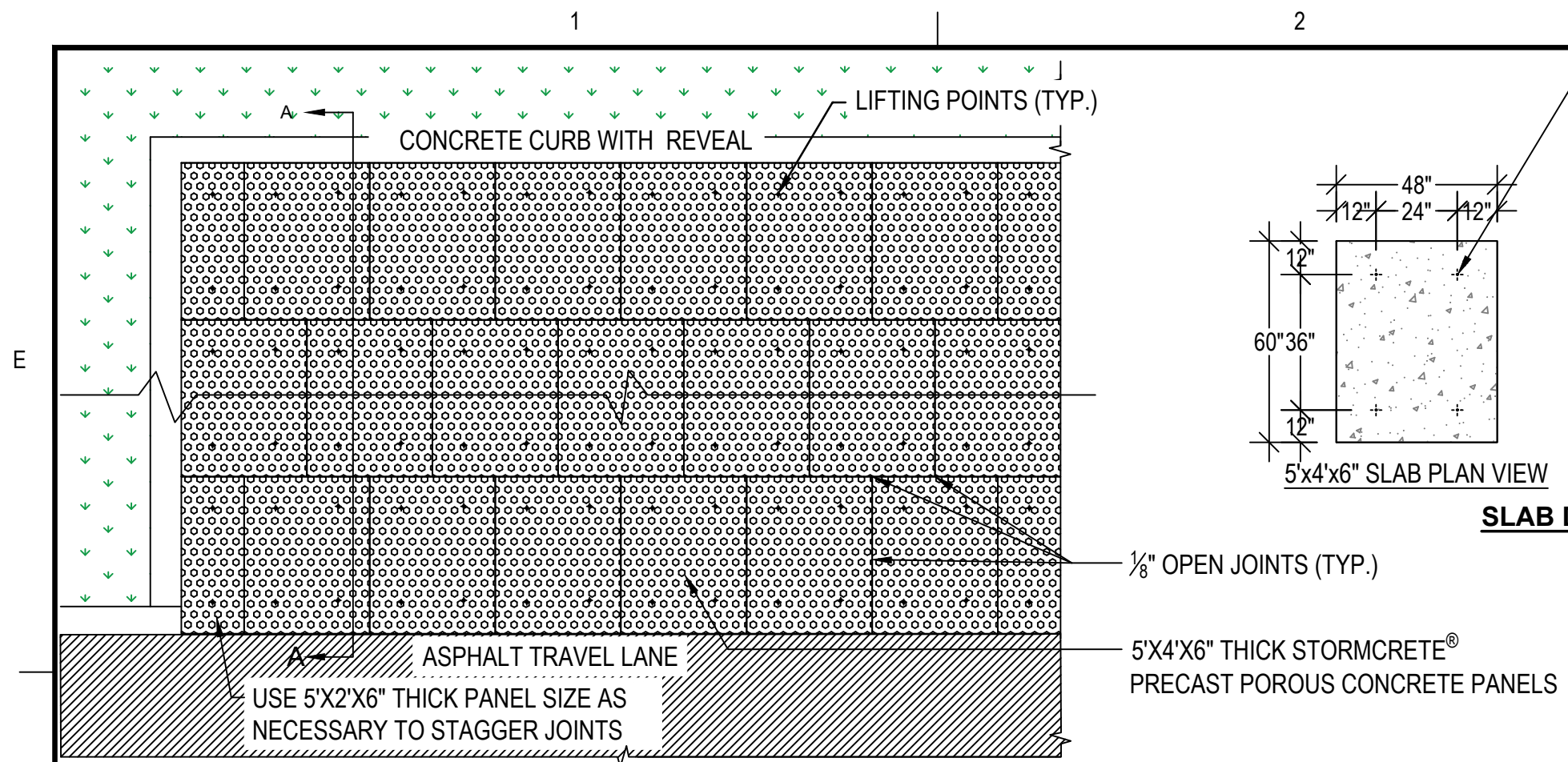
SHEET TITLE

CIVIL CONSTRUCTION
DETAILS
(SHEET 1 OF 3)

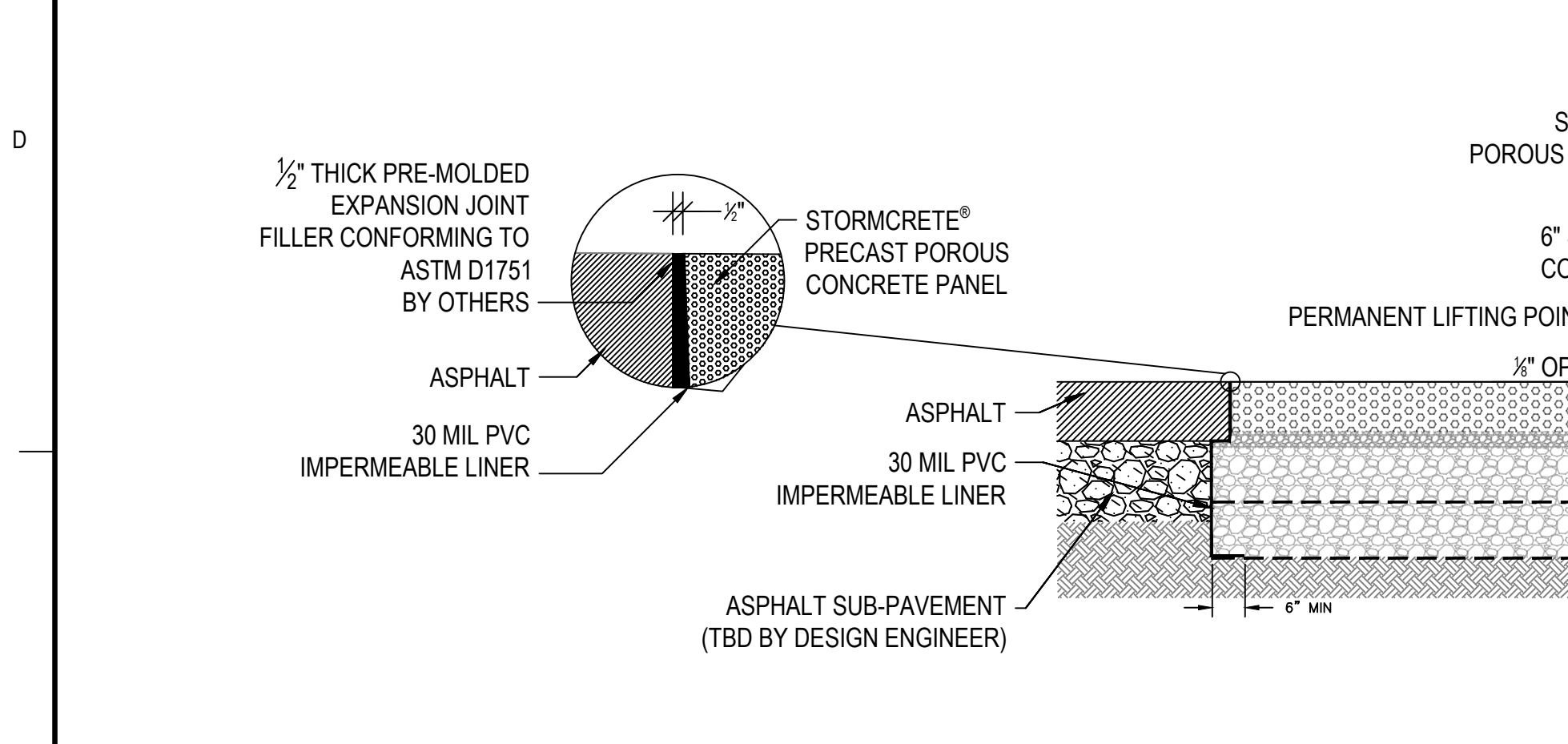
DRAWING NO.

C501

11 OF 13



7 TYPICAL STORMCRETE® SLAB LAYOUT
NOTE: PANELS MAY BE CONFIGURED OR FIELD CUT AS SPECIFIC SITE CONDITIONS WARRANT

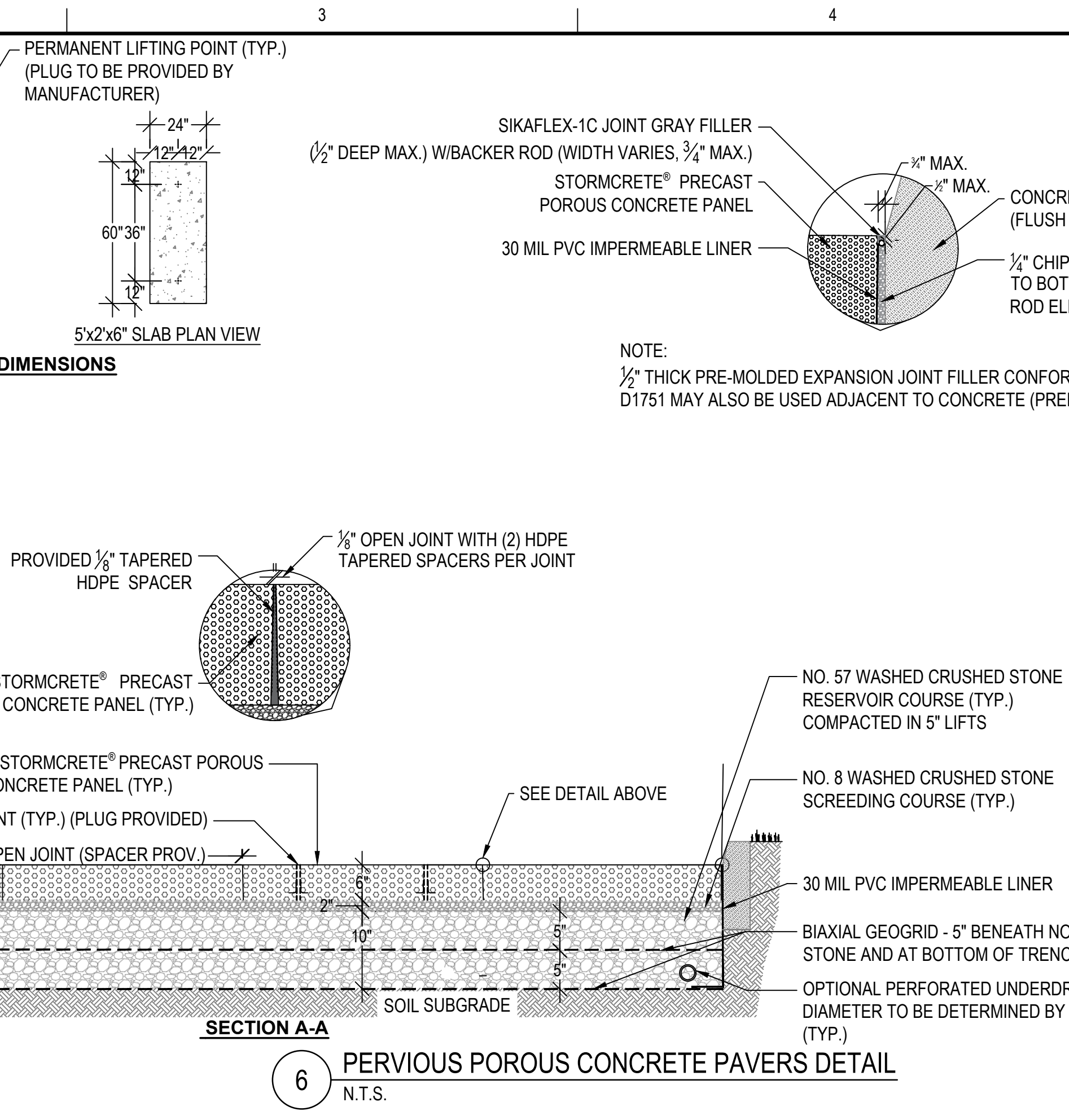


6 PERVIOUS POROUS CONCRETE PAVERS DETAIL
N.T.S.

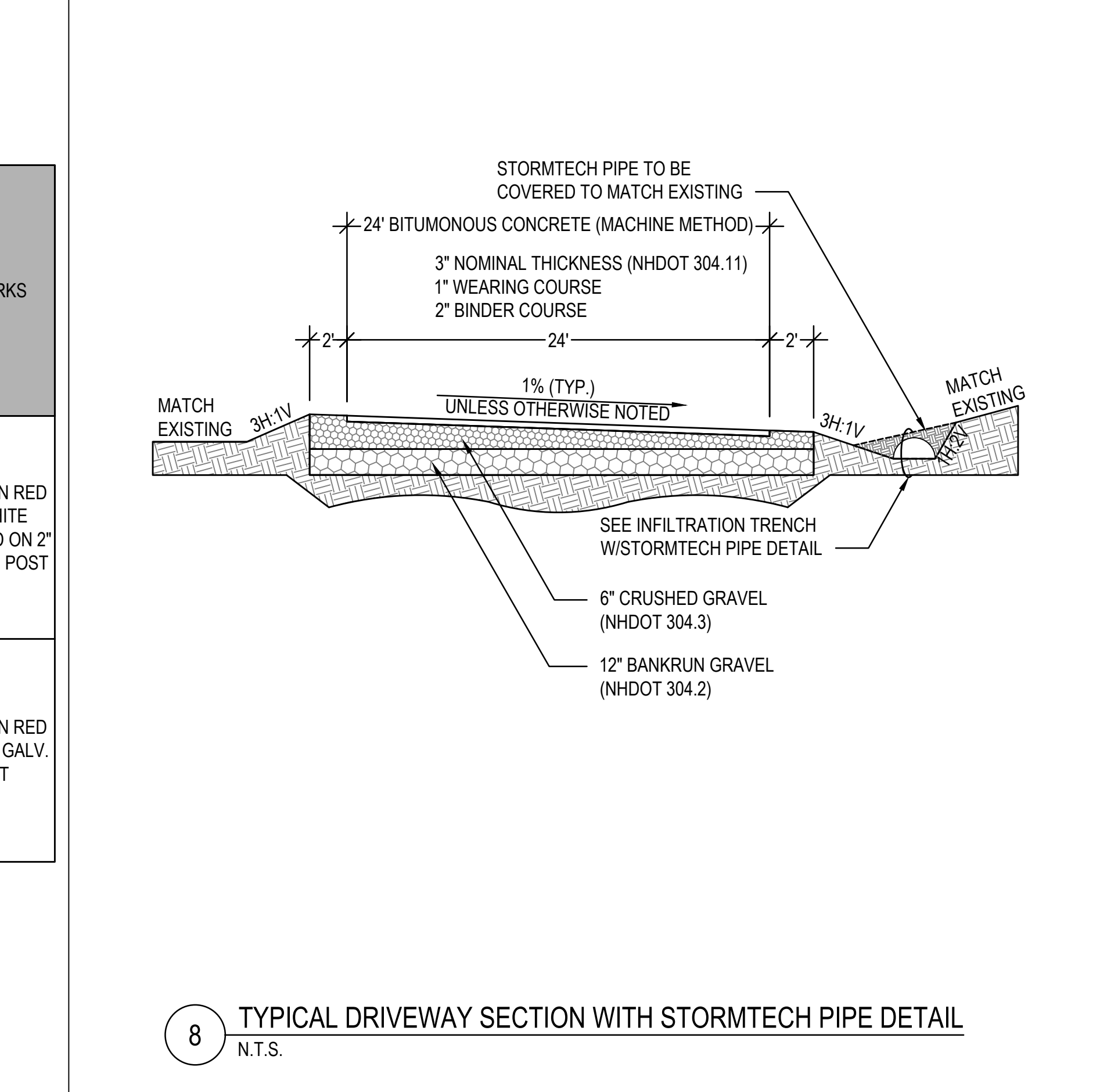


IDENT #	SIGN SIZE		TEXT	TEXT DIMENSIONS			SHIELD SIZE (INCH)	ARROW (INCH)	NUMBER AL (INCH)	# SIGNS REQD	SIGN AREA (SQ. FT.)		POSTS PER SIGN					REMARKS					
	WIDTH (INCH)	HEIGHT (INCH)		LETTER HEIGHT (INCH)							NOM. AREA	TOTAL AREA	BREAKAWAY	STEEL I-BEAM	CONCRETE BASE	4" O.D. ALUMINUM U-CHANNEL GALV.	2" SQ. BREAKAWAY						
				UC	LC	CAPS																	
R5-1	30	30				4C				1	6.25	12.5							WHITE ON RED ON WHITE MOUNTED ON 2" "U" GALV. POST				
R1-1	30	30				4C				1	4.25	8.5							WHITE ON RED ON 2" "U" GALV. POST				

7 SIGN TEXT SUMMARY
N.T.S.



8 TYPICAL DRIVEWAY SECTION WITH STORMTECH PIPE DETAIL
N.T.S.



9 TYPICAL DRIVEWAY SECTION W/PARKING AREA DETAIL
N.T.S.

- NOTES:**
1. PRECAST POROUS CONCRETE PANELS SHALL BE THE STORMCRETE® SYSTEM AS MANUFACTURED BY POROUS TECHNOLOGIES, LLC WWW.STORM-CRETE.COM (888) 357-1161
 2. STORMCRETE® PRECAST POROUS CONCRETE SHALL HAVE A CONCRETE AVERAGE UNIT WEIGHT OF 120 LB/CF (+/- 4%) AND A VOID RATIO OF 15-25% WHEN TESTED IN CONFORMANCE WITH ASTM D1754/1754M-12 STANDARD TEST METHOD FOR DENSITY AND VOID CONTENT OF HARDENED PERVIOUS CONCRETE.
 3. WASHED CRUSHED STONE RESERVOIR AND SCREEDING COURSE GRADATIONS AND THICKNESS SHALL BE BASED ON SUBSURFACE CONDITIONS, DEPTH OF FREEZING, TRAFFIC LOADINGS, AND STORM WATER DETENTION/RETENTION REQUIREMENTS AS SPECIFIED BY DESIGN PROFESSIONAL.
 4. ADJACENT MATERIAL SHALL NOT BE ALLOWED TO COME INTO DIRECT CONTACT WITH SIDES OF PANEL. PLACE 1/2" MOLDED BITUMINOUS EXPANSION JOINT MATERIAL IN CONFORMANCE WITH ASTM D1751, STANDARD SPECIFICATION FOR PREFORMED EXPANSION JOINT FILLER FOR CONCRETE PAVING AND STRUCTURAL CONSTRUCTION (NONEXTRUDING AND RESILIENT BITUMINOUS TYPES).
 5. PRECAST POROUS CONCRETE PANELS SHALL BE REINFORCED WITH ULTRA-THIN MONOFILAMENT HOMOPOLYMER POLYPROPYLENE FIBERS EQUIVALENT TO SIKA PPF-300 MANUFACTURED BY SIKA CORPORATION, OR APPROVED EQUAL.
 6. 1/2" GALV. COIL THREAD LIFTING INSERT SHALL BE MANUFACTURED BY A.L.P. SUPPLY PART NUMBER C16312134P, OR EQUAL.
 7. PANELS MAY BE CONFIGURED OR FIELD CUT AS SPECIFIC SITE CONDITIONS REQUIRE. PANELS SHALL BE CUT WITH A DIAMOND BLADE MASONRY SAW. CUT UNITS SHALL BE NO NARROWER THAN 18" AND CUTTING SHALL OCCUR SO THAT A MINIMUM OF 8" IS MAINTAINED BETWEEN LIFTERS EMBEDDED IN PANELS AND CUT EDGES.
 8. PANEL LAYOUTS SHALL BE PLANNED SO AS TO MINIMIZE OR ELIMINATE LOCATIONS WHERE UTILITY STRUCTURES INTERSECT WITH PANEL JOINTS. WHOLE AND HALF PANELS SHALL BE USED IN COMBINATION WITH CAST IN PLACE COLLARS TO SURROUND UTILITIES.
 9. STORMCRETE® PRECAST POROUS CONCRETE PANELS SHALL HAVE A MINIMUM INFILTRATION RATE OF 250 IN./HR. WHEN TESTED IN ACCORDANCE WITH ASTM C1701 - INFILTRATION RATE OF IN PLACE PERVIOUS CONCRETE.
 10. BIAXIAL GEOGRID SHALL BE INDUSTRIAL FABRICS BaseLOK™ BL-6 OR APPROVED EQUAL.
 11. NO. 57 STONE SHALL BE COMPACTED IN 5" LIFTS.
 12. REFER TO MANUFACTURER'S HANDLING AND INSTALLATION INSTRUCTIONS FOR ADDITIONAL PRODUCT SPECIFIC INFORMATION.

GALE
Engineers and Planners
6 BEDFORD FARMS DRIVE | BEDFORD, NH 03110
P 603.471.1887 F 603.471.1809
www.gaic.com
Boston Baltimore Orlando Hartford Bedford

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NOT FOR CONSTRUCTION

PROJECT: **ASM FACILITY**
7 SECURITY DRIVE
HUDSON, NH 03051

OWNER: **JMC HUDSON PROPERTIES, LLC**
5 LEHOUX DRIVE
HOOKSETT, NH 03106

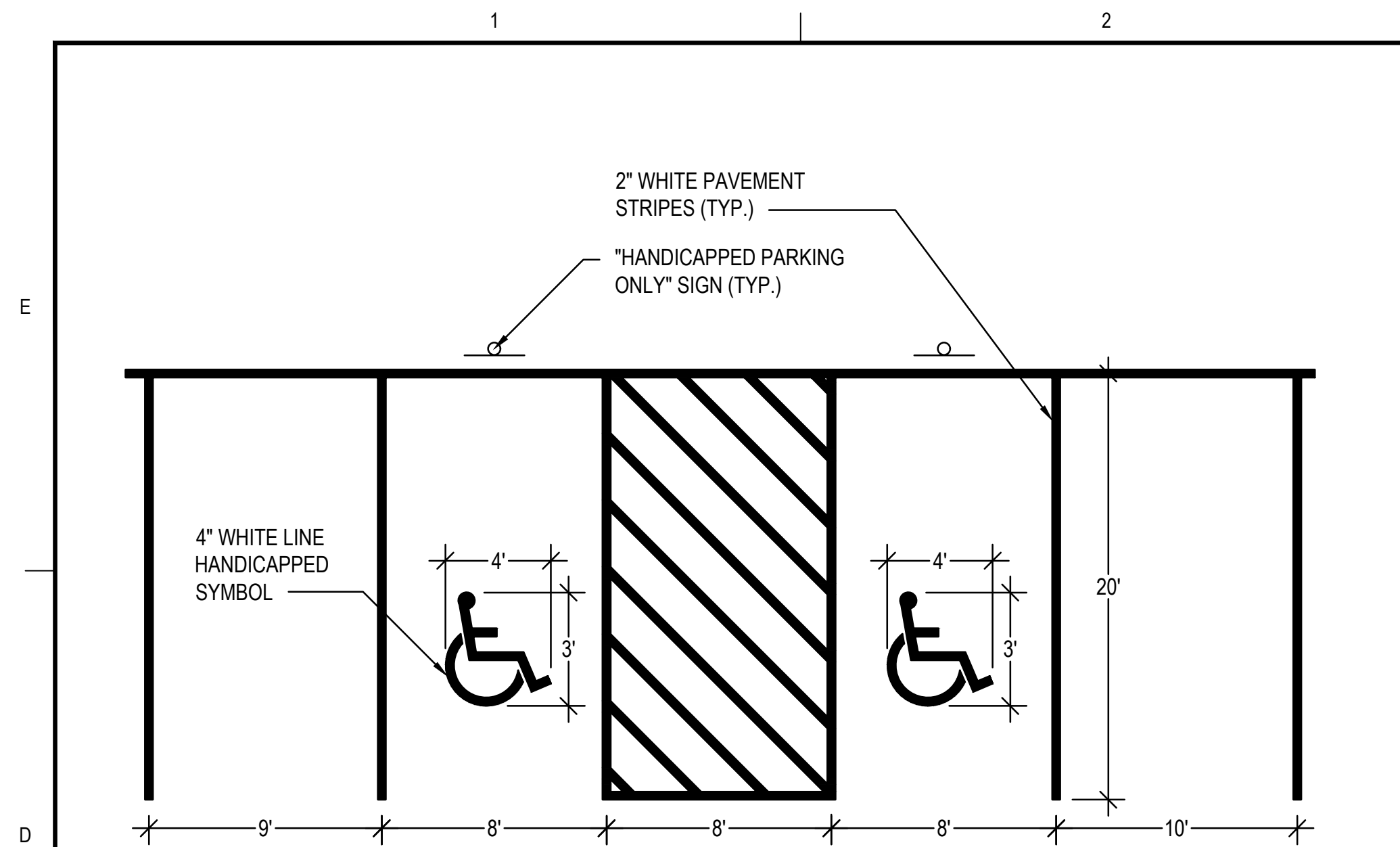
NO.	DATE	DESCRIPTION	BY
PROJECT NO.	718770		
CADD FILE	718770_C501		
DESIGNED BY	APL		
DRAWN BY	APL		
CHECKED BY	SMB		
DATE	9/19/2022		
DRAWING SCALE	N.T.S.		

GRAPHIC SCALE

SHEET TITLE

CIVIL CONSTRUCTION DETAILS
(SHEET 2 OF 3)

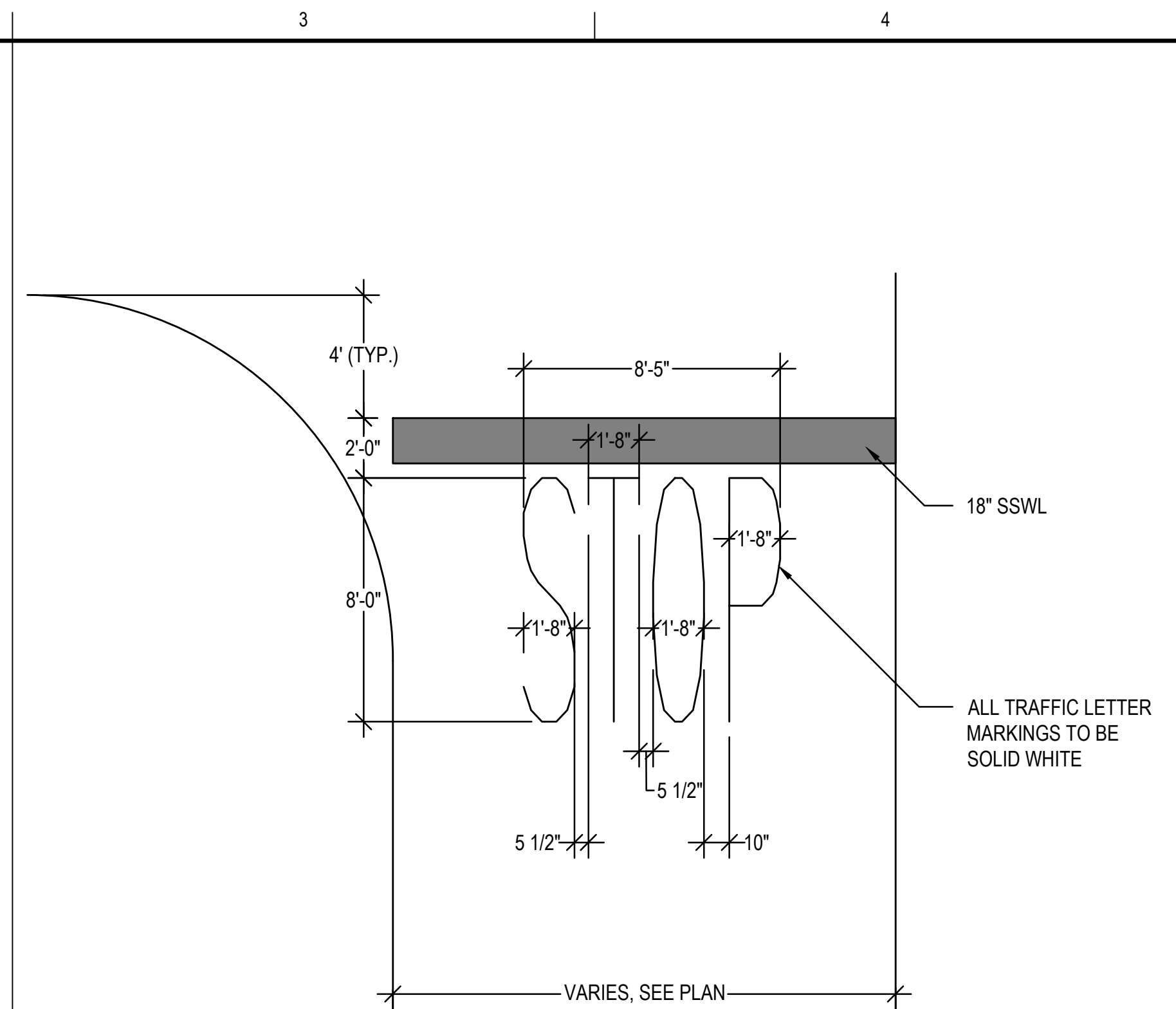
DRAWING NO. **C502**
12 OF 13



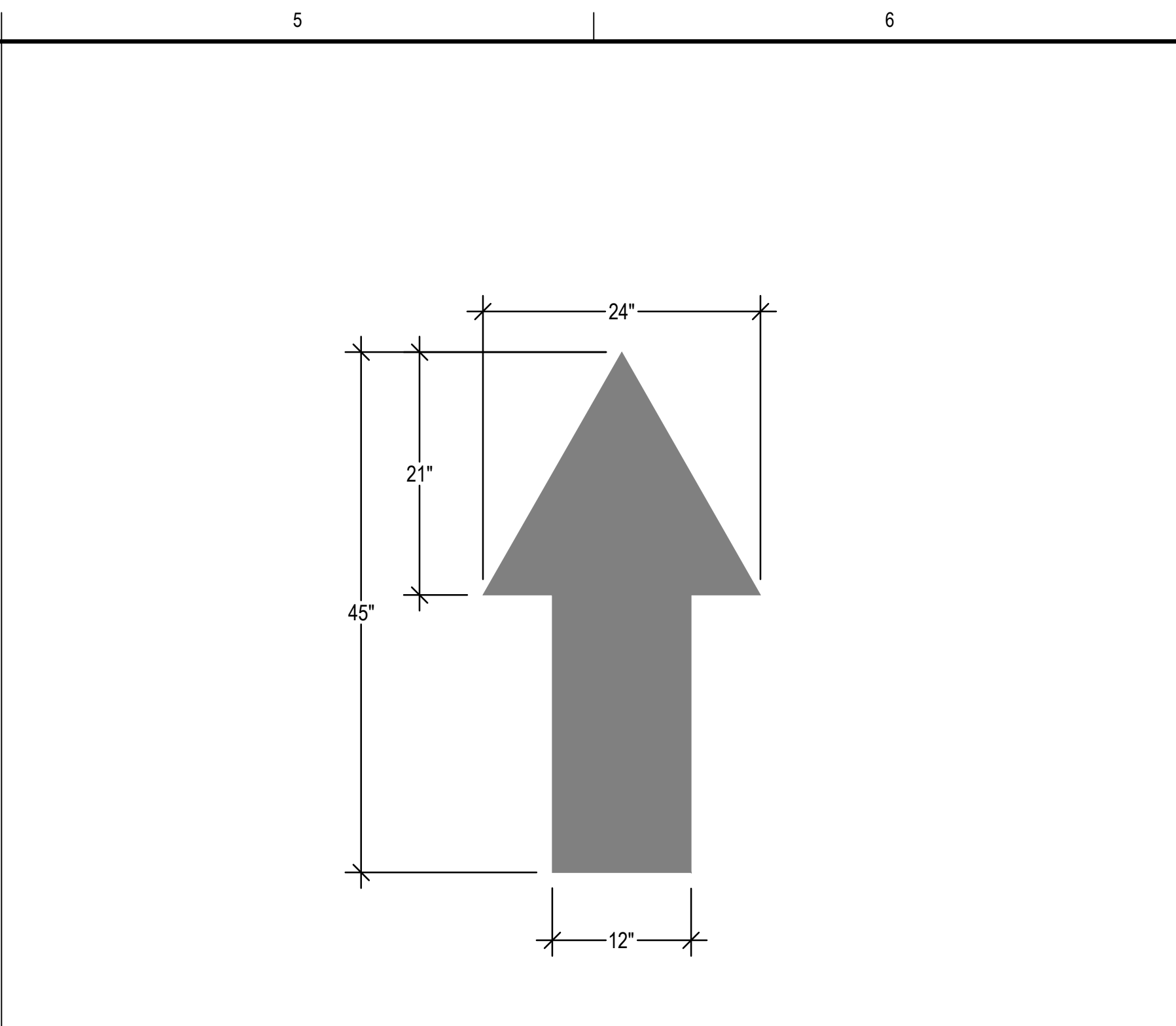
NOTES:

1. ALL PAVEMENT MARKINGS/STRIPING SHALL CONFORM TO LOCAL AND STATE REGULATIONS.

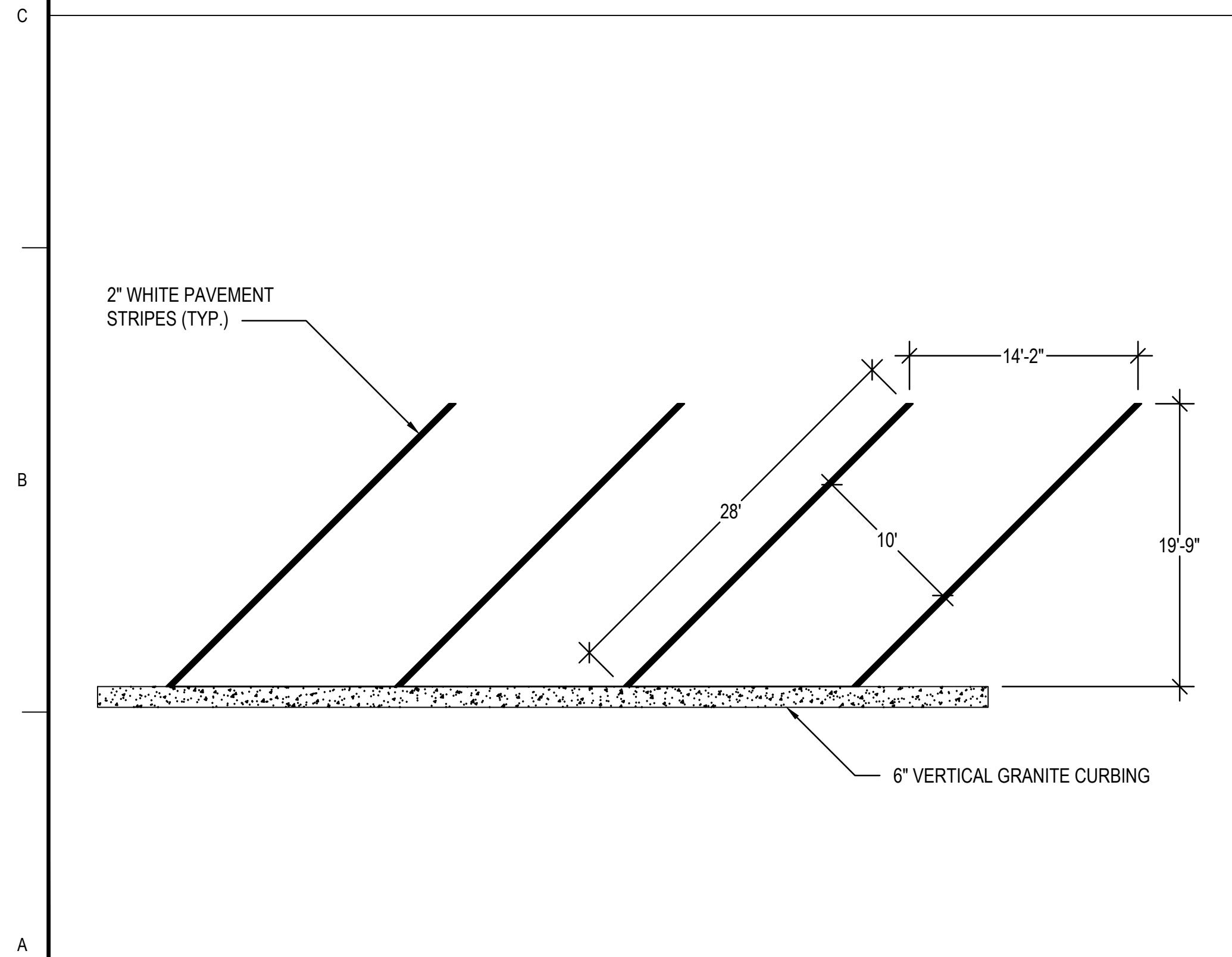
10 MULTI-HANDICAP & ADJACENT PARKING PAVEMENT MARKING DETAIL
N.T.S.



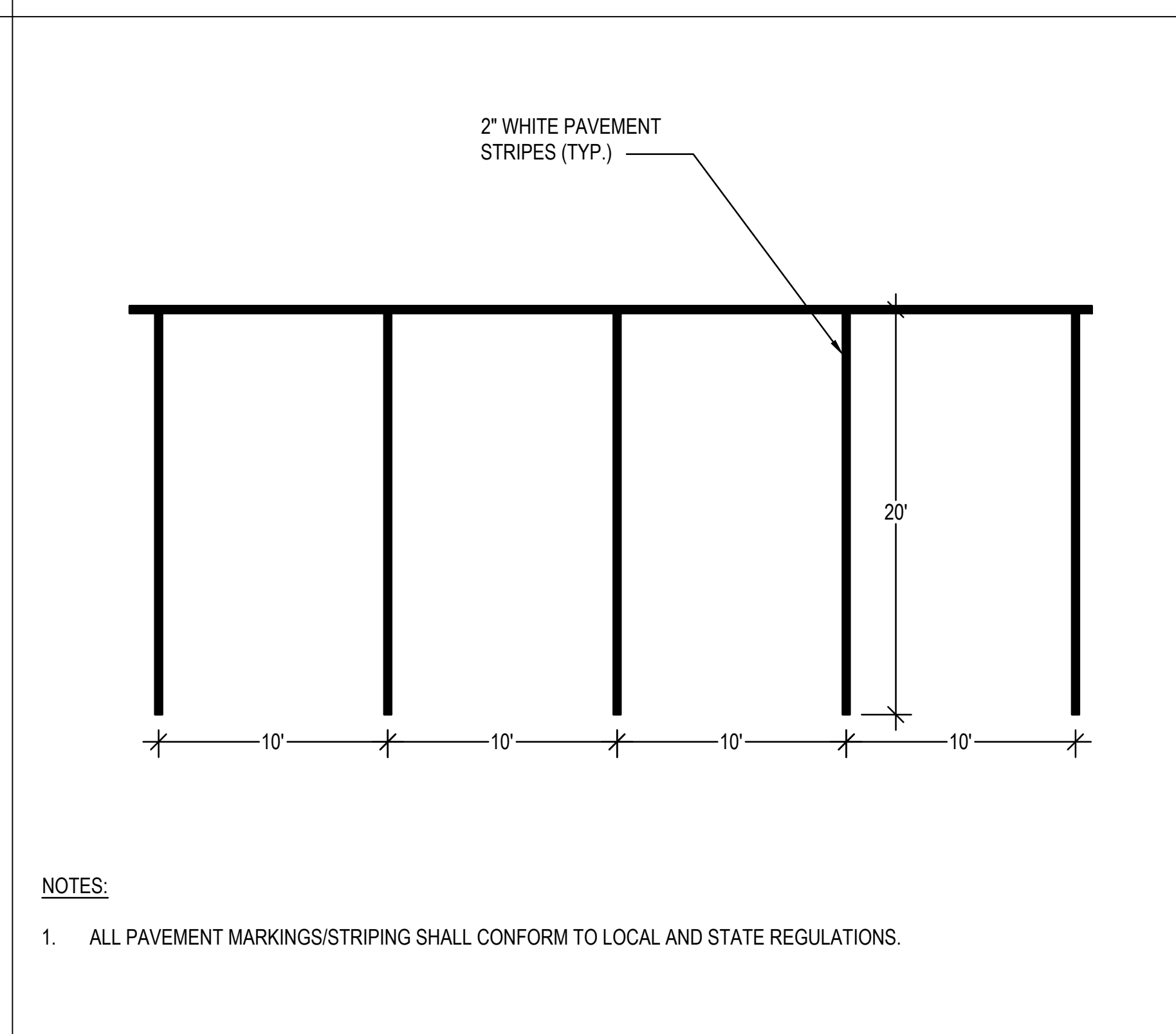
11 STOP PAVEMENT MARKING DETAIL
N.T.S.



12 TRAFFIC FLOW ARROW DETAIL
N.T.S.



13 45° PARKING PAVEMENT MARKING DETAIL
N.T.S.



NOTES:

1. ALL PAVEMENT MARKINGS/STRIPING SHALL CONFORM TO LOCAL AND STATE REGULATIONS.

14 STANDARD PARKING PAVEMENT MARKING DETAIL
N.T.S.



Gale Associates, Inc.
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P 603.471.1887 F 603.471.1809
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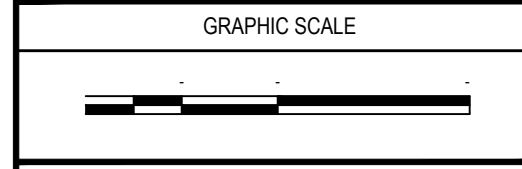
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NOT FOR CONSTRUCTION

PROJECT
ASM FACILITY
7 SECURITY DRIVE
HUDSON, NH 03051

OWNER
JMC HUDSON PROPERTIES, LLC
5 LEHOUX DRIVE
HOOKSETT, NH 03106

NO.	DATE	DESCRIPTION	BY
PROJECT NO.	718770		
CADD FILE	718770_C501		
DESIGNED BY	APL		
DRAWN BY	APL		
CHECKED BY	SMB		
DATE	9/19/2022		
DRAWING SCALE	N.T.S.		



SHEET TITLE

CIVIL CONSTRUCTION
DETAILS
(SHEET 3 OF 3)

DRAWING NO.
C503
13 OF 13



Gale Associates, Inc.

6 Bedford Farms Drive, Suite 101 | Bedford, NH 03110

P 603.471.1887 F 603.471.1809

www.galeassociates.com

September 15, 2022

Mr. Brian Groth, AICP
Town Planner
Town of Hudson
12 School Street
Hudson, New Hampshire 03051

Subject: ASM Facility (Tax Map 215 / Lot 18) – Drainage Analysis
Hudson, NH

Dear Mr. Groth:

On behalf of the Applicant, JMC Hudson Properties, Gale Associates, Inc. (Gale) is pleased to provide the following Drainage Analysis services for the proposed site improvements of the existing ASM Facility located at 7 Security Drive in Hudson, New Hampshire.

1.1 General Methodology. In accordance with Section 275-9.A of the Town of Hudson Site Plan Regulations, a stormwater runoff model of pre- and post-development conditions was prepared to determine peak discharge rates for the 2-, 10-, and 25-year, 24-hour storm events. A computer-aided design software, HydroCAD, was used to model the various characteristics and physical properties to determine peak discharge rates. HydroCAD closely mimics the standard methodologies of Technical Release (TR)-20 and TR-55, as developed by the US Department of Agriculture (USDA) – Natural Resources Conservation Services (NRCS). Simulating the TR-20 and TR-55 methodologies, HydroCAD models each subcatchment(s) of the watershed, calculates the hydrologic analysis, and develops peak rates of runoff under various storm events. All calculations of the subcatchment model(s) within the watershed are carried to the site-specific analysis points (aka point-of-interest), which are intended to simulate a positive outfall to accurately compare project impacts.

In accordance with the New Hampshire Department of Environmental Services (NHDES) New Hampshire Stormwater Manual (dated December 2008), rainfall data was obtained by the Northeast Regional Climate Center's Extreme Precipitation in New York & New England (website <http://precip.eas.cornell.edu/>) for the Longitude (71,419 degrees west) and Latitude (42,703 degrees north) coordinates. According to the precipitation table, rainfall for the 2-, 10-, and 25-year, 24-hour storm events are 2.99, 4.49, and 5.68 inches per hour (in/hr), respectively. The precipitation table has been included as part of this drainage report.

Soil conditions of the project site were obtained from the USDA – NRCS for the project area (website <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>). A custom soils report titled "Custom Soil Resource Report for Hillsborough County, New Hampshire, Eastern Part – ASM Facility, 7 Security Drive" has been included with this report. According to the soils report, existing soil conditions are labeled as Windsor soils. The Ksat Values for New Hampshire Soils as published by the Society of Soil Scientists of Northern New England (SSSNNE) Special Publication No. 5 (dated September 2009), characterizes the Windsor soil as being well-draining, a hydrologic soil group (HSG) 'A' and having an infiltration (Ksat) rate between 6 to 20 in/hr; please see Ksat Value publication.

SINCE 1964



1.2 Site Hydraulics. Modeled within the existing drainage analysis are detailed descriptions of the various open and closed drainage systems to demonstrate pre- and post-development stormwater control characteristics. While overland drainage paths were included within the subcatchment(s) of the analysis, drainage swales were modeled separately as reaches to evaluate the effects and capacities of the drainage swales. All drainage culverts and/or closed drainage systems were modeled as small ponds to calculate surcharge, account for tailwater conditions, and analyze inlet/outlet controls that alter “full barrel” performance of the specific outlet drainage infrastructure. Calculations of the site hydraulics have been included as part of this drainage report.

1.3 Pre-development Runoff Analysis. Identified on the Town of Hudson’s assessor’s map as Parcel ID 251-018-000, the 123,824 square foot (2.84 Ac) site is located within the Town’s G1 – General zoning district. The existing site consists of a 20,160 square foot, light industrial, slab-on-grade building; 40 parking spaces (two of which are ADA Van accessible); consists of two (2) loading docks located along the rear (south side) of the facility; a 25’ x 50’ equipment pad; and, is supported by a combination of public and private utilities – including public water service, private sanitary septic, underground electric, underground telephone, and a closed drainage system. The total impervious area of the existing site is approximately 47,730 square feet, resulting in 61.5% of open space.

The watershed area of the project matches that of the property boundary limits and consists of both open space (i.e., woodlands and grass areas) and impervious areas (i.e., buildings, concrete pads, concrete sidewalks, and pavement surfaces). Field visits were performed to verify existing topography information that resulted in the delineation of the subcatchment drainage areas. The approximate areas for open space and impervious areas are 76,094 and 47,730 square feet, respectively. The watershed area has been divided into two (2) subcatchment areas – east and west.

The associated stormwater runoff flows of the pre-development subcatchments were evaluated and determined to flow in separate directions. Ultimately, runoff from the site flows overland in a northerly direction toward Security Drive. For the purpose of this analysis, a single point-of-interest (POI) was established based on the direction of the ultimate runoff discharge point and area of concern. The POI for this analysis has been established as the existing drain manhole (DMH) located along Security Drive. Below are the results of the pre-development peak flow rates for the associated 24-hour storm events.

Table 1 – Point-of-Interest ‘A’ Pre-development Conditions Summary			
Storm Frequency Quantities			
Item	2-Year	10-Year	25-Year
Runoff Flow (cfs)	1.34	3.25	5.01

*cfs = cubic feet/second

1.4 Post-development Runoff Analysis. The proposed site improvements include enclosing the 25’ x 50’ concrete equipment pad, extending the existing 24-foot-wide driveway to improve truck movements, replacing the existing 41 impervious parking stalls with a porous surface area, and adding 13 porous surface parking stalls. The total impervious area of the proposed site is approximately 51,524 square feet, resulting in 58.4% of open space.



The proposed post-development stormwater model includes combination of stormwater runoff control measures to keep flows under the pre-development rates. The major features of the stormwater management plan developed for the site includes converting existing impervious parking areas to pre-cast concrete porous pavers, installing pre-cast concrete porous pavers for the added parking areas, installing an infiltration trench that parallels the driveway extension, and maintaining the existing closed-drainage system.

Post-development subcatchment areas mimicked pre-development areas but were modified to model post-development surface conditions. The proposed pre-cast concrete porous pavers were included in the post-development subcatchments and modeled with a curve number (CN) similar to a “good condition grass cover” of 39. The proposed infiltration trench paralleling the driveway extension along the east side of the site was modeled utilizing a Ksat value of 3 in/hr, a factor safety of two (2) of the lowest Ksat rate of 6 in/hr, in accordance with *Evaluation of Specific Infiltration Areas, Section A – Default Rate* outlined in Chapter 2-4 of the NH Stormwater Manual Volume II. Below are the results of the post-development peak flow rates for the associated 24-hour storm events.

Table 2 – Point-of-Interest ‘A’ Post-development Conditions Summary			
Storm Frequency Quantities			
Item	2-Year	10-Year	25-Year
Runoff Flow (cfs)	0.95	2.67	4.31

*cfs = cubic feet/second

1.5 Summary. This drainage analysis has demonstrated that post-development stormwater runoff for the proposed site improvements have been designed to maintain the pre-development runoff conditions during the 2-, 10-, and 25-year, 24-hour storm events. The proposed site improvements are not anticipated to adversely affect the neighboring properties or municipal stormwater infrastructure.

We hope that the Hudson Planning Board find this stormwater acceptable. If you have any questions or concerns, please do not hesitate to contact us.

Best regards,
 Gale Associates, Inc.

Scott M. Bourcier, P.E.
 Project Manager

SMB/slr

- Enclosure:
- Northeast Regional Climate Center’s Extreme Precipitation Data Table
 - USDA – NRCS Custom Soils Report
 - Ksat Values for New Hampshire Soils Publication
 - Pre-development Stormwater Model (2-, 10-, and 25-year storm events)
 - Pre-development Subcatchment Areas and Runoff Flow Paths – Figure 1
 - Impervious Areas and Open Space Calculations Memorandum
 - Post-development Stormwater Model (2-, 10-, and 25-year storm events)
 - Post-Development Subcatchment Areas and Runoff Flow Paths – Figure 2

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Smoothing	Yes
State	New Hampshire
Location	
Longitude	71.419 degrees West
Latitude	42.703 degrees North
Elevation	0 feet
Date/Time	Tue, 13 Sep 2022 16:05:00 -0400

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.42	0.52	0.69	0.86	1.08	1yr	0.74	1.02	1.25	1.57	1.98	2.50	2.74	1yr	2.21	2.64	3.08	3.77	4.39	1yr
2yr	0.33	0.51	0.64	0.84	1.06	1.33	2yr	0.92	1.22	1.54	1.92	2.40	2.99	3.31	2yr	2.64	3.19	3.70	4.43	5.03	2yr
5yr	0.40	0.62	0.77	1.03	1.32	1.68	5yr	1.14	1.53	1.95	2.44	3.03	3.77	4.21	5yr	3.33	4.05	4.68	5.56	6.29	5yr
10yr	0.45	0.70	0.89	1.20	1.56	2.00	10yr	1.35	1.81	2.33	2.92	3.63	4.49	5.05	10yr	3.98	4.85	5.59	6.61	7.44	10yr
25yr	0.53	0.84	1.07	1.47	1.95	2.52	25yr	1.69	2.26	2.94	3.70	4.60	5.68	6.42	25yr	5.02	6.17	7.08	8.32	9.31	25yr
50yr	0.59	0.95	1.22	1.72	2.32	3.02	50yr	2.00	2.68	3.54	4.45	5.52	6.78	7.70	50yr	6.00	7.40	8.47	9.90	11.03	50yr
100yr	0.68	1.11	1.42	2.02	2.75	3.60	100yr	2.37	3.18	4.23	5.32	6.60	8.10	9.24	100yr	7.17	8.89	10.14	11.78	13.08	100yr
200yr	0.78	1.27	1.64	2.36	3.26	4.30	200yr	2.81	3.77	5.06	6.38	7.90	9.68	11.10	200yr	8.56	10.68	12.14	14.03	15.51	200yr
500yr	0.93	1.54	2.01	2.92	4.09	5.44	500yr	3.53	4.73	6.42	8.10	10.03	12.26	14.16	500yr	10.85	13.61	15.40	17.67	19.44	500yr

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.23	0.35	0.43	0.57	0.70	0.80	1yr	0.61	0.79	1.07	1.34	1.69	2.33	2.56	1yr	2.06	2.46	2.74	3.07	3.94	1yr
2yr	0.32	0.49	0.60	0.82	1.01	1.21	2yr	0.87	1.18	1.38	1.80	2.31	2.92	3.24	2yr	2.59	3.11	3.61	4.32	4.92	2yr
5yr	0.36	0.56	0.69	0.95	1.21	1.43	5yr	1.05	1.40	1.64	2.13	2.72	3.52	3.95	5yr	3.12	3.80	4.35	5.20	5.91	5yr
10yr	0.40	0.61	0.76	1.06	1.37	1.61	10yr	1.19	1.58	1.83	2.41	3.07	4.06	4.59	10yr	3.60	4.41	5.01	5.97	6.79	10yr
25yr	0.45	0.69	0.86	1.23	1.62	1.89	25yr	1.39	1.85	2.14	2.84	3.58	4.91	5.61	25yr	4.35	5.39	6.04	7.16	8.15	25yr
50yr	0.49	0.75	0.94	1.35	1.81	2.14	50yr	1.57	2.09	2.41	3.22	4.03	5.67	6.54	50yr	5.02	6.29	6.97	8.23	9.34	50yr
100yr	0.54	0.82	1.03	1.48	2.03	2.42	100yr	1.75	2.36	2.72	3.46	4.54	6.56	7.65	100yr	5.81	7.36	8.04	9.46	10.72	100yr
200yr	0.60	0.90	1.14	1.64	2.29	2.74	200yr	1.98	2.68	3.05	3.90	5.15	7.61	8.96	200yr	6.73	8.62	9.29	10.86	12.31	200yr
500yr	0.68	1.01	1.29	1.88	2.67	3.23	500yr	2.31	3.16	3.58	4.57	6.09	9.24	11.09	500yr	8.18	10.66	11.24	13.04	14.77	500yr

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.31	0.48	0.58	0.79	0.97	1.13	1yr	0.83	1.11	1.29	1.68	2.12	2.65	2.92	1yr	2.35	2.81	3.38	4.16	4.77	1yr
2yr	0.35	0.55	0.67	0.91	1.13	1.32	2yr	0.97	1.29	1.50	1.95	2.50	3.07	3.41	2yr	2.72	3.28	3.81	4.55	5.17	2yr
5yr	0.44	0.67	0.84	1.15	1.46	1.69	5yr	1.26	1.65	1.92	2.46	3.09	4.04	4.51	5yr	3.57	4.34	5.01	5.95	6.68	5yr
10yr	0.53	0.81	1.00	1.40	1.81	2.07	10yr	1.56	2.02	2.35	2.94	3.67	4.99	5.60	10yr	4.42	5.39	6.19	7.29	8.13	10yr
25yr	0.68	1.03	1.28	1.83	2.41	2.69	25yr	2.08	2.63	3.05	3.74	4.60	6.59	7.44	25yr	5.83	7.15	8.19	9.56	10.57	25yr
50yr	0.82	1.24	1.55	2.23	3.00	3.29	50yr	2.59	3.21	3.72	4.49	5.45	8.13	9.22	50yr	7.19	8.86	10.12	11.74	12.89	50yr
100yr	1.00	1.51	1.89	2.72	3.74	4.02	100yr	3.22	3.93	4.55	5.64	6.47	10.04	11.41	100yr	8.88	10.97	12.50	14.44	15.72	100yr
200yr	1.21	1.82	2.31	3.34	4.66	4.91	200yr	4.02	4.80	5.55	6.81	7.69	12.39	14.12	200yr	10.97	13.58	15.46	17.75	19.20	200yr
500yr	1.57	2.34	3.02	4.38	6.23	6.39	500yr	5.38	6.25	7.23	8.75	9.64	16.37	18.68	500yr	14.49	17.96	20.49	23.33	24.99	500yr





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 Hillsborough County, New Hampshire, Eastern Part

**ASM Facility, 7 Security Drive,
Hudson, NH**



Preface

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

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

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

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

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

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

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How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

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

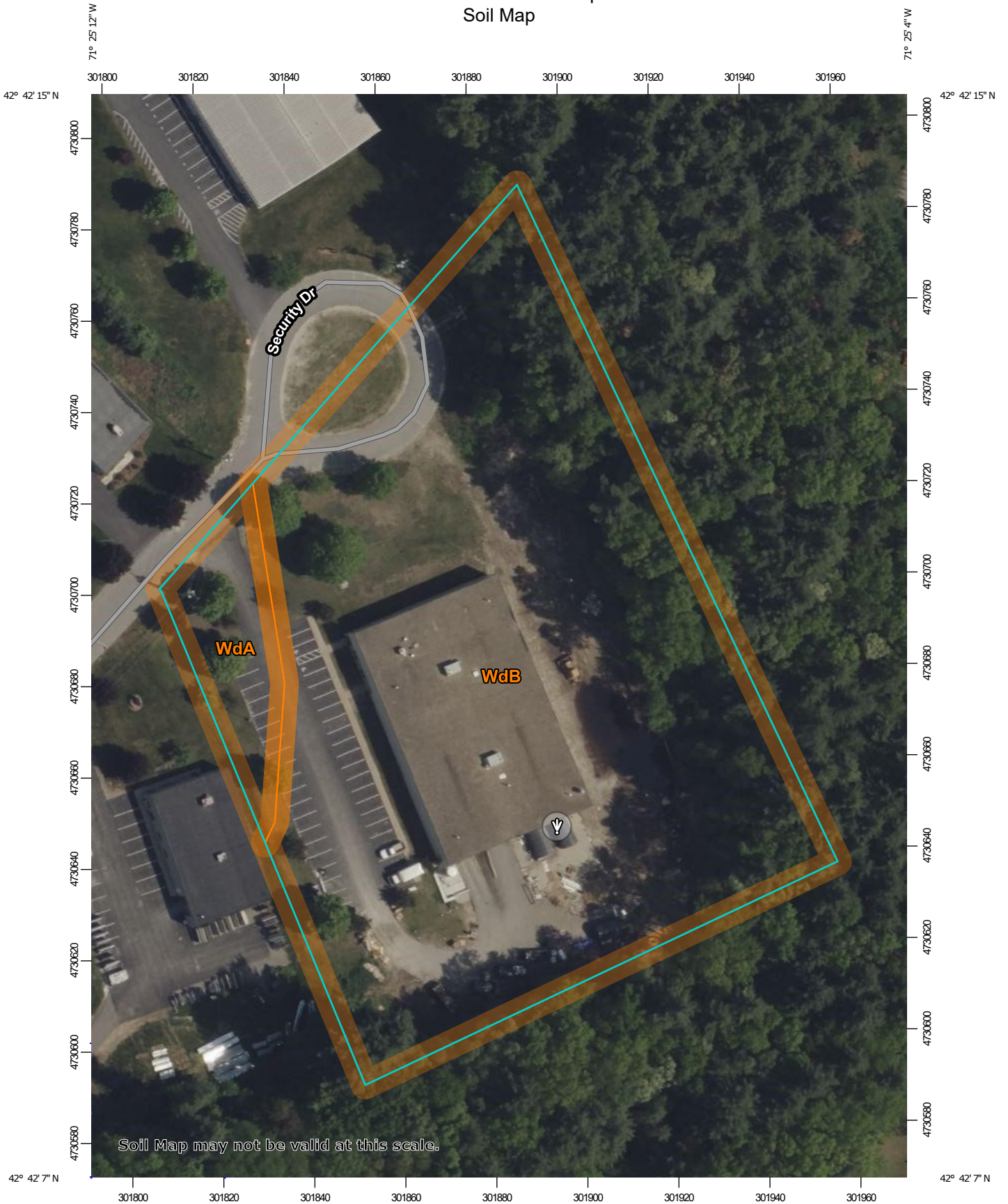
Custom Soil Resource Report

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

Soil Map

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

Custom Soil Resource Report Soil Map



Map Scale: 1:1,150 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N 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 1:20,000.

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: Hillsborough County, New Hampshire, Eastern Part
 Survey Area Data: Version 24, Aug 31, 2021

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

Date(s) aerial images were photographed: May 22, 2022—Jun 5, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

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
WdA	Windsor loamy sand, 0 to 3 percent slopes	0.3	6.9%
WdB	Windsor loamy sand, 3 to 8 percent slopes	3.6	93.1%
Totals for Area of Interest		3.9	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,

Custom Soil Resource Report

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.

Hillsborough County, New Hampshire, Eastern Part

WdA—Windsor loamy sand, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2svkg
Elevation: 0 to 990 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Farmland of local importance

Map Unit Composition

Windsor, loamy sand, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Windsor, Loamy Sand

Setting

Landform: Outwash plains, outwash terraces, deltas, dunes
Landform position (three-dimensional): Tread, riser
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Loose sandy glaciofluvial deposits derived from granite and/or loose sandy glaciofluvial deposits derived from schist and/or loose sandy glaciofluvial deposits derived from gneiss

Typical profile

O - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: loamy sand
Bw - 3 to 25 inches: loamy sand
C - 25 to 65 inches: sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

Minor Components

Deerfield, loamy sand

Percent of map unit: 10 percent
Landform: Deltas, terraces, outwash plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread, tal
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Hinckley, loamy sand

Percent of map unit: 5 percent
Landform: Deltas, kames, eskers, outwash plains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Head slope, nose slope, crest, side slope, rise
Down-slope shape: Convex
Across-slope shape: Convex, linear
Hydric soil rating: No

WdB—Windsor loamy sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2svkf
Elevation: 0 to 1,210 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Farmland of local importance

Map Unit Composition

Windsor, loamy sand, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Windsor, Loamy Sand

Setting

Landform: Dunes, outwash plains, deltas, outwash terraces
Landform position (three-dimensional): Tread, riser
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Loose sandy glaciofluvial deposits derived from granite and/or loose sandy glaciofluvial deposits derived from schist and/or loose sandy glaciofluvial deposits derived from gneiss

Typical profile

O - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: loamy sand

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Bw - 3 to 25 inches: loamy sand

C - 25 to 65 inches: sand

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water supply, 0 to 60 inches: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2s

Hydrologic Soil Group: A

Ecological site: F144AY022MA - Dry Outwash

Hydric soil rating: No

Minor Components

Hinckley, loamy sand

Percent of map unit: 10 percent

Landform: Deltas, kames, eskers, outwash plains

Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Head slope, nose slope, crest, side slope, rise

Down-slope shape: Convex

Across-slope shape: Convex, linear

Hydric soil rating: No

Deerfield, loamy sand

Percent of map unit: 5 percent

Landform: Deltas, terraces, outwash plains

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Tread, talf

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

References

- American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.
- American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.
- Federal Register. July 13, 1994. Changes in hydric soils of the United States.
- Federal Register. September 18, 2002. Hydric soils of the United States.
- Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.
- National Research Council. 1995. Wetlands: Characteristics and boundaries.
- Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262
- Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577
- Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580
- Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.
- United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.
- United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374
- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

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United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

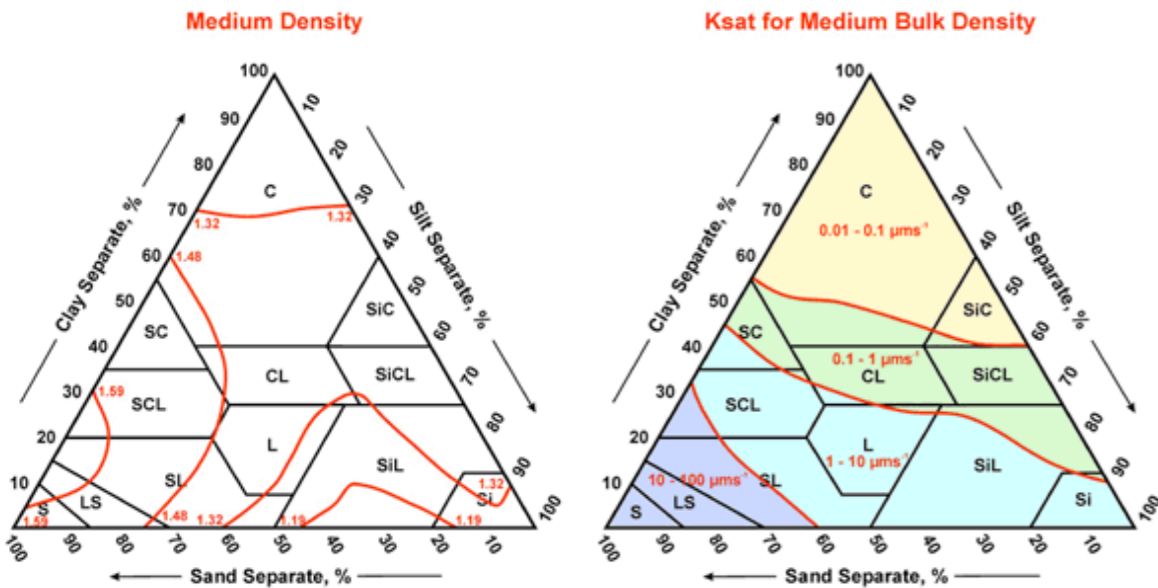
United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

K_{sat} VALUES

FOR

NEW HAMPSHIRE SOILS

(Including Hydrologic and DES Soil Lot Sizing Groups)



From: Guide for Estimating Ksat from Soil Properties (Exhibit 618-9). (<http://soils.usda.gov/technical/handbook/contents/part618ex.html>)

Sponsored by the Society of Soil Scientists of Northern New England
 SSSNNE Special Publication No. 5
 September, 2009

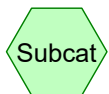
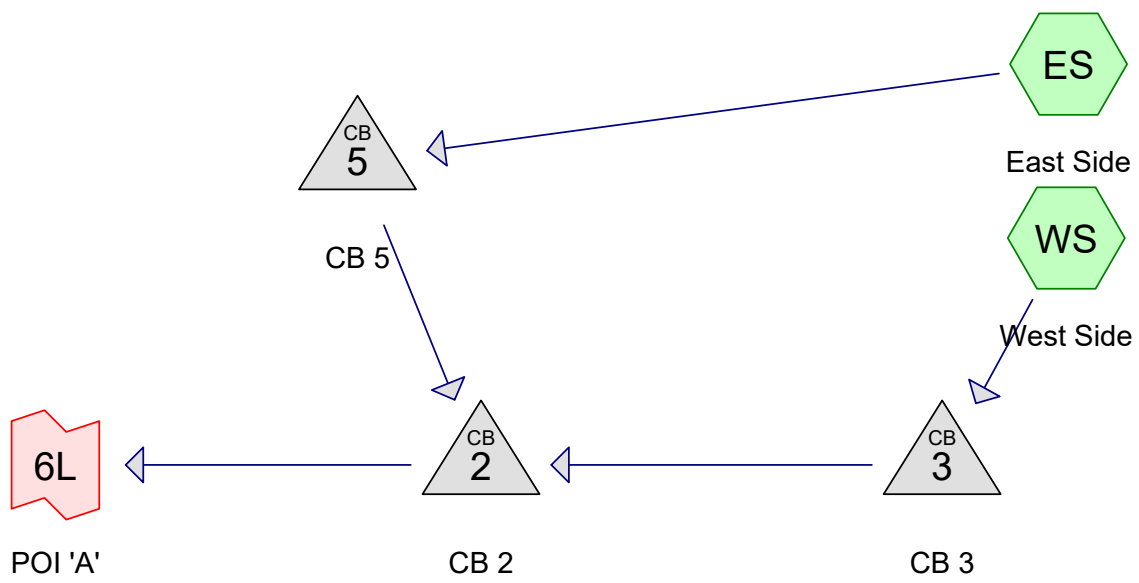
Soil Series	legend number	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Group	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Abenaki	501	0.6	2.0	6.00	99.0	B	2	Outwash and Stream Terraces	frigid	loamy over sandy-skeletal	no	loamy over gravelly
Acton	146	2.0	20.0	2.00	20.0	B	3	Loose till, sandy textures	mesic	sandy-skeletal	no	cobbly loamy sand
Adams	36	6.0	20.0	20.00	99.0	A	1	Outwash and Stream Terraces	frigid	sandy	yes	
Agawam	24	6.0	20.0	20.00	100.0	B	2	Outwash and Stream Terraces	mesic	loamy over sandy	no	loamy over sand/gravel
Allagash	127	0.6	2.0	6.00	20.0	B	2	Outwash and Stream Terraces	frigid	loamy over sandy	yes	loamy over sandy
Au Gres	516					B	5	Outwash and Stream Terraces	frigid	sandy	yes	single grain, loose
Bangor	572	0.6	2.0	0.60	2.0	B	2	Friable till, silty, schist & phyllite	frigid	loamy	yes	silt loam
Becket	56	0.6	2.0	0.06	0.6	C	3	Firm, platy, sandy till	frigid	loamy	yes	gravelly sandy loam in Cd
Belgrade	532	0.6	2.0	0.06	2.0	B	3	Terraces and glacial lake plains	mesic	silty	no	strata of fine sand
Bemis	224	0.6	0.2	0.00	0.2	C	5	Firm, platy, loamy till	cryc	loamy	no	
Berkshire	72	0.6	6.0	0.60	6.0	B	2	Loose till, loamy textures	frigid	loamy	yes	fine sandy loam
Bernardston	330	0.6	2.0	0.06	0.2	C	3	Firm, platy, silty till, schist & phyllite	mesic	loamy	no	channery silt loam in Cd
Bice	226	0.6	6.0	0.60	6.0	B	2	Loose till, loamy textures	frigid	loamy	no	sandy loam
Biddeford	234	0.0	0.2	0.00	0.2	D	6	Silt and Clay Deposits	frigid	fine	no	organic over clay
Binghamville	534	0.2	2.0	0.06	0.2	D	5	Terraces and glacial lake plains	mesic	silty	no	
Boscawen	220	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	frigid	sandy-skeletal	no	loamy cap
Boxford	32	0.1	0.2	0.00	0.2	C	3	Silt and Clay Deposits	mesic	fine	no	silty clay loam
Brayton	240	0.6	2.0	0.06	0.6	C	5	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	
Buckland	237	0.6	2.0	0.06	0.2	C	3	Firm, platy, loamy till	frigid	loamy	no	loam in Cd
Bucksport	895					D	6	Organic Materials - Freshwater	frigid	sapric	no	deep organic
Burnham	131	0.2	6.0	0.02	0.2	D	6	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	organic over silt
Buxton	232	0.1	0.6	0.00	0.2	C	3	Silt and Clay Deposits	frigid	fine	no	silty clay
Cabot	589	0.6	2.0	0.06	0.2	D	5	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	
Caesar	526	20.0	100.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	coarse sand	no	
Canaan	663	2.0	20.0	2.00	20.0	C	4	Weathered Bedrock Till	frigid	loamy-skeletal	yes	less than 20 in. deep
Canterbury	166	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	no	loam in Cd
Canton	42	2.0	6.0	6.00	20.0	B	2	Loose till, sandy textures	mesic	loamy over sandy	no	loamy over loamy sand
Cardigan	357	0.6	2.0	0.60	2.0	B	4	Friable till, silty, schist & phyllite	mesic	loamy	no	20 to 40 in. deep
Catden	296					A/D	6	Organic Materials - Freshwater	mesic	sapric	no	deep organic
Champlain	35	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	frigid	gravelly sand	no	
Charles	209	0.6	100.0	0.60	100.0	C	5	Flood Plain (Bottom Land)	frigid	silty	no	
Charlton	62	0.6	6.0	0.60	6.0	B	2	Loose till, loamy textures	mesic	loamy	no	fine sandy loam
Chatfield	89	0.6	6.0	0.60	6.0	B	4	Loose till, bedrock	mesic	loamy	no	20 to 40 in. deep
Chatfield Var.	289	0.6	6.0	0.60	6.0	B	3	Loose till, bedrock	mesic	loamy	no	mwd to swpd
Chesuncook	126	0.6	2.0	0.02	0.2	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	channery silt loam in Cd
Chichester	442	0.6	2.0	2.00	6.0	B		Loose till, sandy textures	frigid	loamy over sandy	no	loamy over loamy sand
Chocorua	395			6.00	20.0	D	6	Organic Materials - Freshwater	frigid	sandy or sandy-skeletal	no	organic over sand
Cohas	505	0.6	2.0	0.60	100.0	C	5	Flood Plain (Bottom Land)	frigid	co. loamy over sandy (skeletal)	no	
Colonel	927	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	loam in Cd
Colton	22	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	
Colton, gravelly	21	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	gravelly surface
Croghan	613	20.0	100.0	20.00	100.0	B	3	Outwash and Stream Terraces	frigid	sandy	yes	single grain in C
Dartmouth	132	0.6	2.0	0.06	0.6	B	3	Terraces and glacial lake plains	mesic	silty	no	thin strata silty clay loam
Deerfield	313	6.0	20.0	20.00	100.0	B	3	Outwash and Stream Terraces	mesic	sandy	no	single grain in C
Dixfield	378	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	fine sandy loam in Cd
Dixmont	578	0.6	2.0	0.60	2.0	C	3	Friable till, silty, schist & phyllite	frigid	loamy	yes	silt loam, platy in C
Duane	413	6.0	20.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	cemented (ortstein)
Dutchess	366	0.6	2.0	0.60	2.0	B	2	Friable till, silty, schist & phyllite	mesic	loamy	no	very channery
Eldridge	38	6.0	20.0	0.06	0.6	C	3	Sandy/loamy over silt/clay	mesic	sandy over loamy	no	
Elliottsville	128	0.6	2.0	0.60	2.0	B	4	Friable till, silty, schist & phyllite	frigid	loamy	yes	20 to 40 in. deep
Elmridge	238	2.0	6.0	0.00	0.2	C	3	Sandy/loamy over silt/clay	mesic	loamy over clayey	no	
Elmwood	338	2.0	6.0	0.00	0.2	C	3	Sandy/loamy over silt/clay	frigid	loamy over clayey	no	
Finch	116					C	3	Outwash and Stream Terraces	frigid	sandy	yes	cemented (ortstein)

Soil Series	legend number	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Group	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Fryeburg	208	0.6	2.0	2.00	6.0	B	2	Flood Plain (Bottom Land)	frigid	silty	no	very fine sandy loam
Gilmanton	478	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	no	fine sandy loam in Cd
Glebe	671	2.0	6.0	2.00	6.0	C	4	Loose till, bedrock	cryic	loamy	yes	20 to 40 in. deep
Gloucester	11	6.0	20.0	6.00	20.0	A	1	Sandy Till	mesic	sandy-skeletal	no	loamy cap
Glover	NA	0.6	2.0	0.60	2	D	4	Friable till, silty, schist & phyllite	frigid	loamy	no	less than 20 in. deep
Grange	433	0.6	2.0	0.60	2.0	C	5	Outwash and Stream Terraces	frigid	co. loamy over sandy (skeletal)	no	
Greenwood	295					A/D	6	Organic Materials - Freshwater	frigid	hemic	no	deep organic
Groveton	27	0.6	2.0	0.60	6.0	B	2	Outwash and Stream Terraces	frigid	loamy	yes	loamy over sandy
Hadley	8	0.6	2.0	0.60	6.0	B	2	Flood Plain (Bottom Land)	mesic	silty	no	strata of fine sand
Hadley	108	0.6	2.0	0.60	6.0	B	2	Flood Plain (Bottom Land)	mesic	silty	no	strata of fine sand, occ flooded
Hartland	31	0.6	2.0	0.20	2.0	B	2	Terraces and glacial lake plains	mesic	silty	no	very fine sandy loam
Haven	410	0.6	2.0	20.00	100.0	B	2	Outwash and Stream Terraces	mesic	loamy over sandy	no	loamy over sand/gravel
Henniker	46	0.6	2.0	0.06	0.6	C	3	Firm, platy, sandy till	frigid	loamy	no	loamy sand in Cd
Hermon	55	2.0	20.0	6.00	20.0	A	1	Sandy Till	frigid	sandy-skeletal	yes	loamy cap
Hinckley	12	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	sandy-skeletal	no	
Hitchcock	130	0.6	2.0	0.06	0.6	B	3	Terraces and glacial lake plains	mesic	silty	no	silt loam to silt in C
Hogback	91	2.0	6.0	2.00	6.0	C	4	Loose till, bedrock	frigid	loamy	yes	less than 20 in. deep
Hollis	86	0.6	6.0	0.60	6.0	C/D	4	Loose till, bedrock	mesic	loamy	no	less than 20 in. deep
Hoosic	510	2.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	sandy-skeletal	no	slate, loamy cap
Houghtonville	795	0.6	6.0	0.60	6.0	B	2	Loose till, loamy textures	frigid	loamy	yes	cobbly fine sandy loam
Howland	566	0.6	2.0	0.06	0.2	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	silt loam, platy in Cd
Ipswich	397					D	6	Tidal Flat	mesic	hemic/sapric	no	deep organic
Kearsarge	359	0.6	2.0	0.60	2.0	B	4	Friable till, silty, schist & phyllite	mesic	loamy	no	less than 20 in. deep
Kinsman	614	6.0	20.0	6.00	20.0	C	5	Outwash and Stream Terraces	frigid	sandy	yes	
Lanesboro	228	0.6	2.0	0.06	0.2	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	channery silt loam in Cd
Leicester	514	0.6	6.0	0.60	20.0	C	5	Loose till, loamy textures	mesic	loamy	no	
Lim	3	0.6	2.0	6.00	20.0	C	5	Flood Plain (Bottom Land)	mesic	loamy	no	
Limerick	109	0.6	2.0	0.60	2.0	C	5	Flood Plain (Bottom Land)	mesic	silty	no	
Lombard	259	0.6	6.0	2.00	20.0	C/D	2	Weathered bedrock, phyllite	frigid	loamy	no	very channery
Lovewell	307	0.6	2.0	0.60	2.0	B	3	Flood Plain (Bottom Land)	frigid	silty	no	very fine sandy loam
Lyman	92	2.0	6.0	2.00	6.0	A/D	4	Loose till, bedrock	frigid	loamy	yes	less than 20 in. deep
Lyme	246	0.6	6.0	0.60	6.0	C	5	Loose till, sandy textures	frigid	loamy	no	
Machias	520	2.0	6.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	sandy or sandy-skeletal	yes	strata sand/gravel in C
Macomber	252	0.6	2.0	0.60	2.0	C	4	Friable till, silty, schist & phyllite	frigid	loamy-skeletal	yes	20 to 40 in. deep
Madawaska	28	0.6	2.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	loamy over sandy	yes	sandy or sandy-skeletal
Madawaska, aquifer	48	0.6	2.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	loamy over sandy	yes	sandy or sandy-skeletal
Marlow	76	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	fine sandy loam in Cd
Masardis	23	6.0	20.0	6.00	20.0	A	1	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	slate, loamy cap
Mashpee	315	6.0	20.0	6.00	20.0	B	5	Outwash and Stream Terraces	mesic	sandy	yes	
Matunuck	797			20.00	100.0	D	6	Tidal Flat	mesic	sandy	no	organic over sand
Maybid	134	0.0	0.2	0.00	0.2	D	6	Silt and Clay Deposits	mesic	fine	no	silt over clay
Meadowsedge	894					D	6	Organic Materials - Freshwater	frigid	peat	no	deep organic
Medomak	406	0.6	2.0	0.60	2.0	D	6	Flood Plain (Bottom Land)	frigid	silty	no	organic over silt
Melrose	37	2.0	6.0	0.00	0.2	C	3	Sandy/loamy over silt/clay	frigid	loamy over clayey	no	silty clay loam in C
Merrimac	10	2.0	20.0	6.00	20.0	A	1	Outwash and Stream Terraces	mesic	gravelly sand	no	loamy cap
Metacomet	458	0.6	2.0	0.06	0.6	C	3	Firm, platy, sandy till	frigid	loamy	no	loamy sand in Cd
Metallak	404	6.0	100.0	6.00	100.0	B	3	Flood Plain (Bottom Land)	frigid	loamy over sandy	no	sandy or sandy-skeletal
Millis	39					C	3	Firm, platy, sandy till	frigid	loamy	yes	loamy sand in Cd
Millsite	251	0.6	6.0	0.60	6.0	C	4	Loose till, bedrock	frigid	loamy	no	20 to 40 in. deep
Monadnock	142	0.6	2.0	2.00	6.0	B	2	Loose till, sandy textures	frigid	loamy over sandy, sandy-skeletal	yes	gravelly loamy sand in C
Monarda	569	0.2	2.0	0.02	0.2	D	5	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	
Monson	133	0.6	2.0	0.60	2.0	D	4	Friable till, silty, schist & phyllite	frigid	loamy	yes	less than 20 in. deep
Montauk	44	0.6	6.0	0.06	0.6	C	3	Firm, platy, sandy till	mesic	loamy	no	loamy sand in Cd
Moosilauke	414	6.0	20.0	6.00	20.0	C	5	Loose till, sandy textures	frigid	sandy	no	

Soil Series	legend number	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Group	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Mundal	610	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	gravelly sandy loam in Cd
Natchaug	496			0.20	2.0	D	6	Organic Materials - Freshwater	mesic	loamy	no	organic over loam
Naumburg	214	6.0	20.0	6.00	20.0	C	5	Outwash and Stream Terraces	frigid	sandy	yes	
Newfields	444	0.6	2.0	0.60	2.0	B	3	Loose till, sandy textures	mesic	loamy over sandy	no	sandy or sandy-skeletal
Nicholville	632	0.6	2.0	0.60	2.0	C	3	Terraces and glacial lake plains	frigid	silty	yes	very fine sandy loam
Ninigret	513	0.6	6.0	6.00	20.0	B	3	Outwash and Stream Terraces	mesic	loamy over sandy	no	sandy or sandy-skeletal
Occum	1	0.6	2.0	6.00	20.0	B	2	Flood Plain (Bottom Land)	mesic	loamy	no	loamy over loamy sand
Ondawa	101	0.6	6.0	6.00	20.0	B	2	Flood Plain (Bottom Land)	frigid	loamy	no	loamy over loamy sand
Ondawa	201	0.6	6.0	6.00	20.0	B	2	Flood Plain (Bottom Land)	frigid	loamy	no	occ flood, loamy over l. sand
Ossipee	495			0.20	2.0	D	6	Organic Materials - Freshwater	frigid	loamy	no	organic over loam
Pawcatuck	497			20.00	100.0	D	6	Tidal Flat	mesic	sandy or sandy-skeletal	no	organic over sand
Paxton	66	0.6	2.0	0.00	0.2	C	3	Firm, platy, loamy till	mesic	loamy	no	
Peacham	549	0.6	2.0	0.00	0.2	D	6	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	organic over loam
Pemi	633	0.6	2.0	0.06	0.6	C	5	Terraces and glacial lake plains	frigid	silty	no	
Pennichuck	460	0.6	2.0	0.60	2.0	B	4	Friable till, silty, schist & phyllite	mesic	loamy-skeletal	no	20 to 40 in. deep
Peru	78	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	
Pillsbury	646	0.6	2.0	0.06	0.2	C	5	Firm, platy, loamy till	frigid	silty	no	
Pipestone	314					B	5	Outwash and Stream Terraces	mesic	sandy	yes	
Pittstown	334	0.6	2.0	0.06	0.2	C	3	Firm, platy, silty till, schist & phyllite	mesic	loamy	no	channery silt loam in Cd
Plaisted	563	0.6	2.0	0.06	0.6	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	channery silt loam in Cd
Podunk	104	0.6	6.0	6.00	20.0	B	3	Flood Plain (Bottom Land)	frigid	loamy	no	loamy to coarse sand in C
Pondicherry	992			6.00	20.0	D	6	Organic Materials - Freshwater	frigid	sandy or sandy-skeletal	no	organic over sand
Poocham	230	0.6	2.0	0.20	2.0	B	3	Terraces and glacial lake plains	mesic	silty	no	silt loam in C
Pootatuck	4	0.6	6.0	6.00	20.0	B	3	Flood Plain (Bottom Land)	mesic	loamy	no	single grain in C
Quonset	310	2.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	sandy-skeletal	no	shale
Rawsonville	98	0.6	6.0	0.60	6.0	C	4	Loose till, bedrock	frigid	loamy	yes	20 to 40 in. deep
Raynham	533	0.2	2.0	0.06	0.2	C	5	Terraces and glacial lake plains	mesic	silty	no	
Raypol	540	0.6	2.0	6.00	100.0	D	5	Outwash and Stream Terraces	mesic	co. loamy over sandy (skeletal)	no	
Redstone	665	2.0	6.0	6.00	20.0	A	1	Weathered Bedrock Till	frigid	fragmental	yes	loamy cap
Ricker	674	2.0	6.0	2.00	6.0	A	4	Organic over bedrock (up to 4" of mineral)	cryic	fibric to hemic	no	well drained, less than 20 in. deep
Ridgebury	656	0.6	6.0	0.00	0.2	C	5	Firm, platy, loamy till	mesic	loamy	no	
Rippowam	5	0.6	6.0	6.00	20.0	C	5	Flood Plain (Bottom Land)	mesic	loamy	no	
Roundabout	333	0.2	2.0	0.06	0.6	C	5	Terraces and glacial lake plains	frigid	silty	no	silt loam in the C
Rumney	105	0.6	6.0	6.00	20.0	C	5	Flood Plain (Bottom Land)	frigid	loamy	no	
Saco	6	0.6	2.0	6.00	20.0	D	6	Flood Plain (Bottom Land)	mesic	silty	no	strata
Saddleback	673	0.6	2.0	0.60	2.0	C/D	4	Loose till, bedrock	cryic	loamy	yes	less than 20 in. deep
Salmon	630	0.6	2.0	0.60	2.0	B	2	Terraces and glacial lake plains	frigid	silty	yes	very fine sandy loam
Saugatuck	16	0.06	0.2	6.00	20.0	C	5	Outwash and Stream Terraces	mesic	sandy	yes	ortstein
Scantic	233	0.0	0.2	0.00	0.2	D	5	Silt and Clay Deposits	frigid	fine	no	
Scarboro	115	6.0	20.0	6.00	20.0	D	6	Outwash and Stream Terraces	mesic	sandy	no	organic over sand, non stony
Scio	531	0.6	2.0	0.60	2.0	B	3	Terraces and glacial lake plains	mesic	silty	no	gravelly sand in 2C
Scitico	33	0.0	0.2	0.00	0.2	C	5	Silt and Clay Deposits	mesic	fine	no	
Scituate	448	0.6	2.0	0.06	0.2	C	3	Firm, platy, sandy till	mesic	loamy	no	loamy sand in Cd
Searsport	15	6.0	20.0	6.00	20.0	D	6	Outwash and Stream Terraces	frigid	sandy	no	organic over sand
Shaker	439	2.0	6.0	0.00	0.2	C	5	Sandy/loamy over silt/clay	mesic	co. loamy over clayey	no	
Shapleigh	136					C/D	4	Sandy Till	mesic	sandy	yes	less than 20 in. deep
Sheepscot	14	6.0	20.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	gravelly coarse sand
Sisk	667	0.6	2.0	0.00	0.6	C	3	Firm, platy, loamy till	cryic	loamy	yes	sandy loam in Cd
Skerry	558	0.6	2.0	0.06	0.6	C	3	Firm, platy, sandy till	frigid	loamy	yes	loamy sand in Cd
Squamscott	538	6.0	20.0	0.06	0.6	C	5	Sandy/loamy over silt/clay	mesic	sandy over loamy	yes	
Stetson	523	0.6	6.0	6.00	20.0	B	2	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	loamy over gravelly
Stissing	340	0.6	2.0	0.06	0.2	C	5	Firm, platy, silty till, schist & phyllite	mesic	loamy	no	
Success	154	2.0	6.0	6.00	20.0	A	1	Sandy Till	frigid	sandy-skeletal	yes	cemented
Sudbury	118	2.0	6.0	2.00	20.0	B	3	Outwash and Stream Terraces	mesic	sandy	no	loam over gravelly sand

Soil Series	legend number	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Group	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Suffield	536	0.6	2.0	0.00	0.2	C	3	Sandy/loamy over silt/clay	mesic	silty over clayey	no	deep to clay C
Sunapee	168	0.6	2.0	0.60	6.0	B	3	Loose till, loamy textures	frigid	loamy	yes	
Sunapee var	269	0.6	2.0	0.60	6.0	B	3	Loose till, loamy textures	frigid	loamy	yes	frigid dystrodept
Suncook	2	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	mesic	sandy	no	occasionally flooded
Suncook	402	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	mesic	sandy	no	frequent flooding
Sunday	102	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	frigid	sandy	no	occasionally flooded
Sunday	202	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	frigid	sandy	no	frequently flooded
Surplus	669	0.6	2.0	0.00	0.6	C	3	Firm, platy, loamy till	cryic	loamy	yes	mwd, sandy loam in Cd
Sutton	68	0.6	6.0	0.60	6.0	B	3	Loose till, loamy textures	mesic	loamy	no	
Swanton	438	2.0	6.0	0.00	0.2	C	5	Sandy/loamy over silt/clay	frigid	co. loamy over clayey	no	
Telos	123	0.6	2.0	0.02	0.2	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	channery silt loam in Cd
Thorndike	84	0.6	2.0	0.60	2.0	C/D	4	Friable till, silty, schist & phyllite	frigid	loamy-skeletal	yes	less than 20 in. deep
Timakwa	393			6.00	100.0	D	6	Organic Materials - Freshwater	mesic	sandy or sandy-skeletal	no	organic over sand
Tunbridge	99	0.6	6.0	0.60	6.0	C	4	Loose till, bedrock	frigid	loamy	yes	20 to 40 in. deep
Unadilla	30	0.6	2.0	2.00	20.0	B	2	Terraces and glacial lake plains	mesic	silty	no	silty over gravelly
Vassalboro	150					D	6	Organic Materials - Freshwater	frigid	peat	no	deep organic
Walpole	546	2.0	6.0	6.00	20.0	C	5	Outwash and Stream Terraces	mesic	sandy	no	
Wareham	34	6.0	20.0	6.00	20.0	C	5	Outwash and Stream Terraces	mesic	sandy	no	
Warwick	210	2.0	6.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	loamy-skeletal	no	loamy over slate gravel
Waskish	195					D	6	Organic Materials - Freshwater	frigid	peat	no	deep organic
Waumbeck	58	2.0	20.0	6.00	20.0	B	3	Loose till, sandy textures	frigid	sandy-skeletal	yes	very cobbly loamy sand
Westbrook	597			0.00	2.0	D	6	Tidal Flat	mesic	loamy	no	organic over loam
Whitman	49	0.0	0.2	0.00	0.2	D	6	Firm, platy, loamy till	mesic	loamy	no	mucky loam
Windsor	26	6.0	20.0	6.00	20.0	A	1	Outwash and Stream Terraces	mesic	sandy	no	
Winnecook	88	0.6	2.0	0.60	2.0	C	4	Friable till, silty, schist & phyllite	frigid	loamy-skeletal	yes	20 to 40 in. deep
Winooski	9	0.6	6.0	0.60	6.0	B		Flood Plain (Bottom Land)	mesic	silty over loamy	no	
Winooski	103	0.6	6.0	0.60	6.0	B	3	Flood Plain (Bottom Land)	mesic	silty	no	very fine sandy loam
Wonsqueak	995			0.20	2.0	D	6	Organic Materials - Freshwater	frigid	loamy	no	organic over loam
Woodbridge	29	0.6	2.0	0.00	0.6	C	3	Firm, platy, loamy till	mesic	loamy	no	sandy loam in Cd
Woodstock	93	2.0	6.0	2.00	6.0	C/D	4	Loose till, bedrock	frigid	loamy	no	less than 20 in. deep

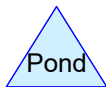
 no longer recognized
 organic materials



Subcat



Reach



Pond



Link

MODEL_Pre-Development (22) 09-14

Prepared by HP Inc.

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Page 2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.257	30	Woods, Good, HSG A (ES)
1.490	39	>75% Grass cover, Good, HSG A (ES, WS)
0.046	98	Concrete Pads, HSG A (ES)
0.058	98	Concrete Sidewalk and Pads, HSG A (WS)
0.500	98	Paved parking, HSG A (WS)
0.492	98	Roofs, HSG A (ES, WS)
2.843	61	TOTAL AREA

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment ES: East Side

Runoff Area=62,186 sf 21.43% Impervious Runoff Depth>0.07"

Flow Length=350' Slope=0.0100 '/' Tc=26.9 min CN=50 Runoff=0.02 cfs 0.008 af

Subcatchment WS: West Side

Runoff Area=61,638 sf 55.81% Impervious Runoff Depth>0.73"

Flow Length=170' Slope=0.0100 '/' Tc=2.5 min CN=72 Runoff=1.34 cfs 0.086 af

Pond 2: CB 2

Peak Elev=130.31' Inflow=1.34 cfs 0.094 af

118.0" Round Culvert n=0.013 L=91.8' S=0.0251 '/' Outflow=1.34 cfs 0.094 af

Pond 3: CB 3

Peak Elev=131.59' Inflow=1.34 cfs 0.086 af

18.0" Round Culvert n=0.013 L=200.4' S=0.0060 '/' Outflow=1.34 cfs 0.086 af

Pond 5: CB 5

Peak Elev=132.36' Inflow=0.02 cfs 0.008 af

15.0" Round Culvert n=0.013 L=139.2' S=0.0172 '/' Outflow=0.02 cfs 0.008 af

Link 6L: POI 'A'

Inflow=1.34 cfs 0.094 af

Primary=1.34 cfs 0.094 af

Total Runoff Area = 2.843 ac Runoff Volume = 0.094 af Average Runoff Depth = 0.39"
61.45% Pervious = 1.747 ac 38.55% Impervious = 1.096 ac

Summary for Subcatchment ES: East Side

Runoff = 0.02 cfs @ 14.12 hrs, Volume= 0.008 af, Depth> 0.07"

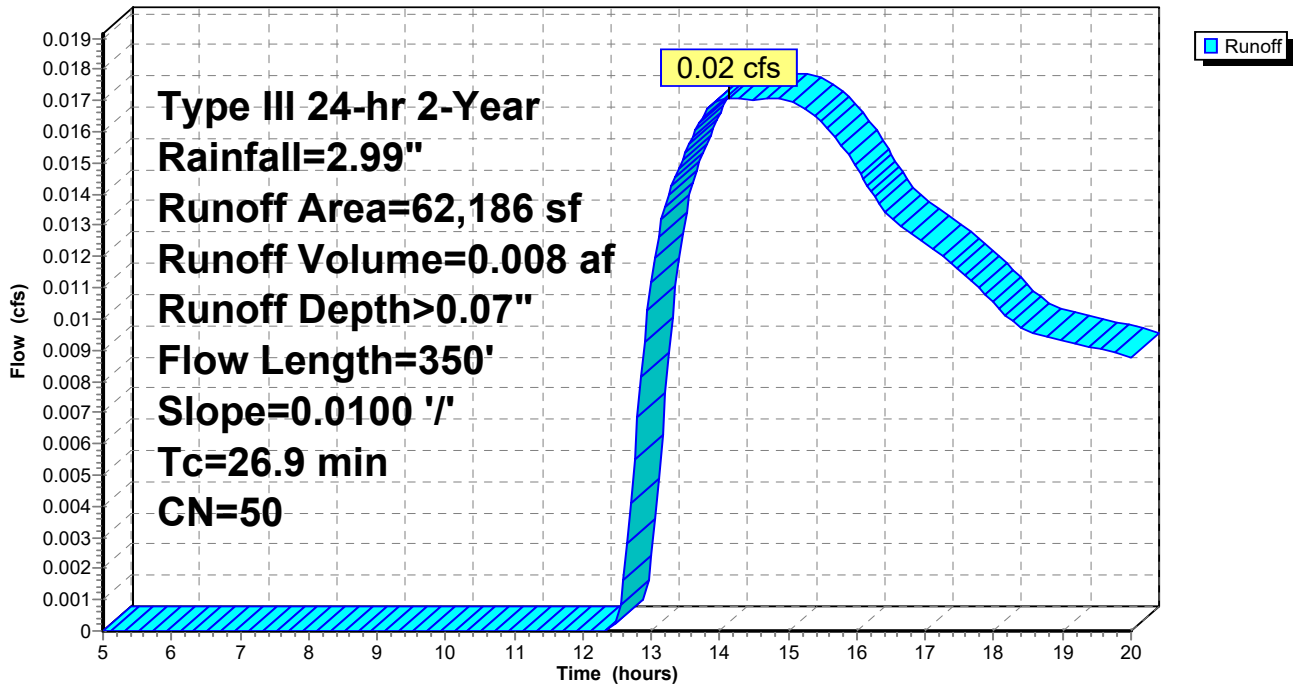
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=2.99"

Area (sf)	CN	Description
11,187	30	Woods, Good, HSG A
37,671	39	>75% Grass cover, Good, HSG A
11,330	98	Roofs, HSG A
1,998	98	Concrete Pads, HSG A
62,186	50	Weighted Average
48,858		78.57% Pervious Area
13,328		21.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.3	200	0.0100	0.14		Sheet Flow, ES.1 to ES.2 Grass: Short n= 0.150 P2= 2.99"
3.6	150	0.0100	0.70		Shallow Concentrated Flow, ES.2 to ES.3 Short Grass Pasture Kv= 7.0 fps
26.9	350	Total			

Subcatchment ES: East Side

Hydrograph



Summary for Subcatchment WS: West Side

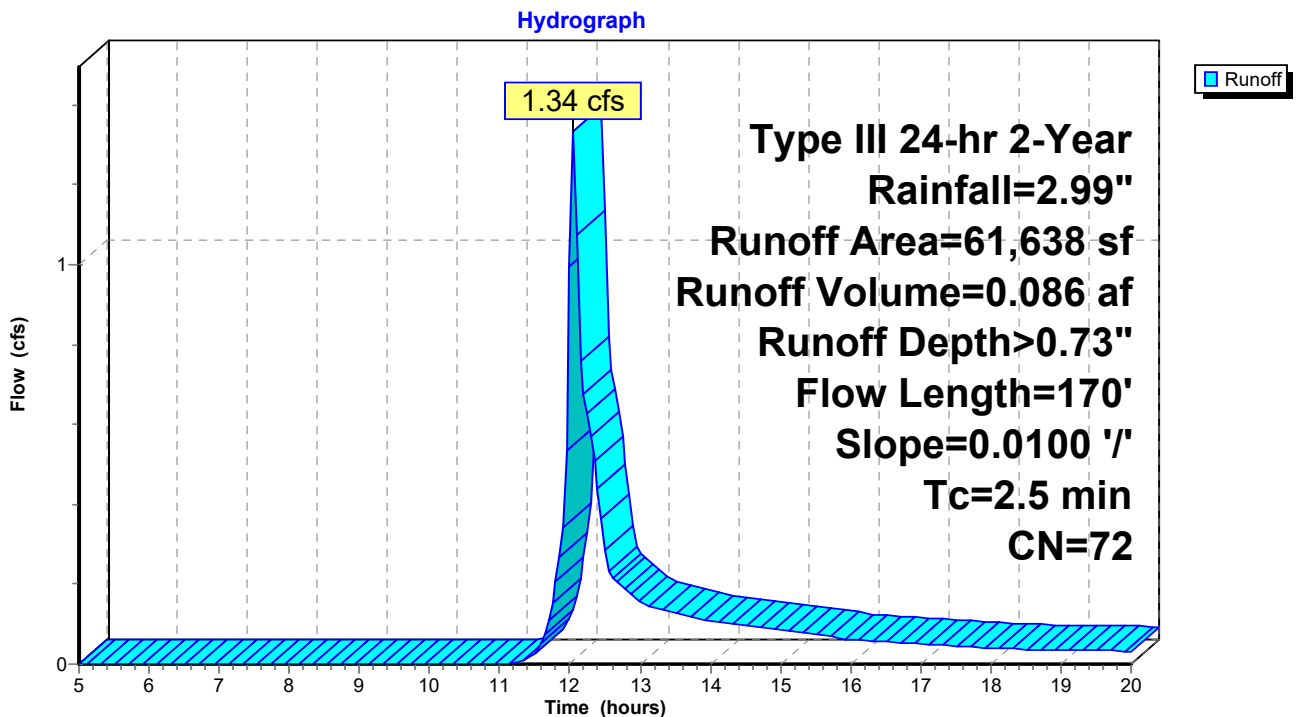
Runoff = 1.34 cfs @ 12.05 hrs, Volume= 0.086 af, Depth> 0.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=2.99"

Area (sf)	CN	Description
27,236	39	>75% Grass cover, Good, HSG A
10,080	98	Roofs, HSG A
21,777	98	Paved parking, HSG A
* 2,545	98	Concrete Sidewalk and Pads, HSG A
61,638	72	Weighted Average
27,236		44.19% Pervious Area
34,402		55.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	170	0.0100	1.12		Sheet Flow, WS.1 to WS.2 Smooth surfaces n= 0.011 P2= 2.99"

Subcatchment WS: West Side



Summary for Pond 2: CB 2

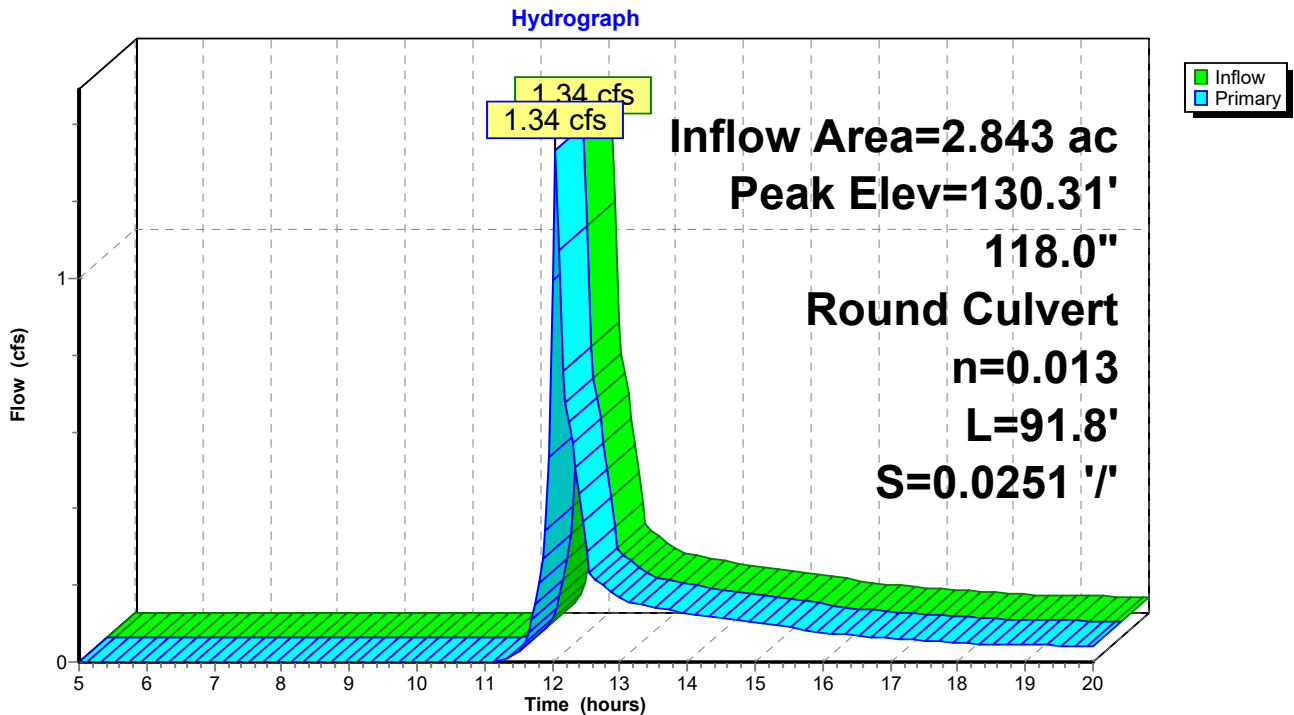
Inflow Area = 2.843 ac, 38.55% Impervious, Inflow Depth > 0.39" for 2-Year event
 Inflow = 1.34 cfs @ 12.05 hrs, Volume= 0.094 af
 Outflow = 1.34 cfs @ 12.05 hrs, Volume= 0.094 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.34 cfs @ 12.05 hrs, Volume= 0.094 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 130.31' @ 12.05 hrs
 Flood Elev= 133.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	130.00'	118.0" Round Culvert L= 91.8' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 130.00' / 127.70' S= 0.0251 '/' Cc= 0.900 n= 0.013

Primary OutFlow Max=1.30 cfs @ 12.05 hrs HW=130.30' (Free Discharge)
 ↳ **1=Culvert** (Inlet Controls 1.30 cfs @ 1.88 fps)

Pond 2: CB 2



Summary for Pond 3: CB 3

Inflow Area = 1.415 ac, 55.81% Impervious, Inflow Depth > 0.73" for 2-Year event
 Inflow = 1.34 cfs @ 12.05 hrs, Volume= 0.086 af
 Outflow = 1.34 cfs @ 12.05 hrs, Volume= 0.086 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.34 cfs @ 12.05 hrs, Volume= 0.086 af

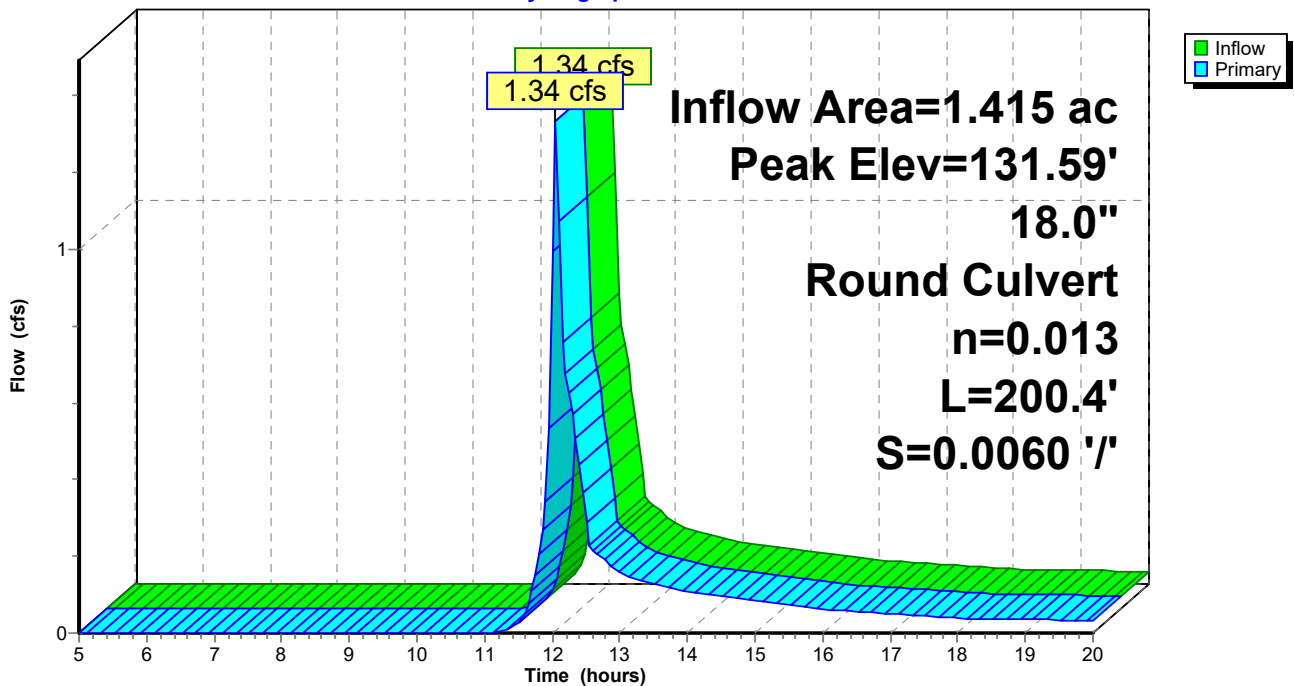
Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 131.59' @ 12.05 hrs
 Flood Elev= 134.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	131.00'	18.0" Round Culvert L= 200.4' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 131.00' / 129.80' S= 0.0060 '/' Cc= 0.900 n= 0.013

Primary OutFlow Max=1.32 cfs @ 12.05 hrs HW=131.59' (Free Discharge)
 ↳ **1=Culvert** (Inlet Controls 1.32 cfs @ 2.06 fps)

Pond 3: CB 3

Hydrograph



Summary for Pond 5: CB 5

Inflow Area = 1.428 ac, 21.43% Impervious, Inflow Depth > 0.07" for 2-Year event
 Inflow = 0.02 cfs @ 14.12 hrs, Volume= 0.008 af
 Outflow = 0.02 cfs @ 14.12 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.02 cfs @ 14.12 hrs, Volume= 0.008 af

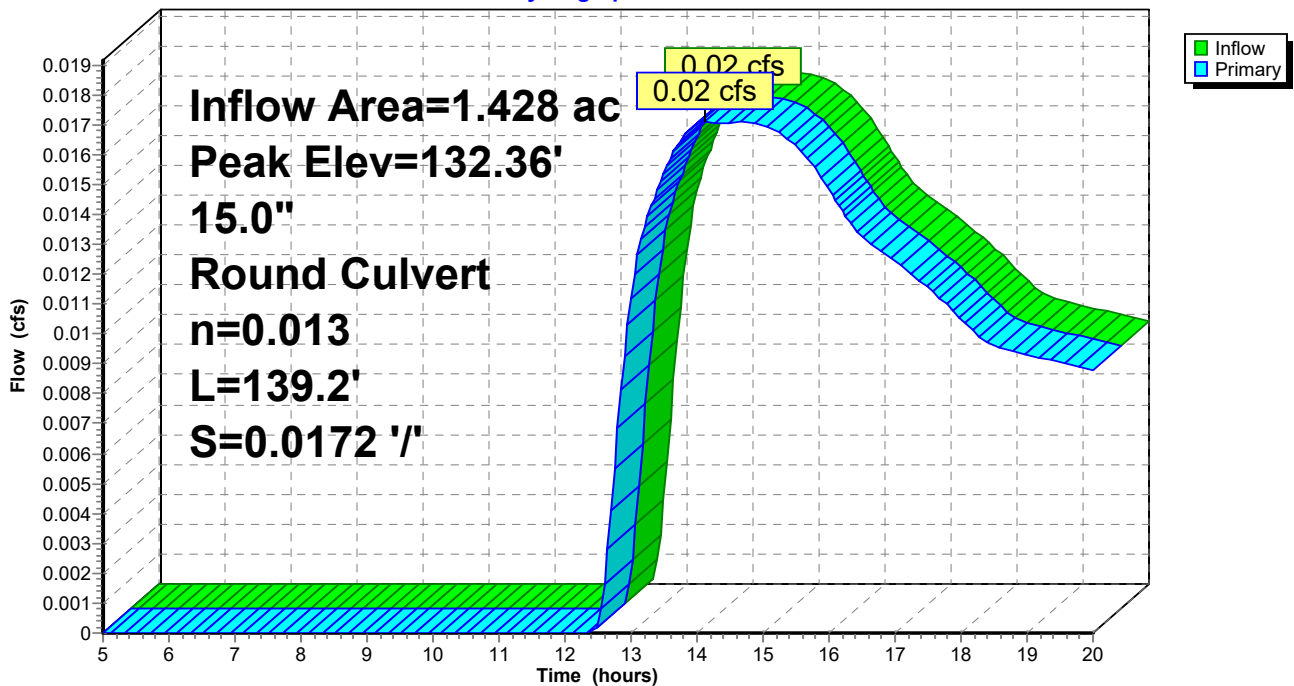
Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 132.36' @ 14.12 hrs
 Flood Elev= 135.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	132.30'	15.0" Round Culvert L= 139.2' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 132.30' / 129.90' S= 0.0172 '/' Cc= 0.900 n= 0.013

Primary OutFlow Max=0.02 cfs @ 14.12 hrs HW=132.36' (Free Discharge)
 ↳ **1=Culvert** (Inlet Controls 0.02 cfs @ 0.82 fps)

Pond 5: CB 5

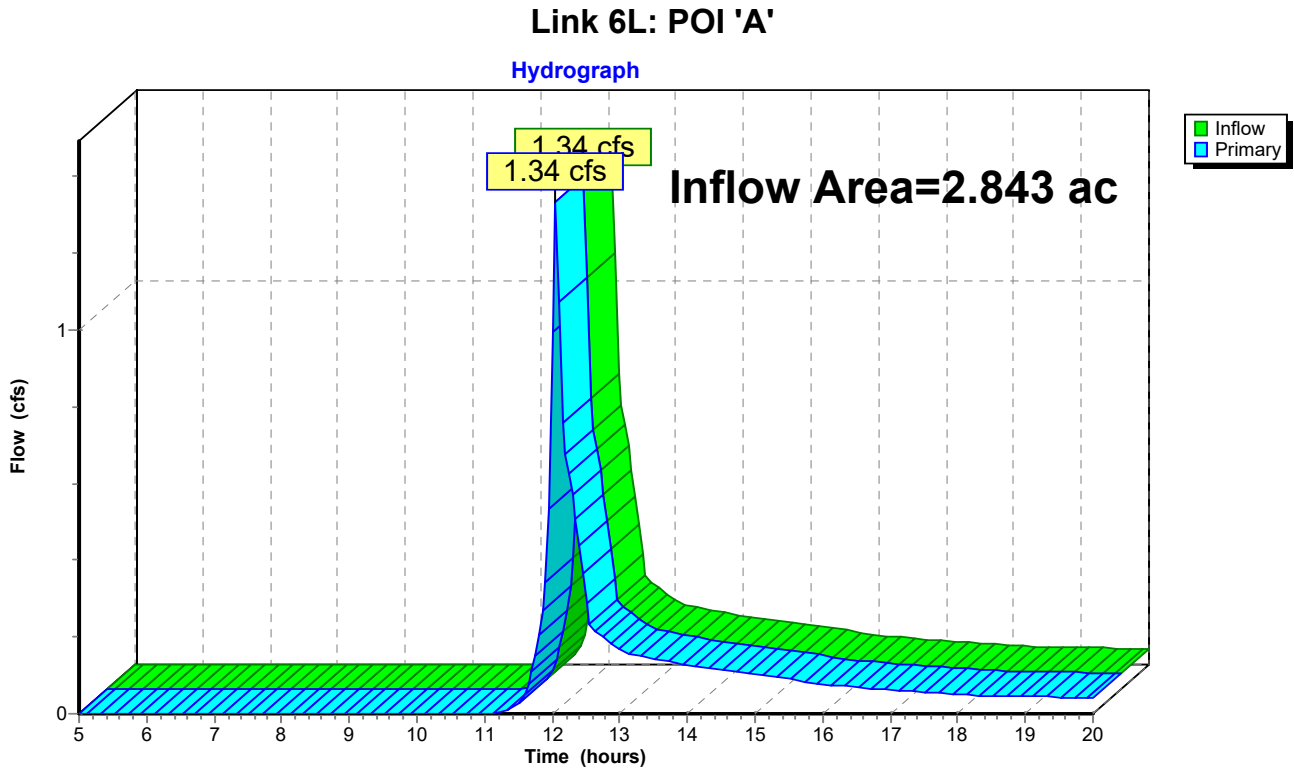
Hydrograph



Summary for Link 6L: POI 'A'

Inflow Area = 2.843 ac, 38.55% Impervious, Inflow Depth > 0.39" for 2-Year event
Inflow = 1.34 cfs @ 12.05 hrs, Volume= 0.094 af
Primary = 1.34 cfs @ 12.05 hrs, Volume= 0.094 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment ES: East Side

Runoff Area=62,186 sf 21.43% Impervious Runoff Depth>0.42"

Flow Length=350' Slope=0.0100 '/' Tc=26.9 min CN=50 Runoff=0.29 cfs 0.050 af

Subcatchment WS: West Side

Runoff Area=61,638 sf 55.81% Impervious Runoff Depth>1.67"

Flow Length=170' Slope=0.0100 '/' Tc=2.5 min CN=72 Runoff=3.25 cfs 0.197 af

Pond 2: CB 2

Peak Elev=130.48' Inflow=3.25 cfs 0.247 af

118.0" Round Culvert n=0.013 L=91.8' S=0.0251 '/' Outflow=3.25 cfs 0.247 af

Pond 3: CB 3

Peak Elev=131.98' Inflow=3.25 cfs 0.197 af

18.0" Round Culvert n=0.013 L=200.4' S=0.0060 '/' Outflow=3.25 cfs 0.197 af

Pond 5: CB 5

Peak Elev=132.55' Inflow=0.29 cfs 0.050 af

15.0" Round Culvert n=0.013 L=139.2' S=0.0172 '/' Outflow=0.29 cfs 0.050 af

Link 6L: POI 'A'

Inflow=3.25 cfs 0.247 af

Primary=3.25 cfs 0.247 af

Total Runoff Area = 2.843 ac Runoff Volume = 0.247 af Average Runoff Depth = 1.04"
61.45% Pervious = 1.747 ac 38.55% Impervious = 1.096 ac

Summary for Subcatchment ES: East Side

Runoff = 0.29 cfs @ 12.57 hrs, Volume= 0.050 af, Depth> 0.42"

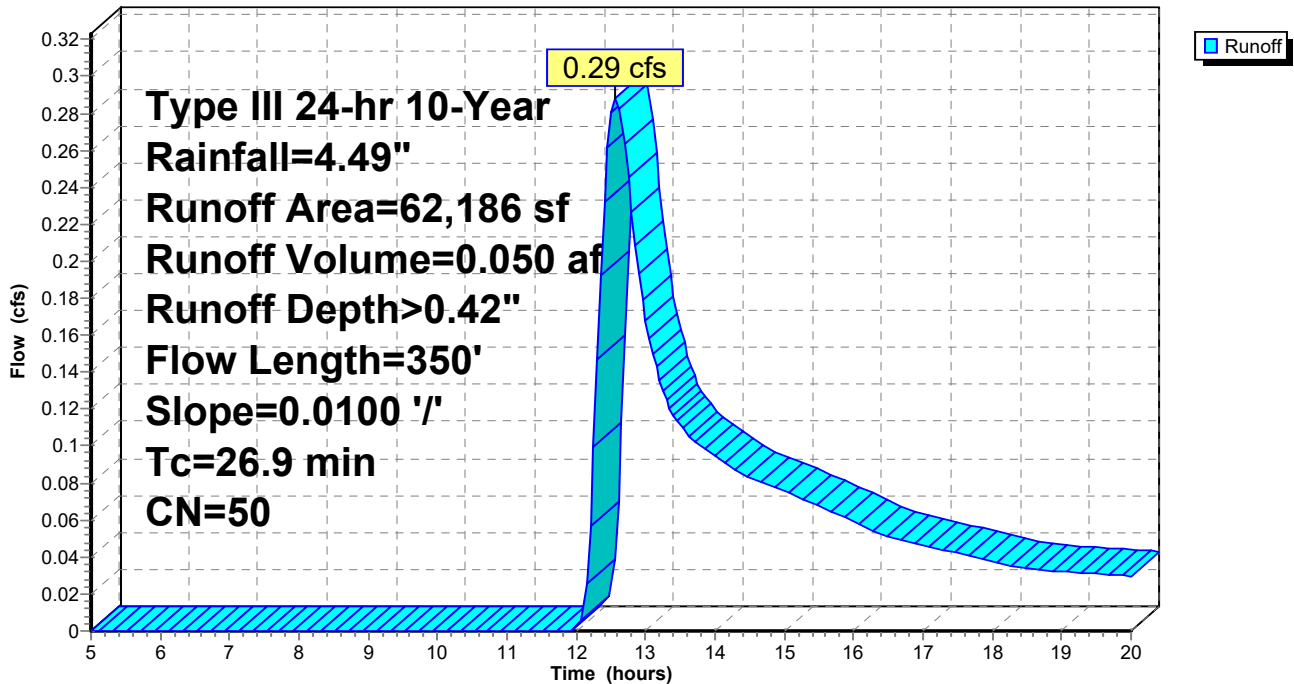
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.49"

Area (sf)	CN	Description
11,187	30	Woods, Good, HSG A
37,671	39	>75% Grass cover, Good, HSG A
11,330	98	Roofs, HSG A
1,998	98	Concrete Pads, HSG A
62,186	50	Weighted Average
48,858		78.57% Pervious Area
13,328		21.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.3	200	0.0100	0.14		Sheet Flow, ES.1 to ES.2 Grass: Short n= 0.150 P2= 2.99"
3.6	150	0.0100	0.70		Shallow Concentrated Flow, ES.2 to ES.3 Short Grass Pasture Kv= 7.0 fps
26.9	350	Total			

Subcatchment ES: East Side

Hydrograph



Summary for Subcatchment WS: West Side

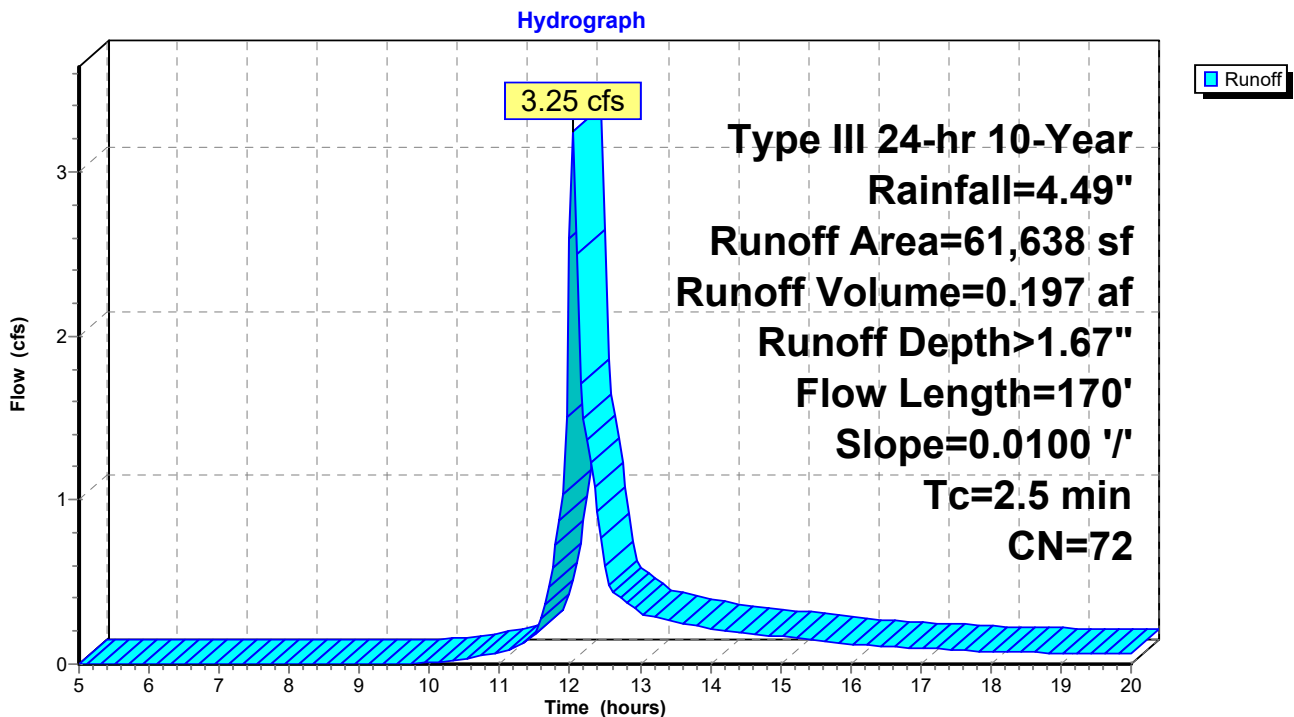
Runoff = 3.25 cfs @ 12.05 hrs, Volume= 0.197 af, Depth> 1.67"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.49"

Area (sf)	CN	Description
27,236	39	>75% Grass cover, Good, HSG A
10,080	98	Roofs, HSG A
21,777	98	Paved parking, HSG A
* 2,545	98	Concrete Sidewalk and Pads, HSG A
61,638	72	Weighted Average
27,236		44.19% Pervious Area
34,402		55.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	170	0.0100	1.12		Sheet Flow, WS.1 to WS.2 Smooth surfaces n= 0.011 P2= 2.99"

Subcatchment WS: West Side



Summary for Pond 2: CB 2

Inflow Area = 2.843 ac, 38.55% Impervious, Inflow Depth > 1.04" for 10-Year event
 Inflow = 3.25 cfs @ 12.05 hrs, Volume= 0.247 af
 Outflow = 3.25 cfs @ 12.05 hrs, Volume= 0.247 af, Atten= 0%, Lag= 0.0 min
 Primary = 3.25 cfs @ 12.05 hrs, Volume= 0.247 af

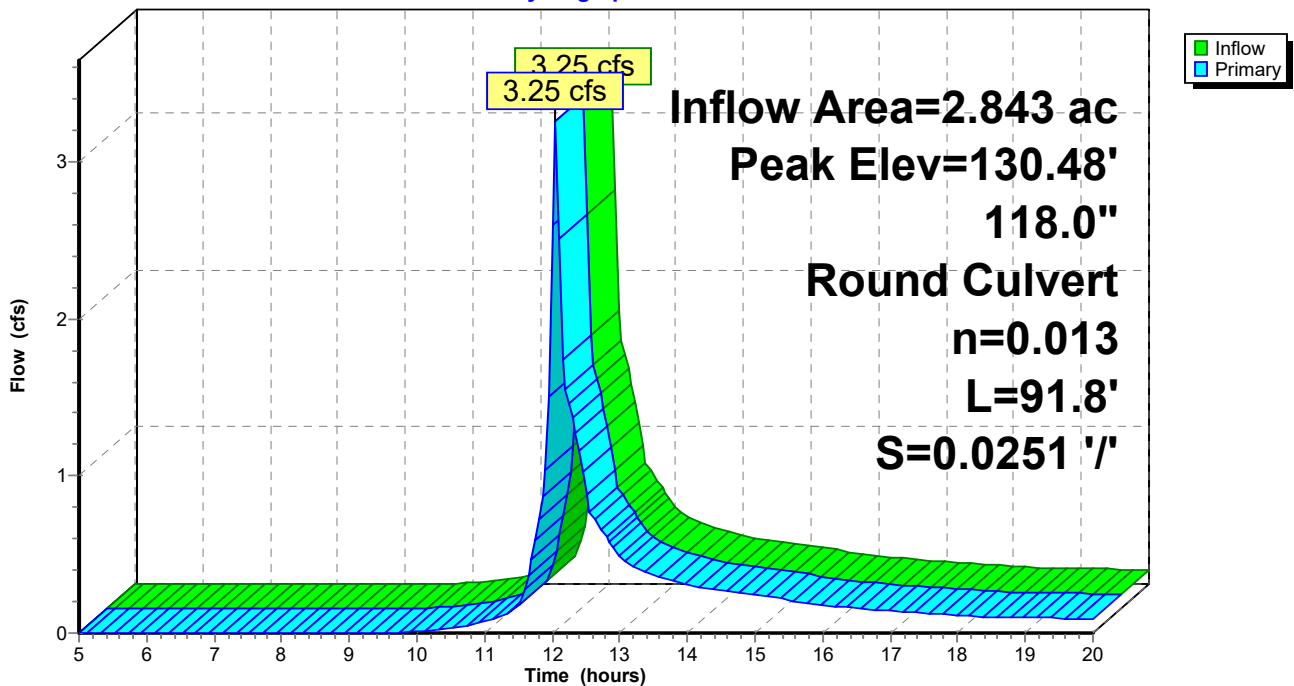
Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 130.48' @ 12.05 hrs
 Flood Elev= 133.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	130.00'	118.0" Round Culvert L= 91.8' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 130.00' / 127.70' S= 0.0251 '/' Cc= 0.900 n= 0.013

Primary OutFlow Max=3.22 cfs @ 12.05 hrs HW=130.48' (Free Discharge)
 ↳ **1=Culvert** (Inlet Controls 3.22 cfs @ 2.36 fps)

Pond 2: CB 2

Hydrograph



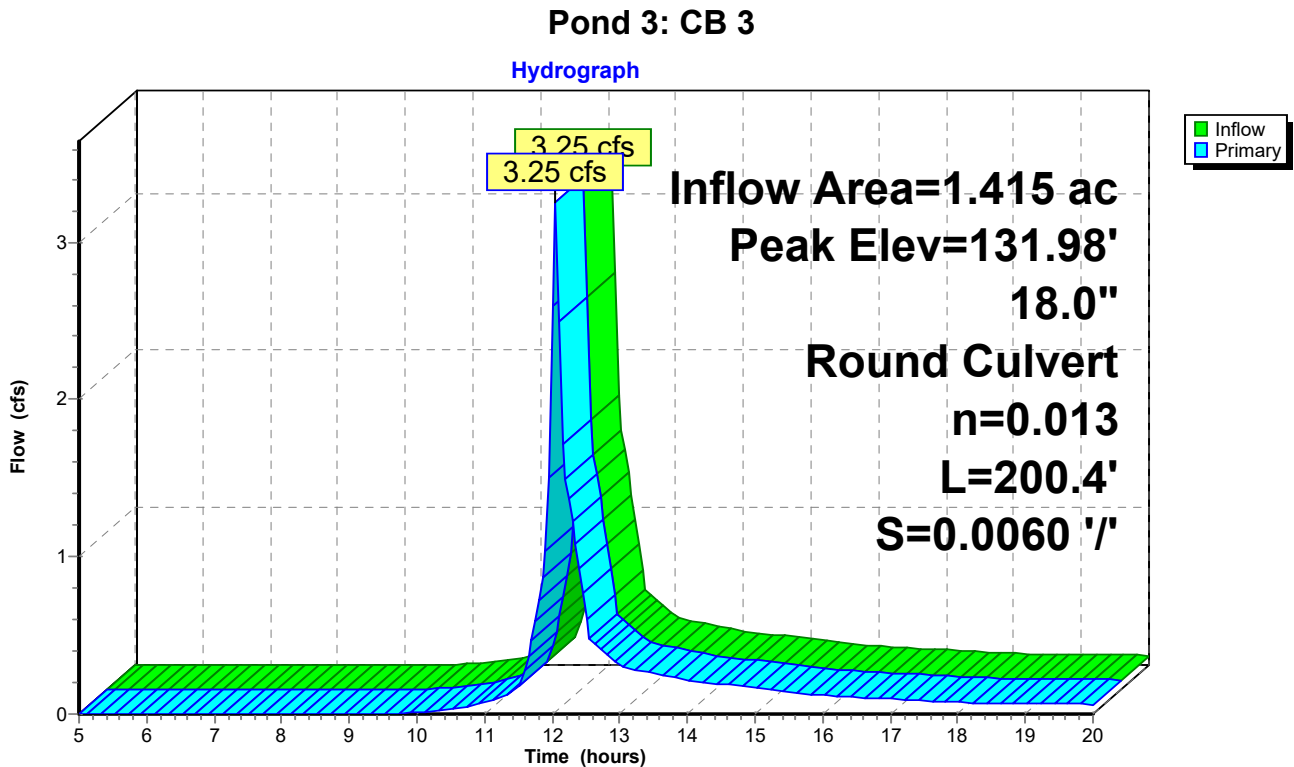
Summary for Pond 3: CB 3

Inflow Area = 1.415 ac, 55.81% Impervious, Inflow Depth > 1.67" for 10-Year event
 Inflow = 3.25 cfs @ 12.05 hrs, Volume= 0.197 af
 Outflow = 3.25 cfs @ 12.05 hrs, Volume= 0.197 af, Atten= 0%, Lag= 0.0 min
 Primary = 3.25 cfs @ 12.05 hrs, Volume= 0.197 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 131.98' @ 12.05 hrs
 Flood Elev= 134.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	131.00'	18.0" Round Culvert L= 200.4' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 131.00' / 129.80' S= 0.0060 '/ Cc= 0.900 n= 0.013

Primary OutFlow Max=3.23 cfs @ 12.05 hrs HW=131.97' (Free Discharge)
 ↳ **1=Culvert** (Inlet Controls 3.23 cfs @ 2.65 fps)



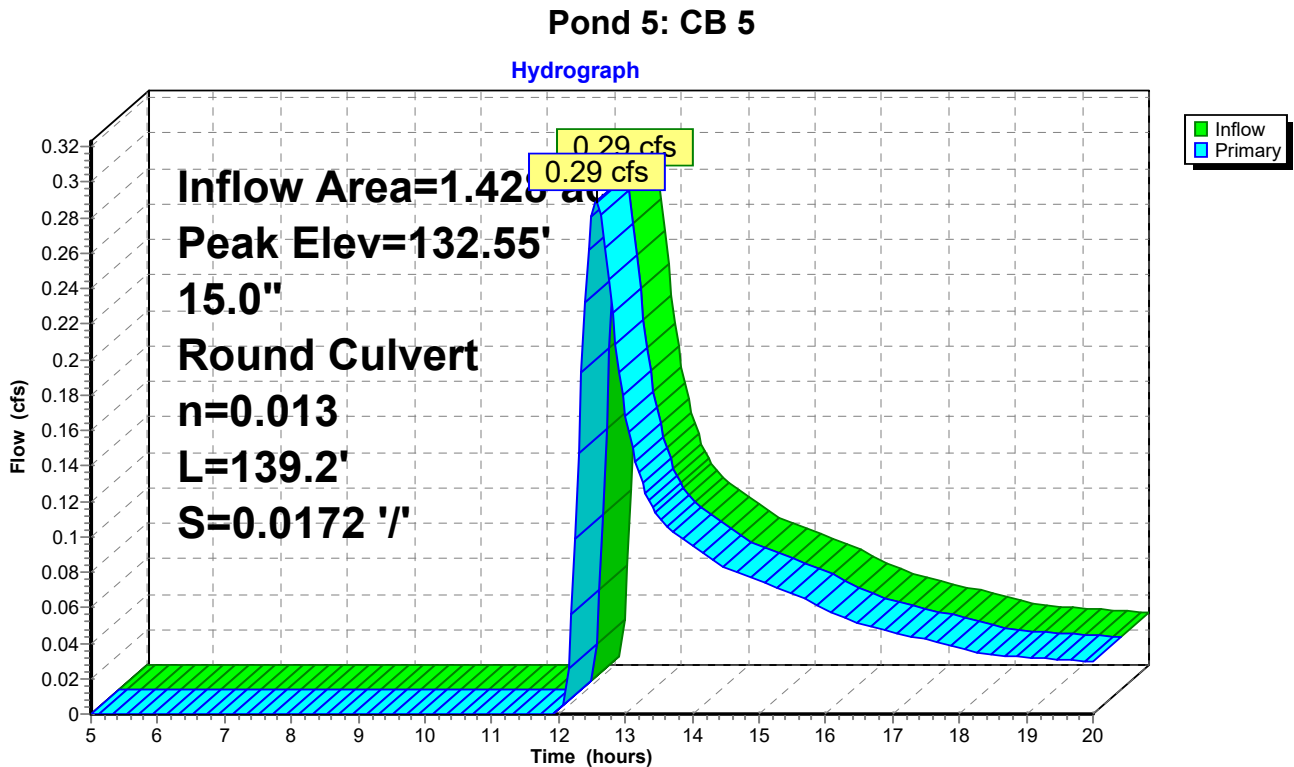
Summary for Pond 5: CB 5

Inflow Area = 1.428 ac, 21.43% Impervious, Inflow Depth > 0.42" for 10-Year event
 Inflow = 0.29 cfs @ 12.57 hrs, Volume= 0.050 af
 Outflow = 0.29 cfs @ 12.57 hrs, Volume= 0.050 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.29 cfs @ 12.57 hrs, Volume= 0.050 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 132.55' @ 12.57 hrs
 Flood Elev= 135.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	132.30'	15.0" Round Culvert L= 139.2' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 132.30' / 129.90' S= 0.0172 '/' Cc= 0.900 n= 0.013

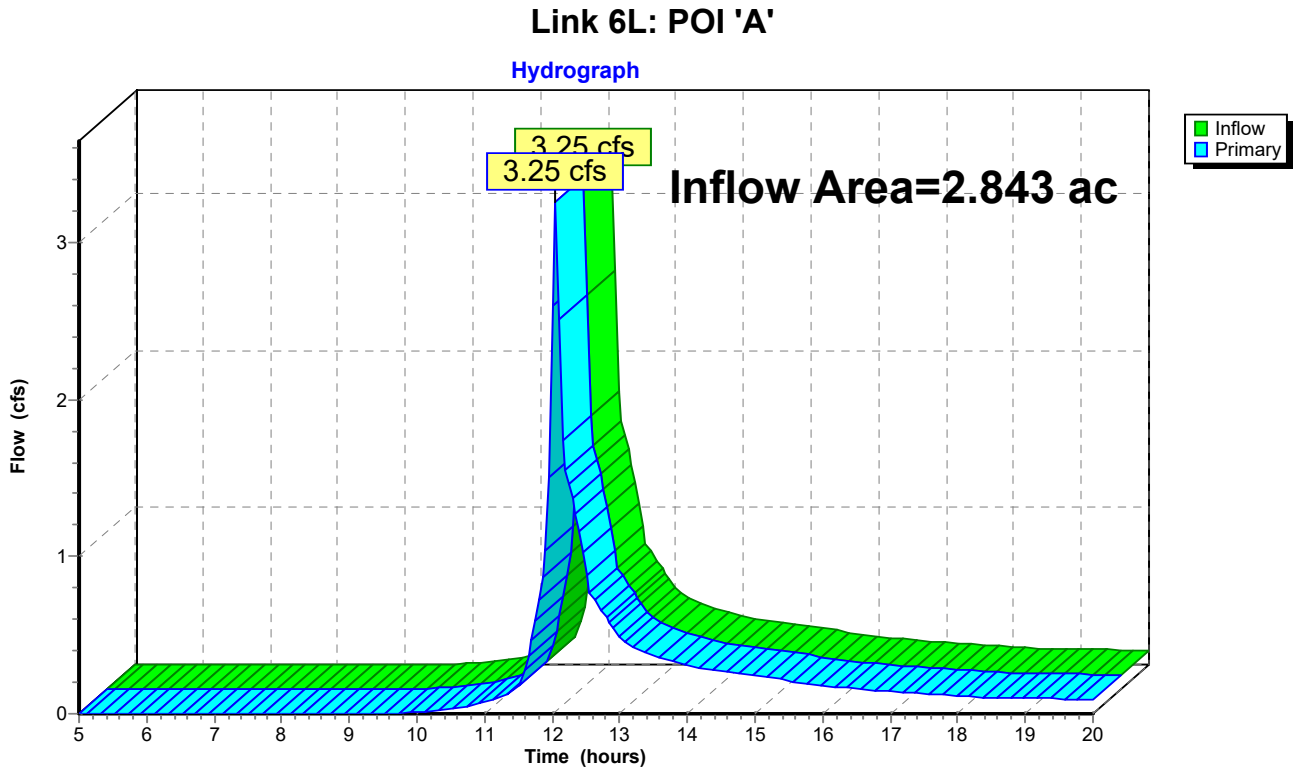
Primary OutFlow Max=0.29 cfs @ 12.57 hrs HW=132.55' (Free Discharge)
 ↳ **1=Culvert** (Inlet Controls 0.29 cfs @ 1.69 fps)



Summary for Link 6L: POI 'A'

Inflow Area = 2.843 ac, 38.55% Impervious, Inflow Depth > 1.04" for 10-Year event
Inflow = 3.25 cfs @ 12.05 hrs, Volume= 0.247 af
Primary = 3.25 cfs @ 12.05 hrs, Volume= 0.247 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment ES: East Side Runoff Area=62,186 sf 21.43% Impervious Runoff Depth>0.87"
Flow Length=350' Slope=0.0100 '/' Tc=26.9 min CN=50 Runoff=0.75 cfs 0.103 af

Subcatchment WS: West Side Runoff Area=61,638 sf 55.81% Impervious Runoff Depth>2.54"
Flow Length=170' Slope=0.0100 '/' Tc=2.5 min CN=72 Runoff=4.96 cfs 0.299 af

Pond 2: CB 2 Peak Elev=130.60' Inflow=5.01 cfs 0.402 af
118.0" Round Culvert n=0.013 L=91.8' S=0.0251 '/' Outflow=5.01 cfs 0.402 af

Pond 3: CB 3 Peak Elev=132.30' Inflow=4.96 cfs 0.299 af
18.0" Round Culvert n=0.013 L=200.4' S=0.0060 '/' Outflow=4.96 cfs 0.299 af

Pond 5: CB 5 Peak Elev=132.71' Inflow=0.75 cfs 0.103 af
15.0" Round Culvert n=0.013 L=139.2' S=0.0172 '/' Outflow=0.75 cfs 0.103 af

Link 6L: POI 'A' Inflow=5.01 cfs 0.402 af
Primary=5.01 cfs 0.402 af

Total Runoff Area = 2.843 ac Runoff Volume = 0.402 af Average Runoff Depth = 1.70"
61.45% Pervious = 1.747 ac 38.55% Impervious = 1.096 ac

Summary for Subcatchment ES: East Side

Runoff = 0.75 cfs @ 12.47 hrs, Volume= 0.103 af, Depth> 0.87"

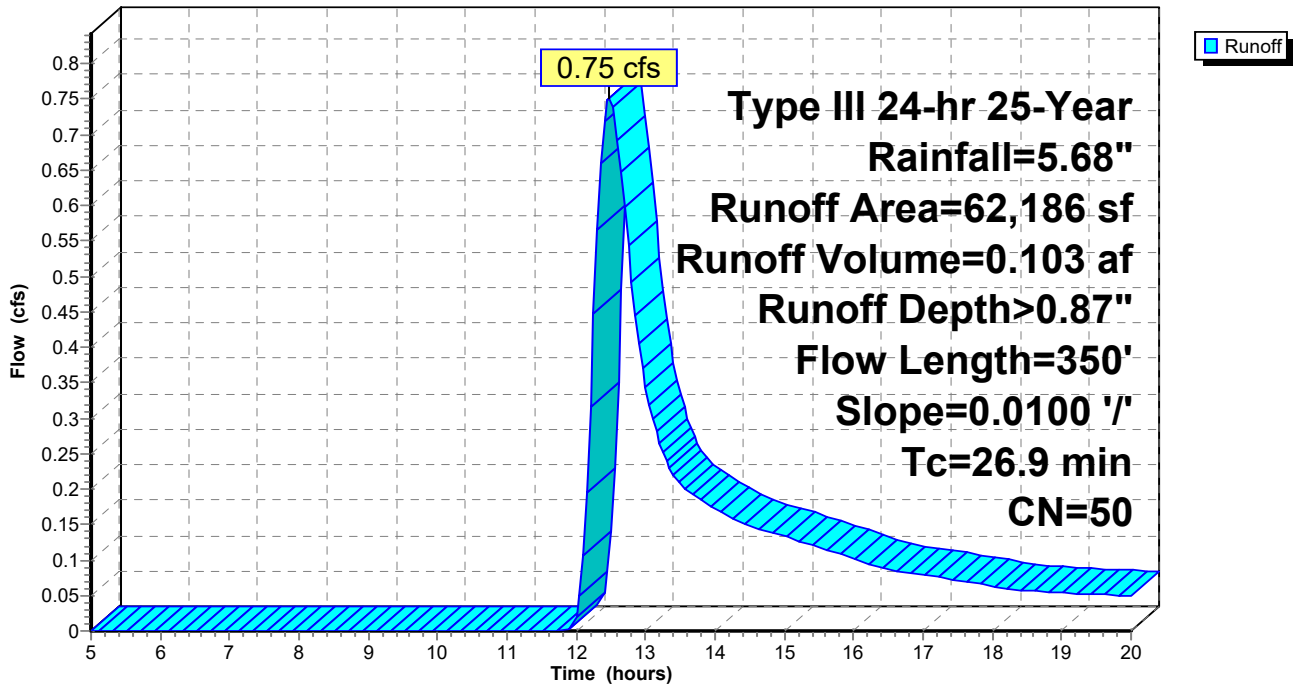
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Rainfall=5.68"

Area (sf)	CN	Description
11,187	30	Woods, Good, HSG A
37,671	39	>75% Grass cover, Good, HSG A
11,330	98	Roofs, HSG A
1,998	98	Concrete Pads, HSG A
62,186	50	Weighted Average
48,858		78.57% Pervious Area
13,328		21.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.3	200	0.0100	0.14		Sheet Flow, ES.1 to ES.2 Grass: Short n= 0.150 P2= 2.99"
3.6	150	0.0100	0.70		Shallow Concentrated Flow, ES.2 to ES.3 Short Grass Pasture Kv= 7.0 fps
26.9	350	Total			

Subcatchment ES: East Side

Hydrograph



Summary for Subcatchment WS: West Side

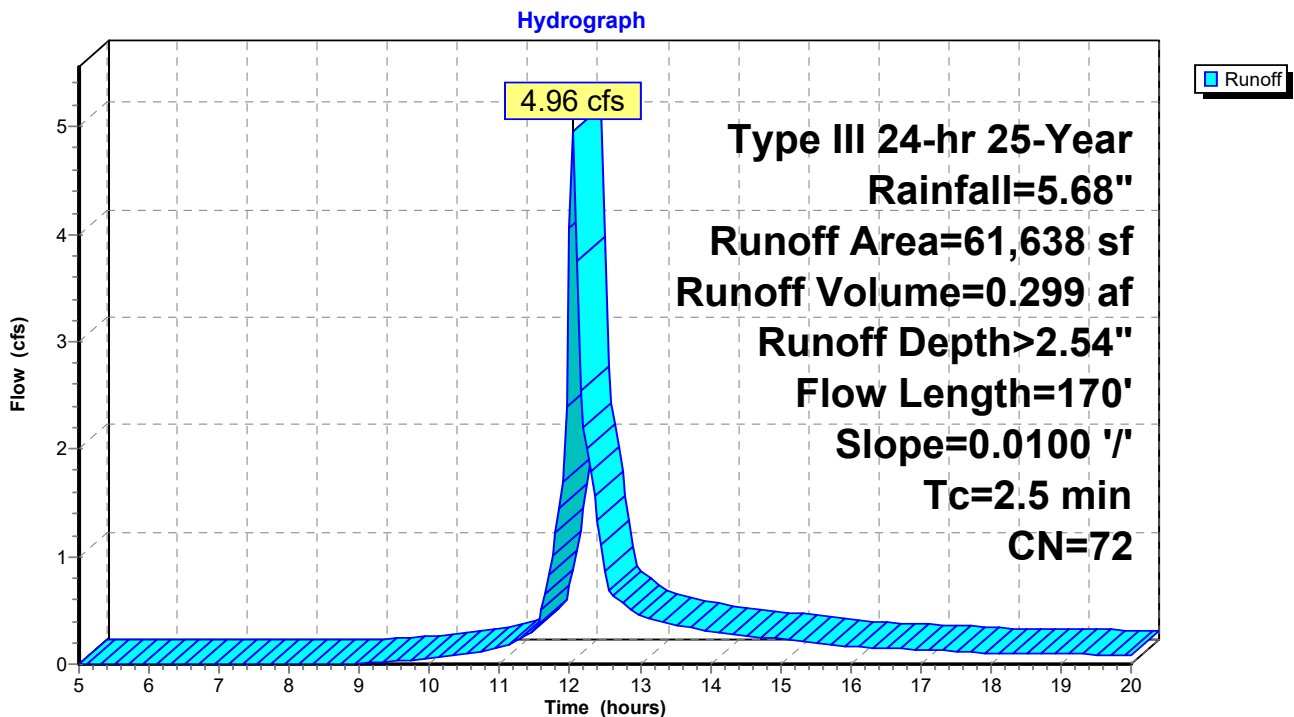
Runoff = 4.96 cfs @ 12.05 hrs, Volume= 0.299 af, Depth> 2.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Rainfall=5.68"

Area (sf)	CN	Description
27,236	39	>75% Grass cover, Good, HSG A
10,080	98	Roofs, HSG A
21,777	98	Paved parking, HSG A
* 2,545	98	Concrete Sidewalk and Pads, HSG A
61,638	72	Weighted Average
27,236		44.19% Pervious Area
34,402		55.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	170	0.0100	1.12		Sheet Flow, WS.1 to WS.2 Smooth surfaces n= 0.011 P2= 2.99"

Subcatchment WS: West Side



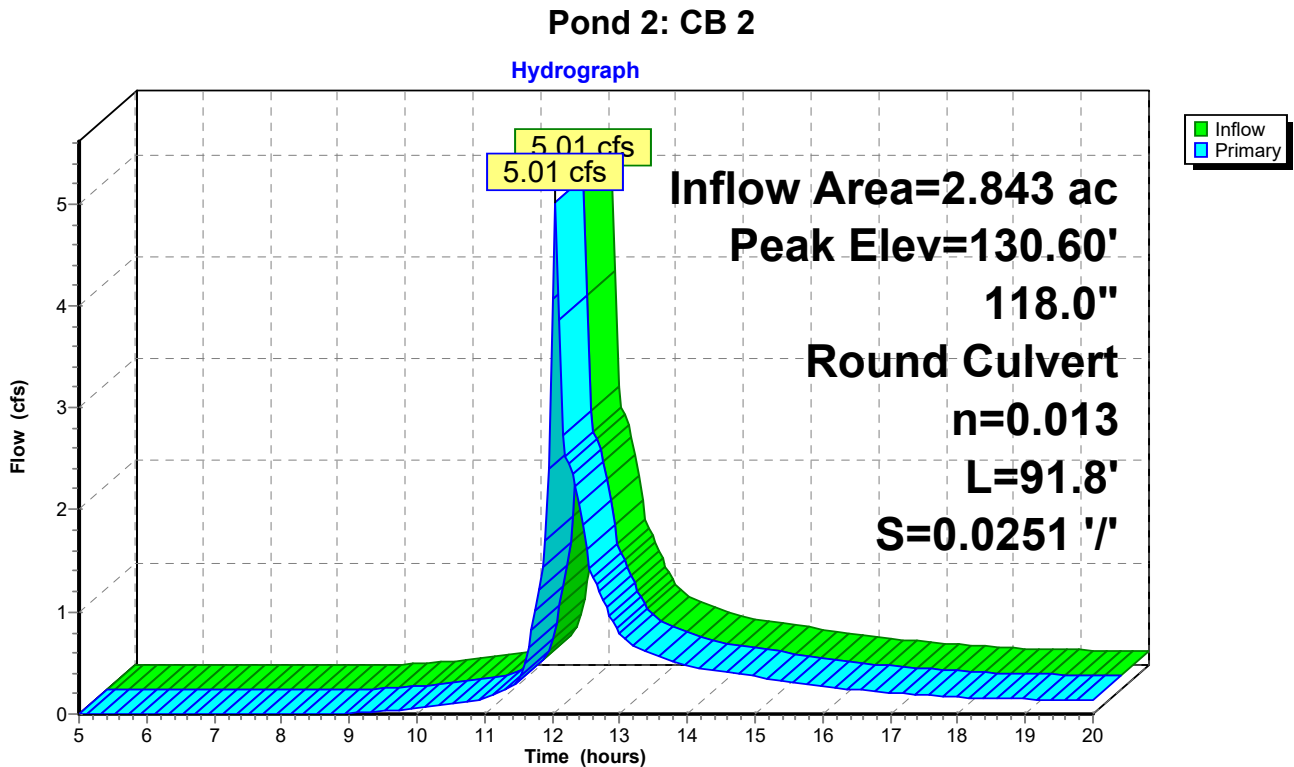
Summary for Pond 2: CB 2

Inflow Area = 2.843 ac, 38.55% Impervious, Inflow Depth > 1.70" for 25-Year event
 Inflow = 5.01 cfs @ 12.05 hrs, Volume= 0.402 af
 Outflow = 5.01 cfs @ 12.05 hrs, Volume= 0.402 af, Atten= 0%, Lag= 0.0 min
 Primary = 5.01 cfs @ 12.05 hrs, Volume= 0.402 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 130.60' @ 12.05 hrs
 Flood Elev= 133.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	130.00'	118.0" Round Culvert L= 91.8' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 130.00' / 127.70' S= 0.0251 '/' Cc= 0.900 n= 0.013

Primary OutFlow Max=4.95 cfs @ 12.05 hrs HW=130.59' (Free Discharge)
 ↳ **1=Culvert** (Inlet Controls 4.95 cfs @ 2.63 fps)



Summary for Pond 3: CB 3

Inflow Area = 1.415 ac, 55.81% Impervious, Inflow Depth > 2.54" for 25-Year event
 Inflow = 4.96 cfs @ 12.05 hrs, Volume= 0.299 af
 Outflow = 4.96 cfs @ 12.05 hrs, Volume= 0.299 af, Atten= 0%, Lag= 0.0 min
 Primary = 4.96 cfs @ 12.05 hrs, Volume= 0.299 af

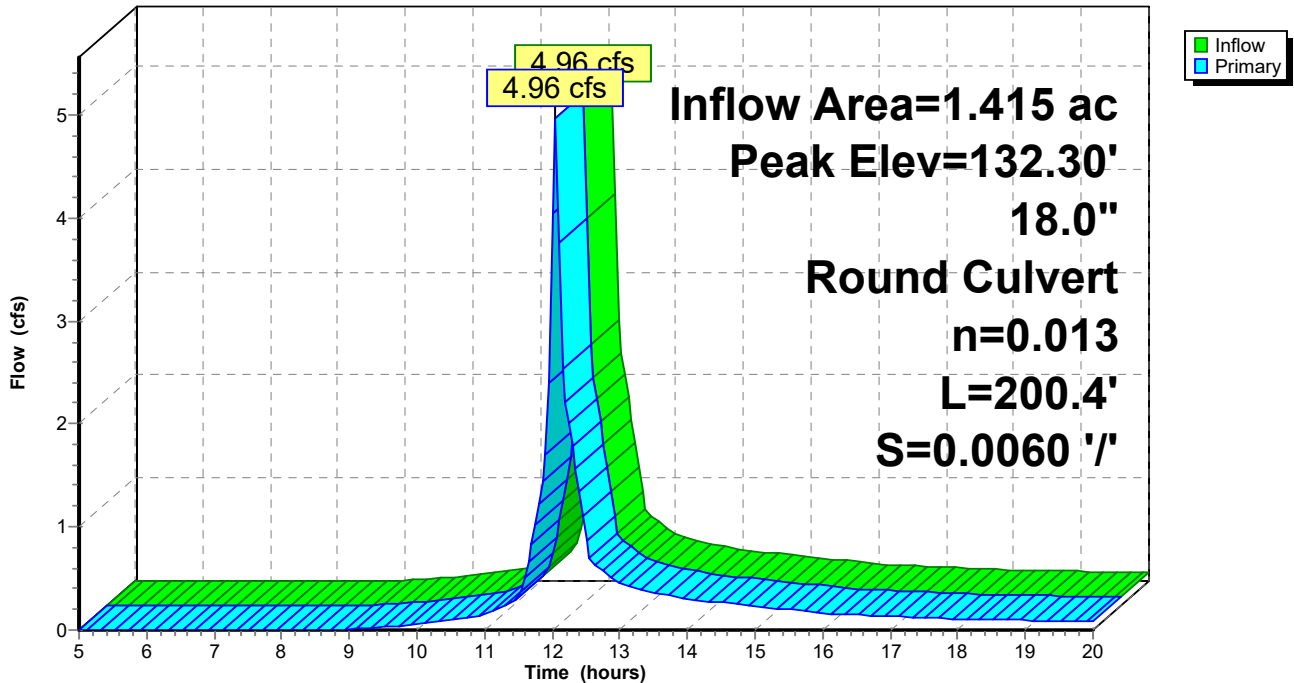
Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 132.30' @ 12.05 hrs
 Flood Elev= 134.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	131.00'	18.0" Round Culvert L= 200.4' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 131.00' / 129.80' S= 0.0060 '/ Cc= 0.900 n= 0.013

Primary OutFlow Max=4.90 cfs @ 12.05 hrs HW=132.28' (Free Discharge)
 ↳ **1=Culvert** (Inlet Controls 4.90 cfs @ 3.04 fps)

Pond 3: CB 3

Hydrograph



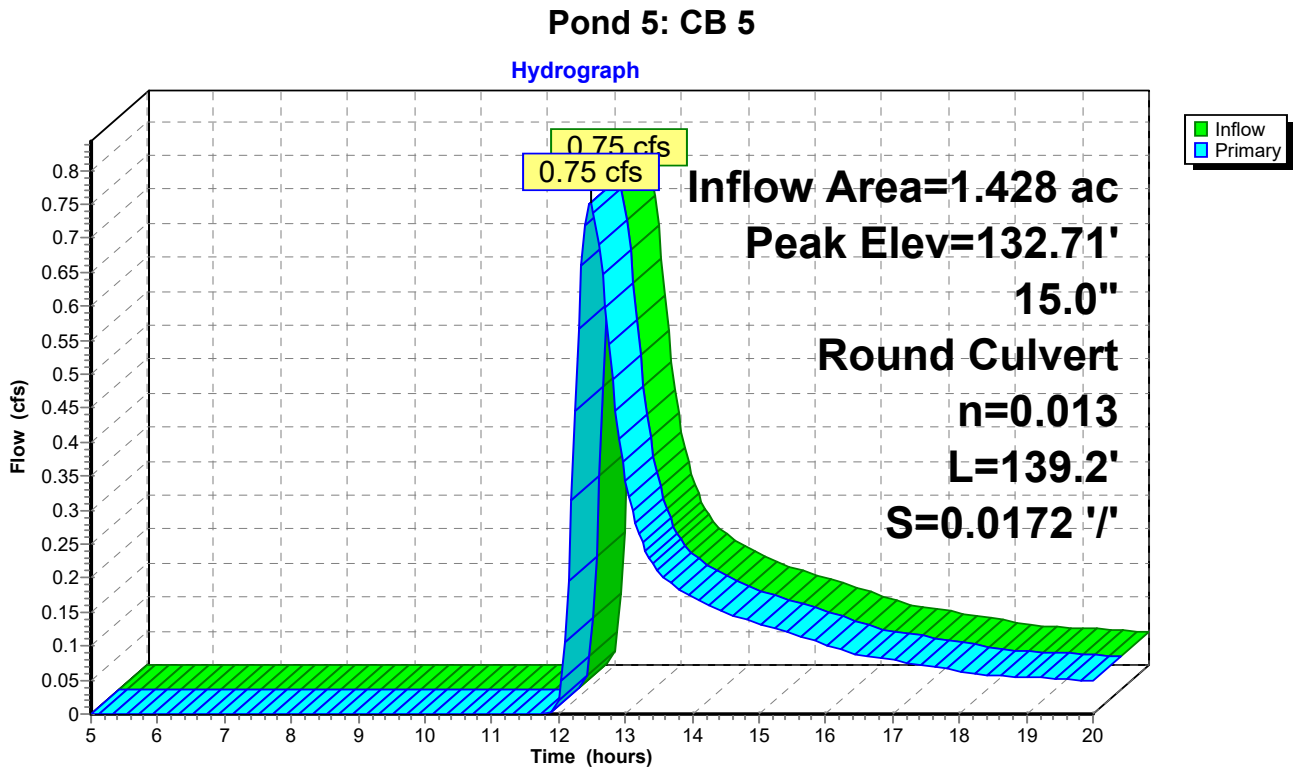
Summary for Pond 5: CB 5

Inflow Area = 1.428 ac, 21.43% Impervious, Inflow Depth > 0.87" for 25-Year event
 Inflow = 0.75 cfs @ 12.47 hrs, Volume= 0.103 af
 Outflow = 0.75 cfs @ 12.47 hrs, Volume= 0.103 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.75 cfs @ 12.47 hrs, Volume= 0.103 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 132.71' @ 12.47 hrs
 Flood Elev= 135.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	132.30'	15.0" Round Culvert L= 139.2' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 132.30' / 129.90' S= 0.0172 '/' Cc= 0.900 n= 0.013

Primary OutFlow Max=0.75 cfs @ 12.47 hrs HW=132.71' (Free Discharge)
 ↳ **1=Culvert** (Inlet Controls 0.75 cfs @ 2.17 fps)



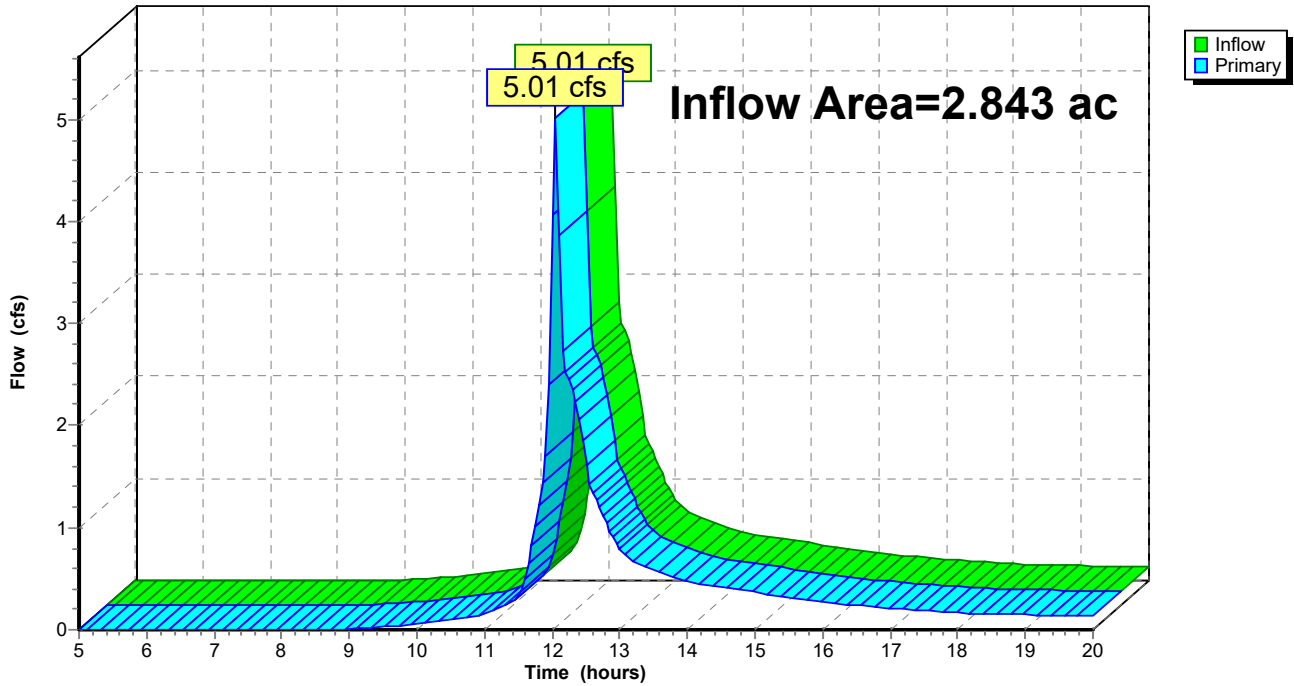
Summary for Link 6L: POI 'A'

Inflow Area = 2.843 ac, 38.55% Impervious, Inflow Depth > 1.70" for 25-Year event
Inflow = 5.01 cfs @ 12.05 hrs, Volume= 0.402 af
Primary = 5.01 cfs @ 12.05 hrs, Volume= 0.402 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 6L: POI 'A'

Hydrograph



MEMORANDUM

TO: File

RE: ASM Facility (Tax Map 215 / Lot 18)
Impervious Areas and Open Space Calculations

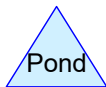
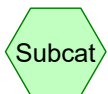
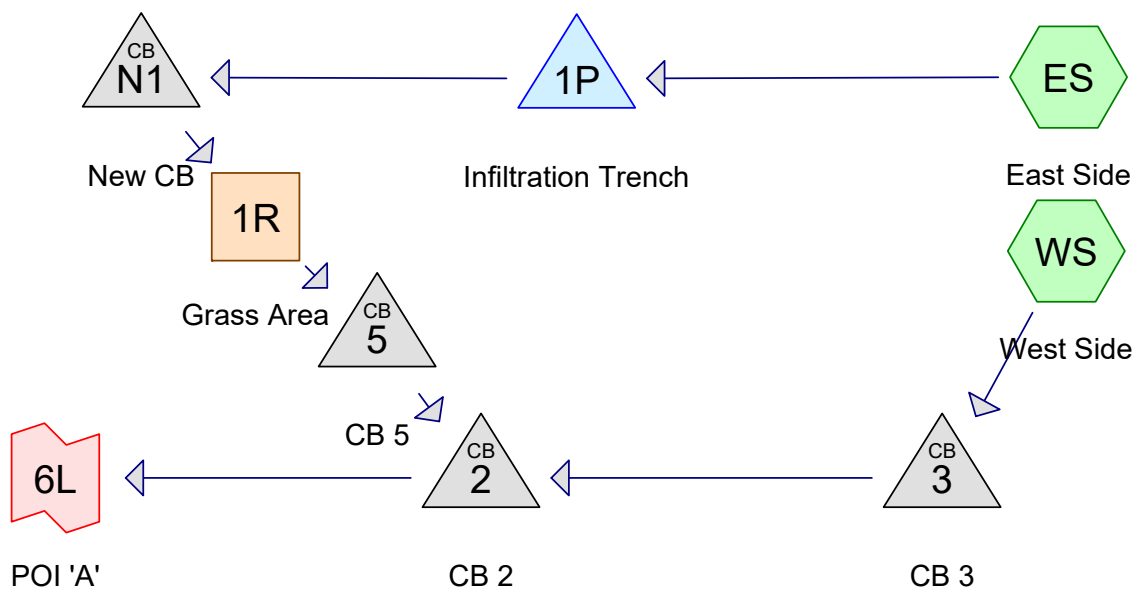
DATE: August 18, 2022

The purpose of this memorandum is to outline impervious and open space site conditions with respect to the above-referenced project.

Existing Site Conditions	
Description	Area (SF)
Total Site	123,824
Impervious Areas	
Buildings	21,410
Pavement	23,775
Pavement Curb	640
Concrete Sidewalk	1,200
Concrete Pads	705
total	47,730
Open Space	76,094
	61.5%

Proposed Site Conditions	
Description	Area (SF)
Total Site	123,824
Impervious Areas	
Buildings	21,410
Pavement	26,556
Pavement Curb	677
Concrete Sidewalk	2,130
Concrete Pads	751
total	51,524
Pervious Parking Area (not incl. in Open Space calc.)	12,066
Open Space	72,300
	58.4%

End of Memorandum



MODEL_Post-Development (22) 09-14

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.137	30	Woods, Good, HSG A (ES)
0.615	39	>75% Grass cover, Good, HSG A (ES)
0.277	39	Pre-Cast Concrete Porous Pavers, Good, HSG A (ES, WS)
0.625	49	50-75% Grass cover, Fair, HSG A (WS)
0.046	98	Concrete Pads, HSG A (ES)
0.058	98	Concrete Sidewalk and Pads, HSG A (WS)
0.610	98	Paved parking, HSG A (ES, WS)
0.492	98	Roofs, HSG A (ES, WS)
2.860	66	TOTAL AREA

MODEL_Post-Development (22) 09-14

Type III 24-hr 2-Year Rainfall=2.99"

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Page 3

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment ES: East Side Runoff Area=62,929 sf 41.95% Impervious Runoff Depth>0.37"
Flow Length=50' Slope=0.0100 '/' Tc=7.7 min CN=63 Runoff=0.43 cfs 0.045 af

Subcatchment WS: West Side Runoff Area=61,638 sf 42.36% Impervious Runoff Depth>0.56"
Flow Length=170' Slope=0.0100 '/' Tc=2.5 min CN=68 Runoff=0.95 cfs 0.066 af

Reach 1R: Grass Area Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.150 L=50.0' S=0.0100 '/' Capacity=7.94 cfs Outflow=0.00 cfs 0.000 af

Pond 1P: Infiltration Trench Peak Elev=135.23' Storage=0.012 af Inflow=0.43 cfs 0.045 af
Discarded=0.11 cfs 0.042 af Primary=0.00 cfs 0.000 af Outflow=0.11 cfs 0.042 af

Pond 2: CB 2 Peak Elev=130.25' Inflow=0.95 cfs 0.066 af
118.0" Round Culvert n=0.013 L=91.8' S=0.0251 '/' Outflow=0.95 cfs 0.066 af

Pond 3: CB 3 Peak Elev=131.49' Inflow=0.95 cfs 0.066 af
18.0" Round Culvert n=0.013 L=200.4' S=0.0060 '/' Outflow=0.95 cfs 0.066 af

Pond 5: CB 5 Peak Elev=132.30' Inflow=0.00 cfs 0.000 af
15.0" Round Culvert n=0.013 L=139.2' S=0.0172 '/' Outflow=0.00 cfs 0.000 af

Pond N1: New CB Peak Elev=135.00' Inflow=0.00 cfs 0.000 af
15.0" Round Culvert n=0.013 L=37.0' S=0.0000 '/' Outflow=0.00 cfs 0.000 af

Link 6L: POI 'A' Inflow=0.95 cfs 0.066 af
Primary=0.95 cfs 0.066 af

Total Runoff Area = 2.860 ac Runoff Volume = 0.111 af Average Runoff Depth = 0.46"
57.85% Pervious = 1.654 ac 42.15% Impervious = 1.205 ac

Summary for Subcatchment ES: East Side

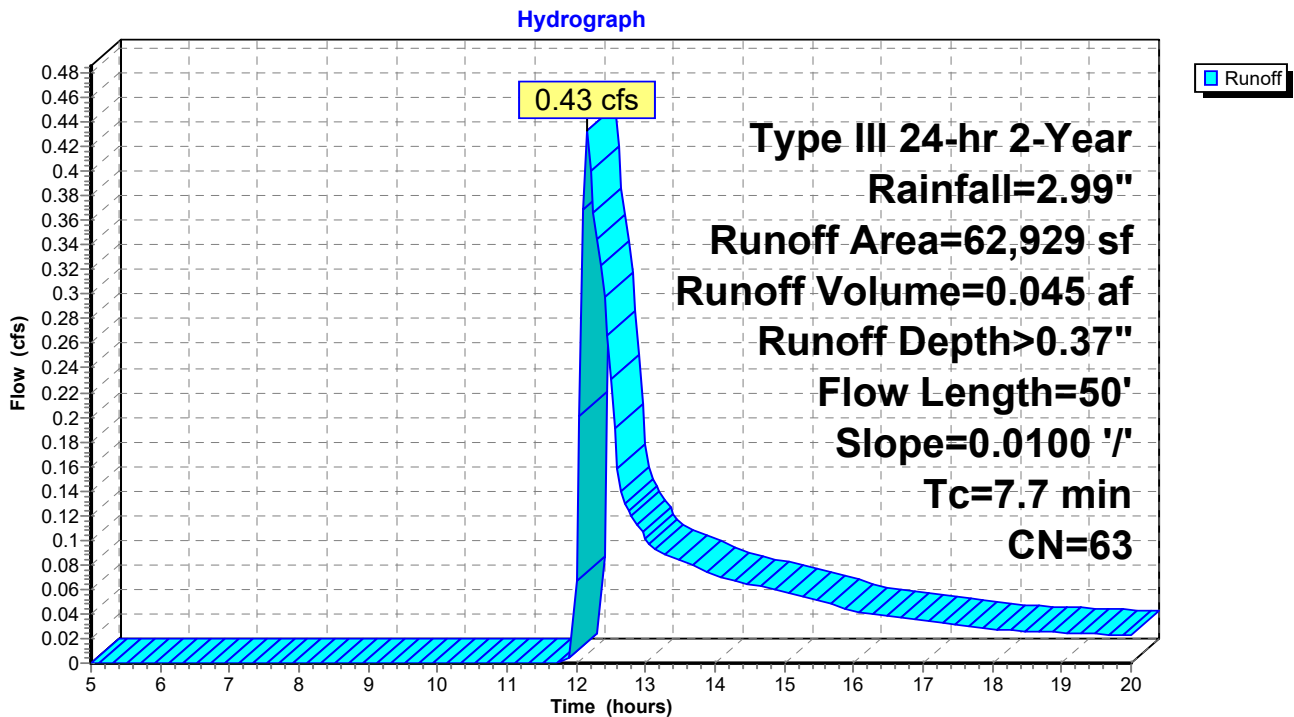
Runoff = 0.43 cfs @ 12.16 hrs, Volume= 0.045 af, Depth> 0.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=2.99"

Area (sf)	CN	Description
5,965	30	Woods, Good, HSG A
26,791	39	>75% Grass cover, Good, HSG A
11,330	98	Roofs, HSG A
1,998	98	Concrete Pads, HSG A
13,071	98	Paved parking, HSG A
3,774	39	Pre-Cast Concrete Porous Pavers, Good, HSG A
62,929	63	Weighted Average
36,530		58.05% Pervious Area
26,399		41.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	50	0.0100	0.11		Sheet Flow, ES.1 to ES.2 Grass: Short n= 0.150 P2= 2.99"

Subcatchment ES: East Side



Summary for Subcatchment WS: West Side

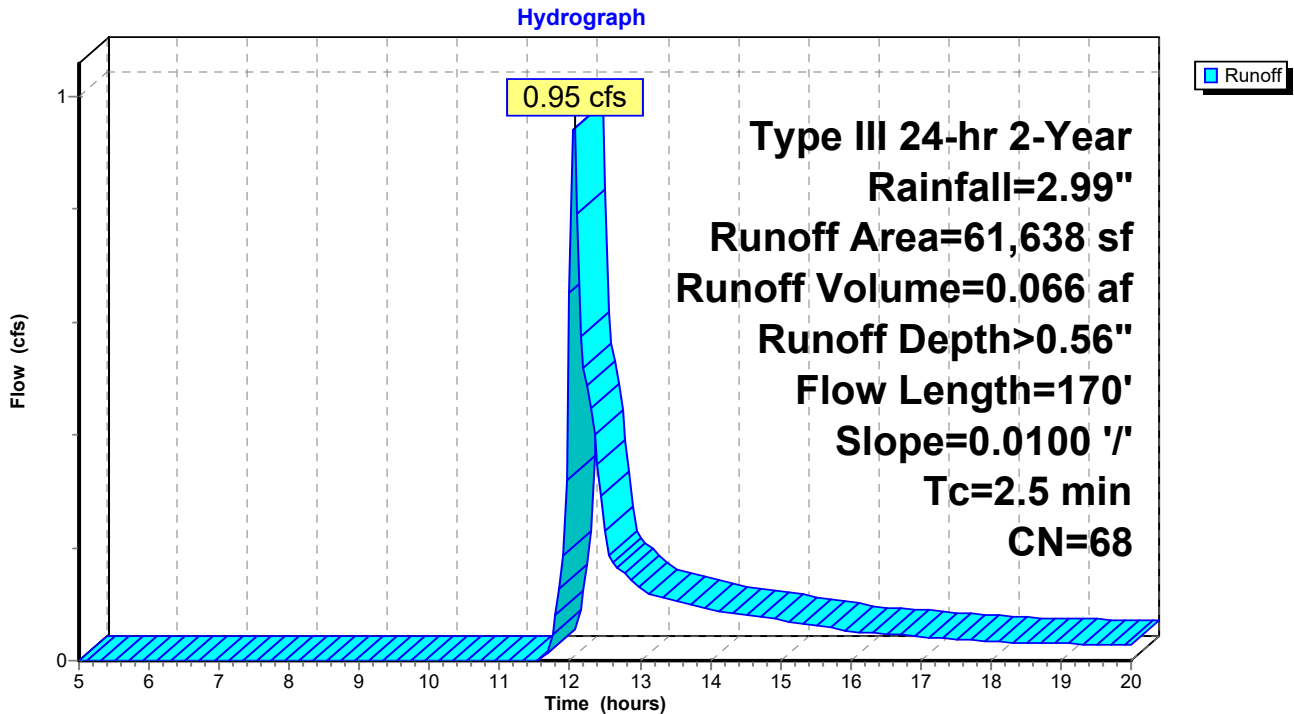
Runoff = 0.95 cfs @ 12.06 hrs, Volume= 0.066 af, Depth> 0.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=2.99"

Area (sf)	CN	Description
27,236	49	50-75% Grass cover, Fair, HSG A
10,080	98	Roofs, HSG A
13,485	98	Paved parking, HSG A
* 2,545	98	Concrete Sidewalk and Pads, HSG A
* 8,292	39	Pre-Cast Concrete Porous Pavers, Good, HSG A
61,638	68	Weighted Average
35,528		57.64% Pervious Area
26,110		42.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	170	0.0100	1.12		Sheet Flow, WS.1 to WS.2 Smooth surfaces n= 0.011 P2= 2.99"

Subcatchment WS: West Side



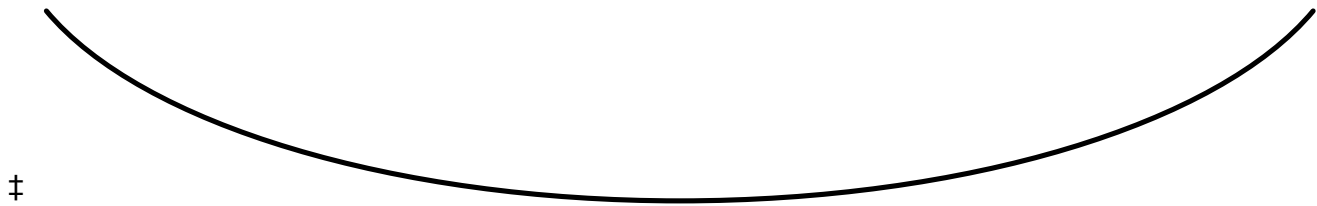
Summary for Reach 1R: Grass Area

Inflow Area = 1.445 ac, 41.95% Impervious, Inflow Depth = 0.00" for 2-Year event
 Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
 Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

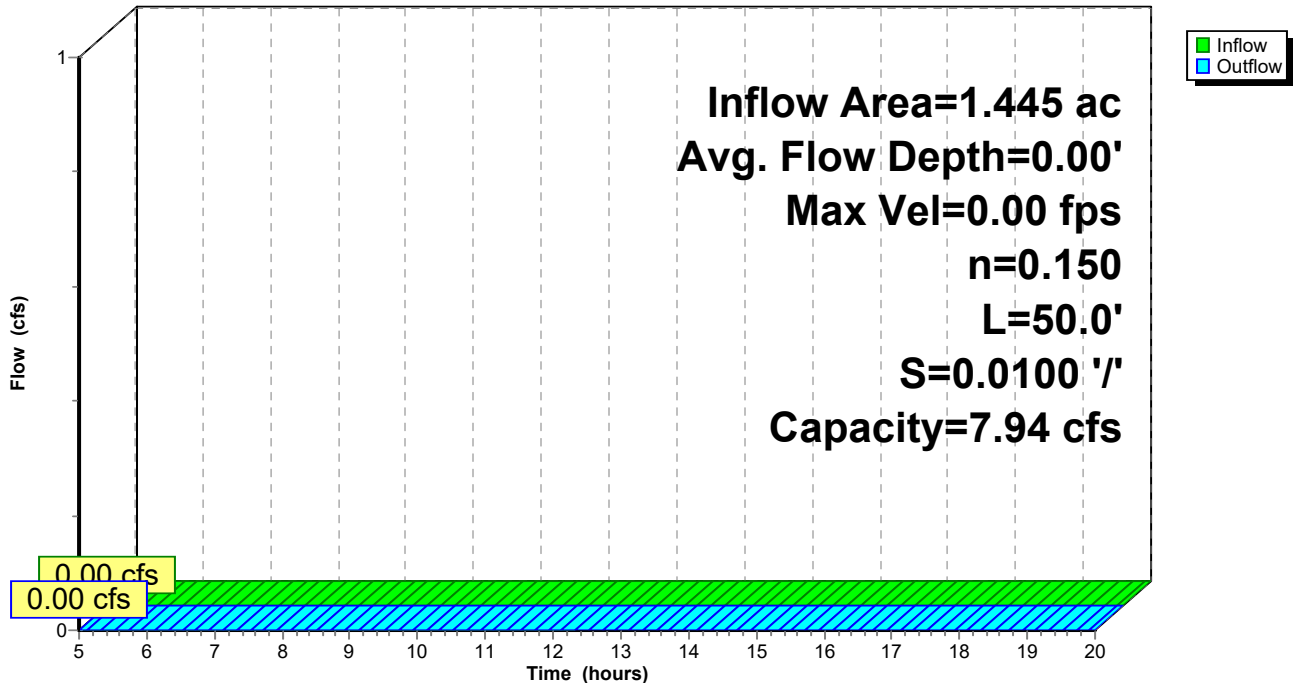
Peak Storage= 0 cf @ 5.00 hrs
 Average Depth at Peak Storage= 0.00'
 Bank-Full Depth= 0.50', Capacity at Bank-Full= 7.94 cfs

50.00' x 0.50' deep Parabolic Channel, n= 0.150 Sheet flow over Short Grass
 Length= 50.0' Slope= 0.0100 '/
 Inlet Invert= 135.00', Outlet Invert= 134.50'



Reach 1R: Grass Area

Hydrograph



Summary for Pond 1P: Infiltration Trench

Inflow Area = 1.445 ac, 41.95% Impervious, Inflow Depth > 0.37" for 2-Year event
 Inflow = 0.43 cfs @ 12.16 hrs, Volume= 0.045 af
 Outflow = 0.11 cfs @ 12.88 hrs, Volume= 0.042 af, Atten= 74%, Lag= 43.4 min
 Discarded = 0.11 cfs @ 12.88 hrs, Volume= 0.042 af
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 135.23' @ 12.88 hrs Surf.Area= 0.018 ac Storage= 0.012 af
 Flood Elev= 137.50' Surf.Area= 0.145 ac Storage= 0.158 af

Plug-Flow detention time= 78.9 min calculated for 0.042 af (92% of inflow)
 Center-of-Mass det. time= 54.7 min (911.2 - 856.5)

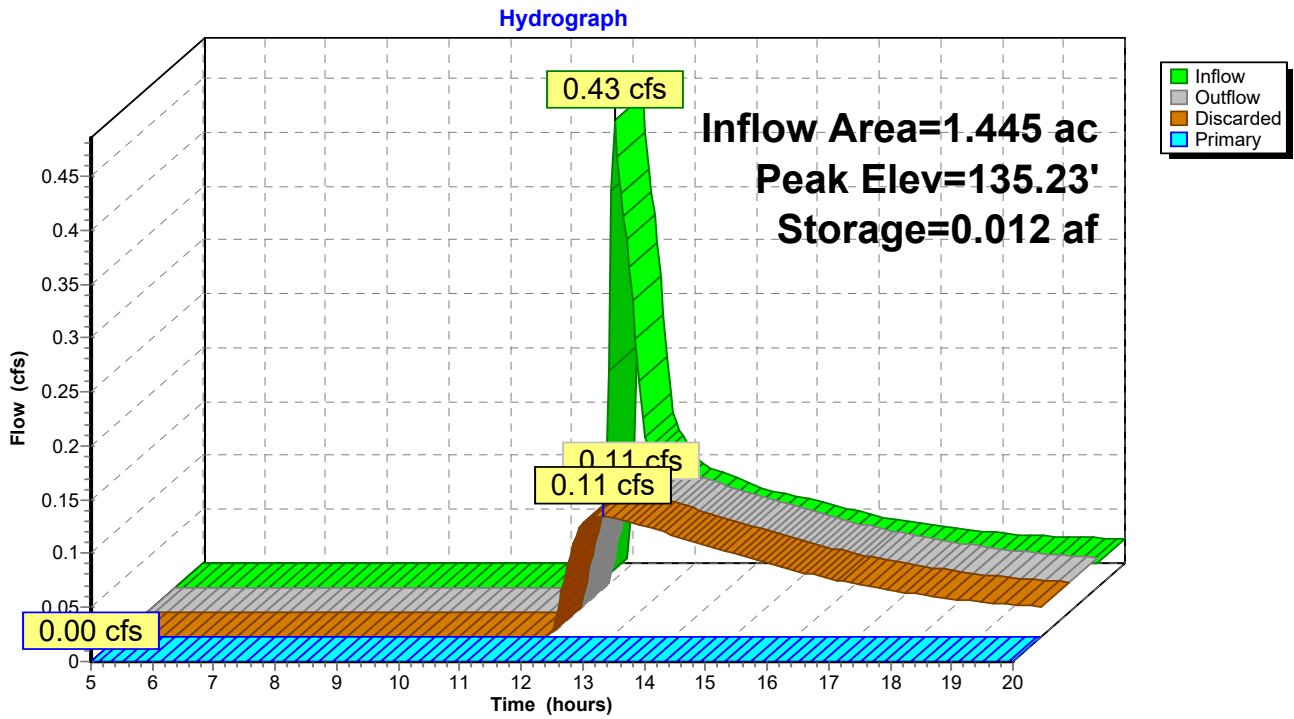
Volume	Invert	Avail.Storage	Storage Description
#1	133.50'	0.014 af	2.00'W x 383.00'L x 2.00'H Prismaoid 0.035 af Overall x 40.0% Voids
#2	135.50'	0.143 af	2.00'W x 383.00'L x 2.00'H Prismaoid Z=3.0
		0.158 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	133.50'	3.000 in/hr Exfiltration over Wetted area above 133.50' Conductivity to Groundwater Elevation = 130.00' Excluded Wetted area = 0.018 ac
#2	Primary	135.50'	24.0" Round Culvert L= 2.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 135.50' / 135.50' S= 0.0000 ' /' Cc= 0.900 n= 0.013

Discarded OutFlow Max=0.11 cfs @ 12.88 hrs HW=135.23' (Free Discharge)
 ↑1=Exfiltration (Controls 0.11 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=133.50' (Free Discharge)
 ↑2=Culvert (Controls 0.00 cfs)

Pond 1P: Infiltration Trench



Summary for Pond 2: CB 2

Inflow Area = 2.860 ac, 42.15% Impervious, Inflow Depth > 0.28" for 2-Year event
 Inflow = 0.95 cfs @ 12.06 hrs, Volume= 0.066 af
 Outflow = 0.95 cfs @ 12.06 hrs, Volume= 0.066 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.95 cfs @ 12.06 hrs, Volume= 0.066 af

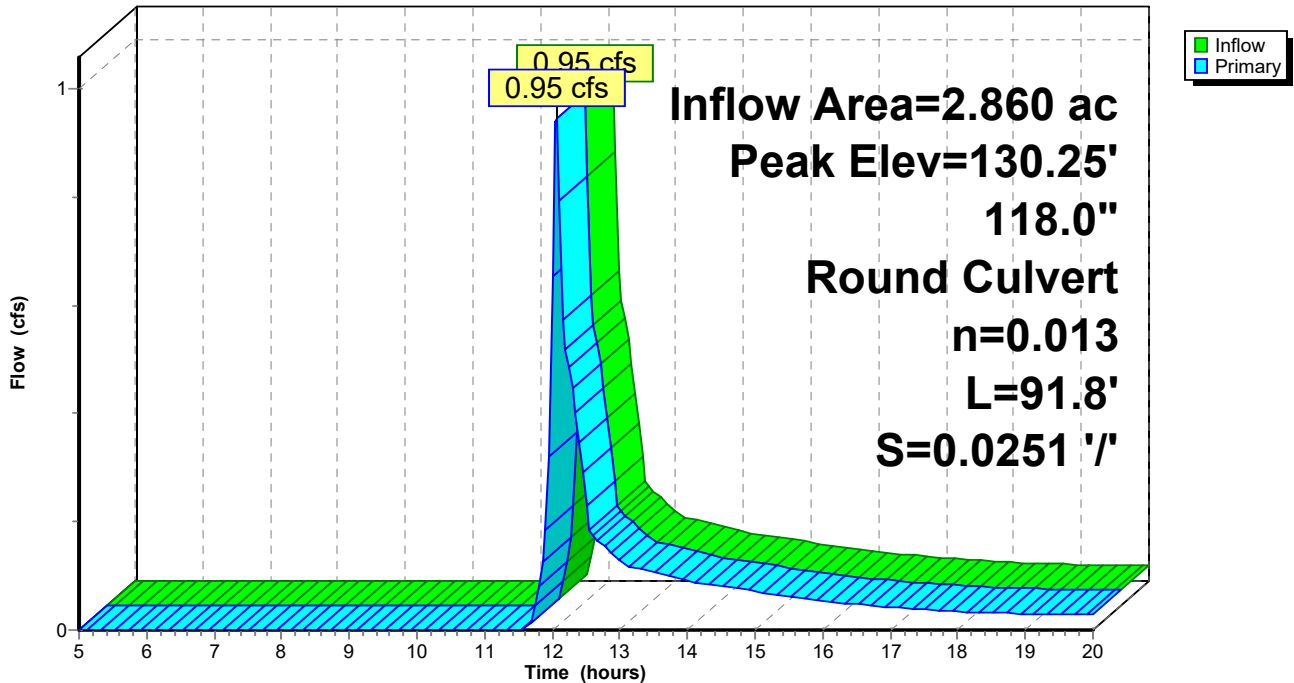
Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 130.25' @ 12.06 hrs
 Flood Elev= 133.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	130.00'	118.0" Round Culvert L= 91.8' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 130.00' / 127.70' S= 0.0251 '/ Cc= 0.900 n= 0.013

Primary OutFlow Max=0.88 cfs @ 12.06 hrs HW=130.25' (Free Discharge)
 ←1=Culvert (Inlet Controls 0.88 cfs @ 1.70 fps)

Pond 2: CB 2

Hydrograph



Summary for Pond 3: CB 3

Inflow Area = 1.415 ac, 42.36% Impervious, Inflow Depth > 0.56" for 2-Year event
 Inflow = 0.95 cfs @ 12.06 hrs, Volume= 0.066 af
 Outflow = 0.95 cfs @ 12.06 hrs, Volume= 0.066 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.95 cfs @ 12.06 hrs, Volume= 0.066 af

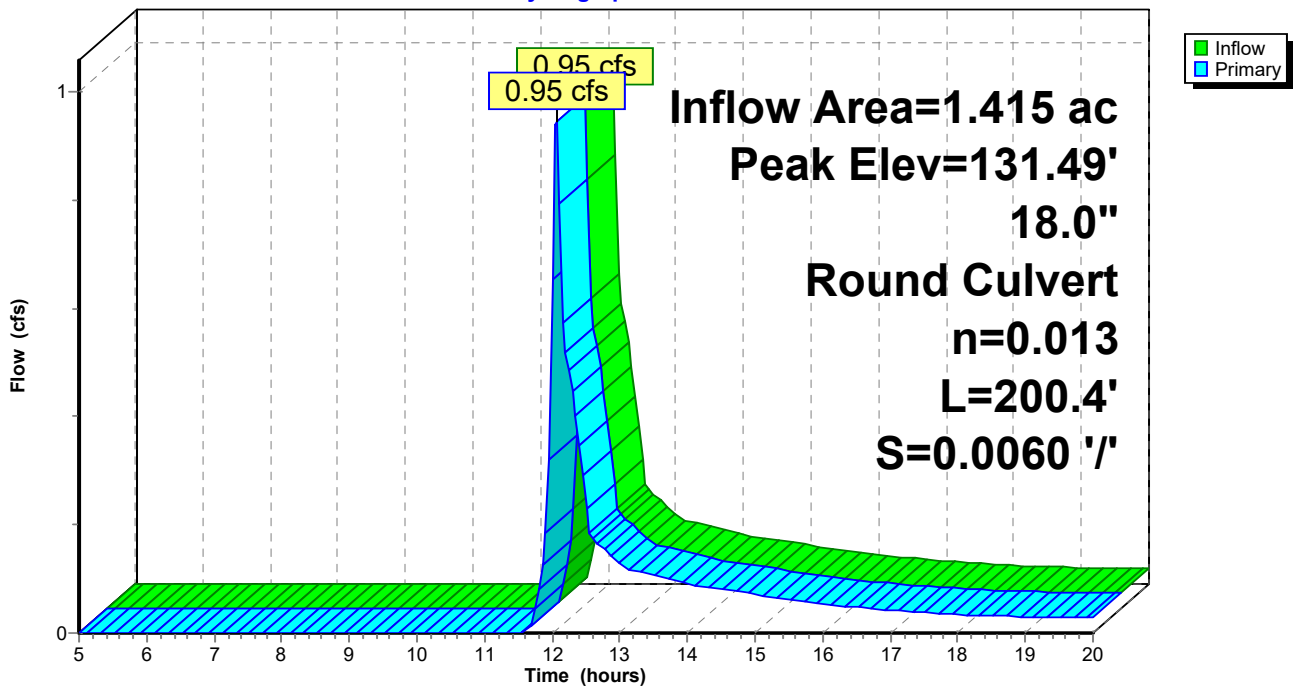
Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 131.49' @ 12.06 hrs
 Flood Elev= 134.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	131.00'	18.0" Round Culvert L= 200.4' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 131.00' / 129.80' S= 0.0060 '/' Cc= 0.900 n= 0.013

Primary OutFlow Max=0.92 cfs @ 12.06 hrs HW=131.48' (Free Discharge)
 ↳ **1=Culvert** (Inlet Controls 0.92 cfs @ 1.87 fps)

Pond 3: CB 3

Hydrograph



Summary for Pond 5: CB 5

Inflow Area = 1.445 ac, 41.95% Impervious, Inflow Depth = 0.00" for 2-Year event
 Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

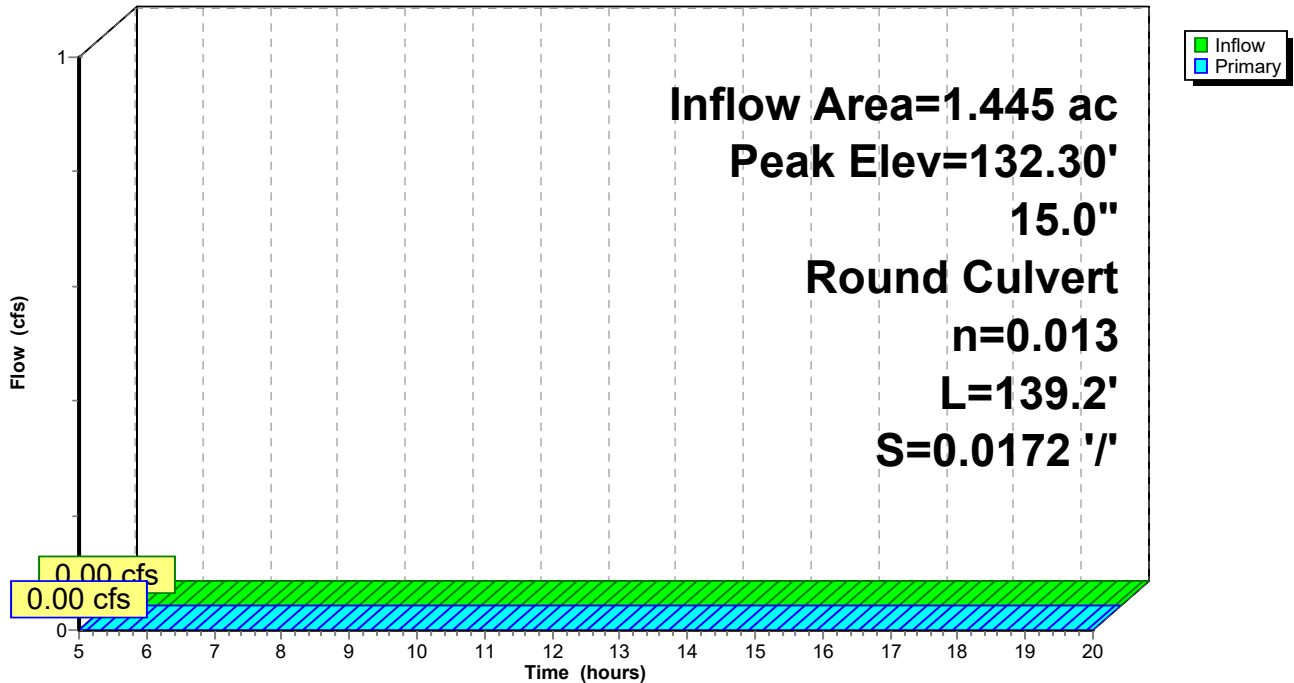
Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 132.30' @ 5.00 hrs
 Flood Elev= 134.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	132.30'	15.0" Round Culvert L= 139.2' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 132.30' / 129.90' S= 0.0172 '/ Cc= 0.900 n= 0.013

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=132.30' (Free Discharge)
 ↑1=Culvert (Controls 0.00 cfs)

Pond 5: CB 5

Hydrograph



Summary for Pond N1: New CB

Inflow Area = 1.445 ac, 41.95% Impervious, Inflow Depth = 0.00" for 2-Year event
 Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

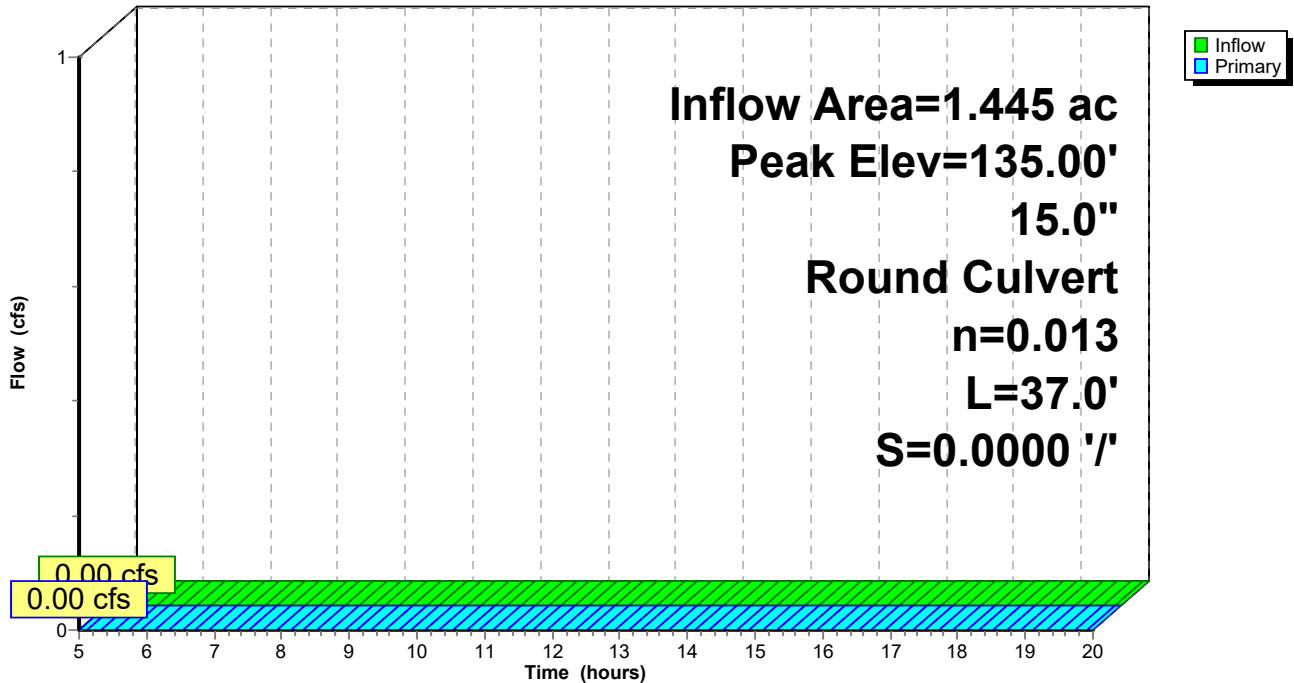
Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 135.00' @ 5.00 hrs
 Flood Elev= 137.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	135.00'	15.0" Round Culvert L= 37.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 135.00' / 135.00' S= 0.0000 '/' Cc= 0.900 n= 0.013

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=135.00' (Free Discharge)
 ↑1=Culvert (Controls 0.00 cfs)

Pond N1: New CB

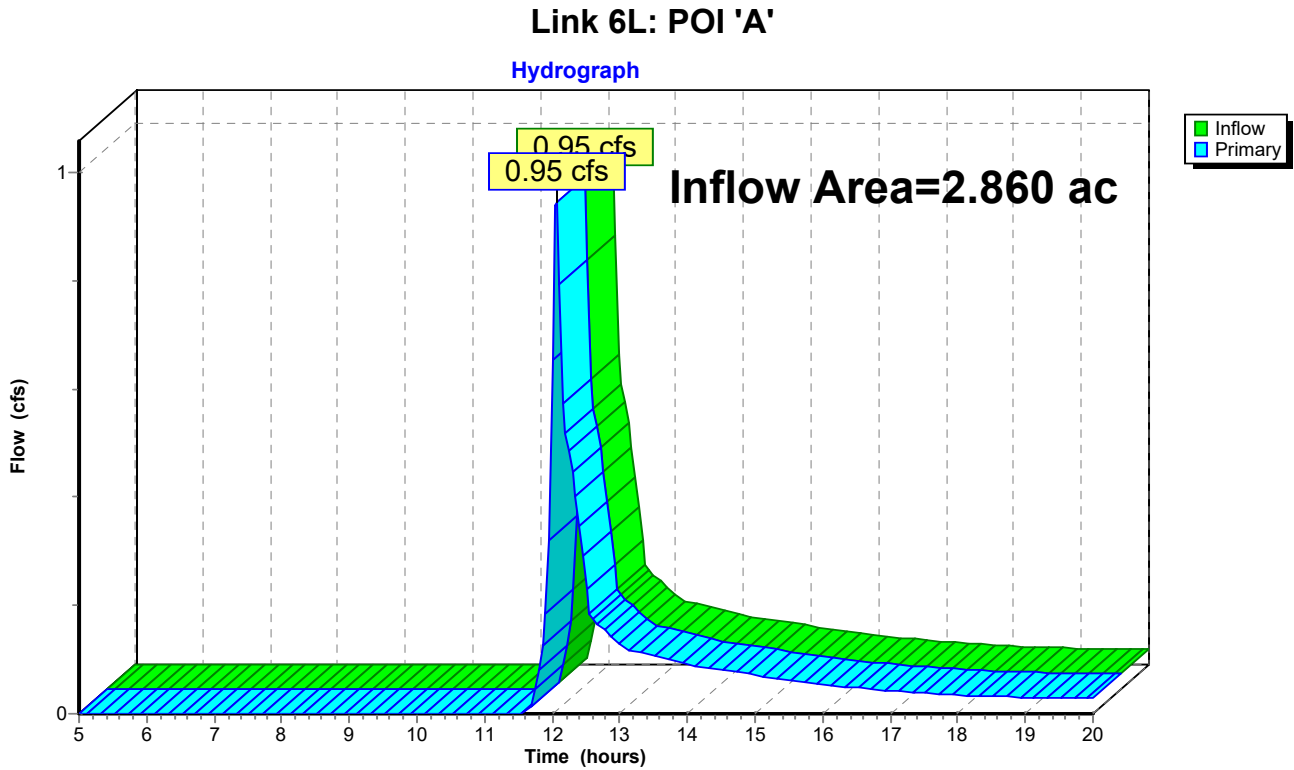
Hydrograph



Summary for Link 6L: POI 'A'

Inflow Area = 2.860 ac, 42.15% Impervious, Inflow Depth > 0.28" for 2-Year event
Inflow = 0.95 cfs @ 12.06 hrs, Volume= 0.066 af
Primary = 0.95 cfs @ 12.06 hrs, Volume= 0.066 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



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Type III 24-hr 10-Year Rainfall=4.49"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment ES: East Side Runoff Area=62,929 sf 41.95% Impervious Runoff Depth>1.08"
Flow Length=50' Slope=0.0100 '/' Tc=7.7 min CN=63 Runoff=1.69 cfs 0.130 af

Subcatchment WS: West Side Runoff Area=61,638 sf 42.36% Impervious Runoff Depth>1.40"
Flow Length=170' Slope=0.0100 '/' Tc=2.5 min CN=68 Runoff=2.67 cfs 0.165 af

Reach 1R: Grass Area Avg. Flow Depth=0.16' Max Vel=0.23 fps Inflow=0.72 cfs 0.034 af
n=0.150 L=50.0' S=0.0100 '/' Capacity=7.94 cfs Outflow=0.70 cfs 0.034 af

Pond 1P: Infiltration Trench Peak Elev=135.94' Storage=0.027 af Inflow=1.69 cfs 0.130 af
Discarded=0.28 cfs 0.089 af Primary=0.72 cfs 0.034 af Outflow=1.00 cfs 0.123 af

Pond 2: CB 2 Peak Elev=130.43' Inflow=2.67 cfs 0.199 af
118.0" Round Culvert n=0.013 L=91.8' S=0.0251 '/' Outflow=2.67 cfs 0.199 af

Pond 3: CB 3 Peak Elev=131.87' Inflow=2.67 cfs 0.165 af
18.0" Round Culvert n=0.013 L=200.4' S=0.0060 '/' Outflow=2.67 cfs 0.165 af

Pond 5: CB 5 Peak Elev=132.69' Inflow=0.70 cfs 0.034 af
15.0" Round Culvert n=0.013 L=139.2' S=0.0172 '/' Outflow=0.70 cfs 0.034 af

Pond N1: New CB Peak Elev=135.57' Inflow=0.72 cfs 0.034 af
15.0" Round Culvert n=0.013 L=37.0' S=0.0000 '/' Outflow=0.72 cfs 0.034 af

Link 6L: POI 'A' Inflow=2.67 cfs 0.199 af
Primary=2.67 cfs 0.199 af

Total Runoff Area = 2.860 ac Runoff Volume = 0.295 af Average Runoff Depth = 1.24"
57.85% Pervious = 1.654 ac 42.15% Impervious = 1.205 ac

Summary for Subcatchment ES: East Side

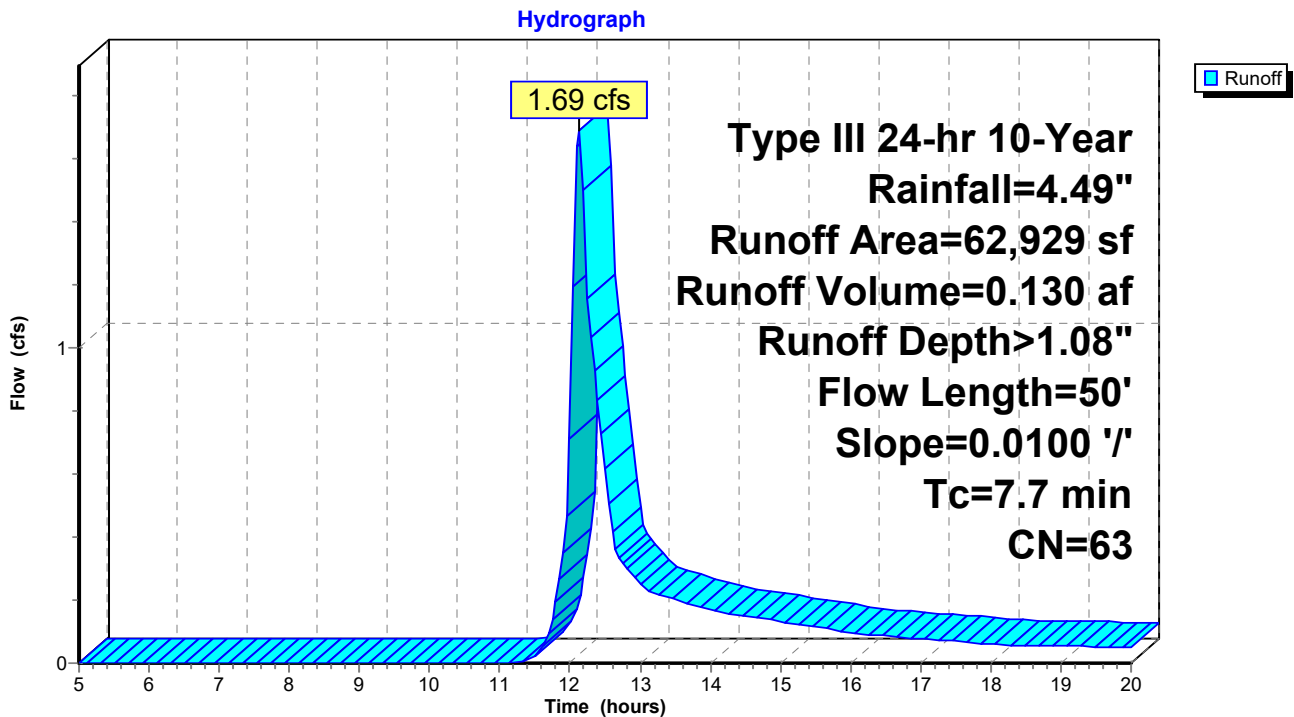
Runoff = 1.69 cfs @ 12.12 hrs, Volume= 0.130 af, Depth> 1.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.49"

Area (sf)	CN	Description
5,965	30	Woods, Good, HSG A
26,791	39	>75% Grass cover, Good, HSG A
11,330	98	Roofs, HSG A
1,998	98	Concrete Pads, HSG A
13,071	98	Paved parking, HSG A
3,774	39	Pre-Cast Concrete Porous Pavers, Good, HSG A
62,929	63	Weighted Average
36,530		58.05% Pervious Area
26,399		41.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	50	0.0100	0.11		Sheet Flow, ES.1 to ES.2 Grass: Short n= 0.150 P2= 2.99"

Subcatchment ES: East Side



Summary for Subcatchment WS: West Side

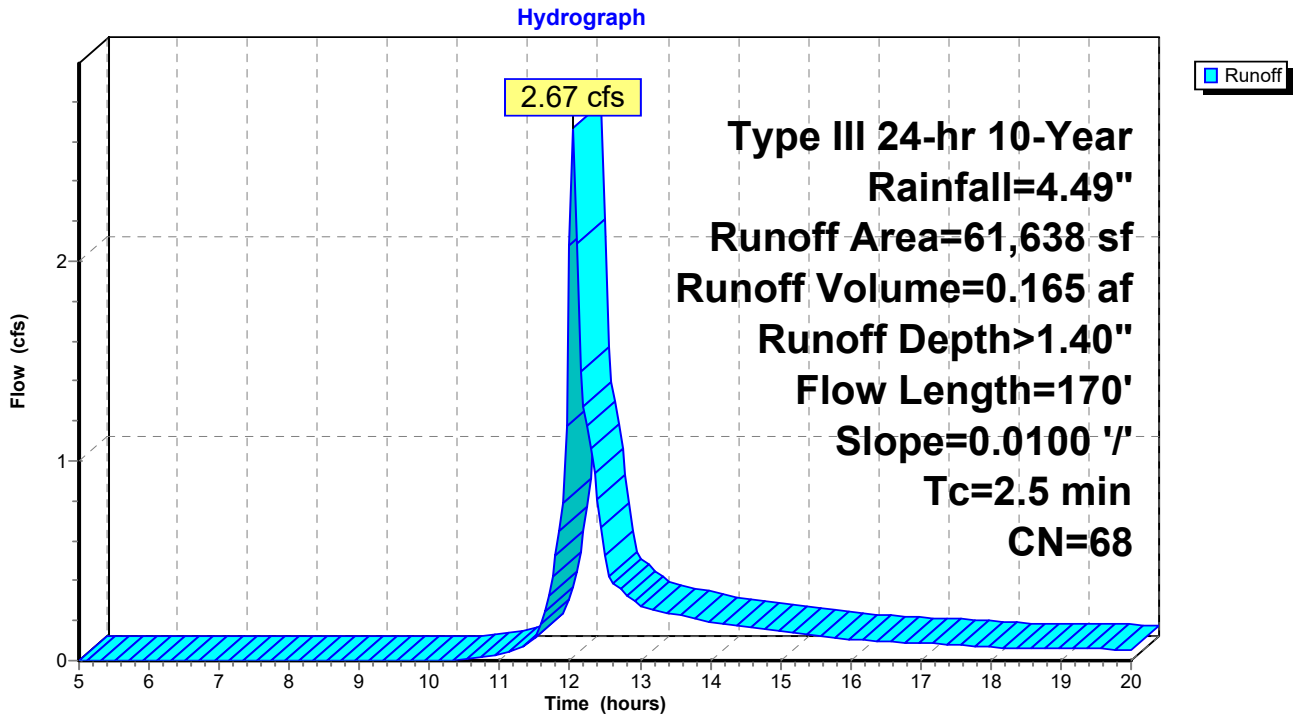
Runoff = 2.67 cfs @ 12.05 hrs, Volume= 0.165 af, Depth> 1.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.49"

Area (sf)	CN	Description
27,236	49	50-75% Grass cover, Fair, HSG A
10,080	98	Roofs, HSG A
13,485	98	Paved parking, HSG A
* 2,545	98	Concrete Sidewalk and Pads, HSG A
* 8,292	39	Pre-Cast Concrete Porous Pavers, Good, HSG A
61,638	68	Weighted Average
35,528		57.64% Pervious Area
26,110		42.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	170	0.0100	1.12		Sheet Flow, WS.1 to WS.2 Smooth surfaces n= 0.011 P2= 2.99"

Subcatchment WS: West Side



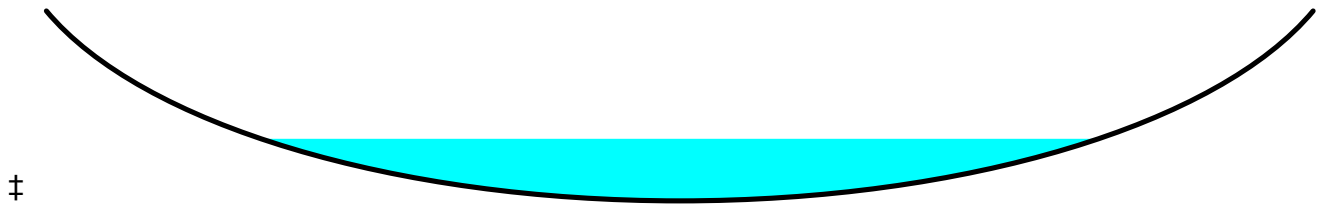
Summary for Reach 1R: Grass Area

Inflow Area = 1.445 ac, 41.95% Impervious, Inflow Depth = 0.28" for 10-Year event
 Inflow = 0.72 cfs @ 12.32 hrs, Volume= 0.034 af
 Outflow = 0.70 cfs @ 12.45 hrs, Volume= 0.034 af, Atten= 3%, Lag= 7.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 0.23 fps, Min. Travel Time= 3.7 min
 Avg. Velocity = 0.06 fps, Avg. Travel Time= 13.9 min

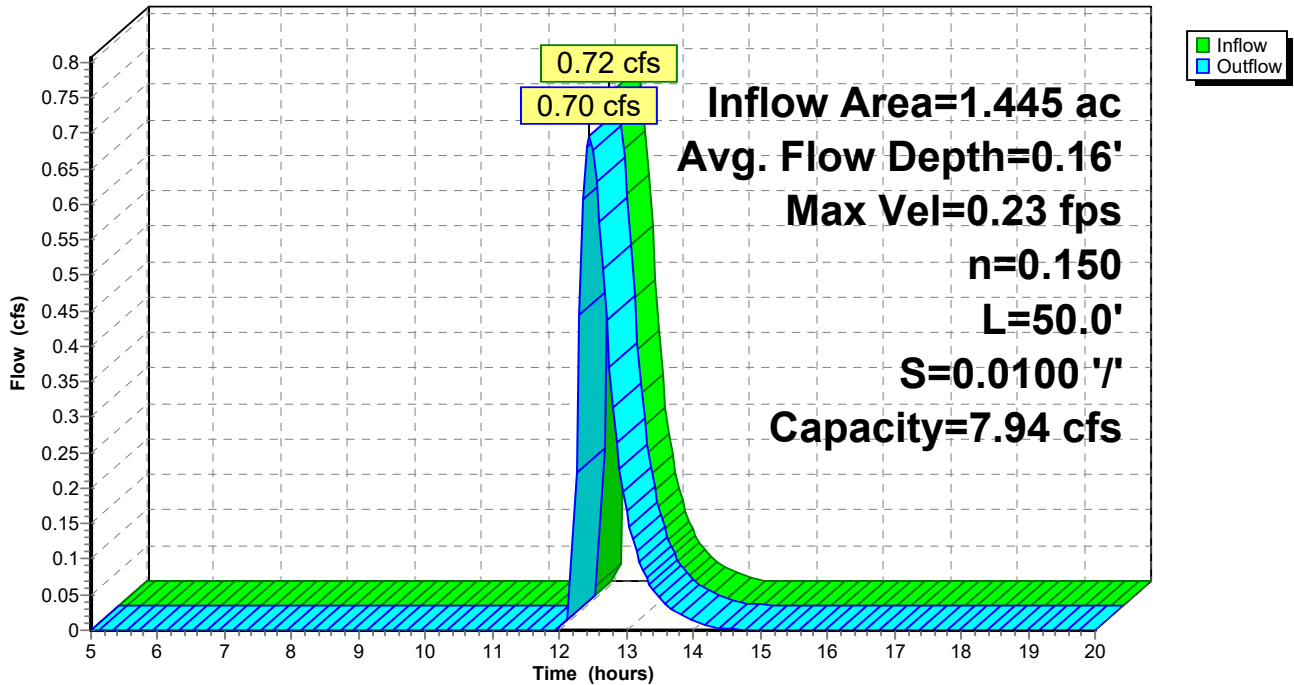
Peak Storage= 155 cf @ 12.38 hrs
 Average Depth at Peak Storage= 0.16'
 Bank-Full Depth= 0.50', Capacity at Bank-Full= 7.94 cfs

50.00' x 0.50' deep Parabolic Channel, n= 0.150 Sheet flow over Short Grass
 Length= 50.0' Slope= 0.0100 '/
 Inlet Invert= 135.00', Outlet Invert= 134.50'



Reach 1R: Grass Area

Hydrograph



Summary for Pond 1P: Infiltration Trench

Inflow Area = 1.445 ac, 41.95% Impervious, Inflow Depth > 1.08" for 10-Year event
 Inflow = 1.69 cfs @ 12.12 hrs, Volume= 0.130 af
 Outflow = 1.00 cfs @ 12.32 hrs, Volume= 0.123 af, Atten= 41%, Lag= 11.8 min
 Discarded = 0.28 cfs @ 12.32 hrs, Volume= 0.089 af
 Primary = 0.72 cfs @ 12.32 hrs, Volume= 0.034 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 135.94' @ 12.32 hrs Surf.Area= 0.059 ac Storage= 0.027 af
 Flood Elev= 137.50' Surf.Area= 0.145 ac Storage= 0.158 af

Plug-Flow detention time= 47.9 min calculated for 0.123 af (94% of inflow)
 Center-of-Mass det. time= 30.0 min (858.3 - 828.4)

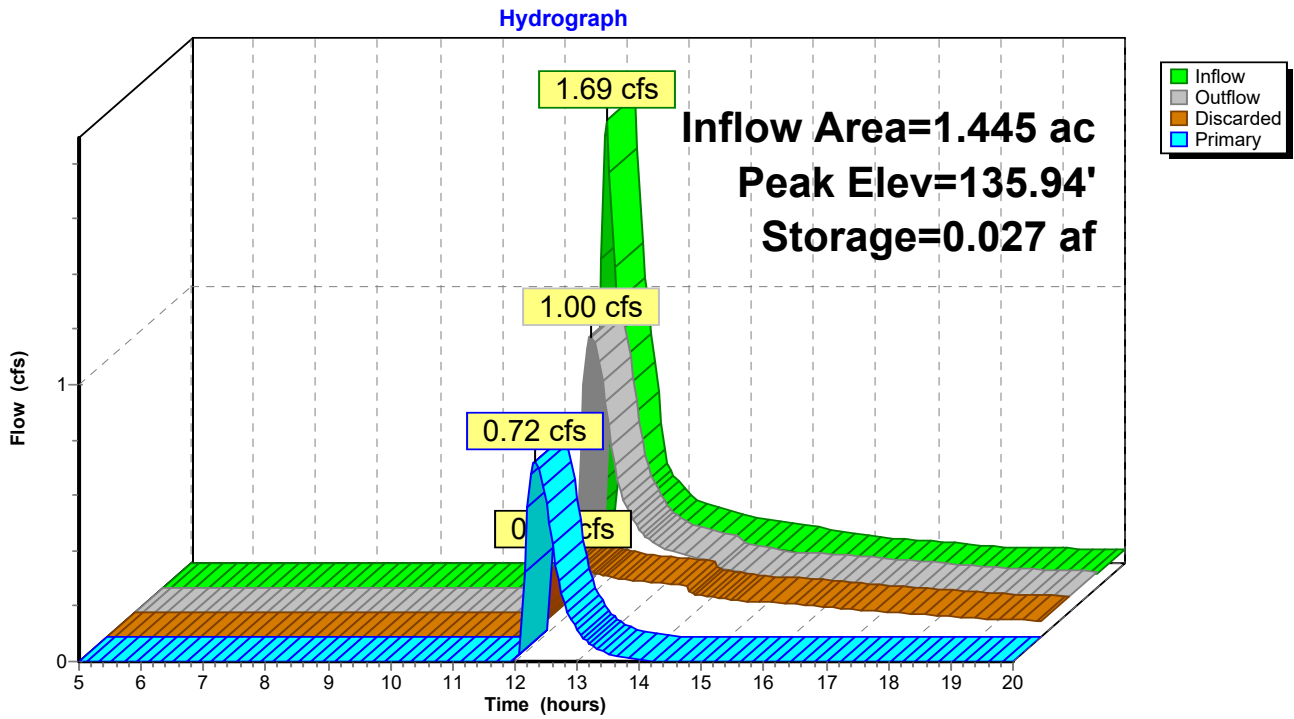
Volume	Invert	Avail.Storage	Storage Description
#1	133.50'	0.014 af	2.00'W x 383.00'L x 2.00'H Prismaoid 0.035 af Overall x 40.0% Voids
#2	135.50'	0.143 af	2.00'W x 383.00'L x 2.00'H Prismaoid Z=3.0
		0.158 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	133.50'	3.000 in/hr Exfiltration over Wetted area above 133.50' Conductivity to Groundwater Elevation = 130.00' Excluded Wetted area = 0.018 ac
#2	Primary	135.50'	24.0" Round Culvert L= 2.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 135.50' / 135.50' S= 0.0000 ' S= 0.0000 ' Cc= 0.900 n= 0.013

Discarded OutFlow Max=0.28 cfs @ 12.32 hrs HW=135.94' (Free Discharge)
 ↑1=Exfiltration (Controls 0.28 cfs)

Primary OutFlow Max=0.72 cfs @ 12.32 hrs HW=135.94' (Free Discharge)
 ↑2=Culvert (Barrel Controls 0.72 cfs @ 2.11 fps)

Pond 1P: Infiltration Trench



Summary for Pond 2: CB 2

Inflow Area = 2.860 ac, 42.15% Impervious, Inflow Depth > 0.83" for 10-Year event
 Inflow = 2.67 cfs @ 12.05 hrs, Volume= 0.199 af
 Outflow = 2.67 cfs @ 12.05 hrs, Volume= 0.199 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.67 cfs @ 12.05 hrs, Volume= 0.199 af

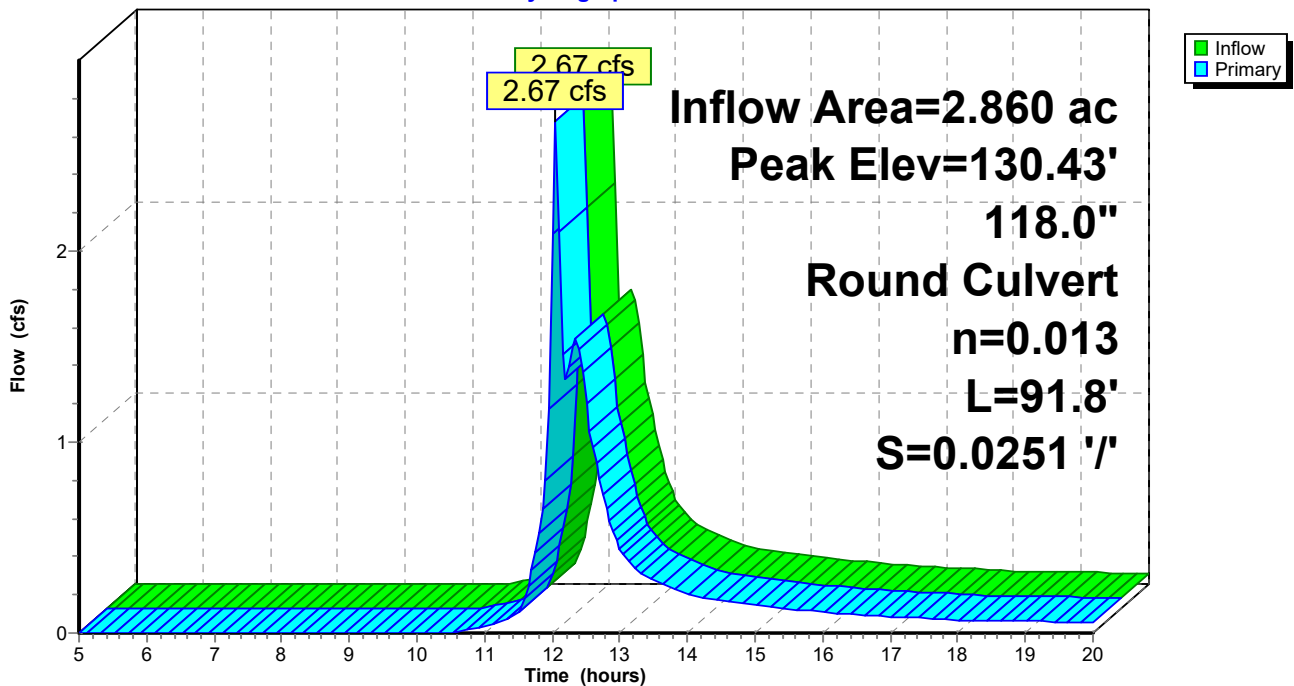
Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 130.43' @ 12.05 hrs
 Flood Elev= 133.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	130.00'	118.0" Round Culvert L= 91.8' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 130.00' / 127.70' S= 0.0251 '/' Cc= 0.900 n= 0.013

Primary OutFlow Max=2.64 cfs @ 12.05 hrs HW=130.43' (Free Discharge)
 ↳ **1=Culvert** (Inlet Controls 2.64 cfs @ 2.24 fps)

Pond 2: CB 2

Hydrograph



Summary for Pond 3: CB 3

Inflow Area = 1.415 ac, 42.36% Impervious, Inflow Depth > 1.40" for 10-Year event
 Inflow = 2.67 cfs @ 12.05 hrs, Volume= 0.165 af
 Outflow = 2.67 cfs @ 12.05 hrs, Volume= 0.165 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.67 cfs @ 12.05 hrs, Volume= 0.165 af

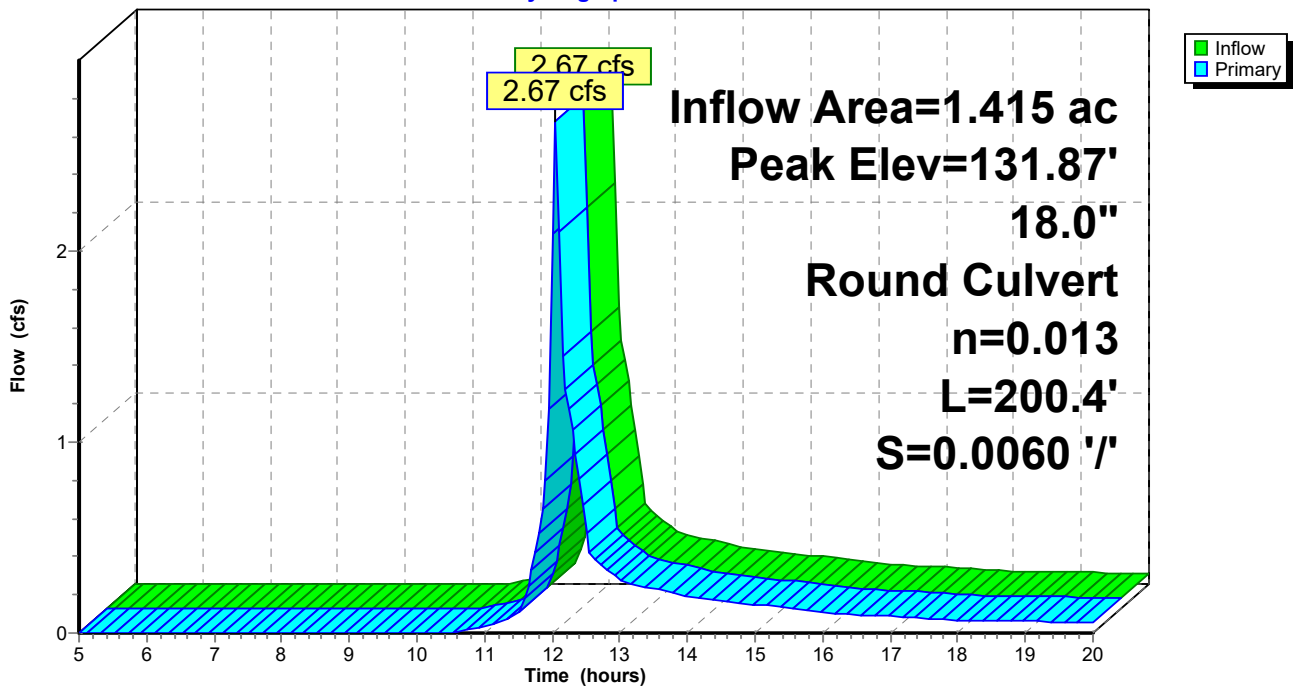
Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 131.87' @ 12.05 hrs
 Flood Elev= 134.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	131.00'	18.0" Round Culvert L= 200.4' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 131.00' / 129.80' S= 0.0060 '/ Cc= 0.900 n= 0.013

Primary OutFlow Max=2.67 cfs @ 12.05 hrs HW=131.87' (Free Discharge)
 ↳ **1=Culvert** (Inlet Controls 2.67 cfs @ 2.51 fps)

Pond 3: CB 3

Hydrograph



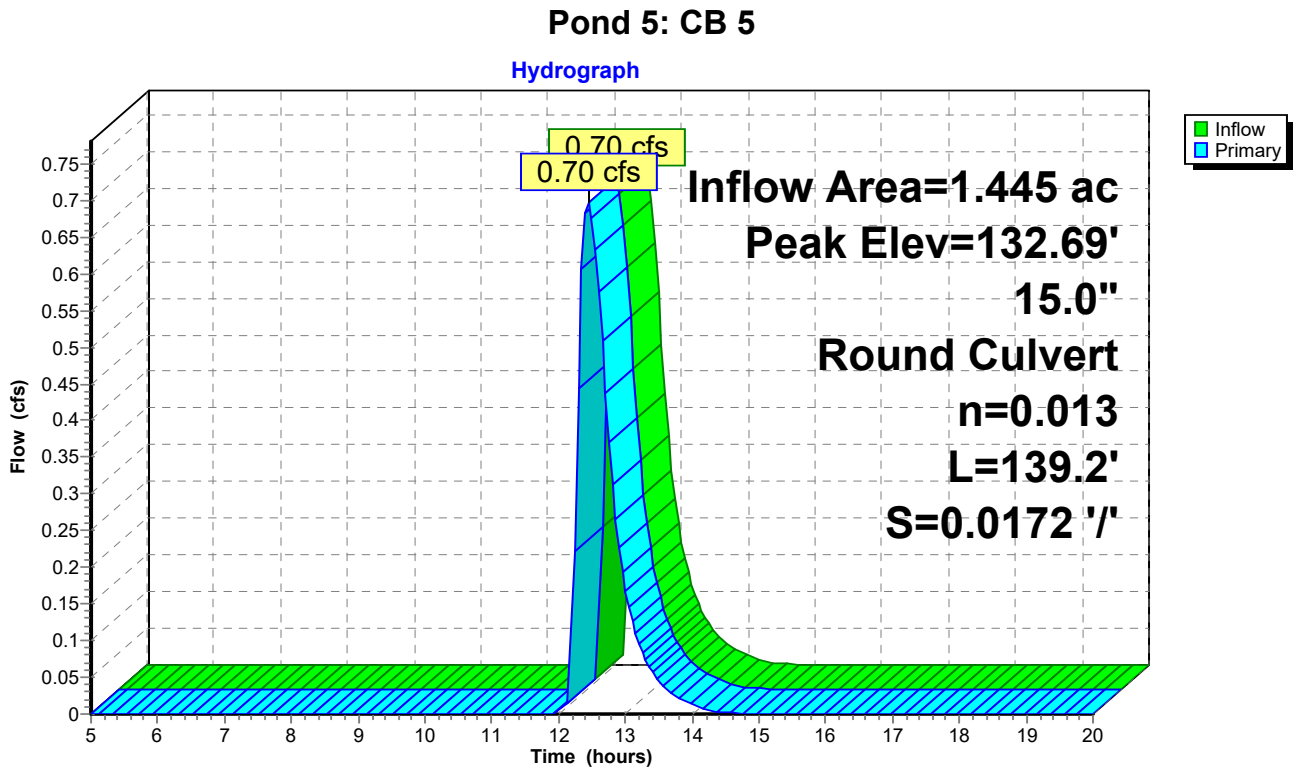
Summary for Pond 5: CB 5

Inflow Area = 1.445 ac, 41.95% Impervious, Inflow Depth = 0.28" for 10-Year event
 Inflow = 0.70 cfs @ 12.45 hrs, Volume= 0.034 af
 Outflow = 0.70 cfs @ 12.45 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.70 cfs @ 12.45 hrs, Volume= 0.034 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 132.69' @ 12.45 hrs
 Flood Elev= 134.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	132.30'	15.0" Round Culvert L= 139.2' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 132.30' / 129.90' S= 0.0172 ' / ' Cc= 0.900 n= 0.013

Primary OutFlow Max=0.70 cfs @ 12.45 hrs HW=132.69' (Free Discharge)
 ↳ **1=Culvert** (Inlet Controls 0.70 cfs @ 2.13 fps)



Summary for Pond N1: New CB

Inflow Area = 1.445 ac, 41.95% Impervious, Inflow Depth = 0.28" for 10-Year event
 Inflow = 0.72 cfs @ 12.32 hrs, Volume= 0.034 af
 Outflow = 0.72 cfs @ 12.32 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.72 cfs @ 12.32 hrs, Volume= 0.034 af

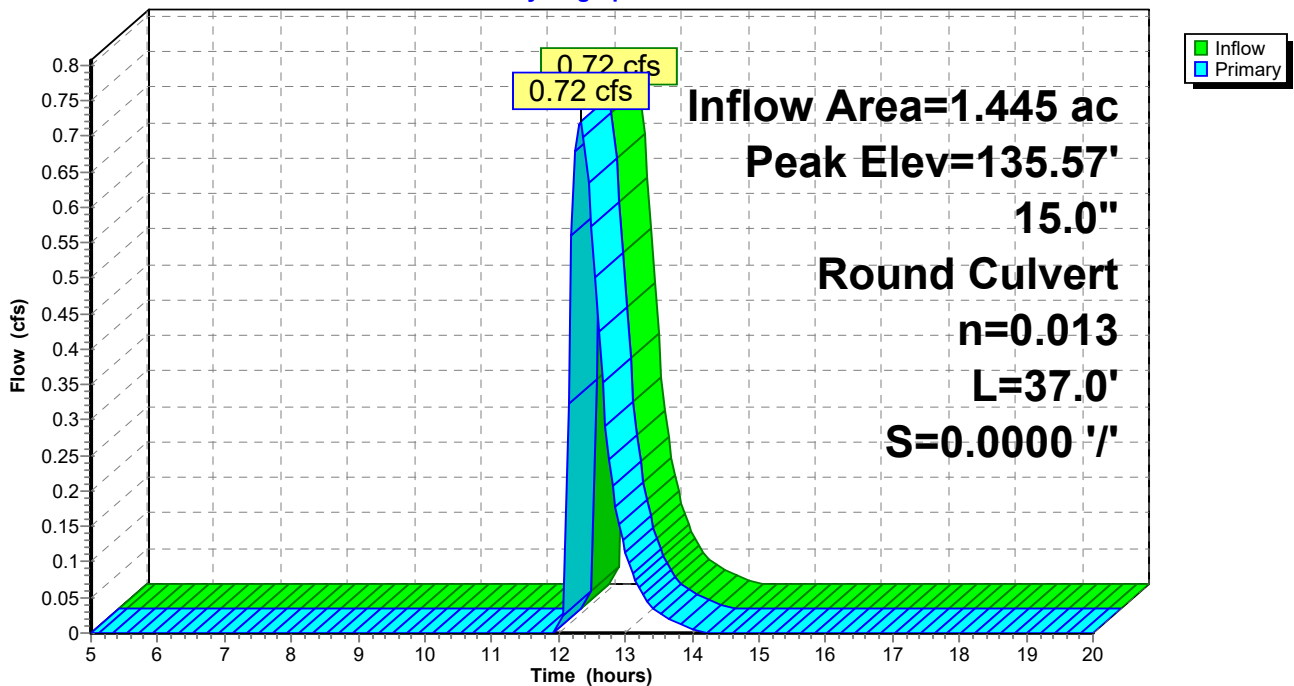
Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 135.57' @ 12.32 hrs
 Flood Elev= 137.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	135.00'	15.0" Round Culvert L= 37.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 135.00' / 135.00' S= 0.0000 '/' Cc= 0.900 n= 0.013

Primary OutFlow Max=0.72 cfs @ 12.32 hrs HW=135.57' (Free Discharge)
 ↳ **1=Culvert** (Barrel Controls 0.72 cfs @ 1.93 fps)

Pond N1: New CB

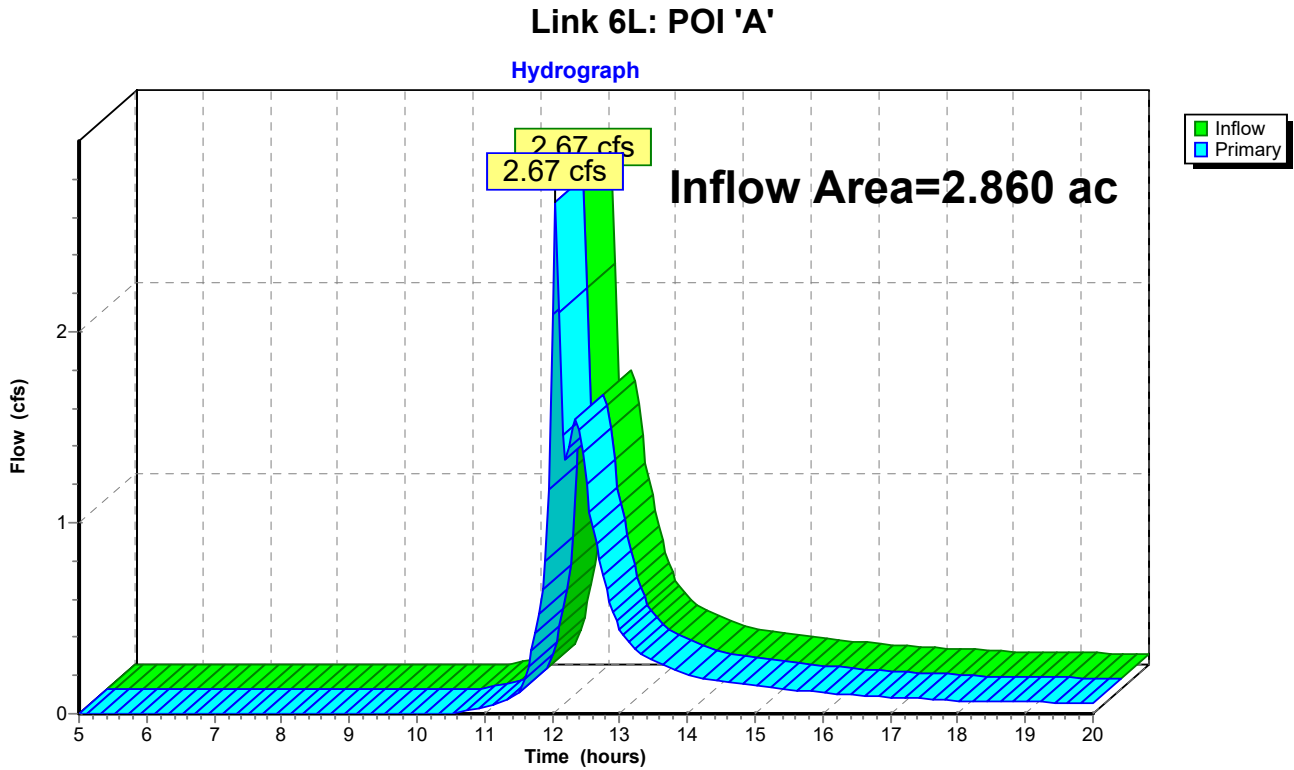
Hydrograph



Summary for Link 6L: POI 'A'

Inflow Area = 2.860 ac, 42.15% Impervious, Inflow Depth > 0.83" for 10-Year event
Inflow = 2.67 cfs @ 12.05 hrs, Volume= 0.199 af
Primary = 2.67 cfs @ 12.05 hrs, Volume= 0.199 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



MODEL_Post-Development (22) 09-14

Type III 24-hr 25-Year Rainfall=5.68"

Prepared by HP Inc.

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment ES: East Side Runoff Area=62,929 sf 41.95% Impervious Runoff Depth>1.79"
Flow Length=50' Slope=0.0100 '/' Tc=7.7 min CN=63 Runoff=2.95 cfs 0.215 af

Subcatchment WS: West Side Runoff Area=61,638 sf 42.36% Impervious Runoff Depth>2.19"
Flow Length=170' Slope=0.0100 '/' Tc=2.5 min CN=68 Runoff=4.28 cfs 0.259 af

Reach 1R: Grass Area Avg. Flow Depth=0.24' Max Vel=0.29 fps Inflow=1.72 cfs 0.090 af
n=0.150 L=50.0' S=0.0100 '/' Capacity=7.94 cfs Outflow=1.69 cfs 0.090 af

Pond 1P: Infiltration Trench Peak Elev=136.19' Storage=0.039 af Inflow=2.95 cfs 0.215 af
Discarded=0.33 cfs 0.115 af Primary=1.72 cfs 0.090 af Outflow=2.05 cfs 0.206 af

Pond 2: CB 2 Peak Elev=130.55' Inflow=4.31 cfs 0.349 af
118.0" Round Culvert n=0.013 L=91.8' S=0.0251 '/' Outflow=4.31 cfs 0.349 af

Pond 3: CB 3 Peak Elev=132.17' Inflow=4.28 cfs 0.259 af
18.0" Round Culvert n=0.013 L=200.4' S=0.0060 '/' Outflow=4.28 cfs 0.259 af

Pond 5: CB 5 Peak Elev=132.93' Inflow=1.69 cfs 0.090 af
15.0" Round Culvert n=0.013 L=139.2' S=0.0172 '/' Outflow=1.69 cfs 0.090 af

Pond N1: New CB Peak Elev=135.87' Inflow=1.72 cfs 0.090 af
15.0" Round Culvert n=0.013 L=37.0' S=0.0000 '/' Outflow=1.72 cfs 0.090 af

Link 6L: POI 'A' Inflow=4.31 cfs 0.349 af
Primary=4.31 cfs 0.349 af

Total Runoff Area = 2.860 ac Runoff Volume = 0.474 af Average Runoff Depth = 1.99"
57.85% Pervious = 1.654 ac 42.15% Impervious = 1.205 ac

Summary for Subcatchment ES: East Side

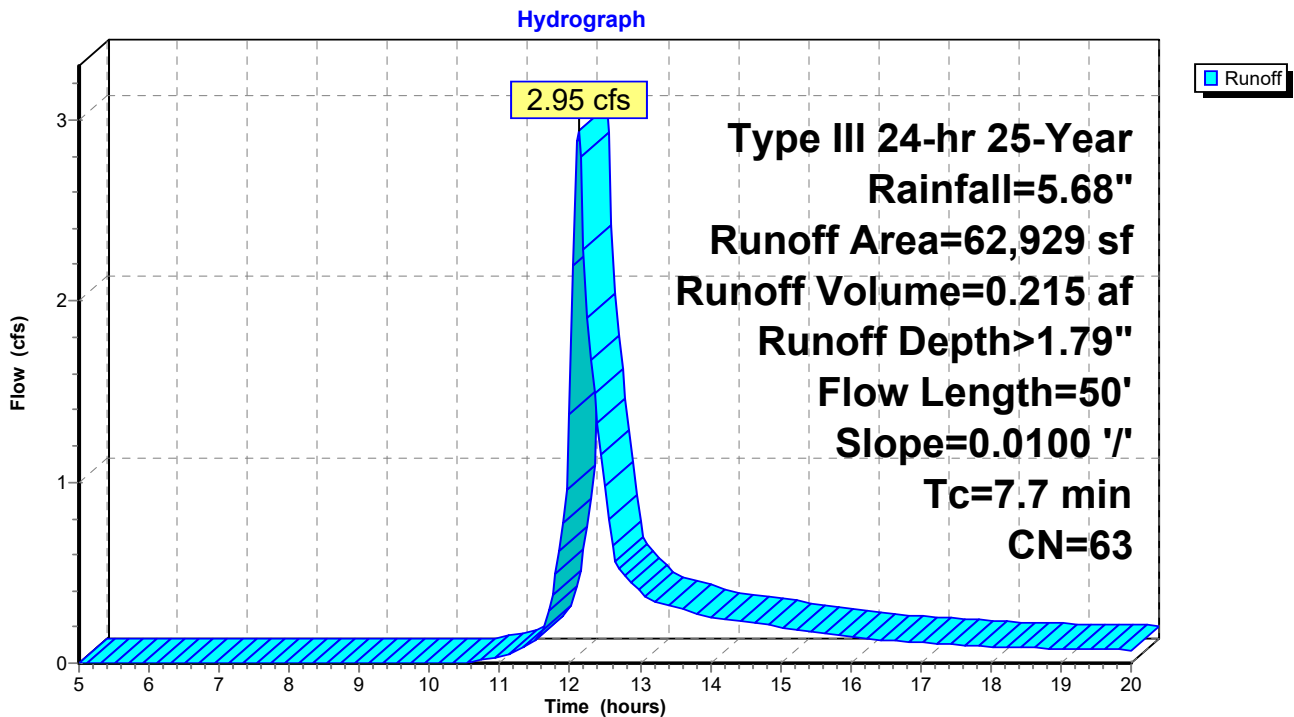
Runoff = 2.95 cfs @ 12.12 hrs, Volume= 0.215 af, Depth> 1.79"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.68"

Area (sf)	CN	Description
5,965	30	Woods, Good, HSG A
26,791	39	>75% Grass cover, Good, HSG A
11,330	98	Roofs, HSG A
1,998	98	Concrete Pads, HSG A
13,071	98	Paved parking, HSG A
3,774	39	Pre-Cast Concrete Porous Pavers, Good, HSG A
62,929	63	Weighted Average
36,530		58.05% Pervious Area
26,399		41.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	50	0.0100	0.11		Sheet Flow, ES.1 to ES.2 Grass: Short n= 0.150 P2= 2.99"

Subcatchment ES: East Side



Summary for Subcatchment WS: West Side

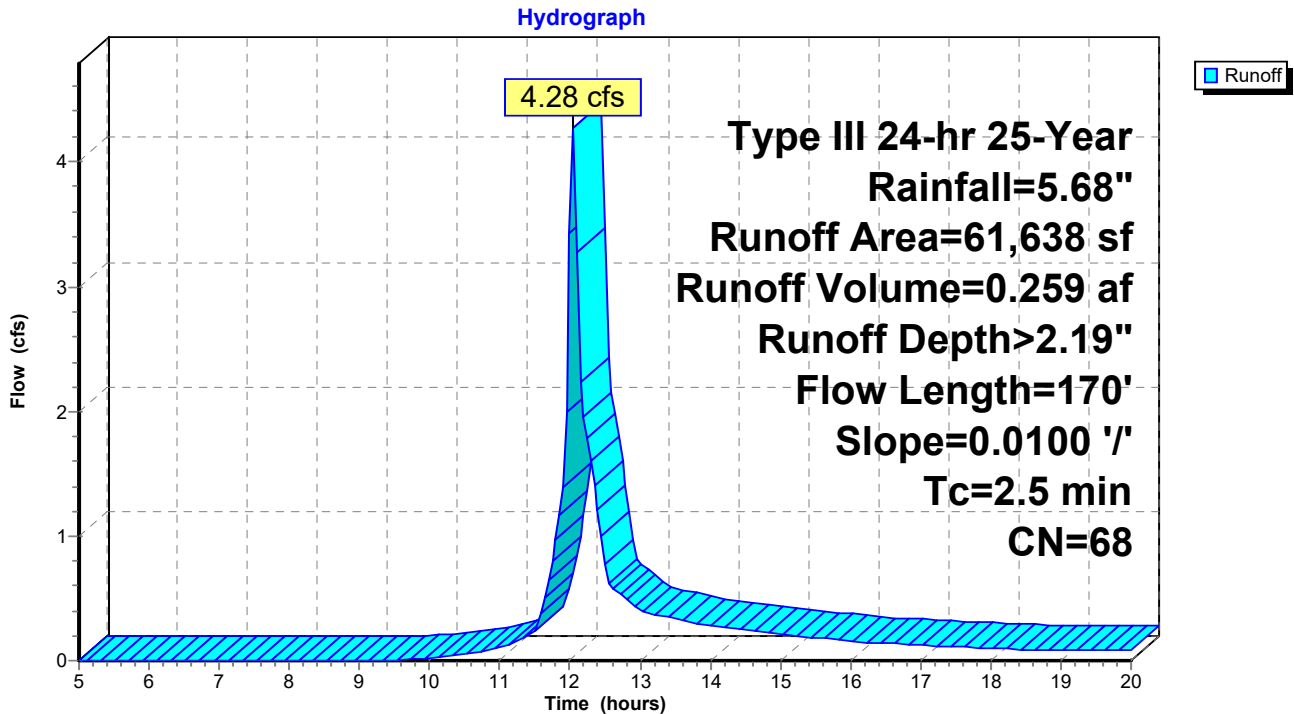
Runoff = 4.28 cfs @ 12.05 hrs, Volume= 0.259 af, Depth> 2.19"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Rainfall=5.68"

Area (sf)	CN	Description
27,236	49	50-75% Grass cover, Fair, HSG A
10,080	98	Roofs, HSG A
13,485	98	Paved parking, HSG A
* 2,545	98	Concrete Sidewalk and Pads, HSG A
* 8,292	39	Pre-Cast Concrete Porous Pavers, Good, HSG A
61,638	68	Weighted Average
35,528		57.64% Pervious Area
26,110		42.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	170	0.0100	1.12		Sheet Flow, WS.1 to WS.2 Smooth surfaces n= 0.011 P2= 2.99"

Subcatchment WS: West Side



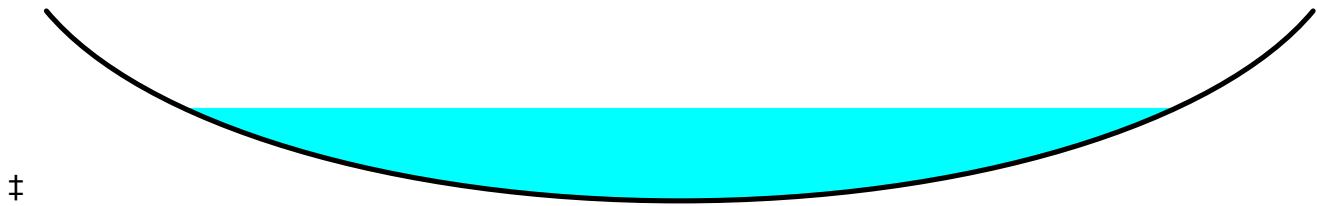
Summary for Reach 1R: Grass Area

Inflow Area = 1.445 ac, 41.95% Impervious, Inflow Depth = 0.75" for 25-Year event
 Inflow = 1.72 cfs @ 12.24 hrs, Volume= 0.090 af
 Outflow = 1.69 cfs @ 12.32 hrs, Volume= 0.090 af, Atten= 1%, Lag= 5.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Max. Velocity= 0.29 fps, Min. Travel Time= 2.8 min
 Avg. Velocity = 0.08 fps, Avg. Travel Time= 10.6 min

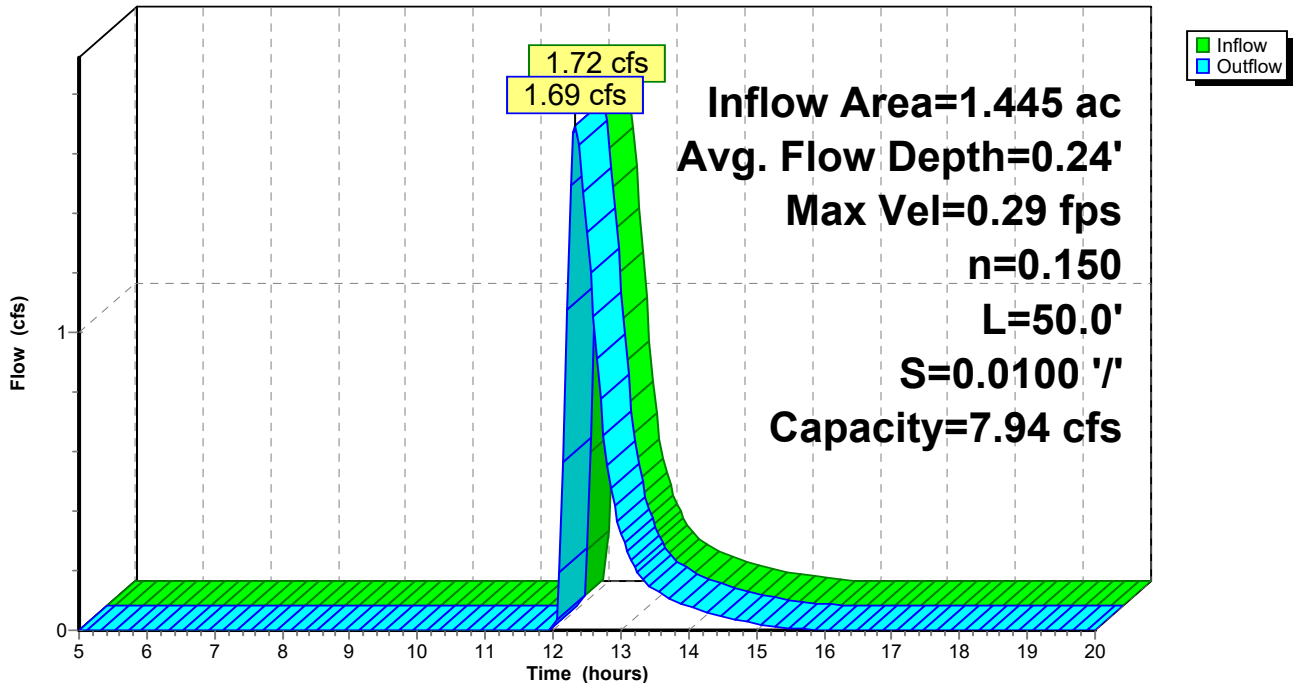
Peak Storage= 285 cf @ 12.28 hrs
 Average Depth at Peak Storage= 0.24'
 Bank-Full Depth= 0.50', Capacity at Bank-Full= 7.94 cfs

50.00' x 0.50' deep Parabolic Channel, n= 0.150 Sheet flow over Short Grass
 Length= 50.0' Slope= 0.0100 '/
 Inlet Invert= 135.00', Outlet Invert= 134.50'



Reach 1R: Grass Area

Hydrograph



Summary for Pond 1P: Infiltration Trench

Inflow Area = 1.445 ac, 41.95% Impervious, Inflow Depth > 1.79" for 25-Year event
 Inflow = 2.95 cfs @ 12.12 hrs, Volume= 0.215 af
 Outflow = 2.05 cfs @ 12.24 hrs, Volume= 0.206 af, Atten= 31%, Lag= 7.1 min
 Discarded = 0.33 cfs @ 12.24 hrs, Volume= 0.115 af
 Primary = 1.72 cfs @ 12.24 hrs, Volume= 0.090 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 136.19' @ 12.24 hrs Surf.Area= 0.072 ac Storage= 0.039 af
 Flood Elev= 137.50' Surf.Area= 0.145 ac Storage= 0.158 af

Plug-Flow detention time= 36.0 min calculated for 0.205 af (95% of inflow)
 Center-of-Mass det. time= 20.6 min (837.5 - 816.9)

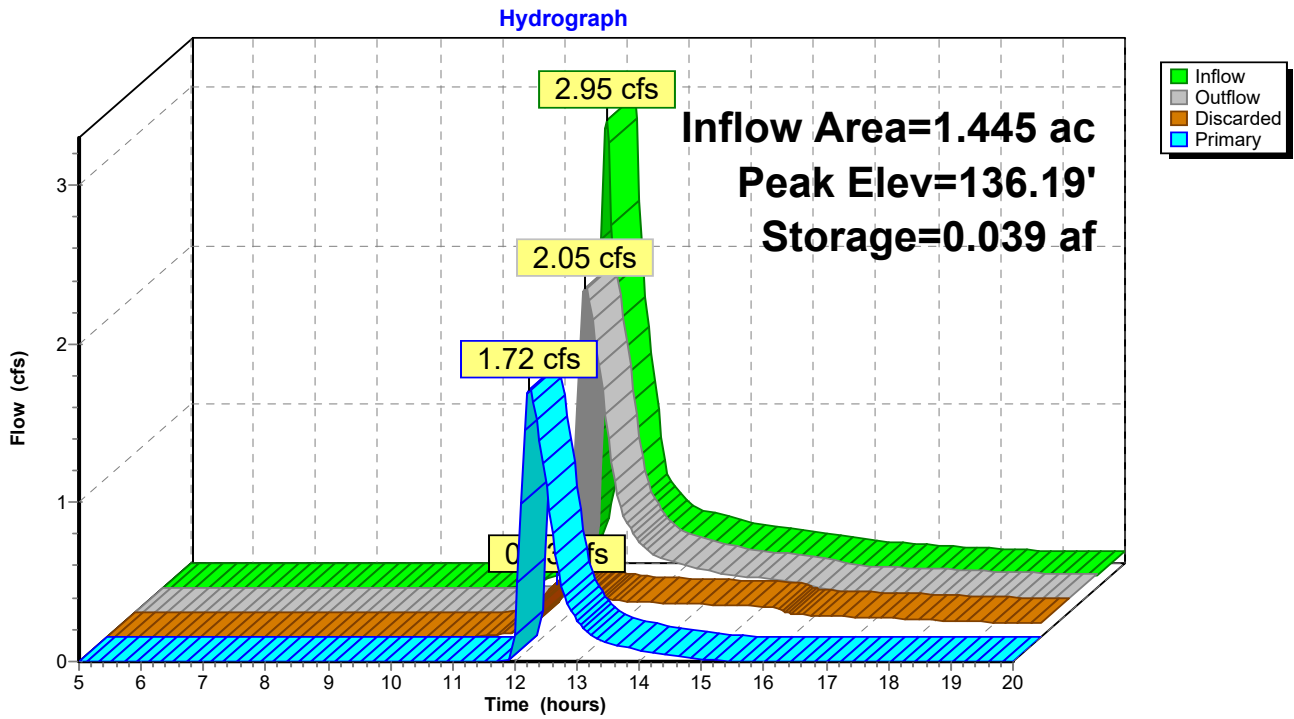
Volume	Invert	Avail.Storage	Storage Description
#1	133.50'	0.014 af	2.00'W x 383.00'L x 2.00'H Prismaoid 0.035 af Overall x 40.0% Voids
#2	135.50'	0.143 af	2.00'W x 383.00'L x 2.00'H Prismaoid Z=3.0
		0.158 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	133.50'	3.000 in/hr Exfiltration over Wetted area above 133.50' Conductivity to Groundwater Elevation = 130.00' Excluded Wetted area = 0.018 ac
#2	Primary	135.50'	24.0" Round Culvert L= 2.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 135.50' / 135.50' S= 0.0000 ' /' Cc= 0.900 n= 0.013

Discarded OutFlow Max=0.33 cfs @ 12.24 hrs HW=136.19' (Free Discharge)
 ↑1=Exfiltration (Controls 0.33 cfs)

Primary OutFlow Max=1.71 cfs @ 12.24 hrs HW=136.19' (Free Discharge)
 ↑2=Culvert (Barrel Controls 1.71 cfs @ 2.67 fps)

Pond 1P: Infiltration Trench



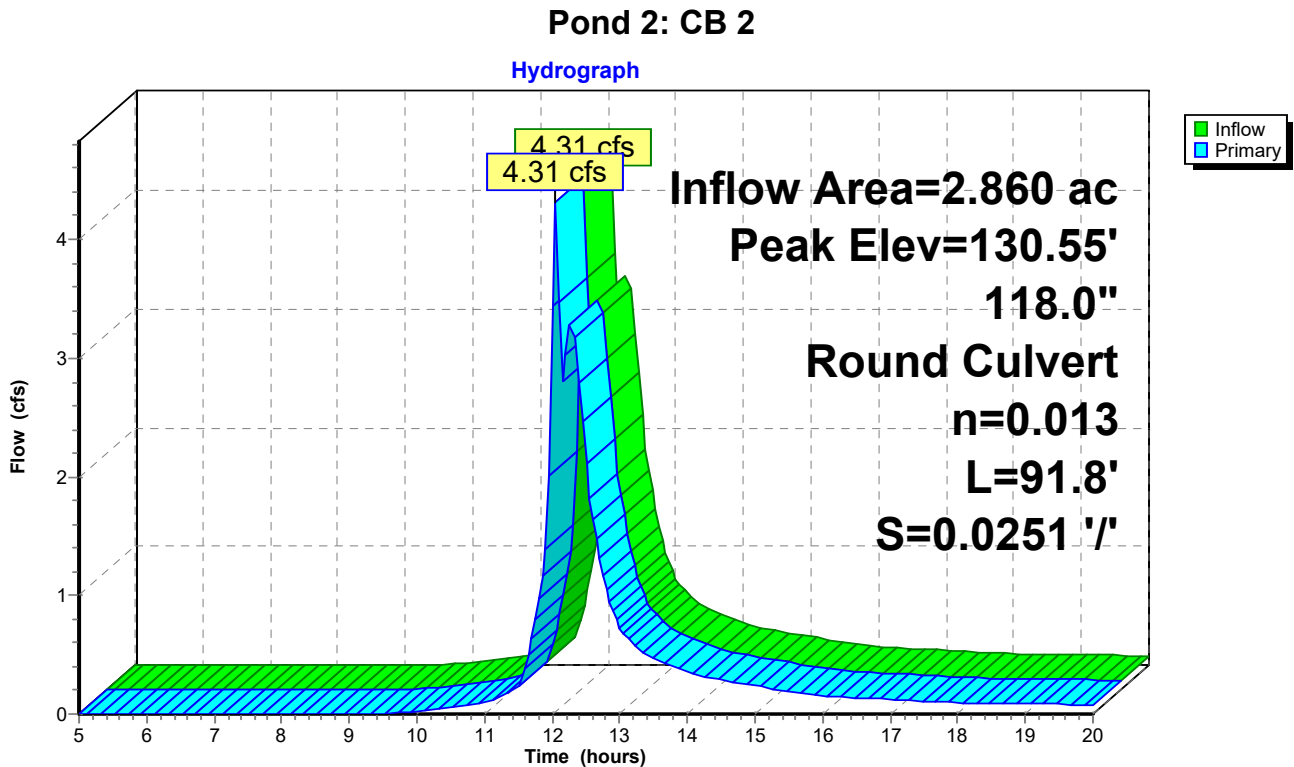
Summary for Pond 2: CB 2

Inflow Area = 2.860 ac, 42.15% Impervious, Inflow Depth > 1.47" for 25-Year event
 Inflow = 4.31 cfs @ 12.05 hrs, Volume= 0.349 af
 Outflow = 4.31 cfs @ 12.05 hrs, Volume= 0.349 af, Atten= 0%, Lag= 0.0 min
 Primary = 4.31 cfs @ 12.05 hrs, Volume= 0.349 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 130.55' @ 12.05 hrs
 Flood Elev= 133.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	130.00'	118.0" Round Culvert L= 91.8' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 130.00' / 127.70' S= 0.0251 '/' Cc= 0.900 n= 0.013

Primary OutFlow Max=4.27 cfs @ 12.05 hrs HW=130.55' (Free Discharge)
 ↳ **1=Culvert** (Inlet Controls 4.27 cfs @ 2.53 fps)



Summary for Pond 3: CB 3

Inflow Area = 1.415 ac, 42.36% Impervious, Inflow Depth > 2.19" for 25-Year event
 Inflow = 4.28 cfs @ 12.05 hrs, Volume= 0.259 af
 Outflow = 4.28 cfs @ 12.05 hrs, Volume= 0.259 af, Atten= 0%, Lag= 0.0 min
 Primary = 4.28 cfs @ 12.05 hrs, Volume= 0.259 af

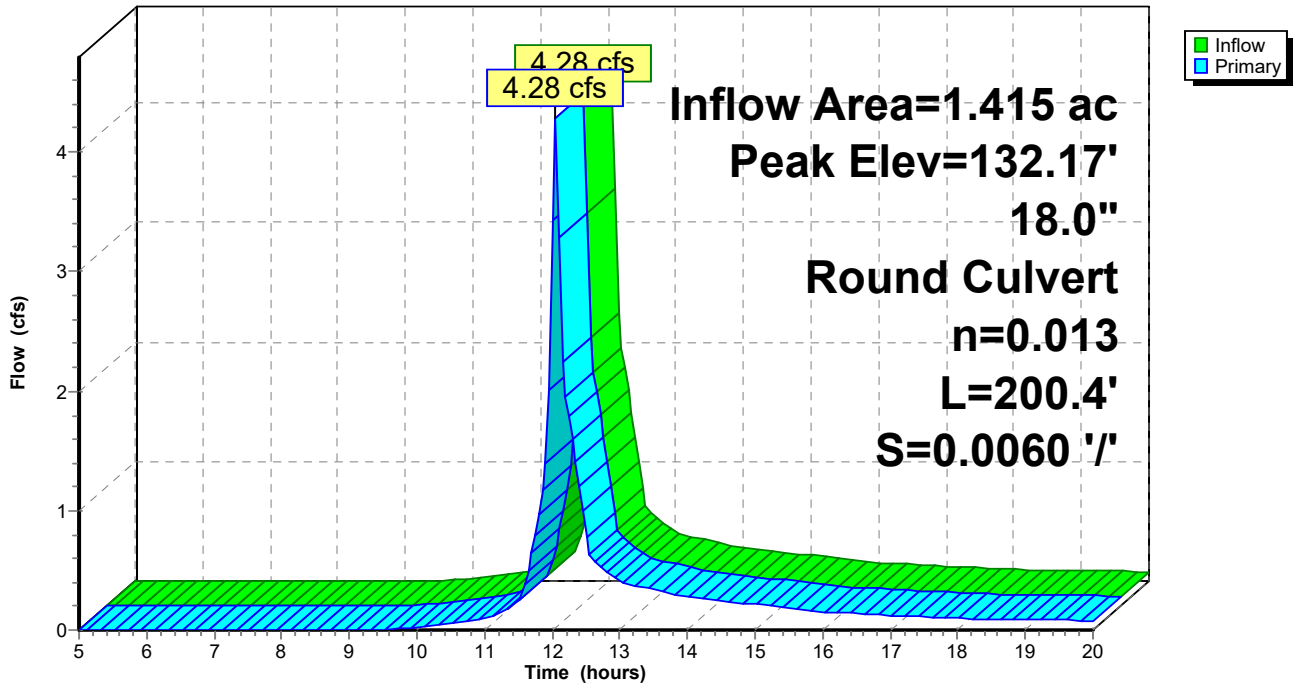
Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 132.17' @ 12.05 hrs
 Flood Elev= 134.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	131.00'	18.0" Round Culvert L= 200.4' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 131.00' / 129.80' S= 0.0060 '/ Cc= 0.900 n= 0.013

Primary OutFlow Max=4.24 cfs @ 12.05 hrs HW=132.16' (Free Discharge)
 ↳ **1=Culvert** (Inlet Controls 4.24 cfs @ 2.89 fps)

Pond 3: CB 3

Hydrograph



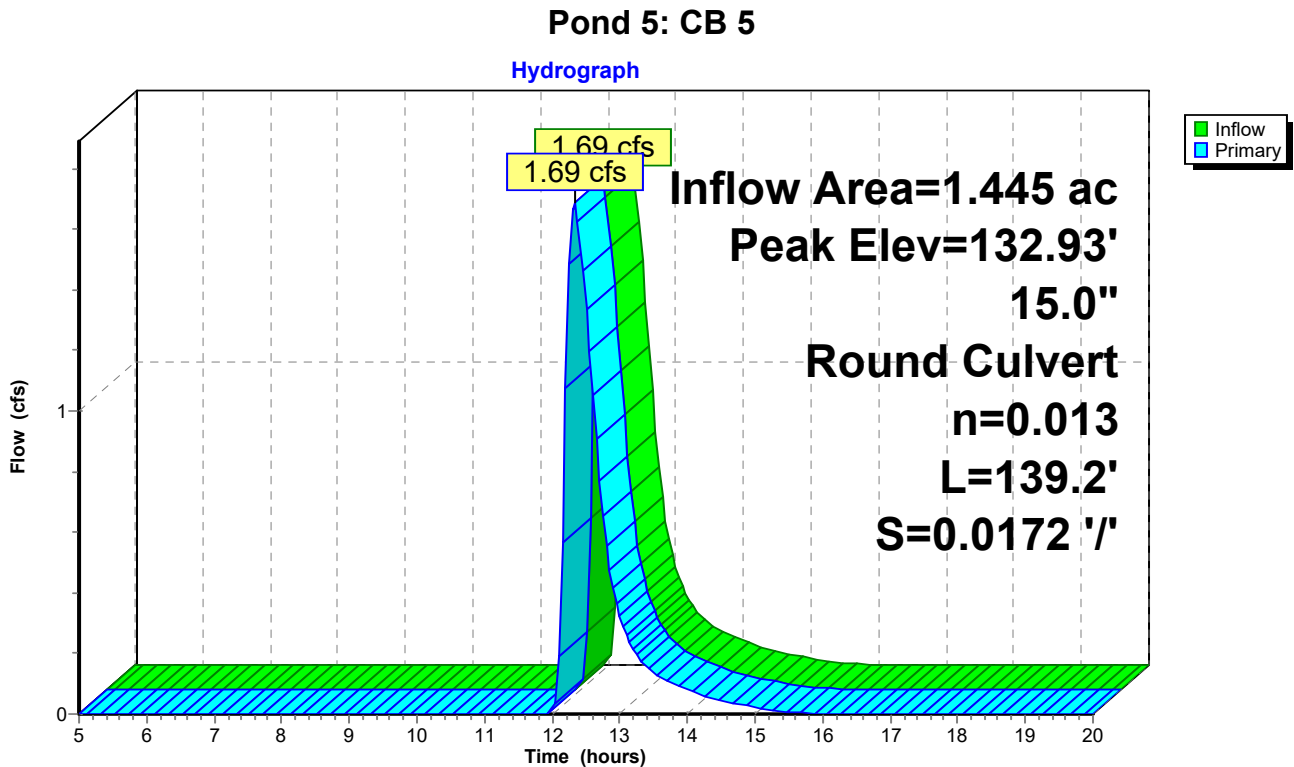
Summary for Pond 5: CB 5

Inflow Area = 1.445 ac, 41.95% Impervious, Inflow Depth = 0.75" for 25-Year event
 Inflow = 1.69 cfs @ 12.32 hrs, Volume= 0.090 af
 Outflow = 1.69 cfs @ 12.32 hrs, Volume= 0.090 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.69 cfs @ 12.32 hrs, Volume= 0.090 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 132.93' @ 12.32 hrs
 Flood Elev= 134.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	132.30'	15.0" Round Culvert L= 139.2' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 132.30' / 129.90' S= 0.0172 '/ Cc= 0.900 n= 0.013

Primary OutFlow Max=1.67 cfs @ 12.32 hrs HW=132.93' (Free Discharge)
 ↳ **1=Culvert** (Inlet Controls 1.67 cfs @ 2.70 fps)



Summary for Pond N1: New CB

Inflow Area = 1.445 ac, 41.95% Impervious, Inflow Depth = 0.75" for 25-Year event
 Inflow = 1.72 cfs @ 12.24 hrs, Volume= 0.090 af
 Outflow = 1.72 cfs @ 12.24 hrs, Volume= 0.090 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.72 cfs @ 12.24 hrs, Volume= 0.090 af

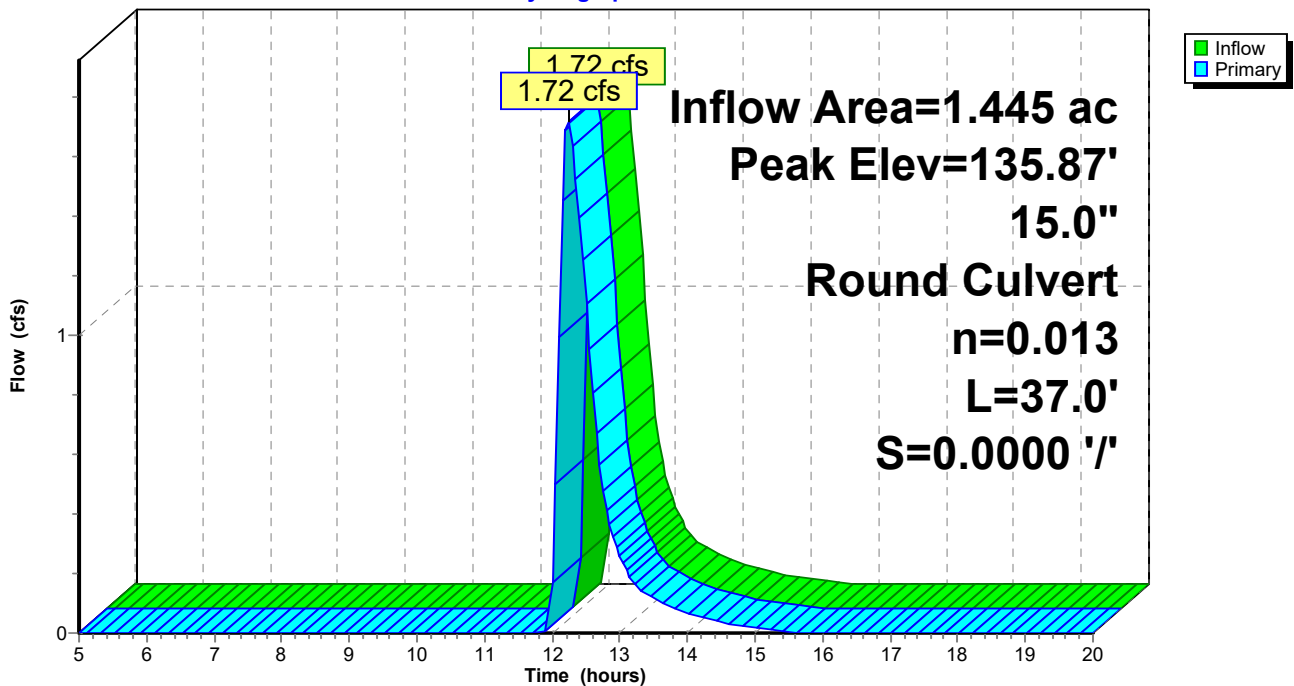
Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 135.87' @ 12.24 hrs
 Flood Elev= 137.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	135.00'	15.0" Round Culvert L= 37.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 135.00' / 135.00' S= 0.0000 '/' Cc= 0.900 n= 0.013

Primary OutFlow Max=1.71 cfs @ 12.24 hrs HW=135.87' (Free Discharge)
 ↳ **1=Culvert** (Barrel Controls 1.71 cfs @ 2.63 fps)

Pond N1: New CB

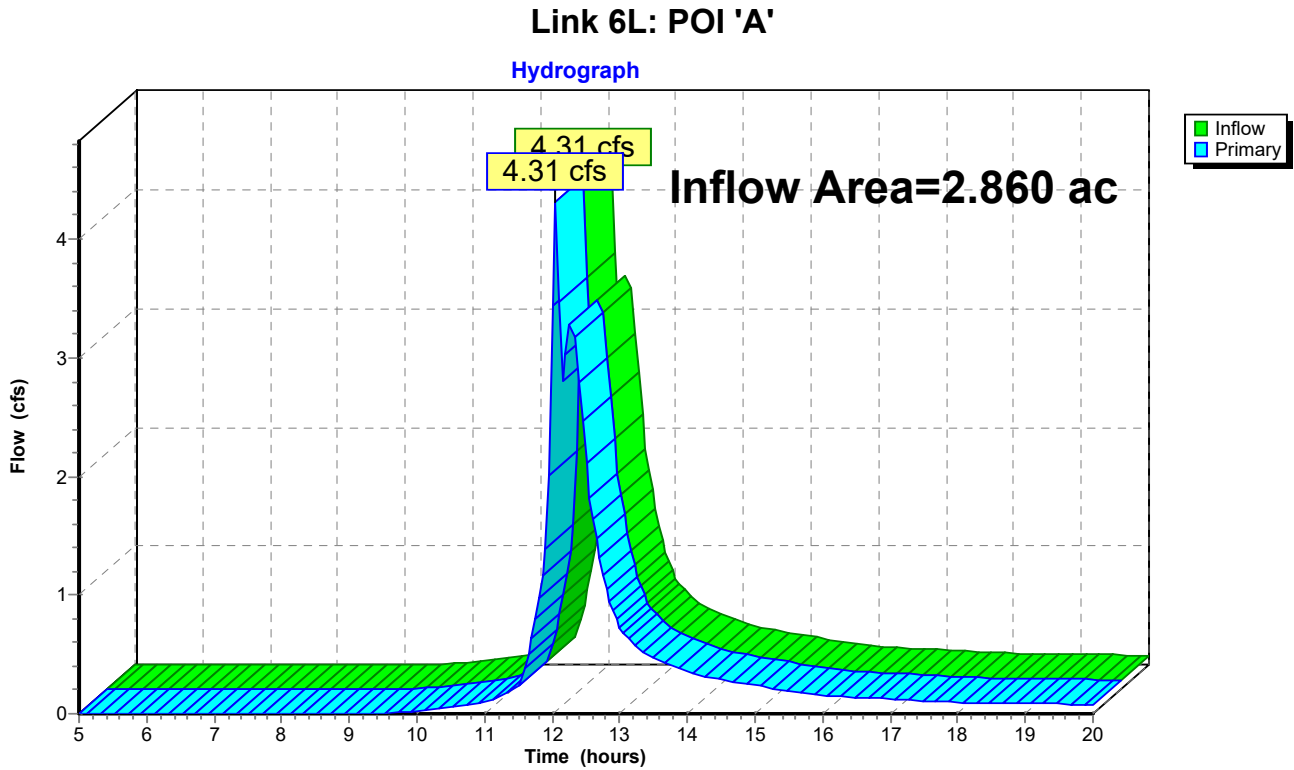
Hydrograph



Summary for Link 6L: POI 'A'

Inflow Area = 2.860 ac, 42.15% Impervious, Inflow Depth > 1.47" for 25-Year event
Inflow = 4.31 cfs @ 12.05 hrs, Volume= 0.349 af
Primary = 4.31 cfs @ 12.05 hrs, Volume= 0.349 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



GENERAL NOTES

1. A 24" STORMTECH ARCH WILL BE USED ABOVE 24" DEEP INFILTRATION TRENCH STONE. CONTRACTOR SHALL OBTAIN AND INSTALL A TRASH RACK ON OPEN END OF ARCH.



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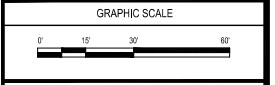
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NOT FOR CONSTRUCTION

PROJECT
**ASM FACILITY
 7 SECURITY DRIVE
 HUDSON, NH 03051**

OWNER
**JMC HUDSON PROPERTIES, LLC
 5 LEHOUX DRIVE
 HOOKSETT, NH 03106**

NO.	DATE	DESCRIPTION	BY
PROJECT NO.	718770		
CADD FILE	718770_C103		
DESIGNED BY	APL		
DRAWN BY	APL		
CHECKED BY	SMB		
DATE	9/13/2022		
DRAWING SCALE	1" = 30'		

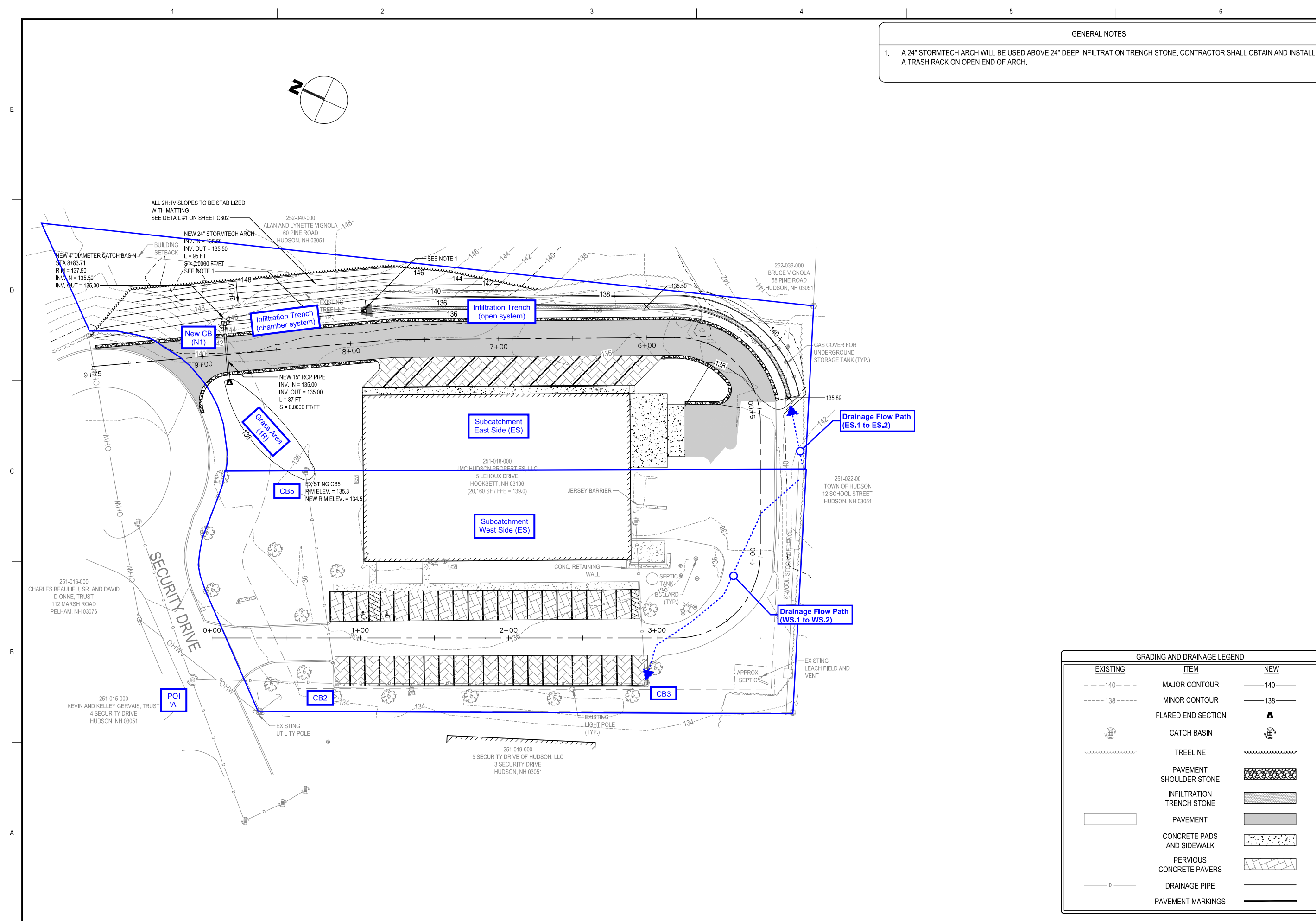


SHEET TITLE

**Post-development
 Drainage Plan**

DRAWING NO.

**Figure
 2**



GRADING AND DRAINAGE LEGEND		
EXISTING	ITEM	NEW
--- 140 ---	MAJOR CONTOUR	— 140 —
--- 138 ---	MINOR CONTOUR	— 138 —
	FLARED END SECTION	▲
	CATCH BASIN	⊕
	TREELINE	~~~~~
	PAVEMENT	[Pattern]
	SHOULDER STONE	[Pattern]
	INFILTRATION TRENCH STONE	[Pattern]
	PAVEMENT	[Pattern]
	CONCRETE PADS AND SIDEWALK	[Pattern]
	PERVIOUS CONCRETE PAVERS	[Pattern]
	DRAINAGE PIPE	— — —
	PAVEMENT MARKINGS	— — —