



TOWN OF PUTNAM

TOWN HALL
200 SCHOOL STREET
PUTNAM, CONNECTICUT 06260

Inland Wetland Commission Meeting
Hybrid Meeting
August 9, 2023 7:00 P.M.
Municipal Complex Room 201 Second Floor

Agenda:

1. Call to Order & Roll Call:
2. Seating of alternate:
3. Review minutes of the July 12, 2023 meeting. VOTE REQUIRED
4. Correspondence:
5. Public Participation:
6. **Unfinished Business:** - (Review/Discussion/Action)

Application: 2023-09 Town of Putnam
165 Kennedy Dr, Redesign of Existing Parking Lot

7. **New Business:** - (Review/Discussion)

Application: 2023-10 Juanita Cristina
585 Five Mile River Rd, Garage and Patio Construction

8. Commissions Policy on Actions by a Certified Wetlands Agent (Review/Discussion/Action)
9. Comments By Commissioners:
10. Agent Report
11. Adjournment.

Topic: Wetlands Zoom Meeting
Time: Aug 9, 2023 7:00 PM Eastern Time (US and Canada)

Join Zoom Meeting
<https://us06web.zoom.us/j/85789899335?pwd=VnhJTklac2VucGxaYW1TbFlXRfDLZz09>

Meeting ID: 857 8989 9335
Passcode: 3NzQyN

By Phone: 1 929 205 6099 US (New York)
Meeting ID: 857 8989 9335
Passcode: 592301
Find your local number: <https://us06web.zoom.us/j/kc5TK975aP>



TOWN OF PUTNAM

TOWN HALL
200 SCHOOL STREET
PUTNAM, CONNECTICUT 06260

Inland Wetland Commission Meeting Minutes
Hybrid Meeting
July 12, 2023 7:00 P.M.
Municipal Complex Room 201 Second Floor

Agenda:

Present: Adam Paquin, Chairman, Walter Irwin, Theodore Altmeier, Cynthia Dunne
Absent: Mike Bogdanski, Shannon O'Shea - Alternate

Seating of alternate: N/A

Review minutes of the June 14, 2023 meeting.

Motion by Theodore Altmeier to approve, seconded by Walter Irwin. ALL WERE IN FAVOR.

Correspondence:

Public Participation:

Unfinished Business:

Application: 2023-05 Jesse Betts - 546 Five Mile River Rd, Single Family Residential Construction

Motion by Theodore Altmeier to approve, second by Walter Irwin. ALL WERE IN FAVOR.

Application: 2023-06 Chris Gazzola - 68 Five Mile River Rd, Single Family Residential Construction

Motion by Theodore Altmeier to approve, second by Walter Irwin. ALL WERE IN FAVOR.

Application: 2023-07 McGee Automotive Family, Toyota of Hanover- 76-78 Providence Pike, New Construction

Motion by Theodore Altmeier to approve, second by Walter Irwin. ALL WERE IN FAVOR.

Application: 2023-08 The Craft Group – 3 Park Rd, Cannabis Retail, New Construction

Motion by Theodore Altmeier to approve, second by Walter Irwin. ALL WERE IN FAVOR.

New Business:

Application: 2023-09 Town of Putnam - 165 Kennedy Dr, Redesign of Existing Parking Lot

Cynthia Dunne stated she would like to see the trees preserved.

Motion by Theodore Altmeier to accept for next month's meeting, second by Walter Irwin. ALL WERE IN FAVOR.

Comments By Commissioners: None

Agent Report

Bruce Fitzback requested the agent report be moved to the end of the agenda.

Motion by Cynthia Dunne to place agent report at the end of the meeting, second by Theodore Altmeier. ALL WERE IN FAVOR

Review Application: 2023-03 Allan Rawson - 19 Brookside Landing, revised plan

Bruce Fitzback reviewed the updated plan with the Commission members as requested with the previous approval.

Agent Report:

Bruce Fitzback briefly discussed with the Commission how other Towns utilize agent approval for some applications versus having all applications coming before the Commission. It would eliminate the 15-day time frame. Theodore Altmeier stated that years ago, there were a few applications granted agent approval and the approval was taken advantage of in the field. Cynthia Dunne would like to get more information regarding the matter. It will be discussed at next month's meeting.

Motion by Cynthia Dunne to adjourn at 7:27 P.M., second by Walter Irwin. ALL WERE IN FAVOR

Respectfully submitted by Brenda Roy.

Please note these minutes have not been accepted by the Commission and will be placed on their next meeting agenda.

Topic: Wetlands Zoom Meeting Information

Time: Jul 12, 2023 06:45 PM Eastern Time (US and Canada)

Join Zoom Meeting

<https://us06web.zoom.us/j/89944062855?pwd=TUVMTDRhUTQxNEdacTREckVkS25EUT09>

Meeting ID: 899 4406 2855

Passcode: 5Q6M9W

Dial by your location

+1 929 205 6099 US (New York)

Meeting ID: 899 4406 2855

Passcode: 380606

Find your local number: <https://us06web.zoom.us/j/kdP3cKiOW1>



INLAND WETLAND COMMISSION

APPENDIX A

APPLICATION FOR PERMIT

This application is for the use of inland wetlands and water courses.

The meetings are held on the second Wednesday of every month at 7:00pm in the Town Hall. If an on-site inspection is canceled due to inclement weather, the applicant is asked to call the office at 963-6803 30 minutes before the scheduled inspection to see if or when the inspection will be held.

Name of Applicant Town of Putnam

Applicant's Address 200 School Street, Putnam, CT 06260

Phone # 860-963-6800

Owner of Land Town of Putnam

Owner's Address 200 School Street, Putnam, CT 06260

Location and description of proposed activity: Construction of stormwater quality basin in upland review area of Quinebaug River. Basin will treat stormwater from the Kennedy Drive municipal parking lot across the street. This project will "disconnect" a portion of directly connected impervious area (DCIA) which is required by the CTDEEP MS4 permit. This project will improve water quality to the river.

Activity & Purpose Code

Please CHECK one in each column that best describes the activity proposed.

<u>Code</u>	<u>Activity Type</u>	<u>Code</u>	<u>Activity Purpose</u>
☐	1 Filling	☐	A Residential Improvement by homeowner
☐	2 Excavation	☐	B New residential development - single family
☐	3 Land Clearing	☐	C New residential development - multi- family/condo
☐	4 Stream Channel	☐	D Commercial/Industrial Uses
☐	5 Stream Stabilization	☒	E Municipal Improvements
☐	6 Stream Clearance	☐	F Utility Company Improvements
☐	7 Culverting	☐	G Agriculture, Forestry or Conservation
☐	8 Und. Grd. Util.	☐	H Wetland Creation/Restoration
☐	9 Roadway Construction	☐	I Storm Water/Flood Control
☐	10 Drainage Improvements	☐	J Erosion/Sediment Control
☐	11 Pond Dredge/Dam Construction	☐	K Recreation/Boating/Navigation
☒	12 Activity Buffer/Set Back Area	☐	L Routine Maintenance
☐	13 Other: Please describe: _____		

INLAND WETLAND COMMISSION

APPENDIX A *Continued*

Project Name (if applicable) Kennedy Drive Municipal Parking Lot Reconstruction

Estimate of Linear Footage affecting Wetlands 0

Affected number of acres in which Wetlands are part of
the impacted area for Multi-Family, Condos and
Commercial Development 0

TO BE COMPLETED BY THE COMMISSION

Application Number _____ Date of Receipt _____

Application Approved (date) _____

Conditions of approval if applicable _____

Application Denied (date) _____

Reason(s) for Denial _____

Signature of Chairman or Secretary of Commission

Date

INLAND WETLAND COMMISSION

APPENDIX A *Continued*

Application Procedure

1. Applicant will have a map showing the property boundaries, any wetlands on the property, proposed buildings, septic area, drainage if applicable and the dimension between these areas in scale 1" - 200' or less
2. Applicant must provide an approximate estimate of the linear footage of the wetlands that are affected by said proposal. This is for multi-family, condominiums or commercial development. Contact with the Zoning Official may clarify the nature of your project
3. Applicant must provide an approximate estimate of the number of acres that are affected by said proposal dealing with multi-family, condominiums and commercial development in which wetlands are part of that impacted area within the watershed.
4. Applicant will supply a copy of the soil scientist report with the application to the Wetlands Commission to be reviewed at the meeting by the Commission.
5. Applicant will have the soil scientist number the wetland flags and record the numbers of the flags on the site plan according to their location in the field. The location on the site map must match the field location.
6. If the applicant's estimates are not accurate, payment of the correct amount must be made before the Wetlands final approval of the application.
7. And any other information deemed necessary by the Commission.

Fee Schedule

1.	Permitted and non-regulated	\$40.00
2.	One lot regulated	\$40.00
3.	Regulated Area	
	Two (2) - Ten (10) lots	\$100.00
	Ten (10) - Twenty (20) lots	\$200.00
	Over Twenty (20+) lots	\$300.00
4.	Multi-Family/Condominium Regulated area	
	Zero (0) to Five (5) Acres	\$50.00
	Per linear foot of wetlands additional	\$0.35
	Over Five (5) acres	\$100.00
	Per linear foot of wetlands additional	\$0.35
5.	Commercial	
	Zero (0) to Five (5) Acres	\$100.00
	Per linear foot of wetlands additional	\$0.50
	Over Five (5) acres	\$300.00
	Per linear foot of wetlands additional	\$0.50

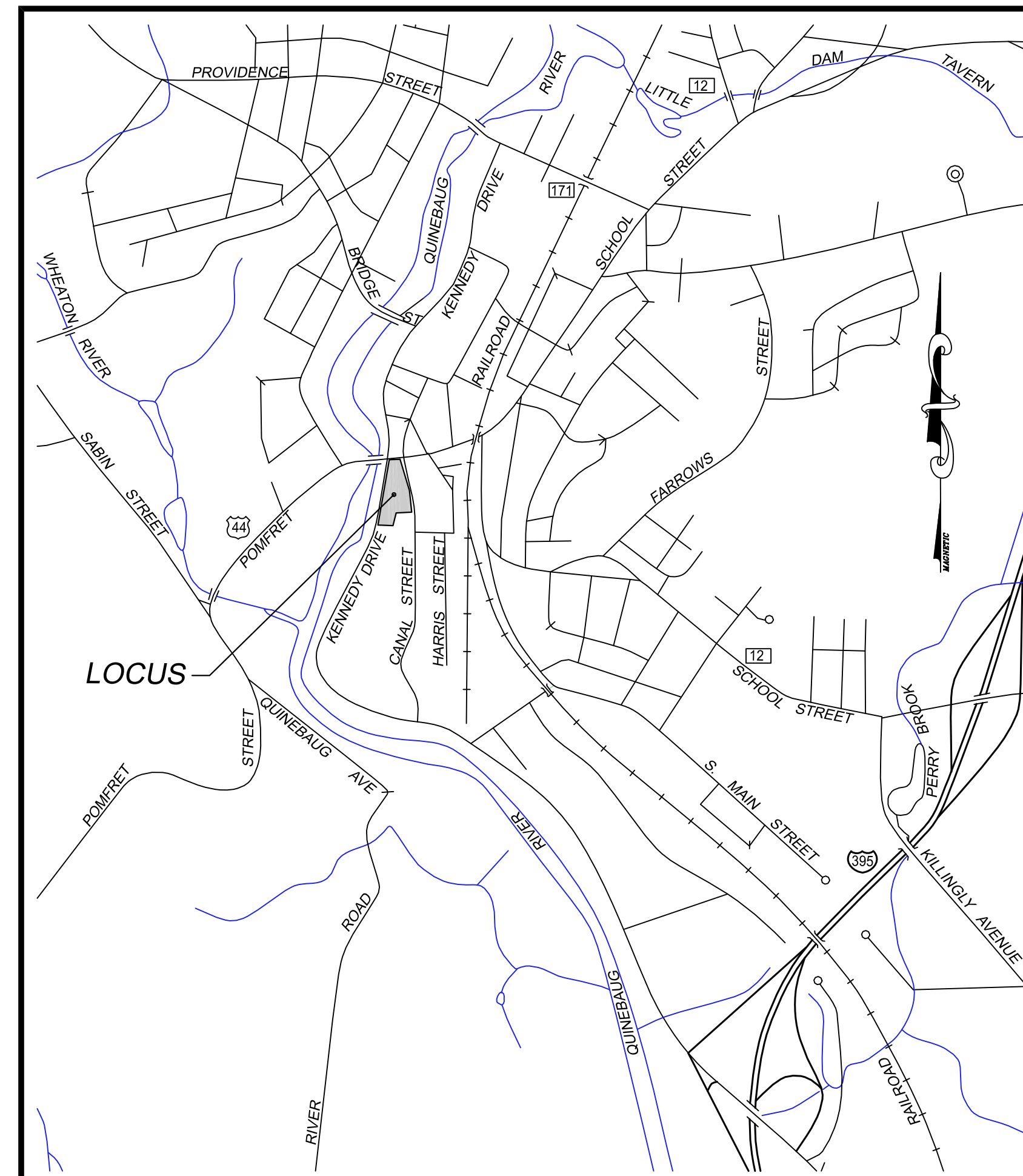
All applications must be submitted one week prior to the regularly scheduled monthly meeting.

KENNEDY DRIVE MUNICIPAL PARKING LOT RECONSTRUCTION

JUNE 12, 2023

INDEX OF DRAWINGS

- | | |
|----|-------------------------------------|
| 1 | COVER AND LOCATION MAP |
| 2 | EXISTING CONDITIONS PLAN - EAST |
| 3 | EXISTING CONDITIONS PLAN - WEST |
| 4 | SITE LAYOUT PLAN - EAST |
| 5 | GRADING AND DRAINAGE PLAN - EAST |
| 6 | SITE DEVELOPMENT PLAN - WEST |
| 7 | ELECTRICAL SITE PLAN (NOT INCLUDED) |
| 8 | LANDSCAPING PLAN (NOT INCLUDED) |
| 9 | CONSTRUCTION DETAILS |
| 10 | CONSTRUCTION DETAILS |
| 11 | CONSTRUCTION DETAILS |
| 12 | ELECTRICAL DETAILS (NOT INCLUDED) |
| 13 | ELECTRICAL DETAILS (NOT INCLUDED) |



LOCATION MAP

1" = 2000'

PREPARED FOR:
TOWN OF PUTNAM
200 SCHOOL STREET
PUTNAM, CT 06260

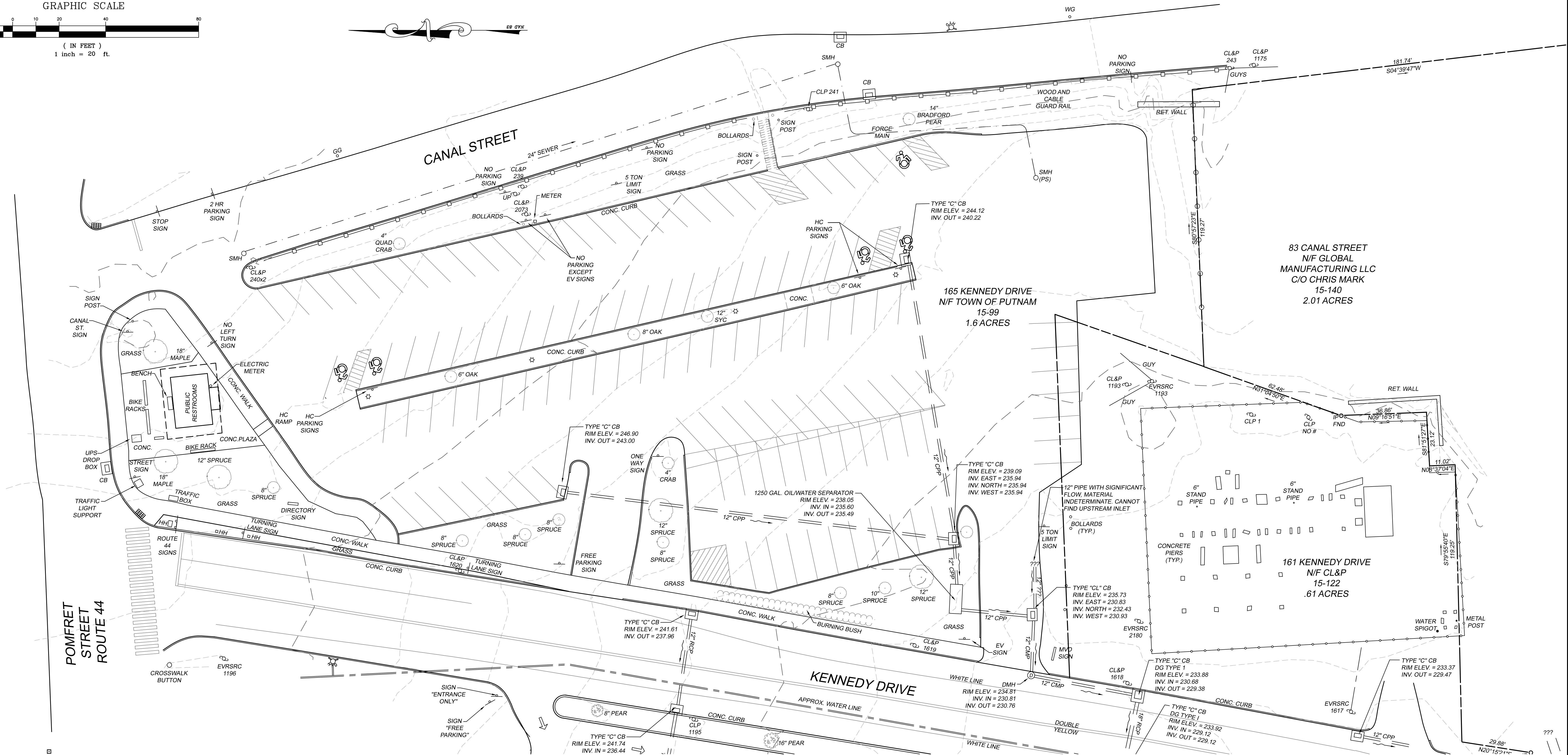
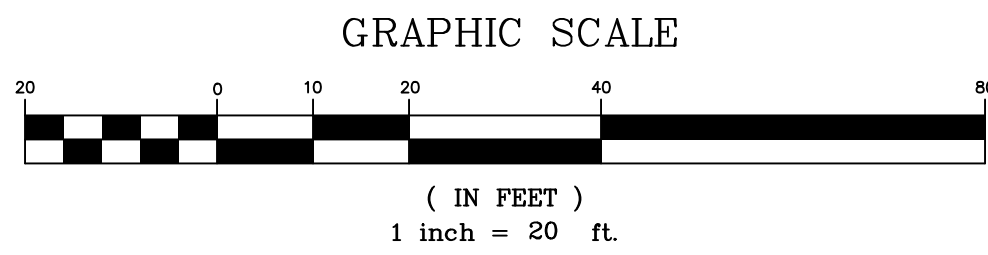
MAYOR:
BARNEY SENEY

TOWN ADMINISTRATOR:
ELAINE SISTARE

J & D CIVIL
ENGINEERS, LLC

**401 RAVENELLE ROAD
THOMPSON, CT 06255**

JDCIVILENGINEERS.COM
860-923-2920



NOTES

1. THIS MAP HAS BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTIONS 20-300b-1 THROUGH 20-300b-20 AND THE "STANDARD FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996.

SURVEY TYPE: GENERAL LOCATION
PURPOSE: PARKING LOT REDESIGN
BOUNDARY DETERMINATION CATEGORY: N/A
HORIZONTAL ACCURACY: CLASS B
TOPOGRAPHIC ACCURACY: CLASS T-2

PROPERTY LINES DO NOT EXPRESS A BOUNDARY OPINION.

THIS MAP WAS PREPARED FROM RECORD RESEARCH, OTHER MAPS, LIMITED FIELD MEASUREMENTS AND OTHER SOURCES. IT IS NOT TO BE CONSTRUED AS A PROPERTY/BOUNDARY OR LIMITED PROPERTY/BOUNDARY SURVEY AND IS SUBJECT TO SUCH FACTS AS SAID SURVEYS MAY DISCLOSE. UNDERGROUND UTILITIES ARE SHOWN PER DESIGN PLANS.

2. REFERENCE PLANS:
(A) "PLAN OF LAND SURVEYED FOR WELLINGTON PRODUCTS, INC." KENNEDY DRIVE & CANAL STREET, PUTNAM, CONNECTICUT BY KIELTYKA, WOODIS & PIKE, REVISED MAY 24, 1983.

TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

DENNIS R. BLANCHETTE
DATE 12/07
LICENSE
NUMBER

THIS MAP IS NOT VALID WITHOUT A LIVE SIGNATURE
© 2023 J&D CIVIL ENGINEERS, LLC

LEGEND

	PROPERTY LINE
	EXISTING CONTOUR LINE
	PROPOSED CONTOUR LINE
	EDGE OF RIVER
	EROSION CONTROL DEVICES
	TEST PIT
	STONEWALL
	UTILITIES
	TREELINE
	GUARDRAIL
	FENCE
	EXISTING DRAINAGE
	PROPOSED DRAINAGE
	APPROX. EXISTING WATER
	APPROX. EXISTING SEWER
	EXISTING UTILITY POLE
	SIGN

EXISTING CONDITIONS PLAN - EAST
PREPARED FOR
THE TOWN OF PUTNAM
KENNEDY DRIVE AND ROUTE 44, PUTNAM, CT

J&D CIVIL ENGINEERS, LLC
401 RAVENELLE ROAD
N. GROSVENORDALE, CT 06255
860-923-2920

DESIGNED: APS
CHECKED: JAB

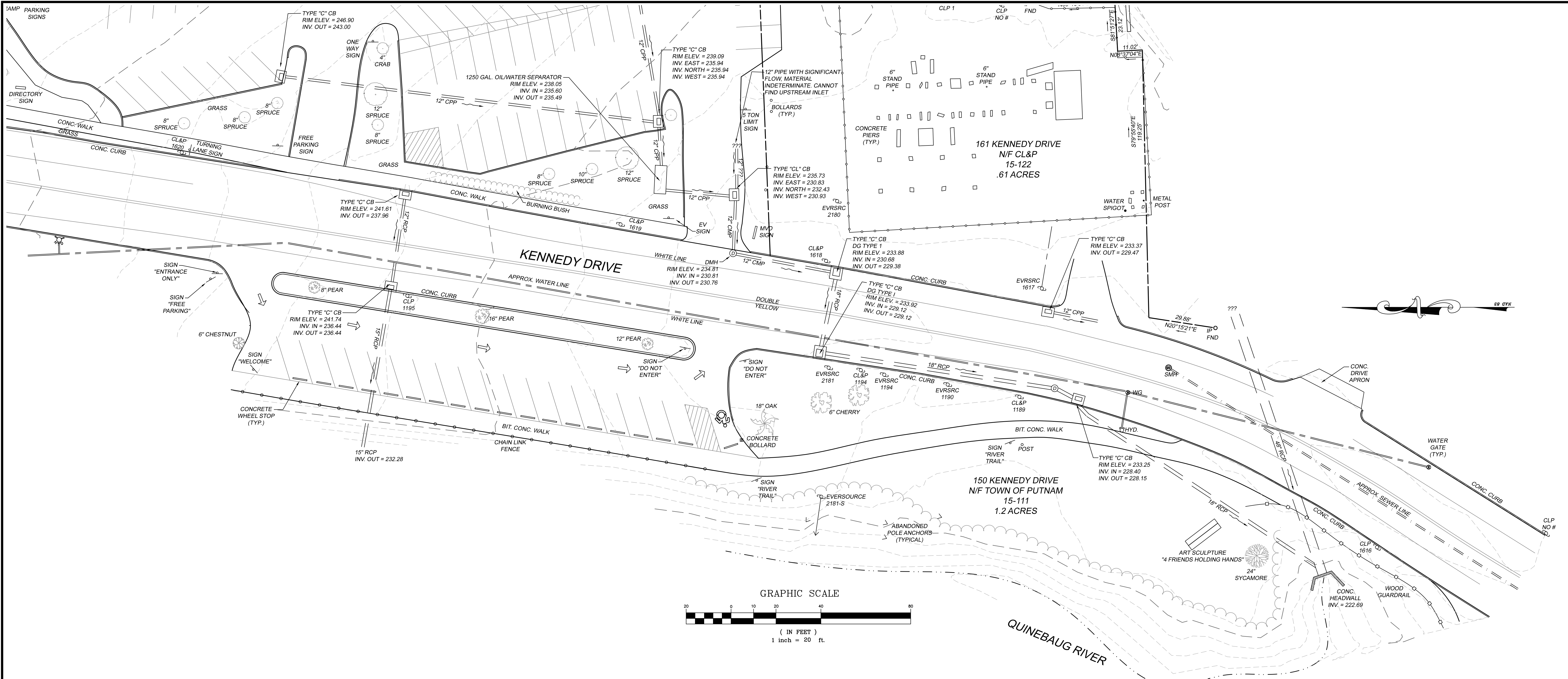
REVISIONS:

JOB NO: 21283

SCALE: 1" = 20'

DATE: JUNE 12, 2023

SHEET: 2



NOTES

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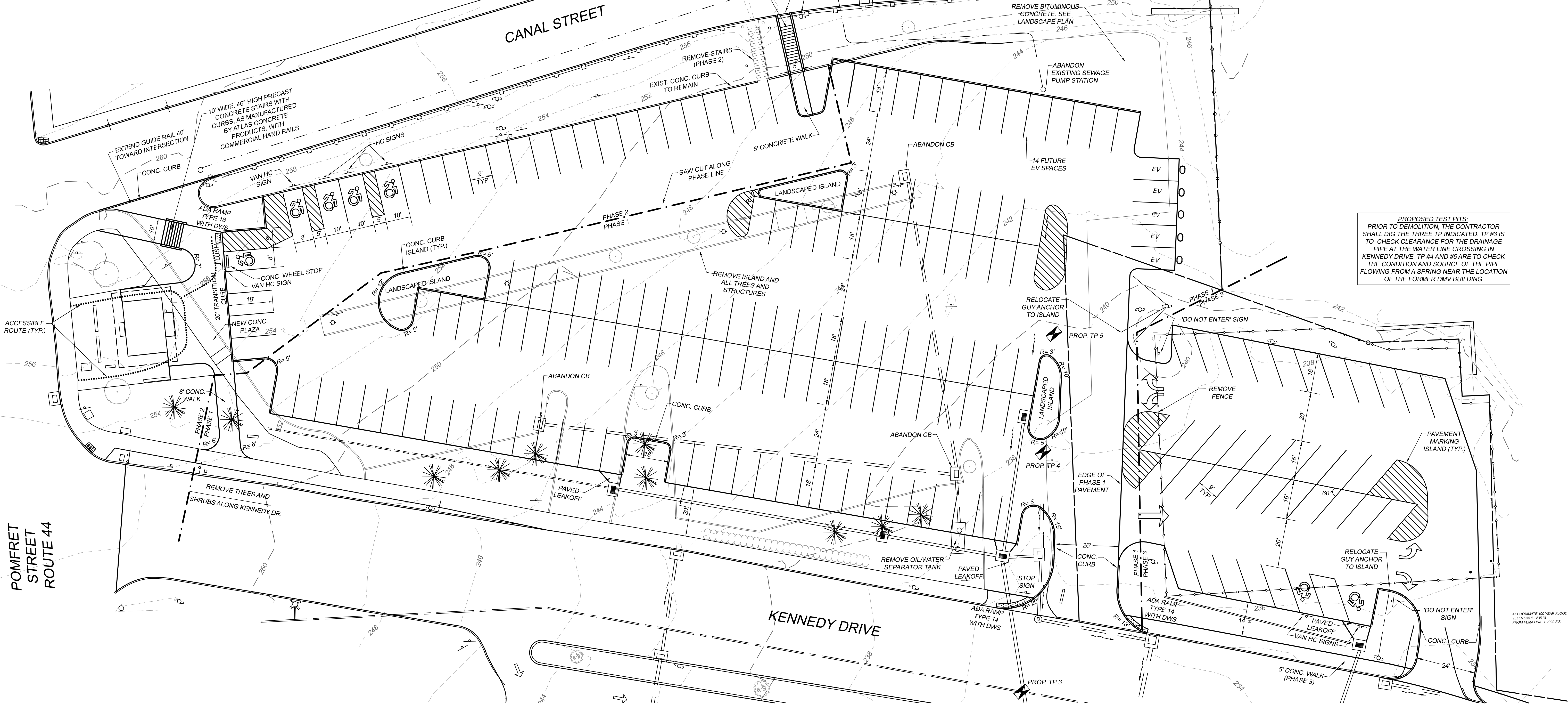
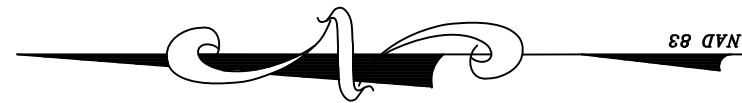
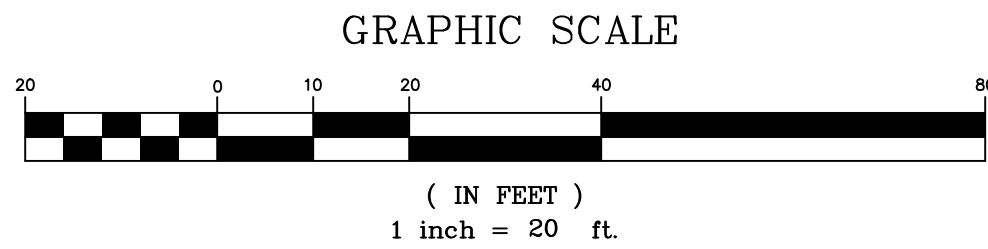
TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

DENNIS R. BLANCHETTE 12107
DATE LICENSE
NUMBER

THIS MAP IS NOT VALID WITHOUT A LIVE SIGNATURE
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LEGEND	
	PROPERTY LINE
	EXISTING CONTOUR LINE
	PROPOSED CONTOUR LINE
	EDGE OF RIVER
	EROSION CONTROL DEVICES
	TEST PIT
	STONEWALL
	UTILITIES
	TREELINE
	GUARDRAIL
	FENCE
	EXISTING DRAINAGE
	PROPOSED DRAINAGE
	APPROX. EXISTING WATER
	APPROX. EXISTING SEWER
	EXISTING UTILITY POLE
	SIGN

EXISTING CONDITIONS PLAN - WEST	
PREPARED FOR	
THE TOWN OF PUTNAM	
KENNEDY DRIVE AND ROUTE 44, PUTNAM, CT	
J&D CIVIL ENGINEERS, LLC 401 RAVENELLE ROAD N. GROSVENORDALE, CT 06255 860-923-2920	
DESIGNED: APS CHECKED: JAB	REVISIONS:
JOB NO: 21283	DATE: JUNE 12, 2023
SCALE: 1" = 20'	SHEET: 3



NOTES

1. THIS MAP HAS BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTIONS 20-300b-1 THROUGH 20-300b-20 AND THE "STANDARD FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996.

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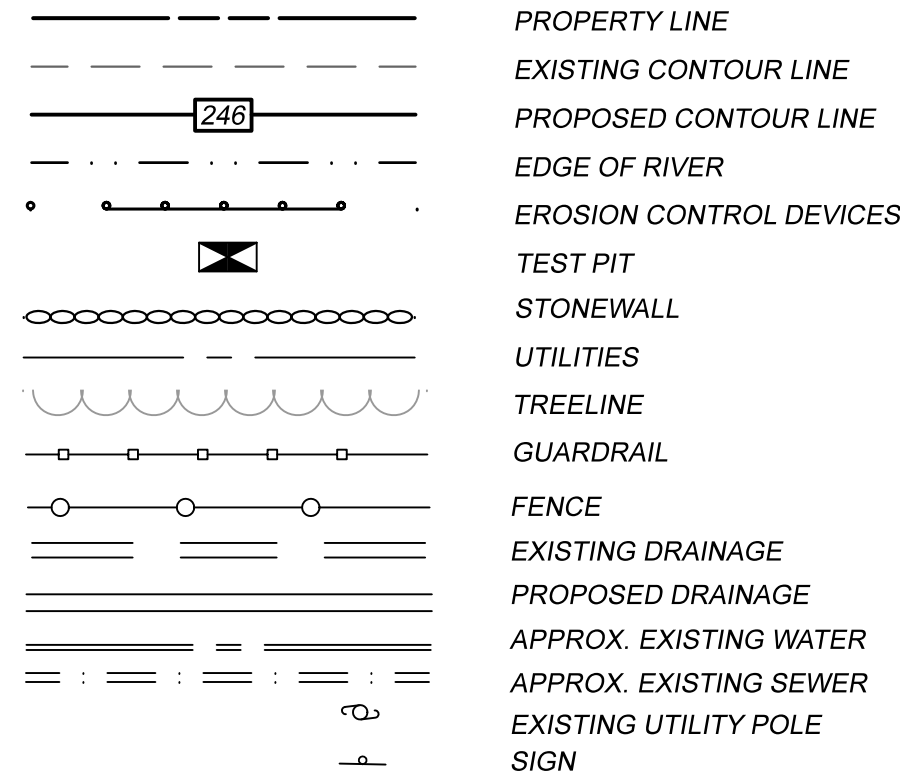
2. REFERENCE PLANS:
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12107
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NUMBER

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LEGEND



SITE LAYOUT PLAN - EAST KENNEDY DRIVE PARKING LOT PREPARED FOR THE TOWN OF PUTNAM KENNEDY DRIVE AND ROUTE 44, PUTNAM, CT

J&D CIVIL
ENGINEERS, LLC
401 RAVENELLE ROAD
N. GROSVENORDALE, CT 06255
860-923-2920

DESIGNED: JJB
CHECKED: DDB

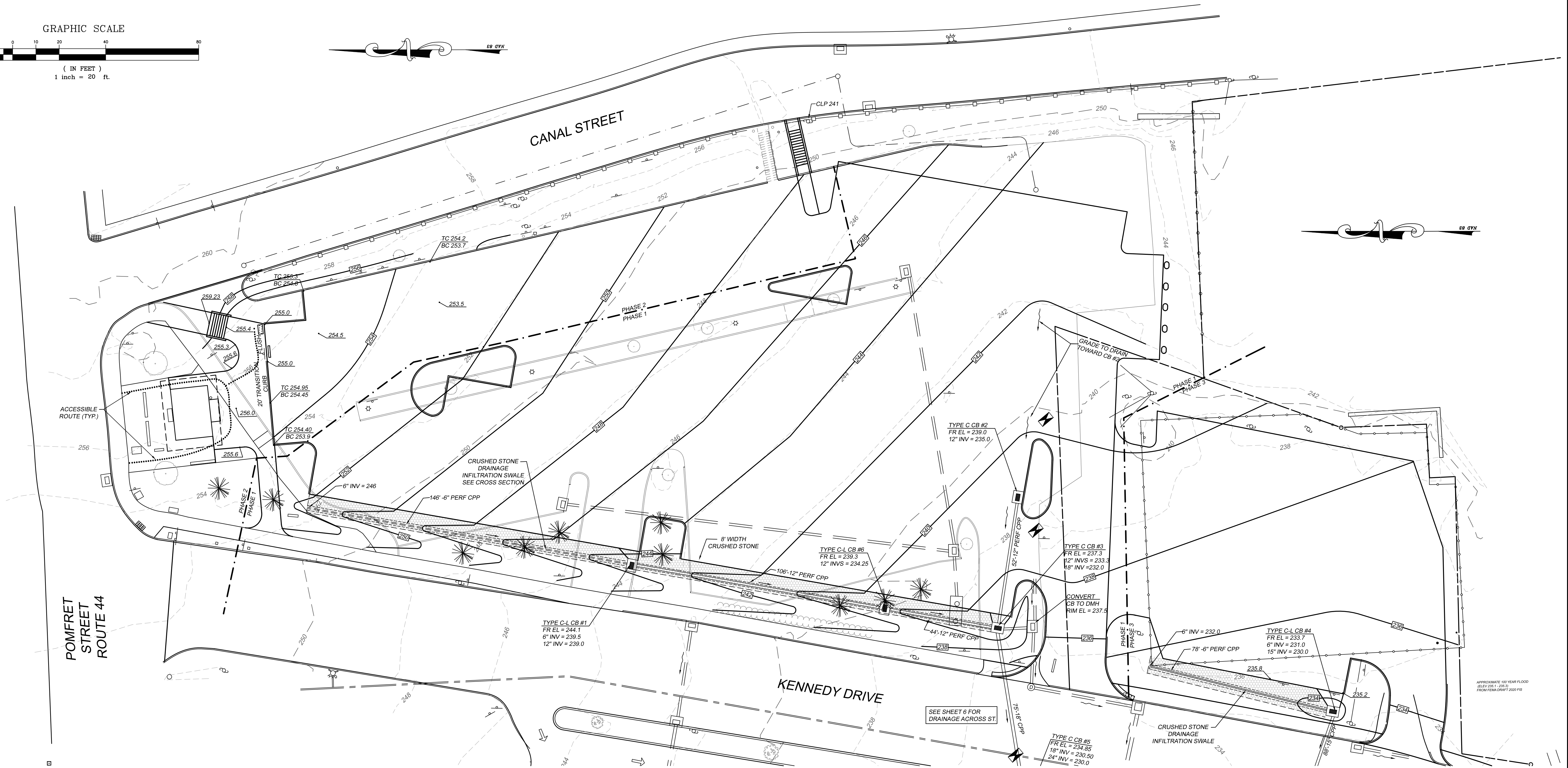
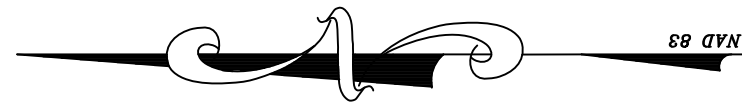
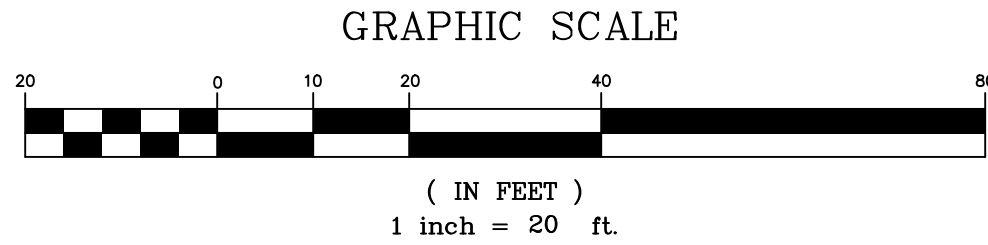
REVISIONS:

JOB NO: 21283

SCALE: 1" = 20'

DATE: JUNE 12, 2023

SHEET: 4



NOTES

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LEGEND

	PROPERTY LINE
	EXISTING CONTOUR LINE
	PROPOSED CONTOUR LINE
	EDGE OF RIVER
	EROSION CONTROL DEVICES
	TEST PIT
	STONEWALL
	UTILITIES
	TREELINE
	GUARDRAIL
	FENCE
	EXISTING DRAINAGE
	PROPOSED DRAINAGE
	APPROX. EXISTING WATER
	APPROX. EXISTING SEWER
	EXISTING UTILITY POLE
	SIGN

GRADING AND DRAINAGE PLAN - EAST
KENNEDY DRIVE PARKING LOT
PREPARED FOR
THE TOWN OF PUTNAM
KENNEDY DRIVE AND ROUTE 44, PUTNAM, CT

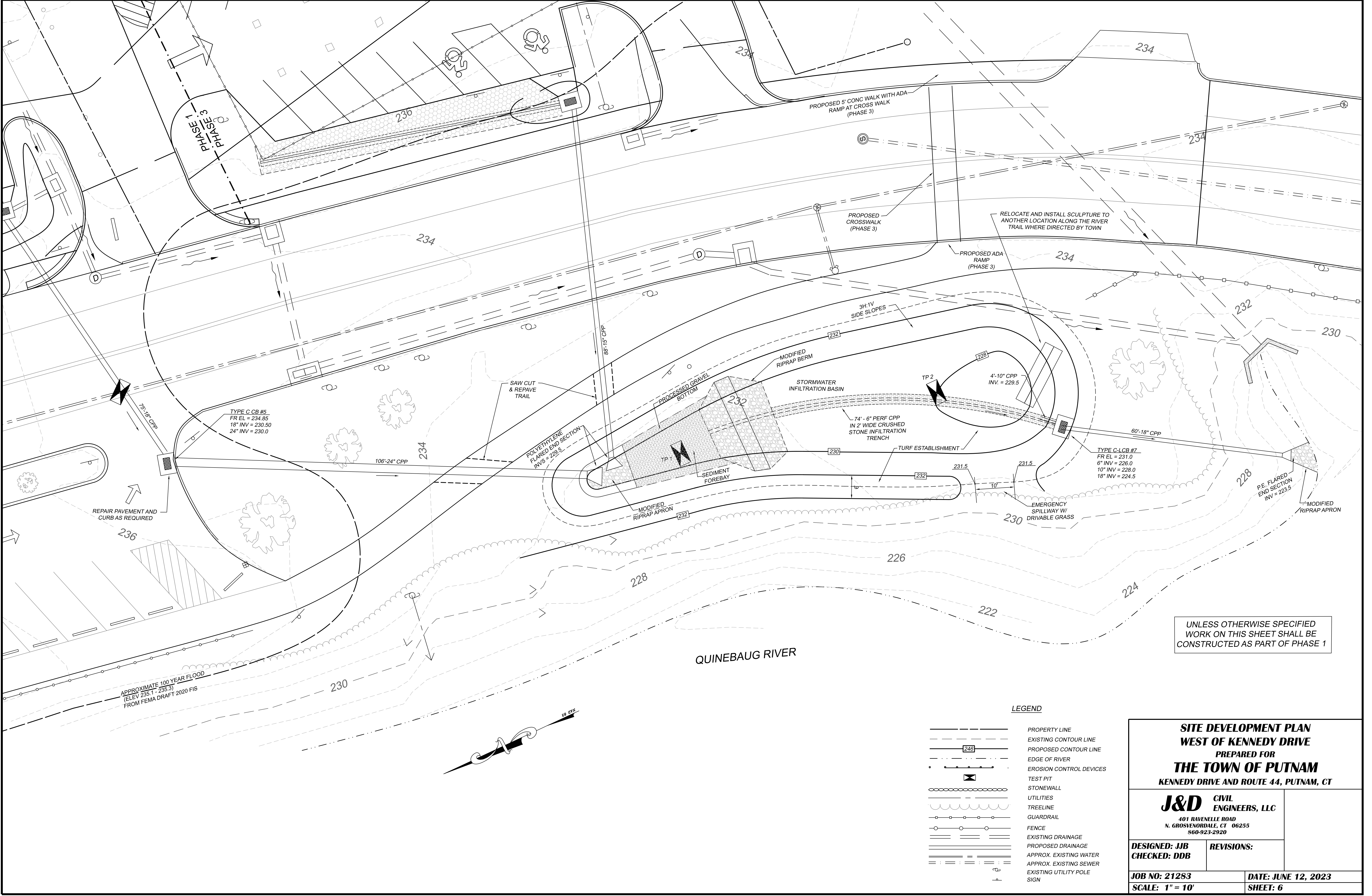
J&D CIVIL
ENGINEERS, LLC
401 RAVENELLE ROAD
N. GROSVENORDALE, CT 06255
860-923-2920

DESIGNED: JJB
CHECKED: DDB

REVISIONS:

JOB NO: 21283
SCALE: 1" = 20'

DATE: JUNE 12, 2023
SHEET: 5



UNLESS OTHERWISE SPECIFIED
WORK ON THIS SHEET SHALL BE
CONSTRUCTED AS PART OF PHASE 1

LEGEND

- PROPERTY LINE
- EXISTING CONTOUR LINE
- PROPOSED CONTOUR LINE
- EDGE OF RIVER
- EROSION CONTROL DEVICES
- TEST PIT
- STONEWALL
- UTILITIES
- TREELINE
- GUARDRAIL
- FENCE
- EXISTING DRAINAGE
- PROPOSED DRAINAGE
- APPROX. EXISTING WATER
- APPROX. EXISTING SEWER
- EXISTING UTILITY POLE
- SIGN

SITE DEVELOPMENT PLAN
WEST OF KENNEDY DRIVE
PREPARED FOR
THE TOWN OF PUTNAM
KENNEDY DRIVE AND ROUTE 44, PUTNAM, CT

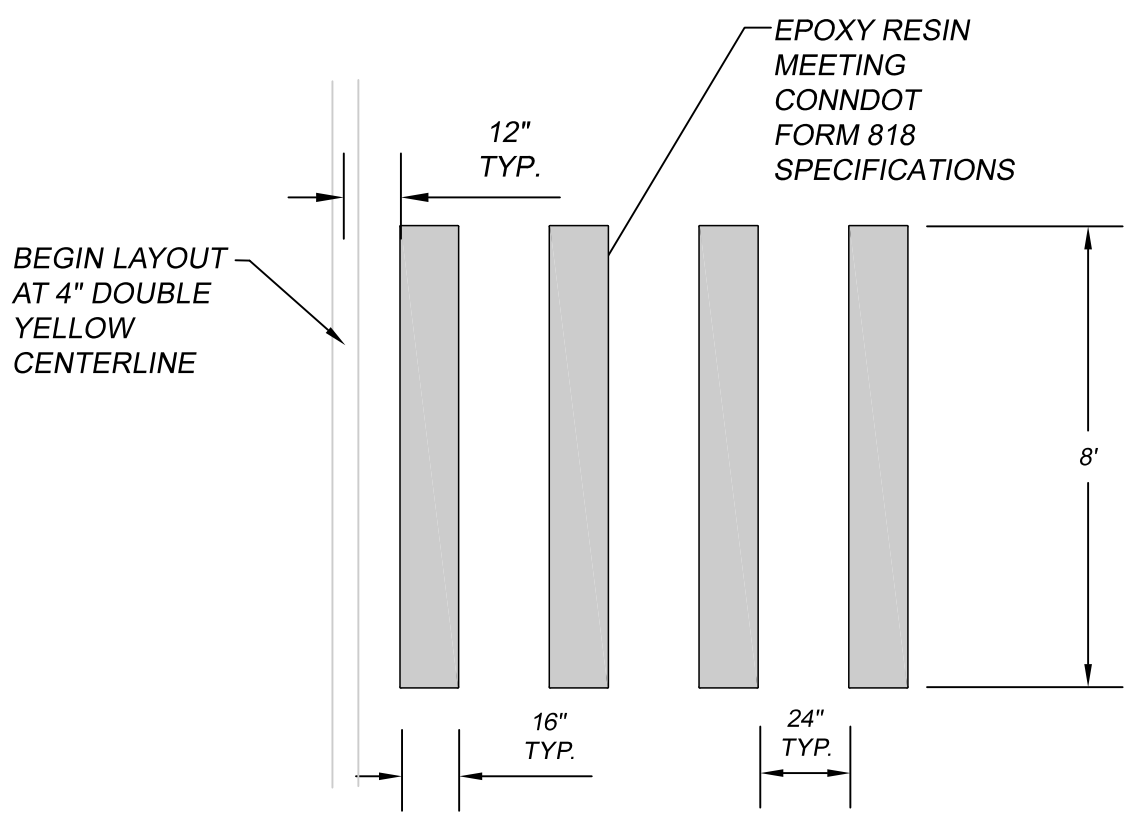
J&D CIVIL
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DESIGNED: JJB
CHECKED: DDB

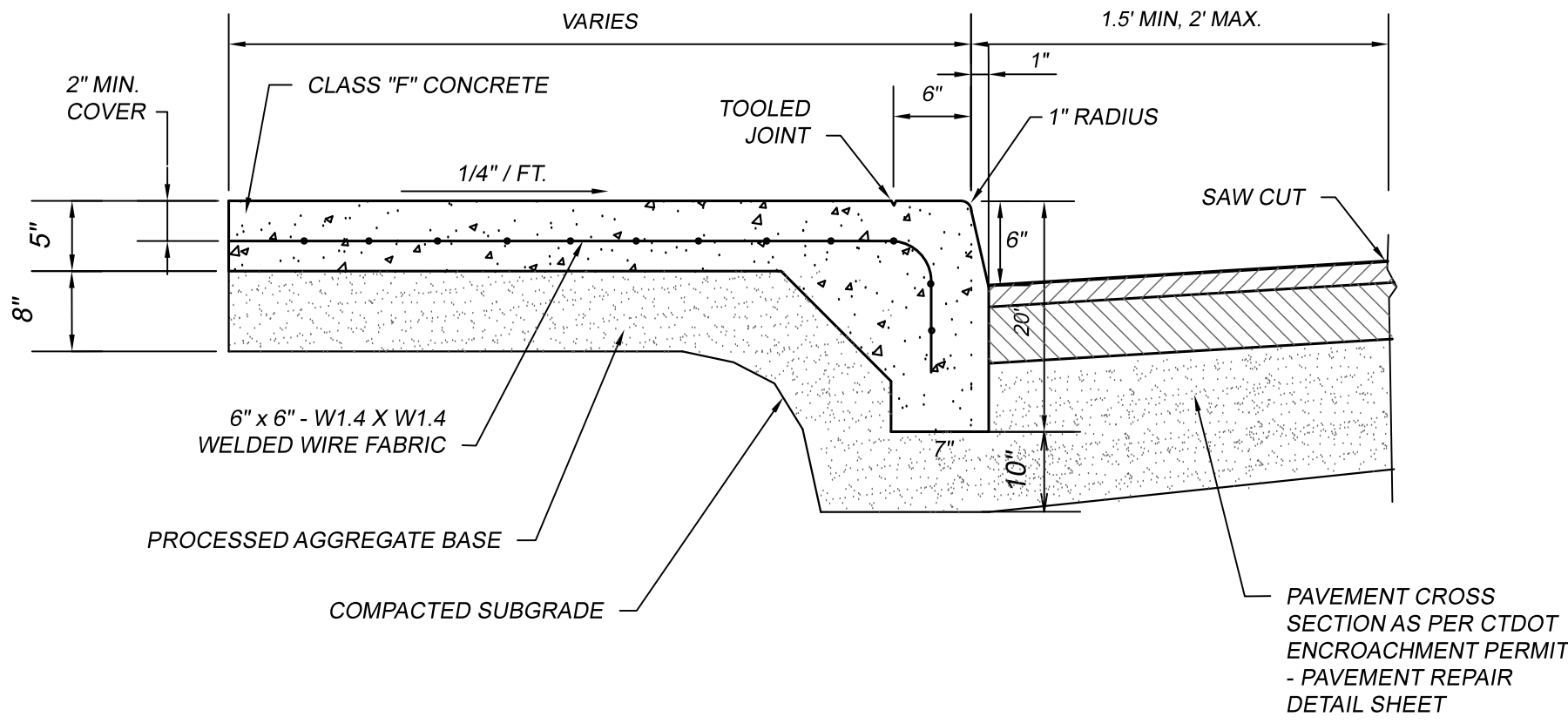
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JOB NO: 21283
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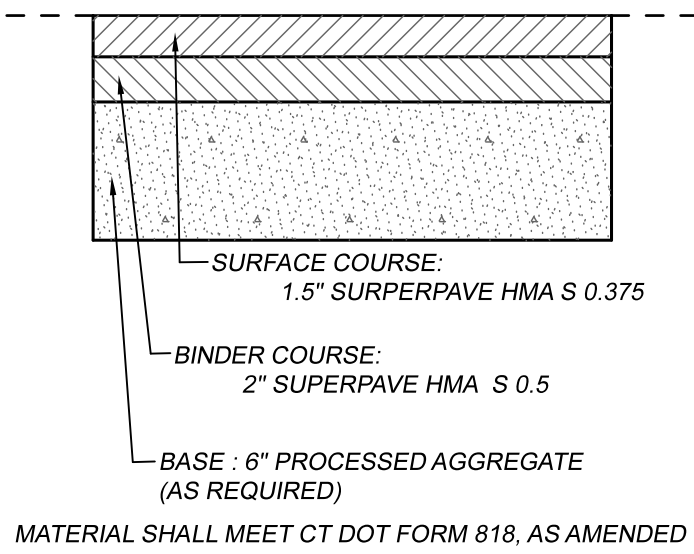
DATE: JUNE 12, 2023
SHEET: 6



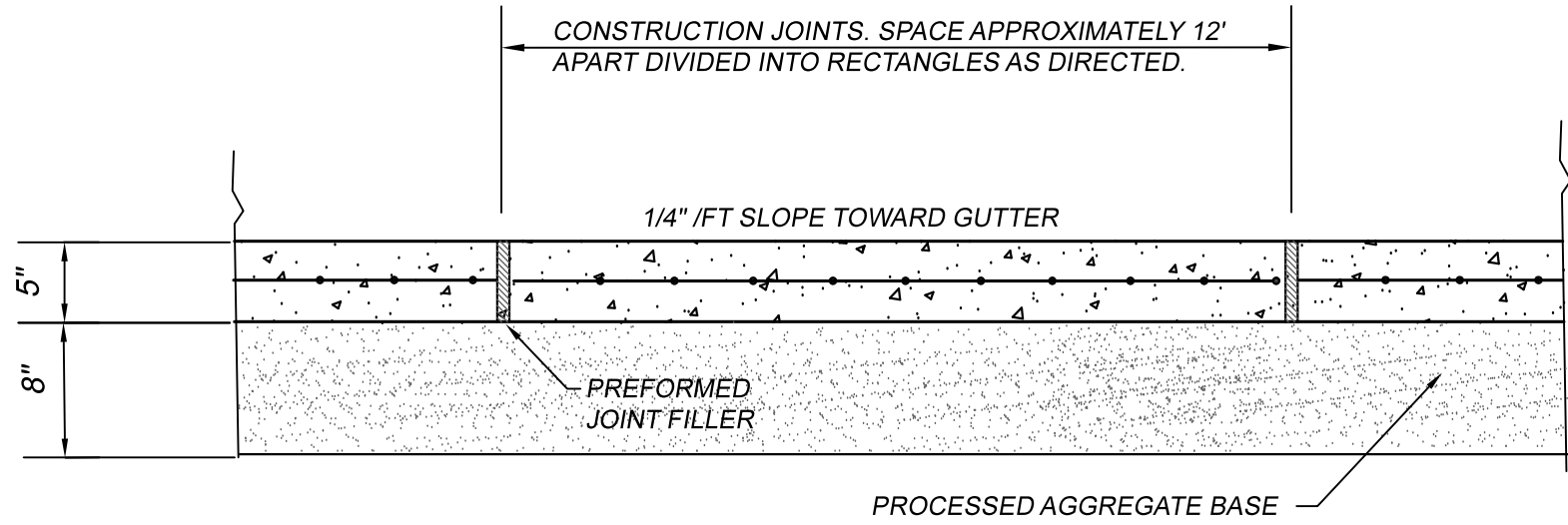
CROSS WALK PAVEMENT MARKINGS
N.T.S.



CROSS SECTION

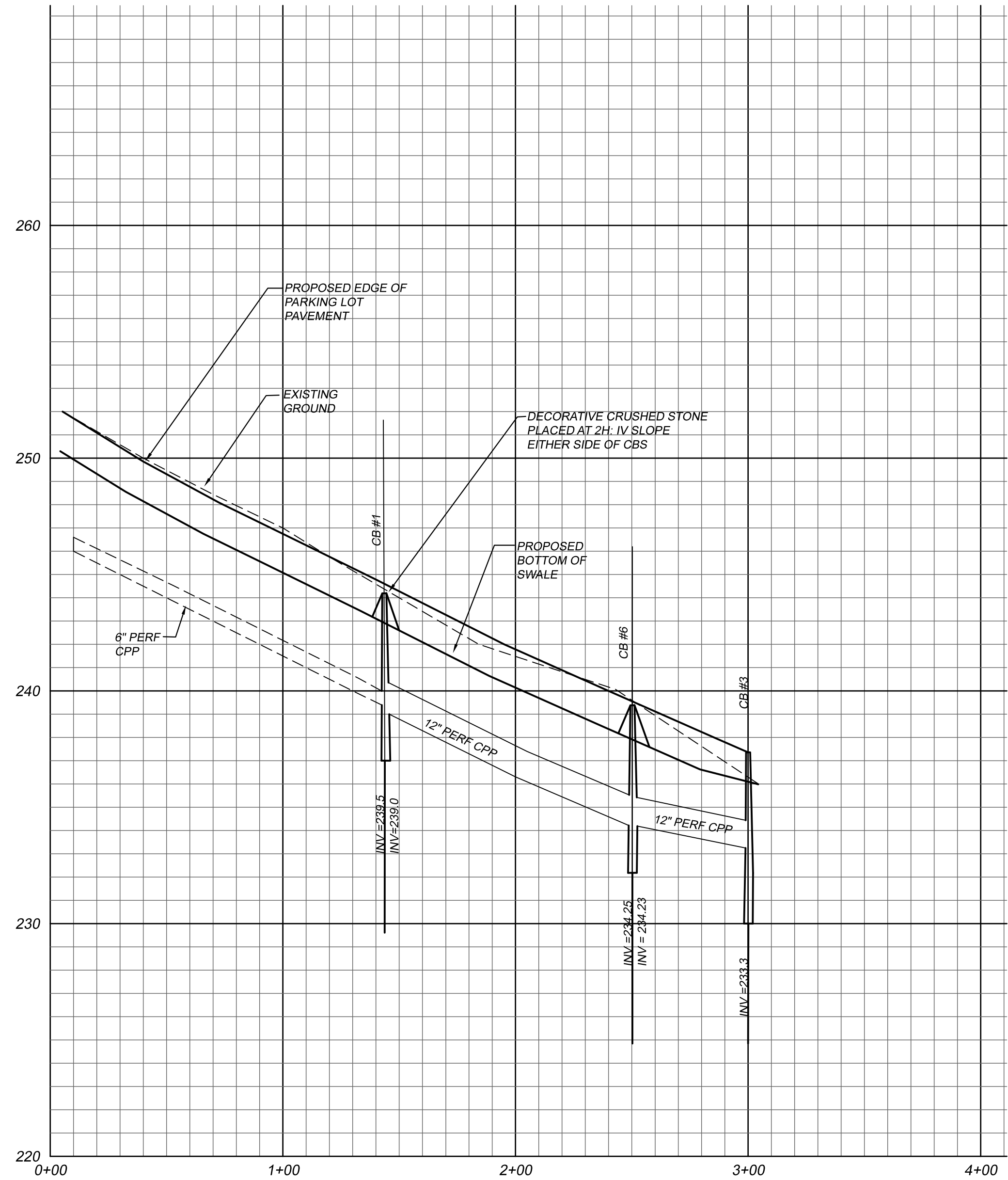


TYPICAL PARKING LOT SECTION
NOT TO SCALE



LONGITUDINAL SECTION

TOWN OF PUTNAM STANDARD MONOLITHIC
CONCRETE SIDEWALK AND CURB SECTION
NOT TO SCALE



INFILTRATION SWALE PROFILE

1" = 40' H
1" = 4' V

TEST PIT RESULTS

TEST PITS RECORDED ON 12-28-22
BY JANET BLANCHETTE, PE ON

TEST PIT 1

0-12" TOPSOIL AND FILL
12" - 16" ORIGINAL TOPSOIL
16" - 90" LAYERED GRAY AND TAN COARSE SAND AND GRAVEL

ROOTS AT 53"
WATER AT 84"

TEST PIT 2

0-8" TOPSOIL
8" - 36" GRAY COARSE SAND AND GRAVEL
36" - 96" TAN/ORANGE FINE TO MEDIUM SAND WITH SILT

WATER AT 84"

CONSTRUCTION DETAILS
PREPARED FOR
THE TOWN OF PUTNAM
KENNEDY DRIVE AND ROUTE 44, PUTNAM, CT

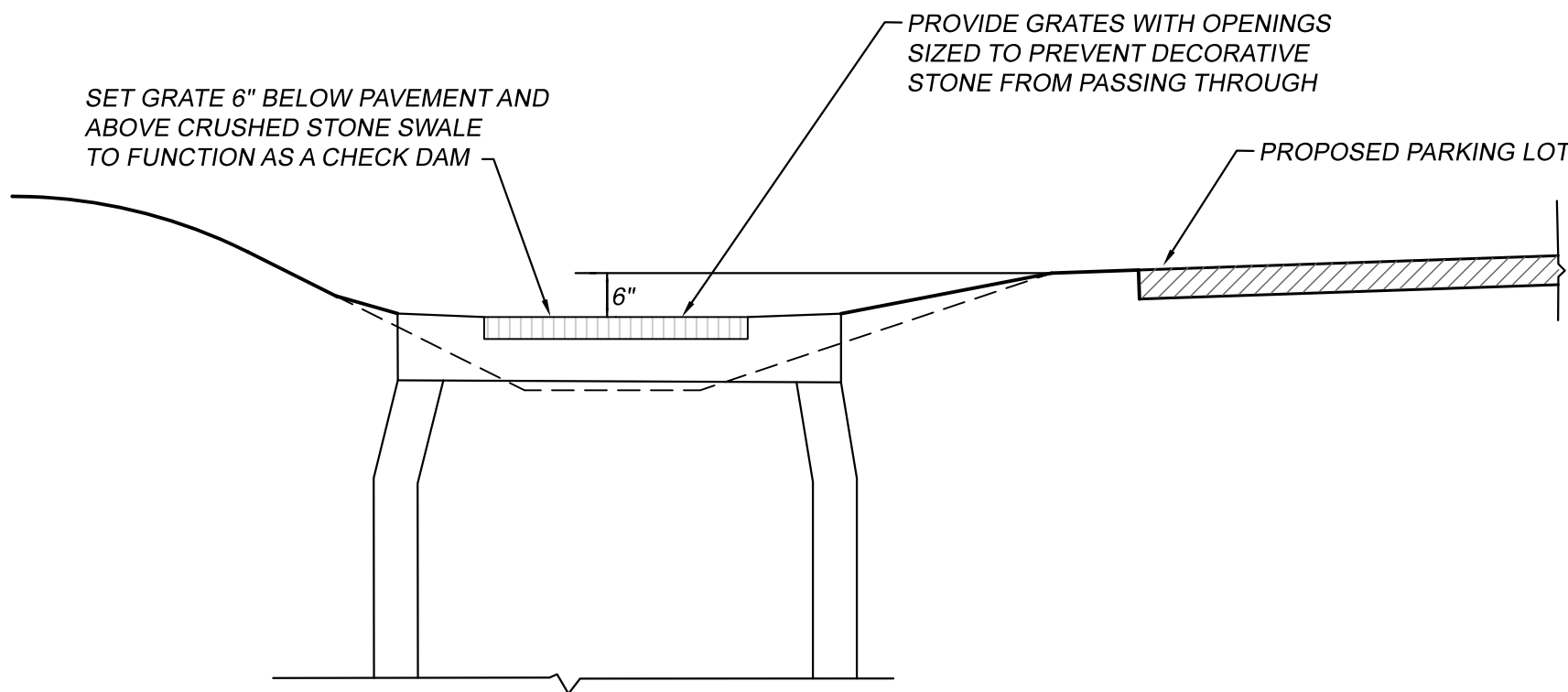
J&D CIVIL
ENGINEERS, LLC
401 RAVENELLE ROAD
N. GROSVENORDALE, CT 06255
860-923-2920

DESIGNED: JJB
CHECKED: DRB

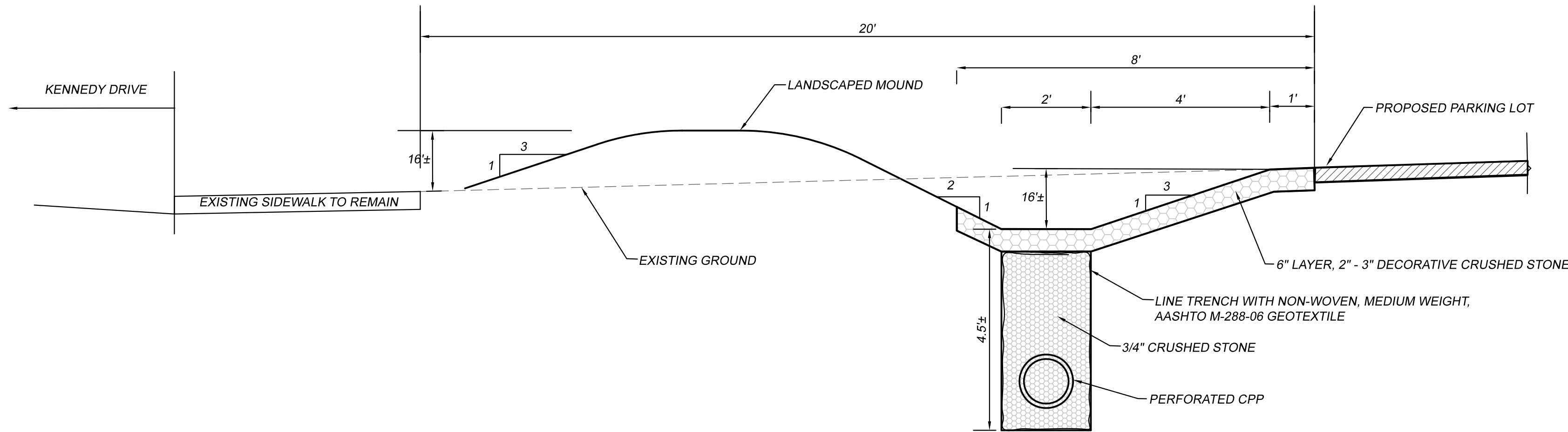
REVISIONS:

JOB NO: 21283
SCALE: 1" = 40'

DATE: JUNE 12, 2023
SHEET: 9



TYPE C-L CATCHBASIN IN SWALE SECTION
1" = 2'



DRAINAGE INFILTRATION SWALE SECTION
1" = 2'

SEQUENCE OF CONSTRUCTION :

CONSTRUCTION ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING SEQUENCE. PHASE 1 CAN BE CONSTRUCTED AS A STAND ALONE PROJECT. PHASE 2 IS A BID ALTERNATE AND WILL BE SELCTED FOR INCLUSION IN THE PROJECT AT THE TOWN'S DISCRETION.

- HOLD PRE-CONSTRUCTION MEETING WITH OWNER, SITE CONTRACTOR, AND DESIGN ENGINEER.
- EXCAVATING CONTRACTOR SHALL NOTIFY CALL BEFORE YOU DIG AS REQUIRED, AND IS RESPONSIBLE FOR VERIFYING THE LOCATION OF ALL BURIED UTILITIES PRIOR TO COMMENCING CONSTRUCTION.
- EXCAVATE EXPLORATORY TEST PITS.
- INSTALL COMPOST FILTER SOCK ALONG THE DOWNSLOPE SIDE OF CONSTRUCTION ACTIVITIES AS SHOWN ON THE DRAWINGS.
- CONSTRUCT STORMWATER INFILTRATION BASIN FIRST SO THAT VEGETATION CAN BE ESTABLISHED ON THE SIDES AND BOTTOM.
- DEMOLITION OF ISLANDS, SIGNS, TREES, EXISTING DRAINAGE STRUCTURES, ETC.
- FULL DEPTH PAVEMENT RECLAMATION OF EXISTING PARKING LOT.
- INSTALL NEW DRAINAGE.
- INSTALL UNDERGROUND ELECTRIC AND LIGHT POLE BASES.
- PAVING.
- PAVEMENT MARKINGS AND SIGNS.
- LANDSCAPING
- FINAL SITE STABILIZATION AND CLEANUP
- AFTER PERMANENT STABILIZATION OF SITE (I.E. A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER WITH A DENSITY CAPABLE OF RESISTING ACCELERATED EROSION AND SEDIMENTATION) HAS BEEN ACHIEVED, THE TEMPORARY EROSION AND SEDIMENTATION CONTROLS MUST BE REMOVED. AREAS DISTURBED DURING THE REMOVAL OF THE CONTROLS SHALL BE RESTABILIZED. PERMANENT STORMWATER FEATURES SHOULD BE CLEANOUT OUT AS NEEDED UPON FINAL STABILIZATION OF THE SITE.

SOIL EROSION AND SEDIMENT CONTROL NARRATIVE

THE PURPOSE OF THIS PROJECT IS TO RECONSTRUCT A 1.6 ACRE PARKING LOT. SITE WORK WILL INCLUDE CONSTRUCTION OF DRAINAGE, PAVING, PAVEMENT MARKINGS, CONCRETE CURB, SIGNS, LANDSCAPING, LIGHTS, EV CHARGING STATIONS, ETC.

ATTENTION SHALL BE GIVEN TO THE INSTALLATION AND MAINTENANCE OF EROSION CONTROL MEASURES. NO ERODED SEDIMENTS SHALL BE PERMITTED TO FLOW INTO KENNEDY DRIVE OR THE RIVER. IF FIELD CONDITIONS WARRANT IT OR THE TOWN REQUESTS IT, ADDITIONAL E & S CONTROL MEASURES, BEYOND WHAT IS SHOWN ON THE PLAN, SHALL BE INSTALLED.

SEDIMENT AND EROSION CONTROL DEVICES WILL BE INSTALLED AS DETAILED ON THIS SHEET AND CHECKED REGULARLY FOR REPLACEMENT AND AFTER EVERY RAIN FOR REMOVAL OF DEPOSITED MATERIALS. RESPONSIBILITY FOR COMPLIANCE WITH THIS PLAN SHALL BELONG TO THE CONTRACTOR. THE CONTRACTOR SHALL BE THE DESIGNATED ON-SITE AGENT RESPONSIBLE FOR ENSURING TO THE TOWN THAT E & S CONTROL MEASURES ARE STRICTLY ENFORCED.

SEEDING DATES FOR PERMANENT VEGETATION ARE APRIL 1 - JUNE 15 AND AUGUST 15 - SEPTEMBER 15. SEEDING DATES FOR TEMPORARY VEGETATION ARE MARCH 1 - OCTOBER 15. OUTSIDE OF THESE DATES TEMPORARY MULCH CONSISTING OF STRAW OR HAY APPLIED AT THE RATE OF 95 LB/1000 SQUARE FEET SHALL BE USED. HYDROSEEDING WILL BE PERMITTED WHERE SLOPES ARE NO STEEPER THAN 2 TO 1 AND SEEDING RATES WILL BE INCREASED BY 10%.

OPERATIONS AND MAINTENANCE

- ALL PROPOSED WORK SHALL CONFORM TO "2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL" BY THE CONNECTICUT COUNCIL OF SOIL AND WATER CONSERVATION AND TOWN REGULATIONS.
- THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT THE GOALS OF THIS EROSION CONTROL PLAN ARE MET BY WHATEVER MEANS ARE NECESSARY. THE CONTRACTOR SHALL PLAN ALL LAND DISTURBING ACTIVITIES IN A MANNER AS TO MINIMIZE THE EXTENT OF DISTURBED AREAS.
- PRIOR TO CONSTRUCTION OR EXCAVATION, SEDIMENT BARRIERS SHALL BE INSTALLED IN LOCATIONS AS SHOWN ON THE PLAN OR AS REQUIRED BY THE TOWN AND MAINTAINED THROUGHOUT CONSTRUCTION.
- UPON FINAL GRADING, DISTURBED AREAS SHALL COVERED WITH A MINIMUM OF 6" LOAM AND SEEDED WITH PERENNIAL GRASSES AS SPECIFIED FOR THE PROJECT. IMMEDIATELY AFTER SEEDING, MULCH THE SEEDED AREA, NOT COVERED WITH EROSION CONTROL BLANKET, WITH HAY OR STRAW AT THE RATE OF 2 TONS PER ACRE. SEEDING DATES ARE TO BE BETWEEN APRIL 1 THRU JUNE 15 AND AUGUST 15 THRU OCTOBER 15.
- DAILY INSPECTIONS SHALL BE MADE OF EROSION AND SEDIMENT CONTROL MEASURES TO INSURE EFFECTIVENESS AND IMMEDIATE CORRECTIVE ACTION SHALL BE TAKEN IF FAILURE OCCURS. ADDITIONAL EROSION CONTROL MEASURES BEYOND WHAT IS SHOWN ON THE PLAN MAY BE NECESSARY.
- EROSION AND SEDIMENT CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL DISTURBED AREAS HAVE BEEN STABILIZED AND VEGETATIVE COVER HAS BEEN ESTABLISHED, AT WHICH TIME THEY SHALL BE REMOVED.
- SITE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTATION AND MAINTENANCE OF THIS EROSION AND SEDIMENT CONTROL PLAN.

MINIMIZE DISTURBED AREAS

- KEEP LAND DISTURBANCE TO A MINIMUM - THE MORE LAND THAT IS IN VEGETATIVE COVER, THE MORE SURFACE WATER WILL INFILTRATE INTO THE SOIL, THUS MINIMIZING STORMWATER RUNOFF AND POTENTIAL EROSION. KEEPING LAND DISTURBANCE TO A MINIMUM NOT ONLY INVOLVES MINIMIZING THE EXTENT OF EXPOSURE AT AN ONE TIME, BUT ALSO THE DURATION OF EXPOSURE.
- PHASE CONSTRUCTION SO THAT AREAS WHICH ARE ACTIVELY BEING DEVELOPED AT ANY ONE TIME ARE MINIMIZED AND ONLY THAT AREA UNDER CONSTRUCTION IS EXPOSED. CLEAR ONLY THOSE AREAS ESSENTIAL FOR CONSTRUCTION.
- SEQUENCE THE CONSTRUCTION OF STORM DRAINAGE SYSTEMS SO THAT THEY ARE OPERATIONAL AS SOON AS POSSIBLE DURING CONSTRUCTION. ENSURE ALL OUTLETS ARE STABLE BEFORE OUTLETTING STORM DRAINAGE FLOW INTO THEM.
- SCHEDULE CONSTRUCTION SO THAT FINAL GRADING AND STABILIZATION IS COMPLETED AS SOON AS POSSIBLE.

MANAGING RUNOFF

- USE DIVERSIONS, STONE DIKES, SILT FENCES AND SIMILAR MEASURES TO BREAK FLOW LINES AND DISSIPATE STORM WATER ENERGY.
- AVOID DIVERTING ONE DRAINAGE SYSTEM INTO ANOTHER WITHOUT CALCULATING THE POTENTIAL FOR DOWNSTREAM FLOODING OR EROSION.
- CLEAN RUNOFF SHOULD BE KEPT SEPARATED FROM SEDIMENT LADEN WATER AND SHOULD NOT BE DIRECTED OVER DISTURBED AREAS WITHOUT ADDITIONAL CONTROLS. ADDITIONALLY, PREVENT THE MIXING OF CLEAN OFF-SITE GENERATED RUNOFF WITH SEDIMENT LADEN RUNOFF GENERATED ON-SITE UNTIL AFTER ADEQUATE INFILTRATION OF ON-SITE WATERS HAS OCCURRED.

INTERNAL EROSION CONTROLS

- DO NOT RELY EXCLUSIVELY ON PERIMETER EROSION CONTROL DEVICES.
- CONTROL EROSION AND SEDIMENTATION BY INSTALLING INTERNAL EROSION CONTROL IN THE SMALLEST DRAINAGE AREA POSSIBLE.
- DIRECT RUNOFF FROM SMALL DISTURBED AREAS TO ADJOINING UNDISTURBED VEGETATED AREAS.
- CONCENTRATED RUNOFF SHOULD BE CONVEYED TO SEDIMENT TRAPS OR BASINS AND STABLE OUTLETS USING RIP RAPPED CHANNELS, STORM DRAINS OR SIMILAR MEASURES.

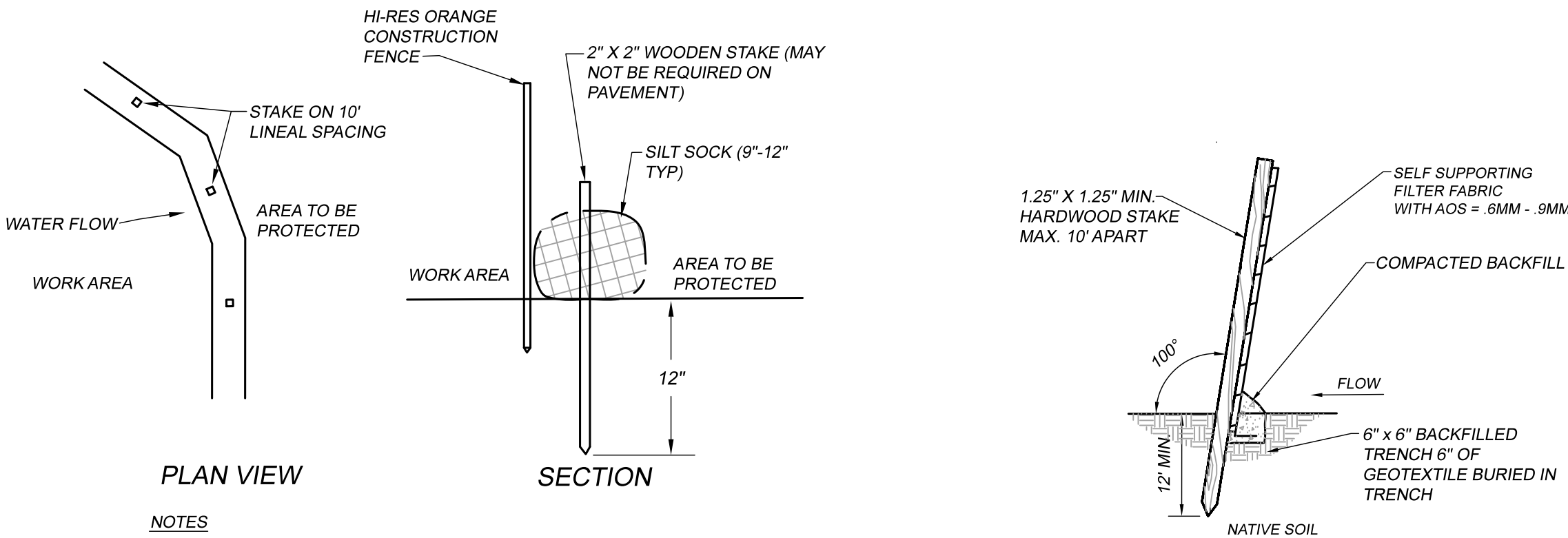
GENERAL SEEDING NOTES

- TEMPORARY SEEDING NOTES - SITE PREPARATION: APPLY 1-2 TON /ACRE AGRICULTURAL GRADE LIMESTONE AND 10-10-10 FERTILIZER AT A RATE OF 300 LBS./ACRE AND WORK IN WHERE POSSIBLE. REFER TO FIGURE TS-2 IN THE 2002 CT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL FOR APPROPRIATE SEEDING MIXES AND RATES. MULCH SEEDED AREAS IMMEDIATELY AFTER SEEDING.
- PERMANENT SEEDING NOTES - SITE PREPARATION: GRADE AS NECESSARY TO BRING THE SUBGRADE TO A TRUE, SMOOTH SLOPE PARALLEL TO AND SIX INCHES BELOW FINISHED GRADE. PLACE TOPSOIL OVER SPECIFIED AREAS TO A DEPTH SUFFICIENTLY GREATER THAN SIX INCHES SO THAT AFTER SETTLEMENT AND LIGHT ROLLING THE COMPLETE WORK WILL CONFORM TO LINES, GRADES AND ELEVATIONS SHOWN.
- APPLY 4 TONS/ACRE AGRICULTURAL GRADE LIMESTONE AND 10-10-10 FERTILIZER AT A RATE OF 300 LBS/AC OR AS PER SOIL TEST. LIMESTONE AND FERTILIZER MAY NOT BE REQUIRED IN AGRICULTURAL FIELDS.
- FERTILIZER AND AGRICULTURAL LIMESTONE SHALL BE THOROUGHLY INCORPORATED INTO THE SOIL BY ROTOTILLING OR OTHER METHOD TO A MINIMUM DEPTH OF FOUR INCHES. THE ENTIRE SURFACE SHALL BE DONE IN TWO SEPARATE OPERATIONS. THE SECOND SEEDING SHALL BE DONE IMMEDIATELY AFTER THE FIRST AND AT RIGHT ANGLES TO THE FIRST SEEDING AND LIGHLY RAKED INTO THE SOIL. MULCH SEEDED AREAS IMMEDIATELY AFTER SEEDING.

AREA TO BE SEEDED	MIXTURE NUMBER	SPECIES	SEEDING RATES (LB/AC) PURE LIVE SEED
SLOPES, BANKS CHANNELS AND DIVERSIONS	2	CREEPING RED FESCUE	20
		REDTOP	2
		TALL FESCUE OR SMOOTH BROMEGRASS	20
LAWN AND HIGH MAINTENANCE AREAS	1	KENTUCKY BLUEGRASS CREEPING RED FESCUE PERENNIAL RYEGRASS	20 20 5

SEED MIXTURE NUMBERS REFER TO TO FIGURE PS-3, 2002 CT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL. REFER TO MANUAL FOR POTENTIAL ALTERNATIVE MIXTURES.

PURE LIVE SEED (PLS) IS THE PRODUCT OF THE PERCENTAGE OF PURE SEED TIMES PERCENTAGE GERMINATION DIVIDED BY 100.



SILT FENCE INSTALLATION
NOT TO SCALE

- NOTES
- SILT SOCK MANUFACTURER SHALL BE SILT SOXX OR ENGINEER APPROVED EQUAL
 - ALL MATERIAL TO MEET MANUFACTURER'S SPECIFICATIONS
 - SEDIMENT SILT SOCK TO BE FILLED WITH LEAF COMPOST AND/OR WOODY MULCH PER MANUFACTURER'S REQUIREMENTS.
 - FOLLOWING CONSTRUCTION AND SITE STABILIZATION, COMPOST MATERIAL SHALL BE REMOVED OR DISPERSED ON SITE, AS APPROVED BY THE ENGINEER.

SILT SOCK DETAIL
NOT TO SCALE

CONSTRUCTION DETAILS
PREPARED FOR
THE TOWN OF PUTNAM
KENNEDY DRIVE AND ROUTE 44, PUTNAM, CT

J&D CIVIL
ENGINEERS, LLC
401 RAVENELLE ROAD
N. GROSVENORDALE, CT 06255
860-923-2920

DESIGNED: JJB
CHECKED: DRB

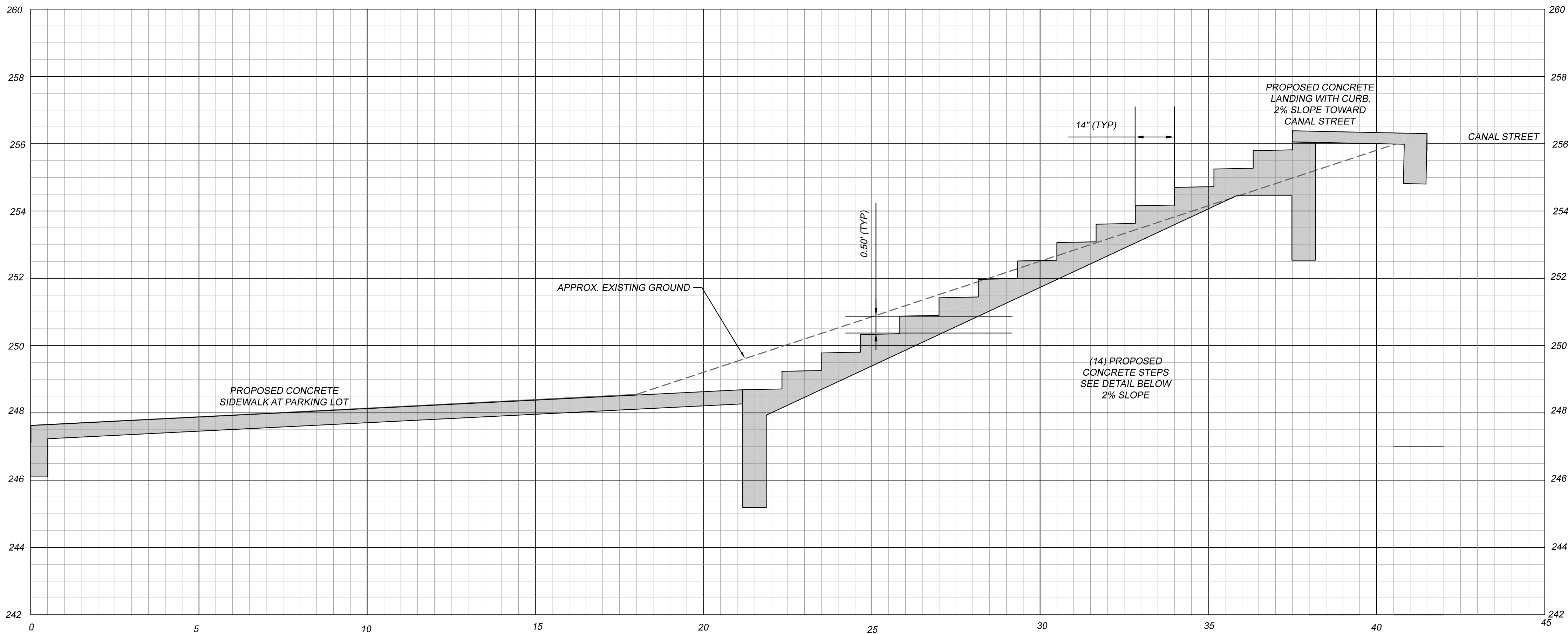
REVISIONS:

JOB NO: 21283

SCALE: AS NOTED

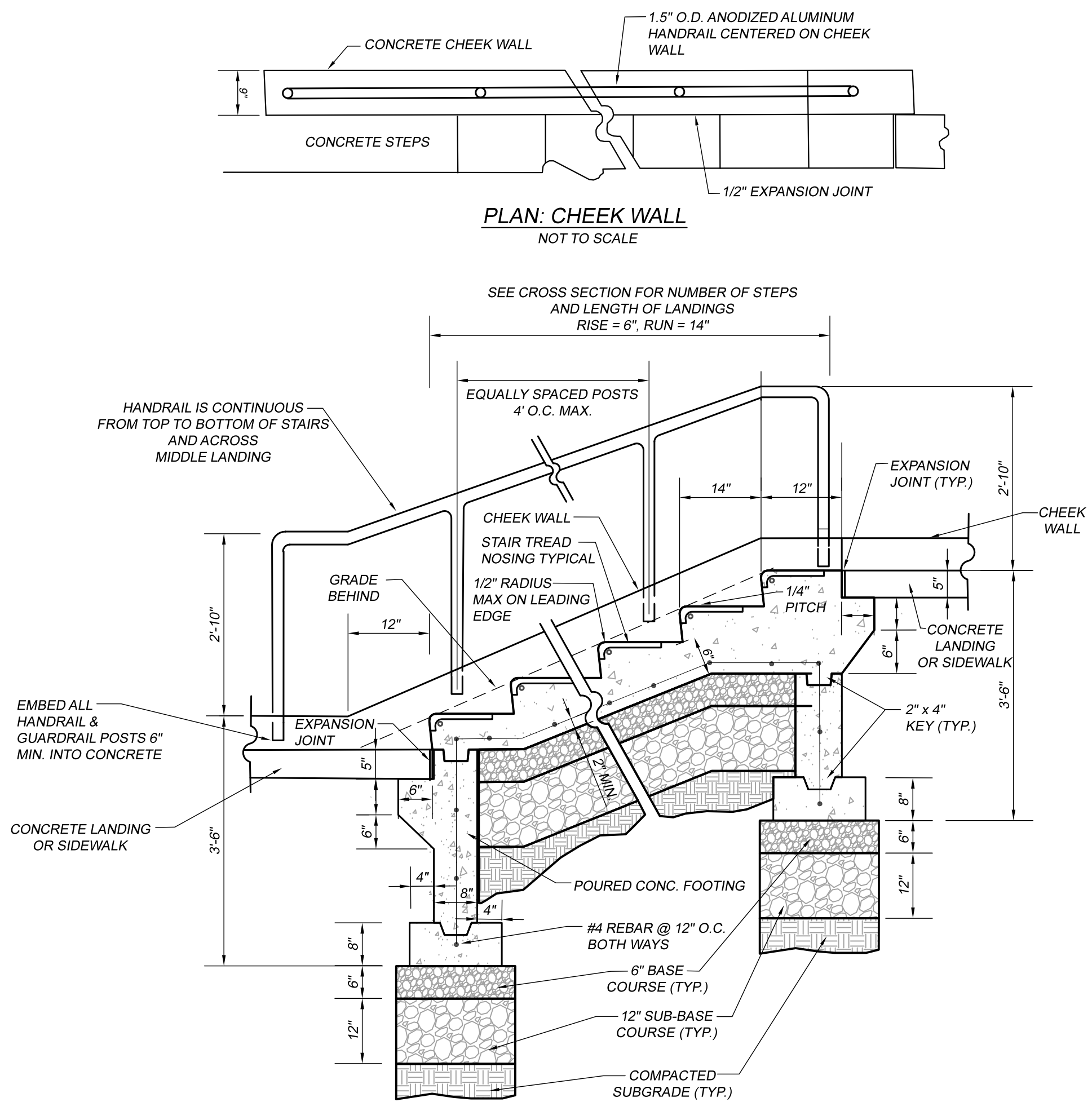
DATE: JUNE 12, 2023

SHEET: 10



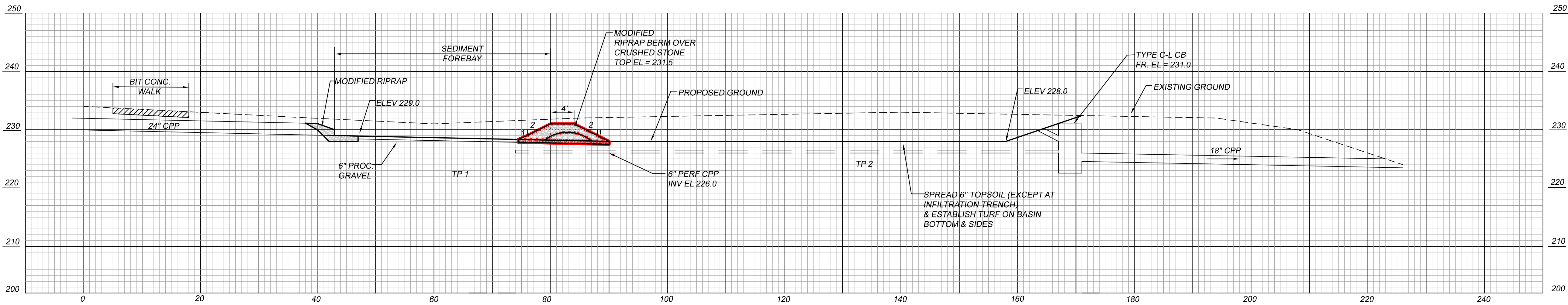
STAIRWAY CROSS SECTION

1" = 2'



SECTION: POURED CONCRETE STEPS WITH CHEEK WALL

NOT TO SCALE



STORM WATER INFILTRATION BASIN SECTION

1" = 10'

TEST PIT RESULTS

TEST PITS RECORDED ON 12-28-22
BY JANET BLANCHETTE, PE ON

TEST PIT 1

0-12" TOPSOIL AND FILL
12" - 16" ORIGINAL TOPSOIL
16" - 90" LAYERED GRAY AND TAN COARSE SAND AND GRAVEL

ROOTS AT 53"
WATER AT 84"

TEST PIT 2

0-8" TOPSOIL
8" - 36" GRAY COARSE SAND AND GRAVEL
36" - 96" TAN/ORANGE FINE TO MEDIUM SAND WITH SILT
WATER AT 84"

CONSTRUCTION DETAILS
PREPARED FOR
THE TOWN OF PUTNAM
KENNEDY DRIVE AND ROUTE 44, PUTNAM, CT

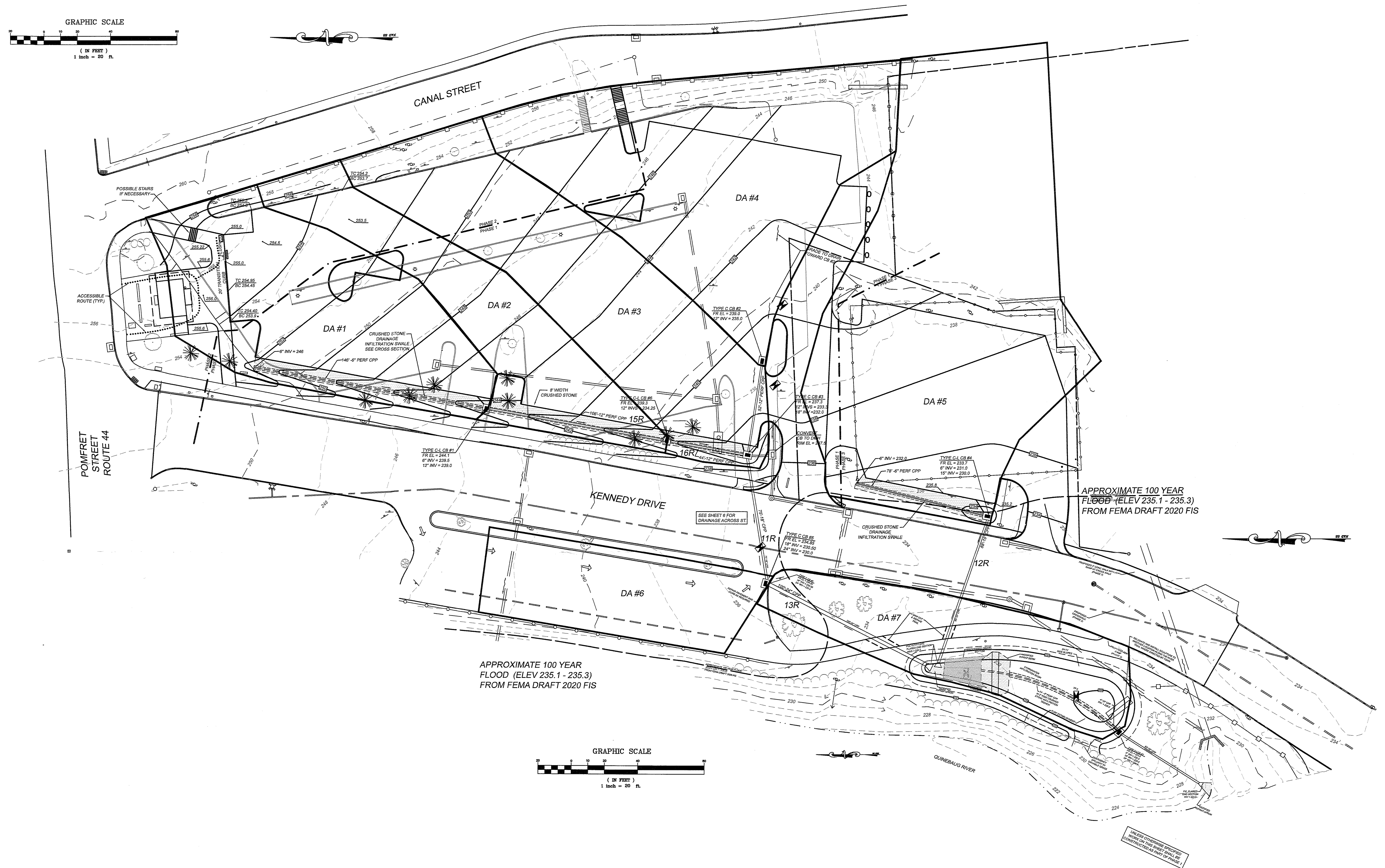
J&D CIVIL
ENGINEERS, LLC
401 RAVENELLE ROAD
N. GROSVENORDALE, CT 06255
860-923-2920

DESIGNED: JJB
CHECKED: DRB

REVISIONS:

JOB NO: 21283
SCALE: AS NOTED

DATE: JUNE 12, 2023
SHEET: 11



**DRAINAGE AREA MAP
KENNEDY DRIVE PARKING LOT
PREPARED FOR
THE TOWN OF PUTNAM
KENNEDY DRIVE AND ROUTE 44, PUTNAM, CT**

J&D CIVIL
ENGINEERS, LLC
401 RAVENELLE ROAD
N. GROSVENORDALE, CT 06255
860-923-2920

DESIGNED: JJB
CHECKED: DDB

REVISIONS:

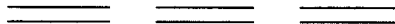
JOB NO: 21283

DATE: JANUARY 23, 2023

SCALE: 1" = 30'

SHEET: 1 OF 1

LEGEND

	PROPERTY LINE
	EXISTING CONTOUR LINE
	PROPOSED CONTOUR LINE
	EDGE OF RIVER
	EROSION CONTROL DEVICES
	TEST PIT
	STONEWALL
	UTILITIES
	TREELINE
	GUARDRAIL
	FENCE
	EXISTING DRAINAGE
	PROPOSED DRAINAGE
	APPROX. EXISTING SEWER
	APPROX. EXISTING SEWER
	EXISTING UTILITY POLE
	SIGN

Kennedy Drive Parking Lot Stormwater Management Report

**Prepared For
Town of Putnam**

January 26, 2023

Prepared by:

**J & D Civil
Engineers, LLC**

401 Ravenelle Road
N. Grosvenordale, CT 06255

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- A. Project Narrative
- B. Existing Site Description
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- D. Disconnecting Impervious Area to the Quinebaug River
- E. Methodology

Appendices

- I. Hydrologic Model
- II. Water Quality Volume Computations
- III. Drainage Area Map

A. Project Narrative

The Town is proposing to reconstruct one of its largest downtown parking lots. The parking lot is located southeast of the intersection of Kennedy Drive and Pomfret Street (Route 44). The primary goal of the project is to increase the number of parking spaces. However, the new layout will also improve traffic flow. New “fast charging” electric vehicle spaces will be added and a linear landscaped island will be created along Kennedy Drive. The town is hoping to obtain land currently owned by Eversource adjacent to the town owned property so that additional parking spaces can be created.

Another important goal of the project is to improve water quality to the Quinebaug River. The project was designed to meet the requirements of the 2004 CT DEEP Stormwater Quality Manual. The drainage design goal for this parking lot retrofit will capture and treat the recommended water quality volume (WQV) in order to remove a majority of stormwater pollutants. The water quality volume (WQV) is equivalent to the runoff associated with the first one-inch of rainfall.

B. Existing Site Description

The existing parking lot property is about 2 acres in size and is approximately 65% impervious. A public restroom building sits at the north end of the lot and the old CT DMV sat at the south end of the lot for many years. The DMV building was removed which will permit that area to be used for more parking spaces. The parking lot currently contains 112 spaces.

The existing parking lot is curbed. Runoff enters catchbasins which are piped to a 1250-gallon oil/water separator tank. Until recently the public works department was unaware of the existence of the tank so it hasn't been pumped or cleaned since its installation over 20 years ago. The outlet pipe from the tank discharges to the storm sewer system in Kennedy Drive and then flows directly into the Quinebaug River about 400' south of the parking lot. The Eversource property is mostly enclosed in a chain link fence and contains many equipment pads for equipment that has been removed from the site.

The Natural Resource Conservation Service (NRCS) groups soils into four categories according to their runoff producing characteristics. Hydrologic soil Group A consists of soils that have a high infiltrative capacity and a low runoff potential even when saturated. Hydrologic soil Group D soils have a very low infiltration rate and high runoff potential.

The soil on the site is classified as Udorthents – Urban land complex with a hydrologic soil group of B and well drained underlying soils. Two test pits were dug on the town owned land west of Kennedy Drive to evaluate soil conditions. That soil was well drained sand and gravel with a hydrologic soil group of A.

C. Proposed Drainage System

In order to improve stormwater quality, most of the curbing will be removed and parking lot runoff will sheet flow into a crushed stone infiltration swale and trench parallel to Kennedy Drive. Runoff will gradually percolate through the bottom and sides of the trench removing pollutants primarily through filtration. Catchbasins will be located along the swale to intercept runoff during larger storm events. The catchbasins will be set higher than the swale bottom to function as check dams and facilitate infiltration. The stone within the trench will be wrapped by a geotextile to prevent clogging of the crushed stone. The infiltration trench will provide some of the volume required to treat the water quality volume.

The remainder of the required water quality volume will be provided within an infiltration basin constructed on the west side of Kennedy Drive and the river trail. This basin will have a sediment forebay that is easily accessible by vehicles for removal of sediment by the public works department.

A new catchbasin will be installed at the end of the existing river trail municipal lot north of the infiltration basin. This catchbasin will intercept runoff and direct it to the infiltration basin instead of the runoff flowing into Kennedy Drive. Therefore, this runoff will also be fully treated prior to entering the river.

The pipe network has been designed for the 25-year storm which is conservative. Typically, as per the CONNDOT Drainage Manual, drainage pipe networks are designed for the 10-year storm. However, this parking lot is just north of a low point in Kennedy Drive so if the structures overtop the excess runoff could flood Kennedy Drive. Also, with climate change, high intensity rainfall events are becoming more frequent and conservation drainage designs are often warranted.

The primary outlet structures (CB riser and mid level outlet pipe) for the infiltration basin have also been sized for the 25-year storm. Higher rainfall events will flow out the side of the basin at the emergency spillway and directly into the Quinebaug River. The low point of Kennedy Drive, as well as the entire infiltration basin, are within the 100-year storm flood elevation proposed on the FEMA's 2020 draft FIS map. The elevation of the 100-year flood from the FIS is between 235.1 and 235.3 in this area. The top of the infiltration basin and Kennedy Drive are between elevation 232 and 234.

On this site, with well drained underlying soils, an added benefit to the infiltration features will be groundwater recharge. During rainfall events, runoff from the site will be immediately infiltrated into the soil, as well as stored in the stormwater infiltration basins. This will allow for gradual percolation into the ground and then the Quinebaug after the storm has ended.

D. Disconnecting Impervious Area to the Quinebaug River

As part of the CT DEEP MS4 (stormwater) permit, Putnam along with most CT municipalities, is required to disconnect a certain percent of its directly connected

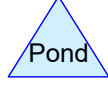
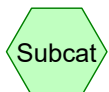
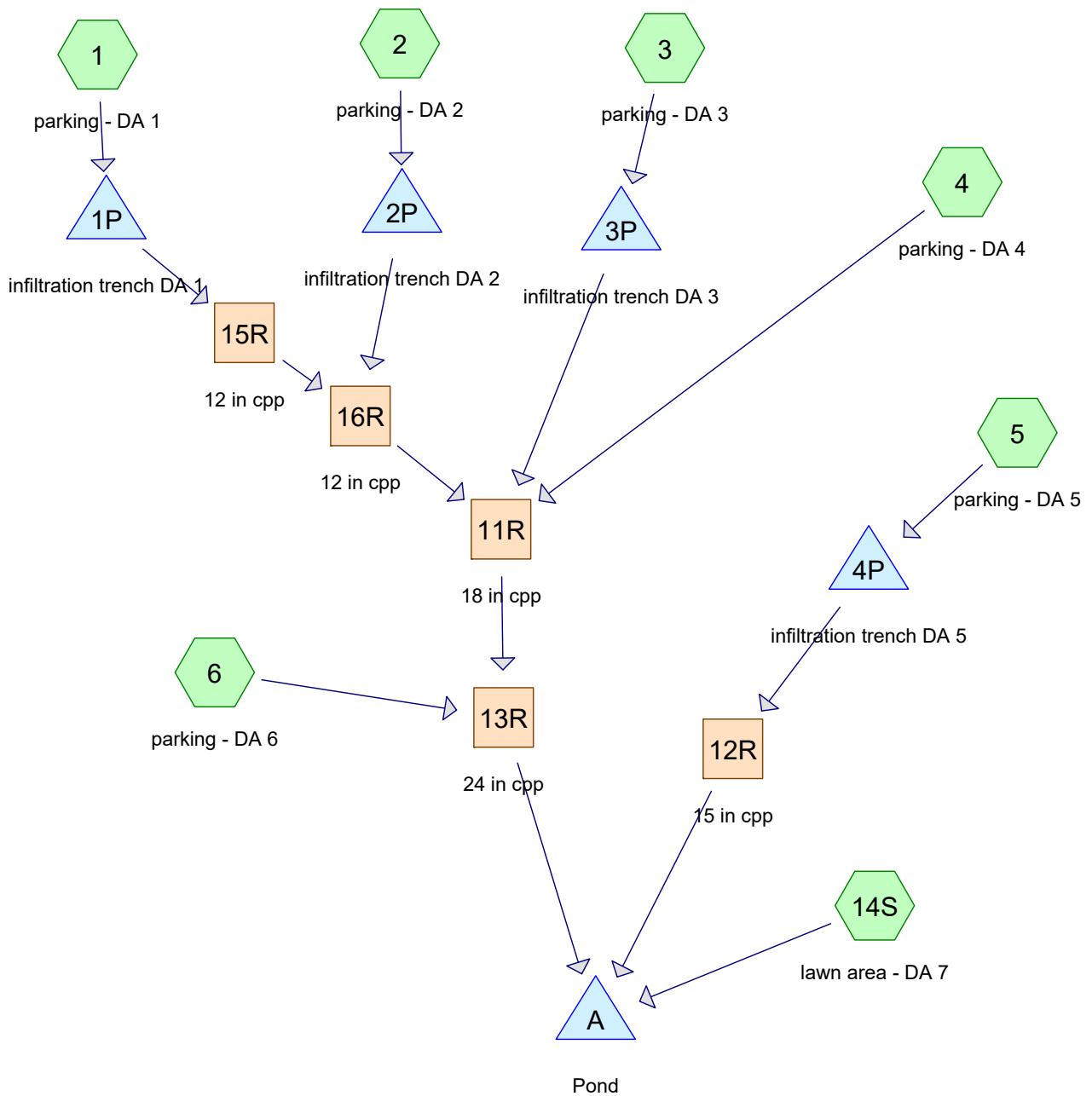
impervious area (DCIA) per year. An area of DCIA is considered disconnected when the required portion of the Water Quality Volume has been retained in accordance with the requirements of the MS4 General Permit. The proposed stormwater system includes treatment for the Kennedy drive parking lot, the additional lot on the Eversource property and the existing River trail lots. The amount of DCIA disconnected will be 2.25 acres. In addition to addressing state permitting, this disconnection will have a real benefit to the Quinebaug River which is an important asset to the town of Putnam. Not only will stormwater runoff be treated it will also be metered out over a longer time period to reduce flooding. Also, in warm weather when water levels in the river are low, the temperature of the runoff will be cooler than the existing condition which sends water straight from the hot asphalt to the river. This is better for the fish and river ecosystem.

E. Methodology

The HydroCAD computer program was utilized for the drainage design of this project. This program models the hydrology and hydraulics of stormwater runoff based largely upon the methods developed by the Soil Conservation Service (now known as the Natural Resources Conservation Service). Required input data includes the size of the contributing drainage area, curve numbers which are based upon land use and soil types, and times of concentration.

Hydrographs with peak flows determined are calculated for each drainage area based upon the SCS synthetic unit hydrograph method. The rainfall distribution used in the program was the SCS Type III storm recommended for Connecticut. Precipitation amounts were obtained from the most recent (November 2018) NOAA Atlas 14, volume 10, version 2, "point precipitation frequency estimates."

The infiltration rate for the infiltration basin was based upon observation of the soil encountered in the test pits. This soil was extremely well drained and a figure 6.0 in/hr was used for the hydraulic conductivity at this site. This is comparable to a percolation rate of 10 minutes per inch which should be conservative based upon the soil.



Routing Diagram for 21283 Kennedy Drive Parking lot 2023-01-09

Prepared by J & D Civil Engineers, LLC, Printed 1/9/2023

HydroCAD® 10.10-7a s/n 02673 © 2021 HydroCAD Software Solutions LLC

21283 Kennedy Drive Parking lot 2023-01-09

Prepared by J & D Civil Engineers, LLC

Printed 1/9/2023

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Page 2

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	CT 10-year	Type III 24-hr		Default	24.00	1	5.17	2
2	CT 2 year	Type III 24-hr		Default	24.00	1	3.41	2
3	CT 25-year	Type III 24-hr		Default	24.00	1	6.27	2

21283 Kennedy Drive Parking lot 2023-01-09

Prepared by J & D Civil Engineers, LLC

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21283 Kennedy Dr Lot
Type III 24-hr CT 10-year Rainfall=5.17"

Printed 1/9/2023

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Summary for Subcatchment 1: parking - DA 1

Runoff = 2.15 cfs @ 12.08 hrs, Volume= 0.147 af, Depth= 2.68"
 Routed to Pond 1P : infiltration trench DA 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr CT 10-year Rainfall=5.17"

Area (ac)	CN	Description
0.390	61	>75% Grass cover, Good, HSG B
0.270	98	Paved parking, HSG B
0.660	76	Weighted Average
0.390		59.09% Pervious Area
0.270		40.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 2: parking - DA 2

Runoff = 1.48 cfs @ 12.08 hrs, Volume= 0.101 af, Depth= 2.77"
 Routed to Pond 2P : infiltration trench DA 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr CT 10-year Rainfall=5.17"

Area (ac)	CN	Description
0.250	61	>75% Grass cover, Good, HSG B
0.190	98	Paved parking, HSG B
0.440	77	Weighted Average
0.250		56.82% Pervious Area
0.190		43.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 3: parking - DA 3

Runoff = 2.74 cfs @ 12.07 hrs, Volume= 0.188 af, Depth= 2.86"
 Routed to Pond 3P : infiltration trench DA 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr CT 10-year Rainfall=5.17"

21283 Kennedy Drive Parking lot 2023-01-09

Prepared by J & D Civil Engineers, LLC

HydroCAD® 10.10-7a s/n 02673 © 2021 HydroCAD Software Solutions LLC

21283 Kennedy Dr Lot
Type III 24-hr CT 10-year Rainfall=5.17"

Printed 1/9/2023

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Area (ac)	CN	Description
0.420	61	>75% Grass cover, Good, HSG B
0.370	98	Paved parking, HSG B
0.790	78	Weighted Average
0.420		53.16% Pervious Area
0.370		46.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4: parking - DA 4

Runoff = 2.70 cfs @ 12.08 hrs, Volume= 0.185 af, Depth= 2.59"
 Routed to Reach 11R : 18 in cpp

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr CT 10-year Rainfall=5.17"

Area (ac)	CN	Description
0.540	61	>75% Grass cover, Good, HSG B
0.320	98	Paved parking, HSG B
0.860	75	Weighted Average
0.540		62.79% Pervious Area
0.320		37.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 5: parking - DA 5

Runoff = 3.01 cfs @ 12.08 hrs, Volume= 0.208 af, Depth= 2.33"
 Routed to Pond 4P : infiltration trench DA 5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr CT 10-year Rainfall=5.17"

Area (ac)	CN	Description
0.760	61	>75% Grass cover, Good, HSG B
0.310	98	Paved parking, HSG B
1.070	72	Weighted Average
0.760		71.03% Pervious Area
0.310		28.97% Impervious Area

21283 Kennedy Drive Parking lot 2023-01-09

Prepared by J & D Civil Engineers, LLC

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21283 Kennedy Dr Lot
Type III 24-hr CT 10-year Rainfall=5.17"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 6: parking - DA 6

Runoff = 1.25 cfs @ 12.07 hrs, Volume= 0.086 af, Depth= 2.86"
 Routed to Reach 13R : 24 in cpp

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr CT 10-year Rainfall=5.17"

Area (ac)	CN	Description
0.190	61	>75% Grass cover, Good, HSG B
0.170	98	Paved parking, HSG B
0.360	78	Weighted Average
0.190		52.78% Pervious Area
0.170		47.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 14S: lawn area - DA 7

Runoff = 0.44 cfs @ 12.15 hrs, Volume= 0.037 af, Depth= 1.84"
 Routed to Pond A : Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr CT 10-year Rainfall=5.17"

Area (ac)	CN	Description
0.210	61	>75% Grass cover, Good, HSG B
0.030	98	Paved parking, HSG B
0.240	66	Weighted Average
0.210		87.50% Pervious Area
0.030		12.50% Impervious Area

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

Summary for Reach 11R: 18 in cpp

Inflow Area = 2.750 ac, 41.82% Impervious, Inflow Depth = 1.99" for CT 10-year event
 Inflow = 8.90 cfs @ 12.08 hrs, Volume= 0.455 af
 Outflow = 8.90 cfs @ 12.08 hrs, Volume= 0.455 af, Atten= 0%, Lag= 0.1 min
 Routed to Reach 13R : 24 in cpp

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Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Max. Velocity= 8.78 fps, Min. Travel Time= 0.1 min

Avg. Velocity = 2.59 fps, Avg. Travel Time= 0.5 min

Peak Storage= 76 cf @ 12.08 hrs

Average Depth at Peak Storage= 0.84' , Surface Width= 1.49'

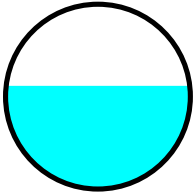
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 14.86 cfs

18.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

Length= 75.0' Slope= 0.0200 '/'

Inlet Invert= 232.00', Outlet Invert= 230.50'



Summary for Reach 12R: 15 in cpp

Inflow Area = 1.070 ac, 28.97% Impervious, Inflow Depth = 2.12" for CT 10-year event

Inflow = 2.99 cfs @ 12.08 hrs, Volume= 0.189 af

Outflow = 2.98 cfs @ 12.08 hrs, Volume= 0.189 af, Atten= 0%, Lag= 0.3 min

Routed to Pond A : Pond

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Max. Velocity= 4.17 fps, Min. Travel Time= 0.4 min

Avg. Velocity = 1.52 fps, Avg. Travel Time= 1.0 min

Peak Storage= 63 cf @ 12.08 hrs

Average Depth at Peak Storage= 0.71' , Surface Width= 1.24'

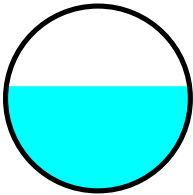
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 4.87 cfs

15.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

Length= 88.0' Slope= 0.0057 '/'

Inlet Invert= 230.00', Outlet Invert= 229.50'



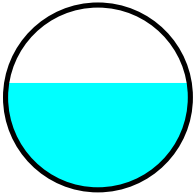
Summary for Reach 13R: 24 in cpp

Inflow Area = 3.110 ac, 42.44% Impervious, Inflow Depth = 2.09" for CT 10-year event
Inflow = 10.15 cfs @ 12.08 hrs, Volume= 0.541 af
Outflow = 10.13 cfs @ 12.08 hrs, Volume= 0.541 af, Atten= 0%, Lag= 0.2 min
Routed to Pond A : Pond

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.39 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.61 fps, Avg. Travel Time= 1.0 min

Peak Storage= 188 cf @ 12.08 hrs
Average Depth at Peak Storage= 1.16' , Surface Width= 1.98'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 16.00 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 100.0' Slope= 0.0050 '/
Inlet Invert= 230.00', Outlet Invert= 229.50'

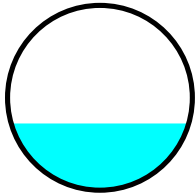
**Summary for Reach 15R: 12 in cpp**

Inflow Area = 0.660 ac, 40.91% Impervious, Inflow Depth = 1.70" for CT 10-year event
Inflow = 2.09 cfs @ 12.08 hrs, Volume= 0.093 af
Outflow = 2.09 cfs @ 12.08 hrs, Volume= 0.093 af, Atten= 0%, Lag= 0.2 min
Routed to Reach 16R : 12 in cpp

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 8.22 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.18 fps, Avg. Travel Time= 0.6 min

Peak Storage= 27 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.36' , Surface Width= 0.96'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 7.54 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 106.0' Slope= 0.0448 '/
Inlet Invert= 239.00', Outlet Invert= 234.25'

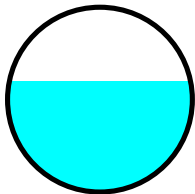
**Summary for Reach 16R: 12 in cpp**

Inflow Area = 1.100 ac, 41.82% Impervious, Inflow Depth = 1.63" for CT 10-year event
Inflow = 3.52 cfs @ 12.08 hrs, Volume= 0.149 af
Outflow = 3.52 cfs @ 12.08 hrs, Volume= 0.149 af, Atten= 0%, Lag= 0.1 min
Routed to Reach 11R : 18 in cpp

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.15 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.71 fps, Avg. Travel Time= 0.3 min

Peak Storage= 22 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.60' , Surface Width= 0.98'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.24 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 44.0' Slope= 0.0216 '/
Inlet Invert= 234.25', Outlet Invert= 233.30'

**Summary for Pond 1P: infiltration trench DA 1**

Inflow Area = 0.660 ac, 40.91% Impervious, Inflow Depth = 2.68" for CT 10-year event
Inflow = 2.15 cfs @ 12.08 hrs, Volume= 0.147 af
Outflow = 2.15 cfs @ 12.08 hrs, Volume= 0.147 af, Atten= 0%, Lag= 0.1 min
Discarded = 0.05 cfs @ 12.08 hrs, Volume= 0.054 af
Primary = 2.09 cfs @ 12.08 hrs, Volume= 0.093 af
Routed to Reach 15R : 12 in cpp

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 244.27' @ 12.08 hrs Surf.Area= 210 sf Storage= 250 cf

Plug-Flow detention time= 26.6 min calculated for 0.147 af (100% of inflow)
Center-of-Mass det. time= 26.7 min (856.5 - 829.8)

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Volume	Invert	Avail.Storage	Storage Description
#1	239.00'	419 cf	Custom Stage Data (Conic) Listed below (Recalc) 1,049 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
239.00	20	0	0	20
240.00	60	38	38	65
242.00	140	194	233	171
244.00	200	338	571	281
246.00	280	478	1,049	417

Device	Routing	Invert	Outlet Devices
#1	Discarded	239.00'	6.000 in/hr Exfiltration over Wetted area Conductivity to Groundwater Elevation = 230.00'
#2	Primary	244.10'	19.0" x 36.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.05 cfs @ 12.08 hrs HW=244.27' (Free Discharge)
 ↑**1=Exfiltration** (Controls 0.05 cfs)

Primary OutFlow Max=2.07 cfs @ 12.08 hrs HW=244.27' (Free Discharge)
 ↑**2=Orifice/Grate** (Weir Controls 2.07 cfs @ 1.34 fps)

Summary for Pond 2P: infiltration trench DA 2

Inflow Area = 0.440 ac, 43.18% Impervious, Inflow Depth = 2.77" for CT 10-year event
 Inflow = 1.48 cfs @ 12.08 hrs, Volume= 0.101 af
 Outflow = 1.48 cfs @ 12.08 hrs, Volume= 0.101 af, Atten= 0%, Lag= 0.1 min
 Discarded = 0.05 cfs @ 12.08 hrs, Volume= 0.046 af
 Primary = 1.43 cfs @ 12.08 hrs, Volume= 0.056 af
 Routed to Reach 16R : 12 in cpp

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 239.23' @ 12.08 hrs Surf.Area= 204 sf Storage= 277 cf

Plug-Flow detention time= 35.6 min calculated for 0.101 af (100% of inflow)
 Center-of-Mass det. time= 35.6 min (862.9 - 827.3)

Volume	Invert	Avail.Storage	Storage Description
#1	233.50'	342 cf	Custom Stage Data (Conic) Listed below (Recalc) 855 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
233.50	20	0	0	20
236.00	120	157	157	141
238.00	180	298	455	246
240.00	220	399	855	354

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Device	Routing	Invert	Outlet Devices
#1	Discarded	233.50'	6.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 230.00'
#2	Primary	239.10'	19.0" x 36.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.05 cfs @ 12.08 hrs HW=239.23' (Free Discharge)↑**1=Exfiltration** (Controls 0.05 cfs)**Primary OutFlow** Max=1.41 cfs @ 12.08 hrs HW=239.23' (Free Discharge)↑**2=Orifice/Grate** (Weir Controls 1.41 cfs @ 1.18 fps)**Summary for Pond 3P: infiltration trench DA 3**

Inflow Area = 0.790 ac, 46.84% Impervious, Inflow Depth = 2.86" for CT 10-year event
 Inflow = 2.74 cfs @ 12.07 hrs, Volume= 0.188 af
 Outflow = 2.74 cfs @ 12.08 hrs, Volume= 0.188 af, Atten= 0%, Lag= 0.1 min
 Discarded = 0.06 cfs @ 12.08 hrs, Volume= 0.068 af
 Primary = 2.68 cfs @ 12.08 hrs, Volume= 0.121 af
 Routed to Reach 11R : 18 in cpp

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 237.50' @ 12.08 hrs Surf.Area= 250 sf Storage= 313 cf

Plug-Flow detention time= 26.2 min calculated for 0.188 af (100% of inflow)
 Center-of-Mass det. time= 26.2 min (850.9 - 824.7)

Volume	Invert	Avail.Storage	Storage Description	
#1	232.50'	364 cf	Custom Stage Data (Conic) Listed below (Recalc) 909 cf Overall x 40.0% Voids	
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
232.50	20	0	0	20
234.00	120	94	94	128
236.00	220	335	429	264
238.00	260	479	909	380

Device	Routing	Invert	Outlet Devices
#1	Discarded	232.50'	6.000 in/hr Exfiltration over Wetted area Conductivity to Groundwater Elevation = 225.00'
#2	Primary	237.30'	19.0" x 36.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.06 cfs @ 12.08 hrs HW=237.50' (Free Discharge)↑**1=Exfiltration** (Controls 0.06 cfs)**Primary OutFlow** Max=2.67 cfs @ 12.08 hrs HW=237.50' (Free Discharge)↑**2=Orifice/Grate** (Weir Controls 2.67 cfs @ 1.46 fps)

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Summary for Pond 4P: infiltration trench DA 5

Inflow Area = 1.070 ac, 28.97% Impervious, Inflow Depth = 2.33" for CT 10-year event
 Inflow = 3.01 cfs @ 12.08 hrs, Volume= 0.208 af
 Outflow = 3.01 cfs @ 12.08 hrs, Volume= 0.208 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.02 cfs @ 12.08 hrs, Volume= 0.019 af
 Primary = 2.99 cfs @ 12.08 hrs, Volume= 0.189 af
 Routed to Reach 12R : 15 in cpp

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 233.91' @ 12.08 hrs Surf.Area= 112 sf Storage= 34 cf

Plug-Flow detention time= 2.5 min calculated for 0.208 af (100% of inflow)
 Center-of-Mass det. time= 2.5 min (842.4 - 839.9)

Volume	Invert	Avail.Storage	Storage Description
#1	232.50'	364 cf	Custom Stage Data (Conic) Listed below (Recalc) 909 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
232.50	20	0	0	20
234.00	120	94	94	128
236.00	220	335	429	264
238.00	260	479	909	380

Device	Routing	Invert	Outlet Devices
#1	Discarded	232.50'	6.000 in/hr Exfiltration over Wetted area Conductivity to Groundwater Elevation = 225.00'
#2	Primary	233.70'	19.0" x 36.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.02 cfs @ 12.08 hrs HW=233.91' (Free Discharge)
 ↑1=Exfiltration (Controls 0.02 cfs)

Primary OutFlow Max=2.97 cfs @ 12.08 hrs HW=233.91' (Free Discharge)
 ↑2=Orifice/Grate (Weir Controls 2.97 cfs @ 1.51 fps)

Summary for Pond A: Pond

Inflow Area = 4.420 ac, 37.56% Impervious, Inflow Depth = 2.08" for CT 10-year event
 Inflow = 13.47 cfs @ 12.08 hrs, Volume= 0.767 af
 Outflow = 10.38 cfs @ 12.15 hrs, Volume= 0.767 af, Atten= 23%, Lag= 3.8 min
 Discarded = 1.24 cfs @ 12.15 hrs, Volume= 0.428 af
 Primary = 9.14 cfs @ 12.15 hrs, Volume= 0.339 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 231.36' @ 12.15 hrs Surf.Area= 3,644 sf Storage= 7,008 cf

Plug-Flow detention time= 25.4 min calculated for 0.767 af (100% of inflow)
 Center-of-Mass det. time= 25.4 min (830.2 - 804.8)

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Volume	Invert	Avail.Storage	Storage Description		
#1	228.00'	10,504 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
228.00	348	69.0	0	0	348
229.00	1,572	206.0	887	887	3,349
230.00	2,469	270.0	2,004	2,890	5,785
232.00	4,283	316.0	6,669	9,559	8,009
232.20	5,181	335.0	945	10,504	8,995

Device	Routing	Invert	Outlet Devices
#1	Discarded	228.00'	6.000 in/hr Exfiltration over Wetted area Conductivity to Groundwater Elevation = 220.00'
#2	Primary	231.00'	19.0" x 36.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	231.50'	10.0' long + 2.0 ' SideZ x 8.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74
#4	Primary	229.50'	10.0" Round Culvert L= 10.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 229.50' / 228.50' S= 0.1000 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf

Discarded OutFlow Max=1.24 cfs @ 12.15 hrs HW=231.35' (Free Discharge)↑ **1=Exfiltration** (Controls 1.24 cfs)**Primary OutFlow** Max=9.12 cfs @ 12.15 hrs HW=231.35' (Free Discharge)↑ **2=Orifice/Grate** (Weir Controls 6.34 cfs @ 1.95 fps)| **3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)| **4=Culvert** (Inlet Controls 2.78 cfs @ 5.10 fps)

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Summary for Subcatchment 1: parking - DA 1

Runoff = 1.02 cfs @ 12.08 hrs, Volume= 0.072 af, Depth= 1.30"
 Routed to Pond 1P : infiltration trench DA 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr CT 2 year Rainfall=3.41"

Area (ac)	CN	Description
0.390	61	>75% Grass cover, Good, HSG B
0.270	98	Paved parking, HSG B
0.660	76	Weighted Average
0.390		59.09% Pervious Area
0.270		40.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 2: parking - DA 2

Runoff = 0.72 cfs @ 12.08 hrs, Volume= 0.050 af, Depth= 1.36"
 Routed to Pond 2P : infiltration trench DA 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr CT 2 year Rainfall=3.41"

Area (ac)	CN	Description
0.250	61	>75% Grass cover, Good, HSG B
0.190	98	Paved parking, HSG B
0.440	77	Weighted Average
0.250		56.82% Pervious Area
0.190		43.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 3: parking - DA 3

Runoff = 1.35 cfs @ 12.08 hrs, Volume= 0.094 af, Depth= 1.43"
 Routed to Pond 3P : infiltration trench DA 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr CT 2 year Rainfall=3.41"

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Area (ac)	CN	Description
0.420	61	>75% Grass cover, Good, HSG B
0.370	98	Paved parking, HSG B
0.790	78	Weighted Average
0.420		53.16% Pervious Area
0.370		46.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4: parking - DA 4

Runoff = 1.25 cfs @ 12.08 hrs, Volume= 0.089 af, Depth= 1.24"
 Routed to Reach 11R : 18 in cpp

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr CT 2 year Rainfall=3.41"

Area (ac)	CN	Description
0.540	61	>75% Grass cover, Good, HSG B
0.320	98	Paved parking, HSG B
0.860	75	Weighted Average
0.540		62.79% Pervious Area
0.320		37.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 5: parking - DA 5

Runoff = 1.30 cfs @ 12.08 hrs, Volume= 0.095 af, Depth= 1.06"
 Routed to Pond 4P : infiltration trench DA 5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr CT 2 year Rainfall=3.41"

Area (ac)	CN	Description
0.760	61	>75% Grass cover, Good, HSG B
0.310	98	Paved parking, HSG B
1.070	72	Weighted Average
0.760		71.03% Pervious Area
0.310		28.97% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 6: parking - DA 6

Runoff = 0.62 cfs @ 12.08 hrs, Volume= 0.043 af, Depth= 1.43"
 Routed to Reach 13R : 24 in cpp

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr CT 2 year Rainfall=3.41"

Area (ac)	CN	Description
0.190	61	>75% Grass cover, Good, HSG B
0.170	98	Paved parking, HSG B
0.360	78	Weighted Average
0.190		52.78% Pervious Area
0.170		47.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 14S: lawn area - DA 7

Runoff = 0.15 cfs @ 12.16 hrs, Volume= 0.015 af, Depth= 0.75"
 Routed to Pond A : Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr CT 2 year Rainfall=3.41"

Area (ac)	CN	Description
0.210	61	>75% Grass cover, Good, HSG B
0.030	98	Paved parking, HSG B
0.240	66	Weighted Average
0.210		87.50% Pervious Area
0.030		12.50% Impervious Area

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

Summary for Reach 11R: 18 in cpp

Inflow Area = 2.750 ac, 41.82% Impervious, Inflow Depth = 0.80" for CT 2 year event
 Inflow = 4.19 cfs @ 12.08 hrs, Volume= 0.183 af
 Outflow = 4.17 cfs @ 12.09 hrs, Volume= 0.183 af, Atten= 0%, Lag= 0.3 min
 Routed to Reach 13R : 24 in cpp

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Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Max. Velocity= 7.21 fps, Min. Travel Time= 0.2 min

Avg. Velocity = 2.08 fps, Avg. Travel Time= 0.6 min

Peak Storage= 43 cf @ 12.09 hrs

Average Depth at Peak Storage= 0.54' , Surface Width= 1.44'

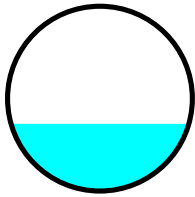
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 14.86 cfs

18.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

Length= 75.0' Slope= 0.0200 '/'

Inlet Invert= 232.00', Outlet Invert= 230.50'



Summary for Reach 12R: 15 in cpp

Inflow Area = 1.070 ac, 28.97% Impervious, Inflow Depth = 0.88" for CT 2 year event

Inflow = 1.28 cfs @ 12.08 hrs, Volume= 0.078 af

Outflow = 1.28 cfs @ 12.09 hrs, Volume= 0.078 af, Atten= 0%, Lag= 0.3 min

Routed to Pond A : Pond

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Max. Velocity= 3.34 fps, Min. Travel Time= 0.4 min

Avg. Velocity = 1.18 fps, Avg. Travel Time= 1.2 min

Peak Storage= 34 cf @ 12.09 hrs

Average Depth at Peak Storage= 0.44' , Surface Width= 1.19'

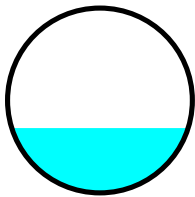
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 4.87 cfs

15.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

Length= 88.0' Slope= 0.0057 '/'

Inlet Invert= 230.00', Outlet Invert= 229.50'



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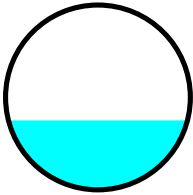
Summary for Reach 13R: 24 in cpp

Inflow Area = 3.110 ac, 42.44% Impervious, Inflow Depth = 0.87" for CT 2 year event
Inflow = 4.79 cfs @ 12.09 hrs, Volume= 0.226 af
Outflow = 4.78 cfs @ 12.09 hrs, Volume= 0.226 af, Atten= 0%, Lag= 0.2 min
Routed to Pond A : Pond

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.44 fps, Min. Travel Time= 0.4 min
Avg. Velocity= 1.31 fps, Avg. Travel Time= 1.3 min

Peak Storage= 107 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.75' , Surface Width= 1.94'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 16.00 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 100.0' Slope= 0.0050 '/
Inlet Invert= 230.00', Outlet Invert= 229.50'



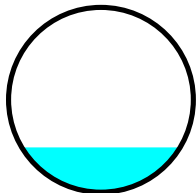
Summary for Reach 15R: 12 in cpp

Inflow Area = 0.660 ac, 40.91% Impervious, Inflow Depth = 0.59" for CT 2 year event
Inflow = 0.97 cfs @ 12.08 hrs, Volume= 0.032 af
Outflow = 0.96 cfs @ 12.08 hrs, Volume= 0.032 af, Atten= 0%, Lag= 0.2 min
Routed to Reach 16R : 12 in cpp

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.59 fps, Min. Travel Time= 0.3 min
Avg. Velocity= 2.71 fps, Avg. Travel Time= 0.7 min

Peak Storage= 16 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.24' , Surface Width= 0.86'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 7.54 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 106.0' Slope= 0.0448 '/
Inlet Invert= 239.00', Outlet Invert= 234.25'

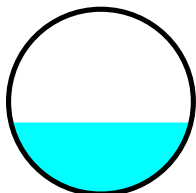
**Summary for Reach 16R: 12 in cpp**

Inflow Area = 1.100 ac, 41.82% Impervious, Inflow Depth = 0.54" for CT 2 year event
Inflow = 1.63 cfs @ 12.08 hrs, Volume= 0.050 af
Outflow = 1.65 cfs @ 12.08 hrs, Volume= 0.050 af, Atten= 0%, Lag= 0.0 min
Routed to Reach 11R : 18 in cpp

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.90 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.27 fps, Avg. Travel Time= 0.3 min

Peak Storage= 12 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.39' , Surface Width= 0.97'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.24 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 44.0' Slope= 0.0216 '/
Inlet Invert= 234.25', Outlet Invert= 233.30'

**Summary for Pond 1P: infiltration trench DA 1**

Inflow Area = 0.660 ac, 40.91% Impervious, Inflow Depth = 1.30" for CT 2 year event
Inflow = 1.02 cfs @ 12.08 hrs, Volume= 0.072 af
Outflow = 1.02 cfs @ 12.08 hrs, Volume= 0.072 af, Atten= 0%, Lag= 0.1 min
Discarded = 0.05 cfs @ 12.08 hrs, Volume= 0.039 af
Primary = 0.97 cfs @ 12.08 hrs, Volume= 0.032 af
Routed to Reach 15R : 12 in cpp

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 244.20' @ 12.08 hrs Surf.Area= 207 sf Storage= 245 cf

Plug-Flow detention time= 37.1 min calculated for 0.072 af (100% of inflow)
Center-of-Mass det. time= 37.1 min (888.1 - 851.0)

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Volume	Invert	Avail.Storage	Storage Description
#1	239.00'	419 cf	Custom Stage Data (Conic) Listed below (Recalc) 1,049 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
239.00	20	0	0	20
240.00	60	38	38	65
242.00	140	194	233	171
244.00	200	338	571	281
246.00	280	478	1,049	417

Device	Routing	Invert	Outlet Devices
#1	Discarded	239.00'	6.000 in/hr Exfiltration over Wetted area Conductivity to Groundwater Elevation = 230.00'
#2	Primary	244.10'	19.0" x 36.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.05 cfs @ 12.08 hrs HW=244.20' (Free Discharge)
 ↑ **1=Exfiltration** (Controls 0.05 cfs)

Primary OutFlow Max=0.93 cfs @ 12.08 hrs HW=244.20' (Free Discharge)
 ↑ **2=Orifice/Grate** (Weir Controls 0.93 cfs @ 1.03 fps)

Summary for Pond 2P: infiltration trench DA 2

Inflow Area = 0.440 ac, 43.18% Impervious, Inflow Depth = 1.36" for CT 2 year event
 Inflow = 0.72 cfs @ 12.08 hrs, Volume= 0.050 af
 Outflow = 0.72 cfs @ 12.07 hrs, Volume= 0.050 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.05 cfs @ 12.07 hrs, Volume= 0.033 af
 Primary = 0.67 cfs @ 12.07 hrs, Volume= 0.017 af
 Routed to Reach 16R : 12 in cpp

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 239.18' @ 12.07 hrs Surf.Area= 203 sf Storage= 272 cf

Plug-Flow detention time= 48.0 min calculated for 0.050 af (100% of inflow)
 Center-of-Mass det. time= 48.0 min (895.9 - 847.9)

Volume	Invert	Avail.Storage	Storage Description
#1	233.50'	342 cf	Custom Stage Data (Conic) Listed below (Recalc) 855 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
233.50	20	0	0	20
236.00	120	157	157	141
238.00	180	298	455	246
240.00	220	399	855	354

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Device	Routing	Invert	Outlet Devices
#1	Discarded	233.50'	6.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 230.00'
#2	Primary	239.10'	19.0" x 36.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.05 cfs @ 12.07 hrs HW=239.18' (Free Discharge)↑**1=Exfiltration** (Controls 0.05 cfs)**Primary OutFlow** Max=0.63 cfs @ 12.07 hrs HW=239.18' (Free Discharge)↑**2=Orifice/Grate** (Weir Controls 0.63 cfs @ 0.90 fps)**Summary for Pond 3P: infiltration trench DA 3**

Inflow Area = 0.790 ac, 46.84% Impervious, Inflow Depth = 1.43" for CT 2 year event
 Inflow = 1.35 cfs @ 12.08 hrs, Volume= 0.094 af
 Outflow = 1.35 cfs @ 12.08 hrs, Volume= 0.094 af, Atten= 0%, Lag= 0.1 min
 Discarded = 0.06 cfs @ 12.08 hrs, Volume= 0.049 af
 Primary = 1.29 cfs @ 12.08 hrs, Volume= 0.045 af
 Routed to Reach 11R : 18 in cpp

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 237.42' @ 12.08 hrs Surf.Area= 248 sf Storage= 305 cf

Plug-Flow detention time= 35.4 min calculated for 0.094 af (100% of inflow)
 Center-of-Mass det. time= 35.4 min (880.2 - 844.8)

Volume	Invert	Avail.Storage	Storage Description	
#1	232.50'	364 cf	Custom Stage Data (Conic) Listed below (Recalc) 909 cf Overall x 40.0% Voids	

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
232.50	20	0	0	20
234.00	120	94	94	128
236.00	220	335	429	264
238.00	260	479	909	380

Device	Routing	Invert	Outlet Devices
#1	Discarded	232.50'	6.000 in/hr Exfiltration over Wetted area Conductivity to Groundwater Elevation = 225.00'
#2	Primary	237.30'	19.0" x 36.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.06 cfs @ 12.08 hrs HW=237.42' (Free Discharge)↑**1=Exfiltration** (Controls 0.06 cfs)**Primary OutFlow** Max=1.27 cfs @ 12.08 hrs HW=237.42' (Free Discharge)↑**2=Orifice/Grate** (Weir Controls 1.27 cfs @ 1.14 fps)

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Summary for Pond 4P: infiltration trench DA 5

Inflow Area = 1.070 ac, 28.97% Impervious, Inflow Depth = 1.06" for CT 2 year event
 Inflow = 1.30 cfs @ 12.08 hrs, Volume= 0.095 af
 Outflow = 1.30 cfs @ 12.08 hrs, Volume= 0.095 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.02 cfs @ 12.08 hrs, Volume= 0.017 af
 Primary = 1.28 cfs @ 12.08 hrs, Volume= 0.078 af
 Routed to Reach 12R : 15 in cpp

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 233.82' @ 12.08 hrs Surf.Area= 104 sf Storage= 30 cf

Plug-Flow detention time= 4.9 min calculated for 0.095 af (100% of inflow)
 Center-of-Mass det. time= 4.9 min (868.4 - 863.6)

Volume	Invert	Avail.Storage	Storage Description
#1	232.50'	364 cf	Custom Stage Data (Conic) Listed below (Recalc) 909 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
232.50	20	0	0	20
234.00	120	94	94	128
236.00	220	335	429	264
238.00	260	479	909	380

Device	Routing	Invert	Outlet Devices
#1	Discarded	232.50'	6.000 in/hr Exfiltration over Wetted area Conductivity to Groundwater Elevation = 225.00'
#2	Primary	233.70'	19.0" x 36.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.02 cfs @ 12.08 hrs HW=233.82' (Free Discharge)
 ↑1=Exfiltration (Controls 0.02 cfs)

Primary OutFlow Max=1.28 cfs @ 12.08 hrs HW=233.82' (Free Discharge)
 ↑2=Orifice/Grate (Weir Controls 1.28 cfs @ 1.14 fps)

Summary for Pond A: Pond

Inflow Area = 4.420 ac, 37.56% Impervious, Inflow Depth = 0.87" for CT 2 year event
 Inflow = 6.17 cfs @ 12.09 hrs, Volume= 0.319 af
 Outflow = 2.51 cfs @ 12.35 hrs, Volume= 0.319 af, Atten= 59%, Lag= 15.5 min
 Discarded = 0.98 cfs @ 12.35 hrs, Volume= 0.246 af
 Primary = 1.52 cfs @ 12.35 hrs, Volume= 0.073 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 230.35' @ 12.35 hrs Surf.Area= 2,749 sf Storage= 3,799 cf

Plug-Flow detention time= 27.8 min calculated for 0.319 af (100% of inflow)
 Center-of-Mass det. time= 27.8 min (844.5 - 816.8)

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Volume	Invert	Avail.Storage	Storage Description		
#1	228.00'	10,504 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
228.00	348	69.0	0	0	348
229.00	1,572	206.0	887	887	3,349
230.00	2,469	270.0	2,004	2,890	5,785
232.00	4,283	316.0	6,669	9,559	8,009
232.20	5,181	335.0	945	10,504	8,995

Device	Routing	Invert	Outlet Devices
#1	Discarded	228.00'	6.000 in/hr Exfiltration over Wetted area Conductivity to Groundwater Elevation = 220.00'
#2	Primary	231.00'	19.0" x 36.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	231.50'	10.0' long + 2.0 ' SideZ x 8.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74
#4	Primary	229.50'	10.0" Round Culvert L= 10.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 229.50' / 228.50' S= 0.1000 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf

Discarded OutFlow Max=0.98 cfs @ 12.35 hrs HW=230.35' (Free Discharge)↑ **1=Exfiltration** (Controls 0.98 cfs)**Primary OutFlow** Max=1.52 cfs @ 12.35 hrs HW=230.35' (Free Discharge)↑ **2=Orifice/Grate** (Controls 0.00 cfs)| **3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)| **4=Culvert** (Inlet Controls 1.52 cfs @ 2.79 fps)

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Summary for Subcatchment 1: parking - DA 1

Runoff = 2.90 cfs @ 12.07 hrs, Volume= 0.199 af, Depth= 3.61"
 Routed to Pond 1P : infiltration trench DA 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr CT 25-year Rainfall=6.27"

Area (ac)	CN	Description
0.390	61	>75% Grass cover, Good, HSG B
0.270	98	Paved parking, HSG B
0.660	76	Weighted Average
0.390		59.09% Pervious Area
0.270		40.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 2: parking - DA 2

Runoff = 1.99 cfs @ 12.07 hrs, Volume= 0.136 af, Depth= 3.72"
 Routed to Pond 2P : infiltration trench DA 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr CT 25-year Rainfall=6.27"

Area (ac)	CN	Description
0.250	61	>75% Grass cover, Good, HSG B
0.190	98	Paved parking, HSG B
0.440	77	Weighted Average
0.250		56.82% Pervious Area
0.190		43.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 3: parking - DA 3

Runoff = 3.66 cfs @ 12.07 hrs, Volume= 0.251 af, Depth= 3.82"
 Routed to Pond 3P : infiltration trench DA 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr CT 25-year Rainfall=6.27"

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Area (ac)	CN	Description
0.420	61	>75% Grass cover, Good, HSG B
0.370	98	Paved parking, HSG B
0.790	78	Weighted Average
0.420		53.16% Pervious Area
0.370		46.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4: parking - DA 4

Runoff = 3.67 cfs @ 12.07 hrs, Volume= 0.252 af, Depth= 3.51"
 Routed to Reach 11R : 18 in cpp

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr CT 25-year Rainfall=6.27"

Area (ac)	CN	Description
0.540	61	>75% Grass cover, Good, HSG B
0.320	98	Paved parking, HSG B
0.860	75	Weighted Average
0.540		62.79% Pervious Area
0.320		37.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 5: parking - DA 5

Runoff = 4.18 cfs @ 12.08 hrs, Volume= 0.287 af, Depth= 3.22"
 Routed to Pond 4P : infiltration trench DA 5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr CT 25-year Rainfall=6.27"

Area (ac)	CN	Description
0.760	61	>75% Grass cover, Good, HSG B
0.310	98	Paved parking, HSG B
1.070	72	Weighted Average
0.760		71.03% Pervious Area
0.310		28.97% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 6: parking - DA 6

Runoff = 1.67 cfs @ 12.07 hrs, Volume= 0.115 af, Depth= 3.82"
 Routed to Reach 13R : 24 in cpp

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr CT 25-year Rainfall=6.27"

Area (ac)	CN	Description
0.190	61	>75% Grass cover, Good, HSG B
0.170	98	Paved parking, HSG B
0.360	78	Weighted Average
0.190		52.78% Pervious Area
0.170		47.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 14S: lawn area - DA 7

Runoff = 0.64 cfs @ 12.14 hrs, Volume= 0.053 af, Depth= 2.64"
 Routed to Pond A : Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr CT 25-year Rainfall=6.27"

Area (ac)	CN	Description
0.210	61	>75% Grass cover, Good, HSG B
0.030	98	Paved parking, HSG B
0.240	66	Weighted Average
0.210		87.50% Pervious Area
0.030		12.50% Impervious Area

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

Summary for Reach 11R: 18 in cpp

Inflow Area = 2.750 ac, 41.82% Impervious, Inflow Depth = 2.83" for CT 25-year event
 Inflow = 12.04 cfs @ 12.08 hrs, Volume= 0.649 af
 Outflow = 12.04 cfs @ 12.08 hrs, Volume= 0.649 af, Atten= 0%, Lag= 0.1 min
 Routed to Reach 13R : 24 in cpp

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Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Max. Velocity= 9.36 fps, Min. Travel Time= 0.1 min

Avg. Velocity = 2.84 fps, Avg. Travel Time= 0.4 min

Peak Storage= 96 cf @ 12.08 hrs

Average Depth at Peak Storage= 1.02' , Surface Width= 1.40'

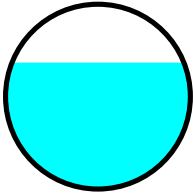
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 14.86 cfs

18.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

Length= 75.0' Slope= 0.0200 '/'

Inlet Invert= 232.00', Outlet Invert= 230.50'



Summary for Reach 12R: 15 in cpp

Inflow Area = 1.070 ac, 28.97% Impervious, Inflow Depth = 2.99" for CT 25-year event

Inflow = 4.16 cfs @ 12.08 hrs, Volume= 0.267 af

Outflow = 4.15 cfs @ 12.08 hrs, Volume= 0.267 af, Atten= 0%, Lag= 0.3 min

Routed to Pond A : Pond

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Max. Velocity= 4.46 fps, Min. Travel Time= 0.3 min

Avg. Velocity = 1.66 fps, Avg. Travel Time= 0.9 min

Peak Storage= 82 cf @ 12.08 hrs

Average Depth at Peak Storage= 0.89' , Surface Width= 1.13'

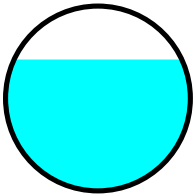
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 4.87 cfs

15.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

Length= 88.0' Slope= 0.0057 '/'

Inlet Invert= 230.00', Outlet Invert= 229.50'



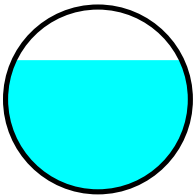
Summary for Reach 13R: 24 in cpp

Inflow Area = 3.110 ac, 42.44% Impervious, Inflow Depth = 2.95" for CT 25-year event
Inflow = 13.71 cfs @ 12.08 hrs, Volume= 0.764 af
Outflow = 13.69 cfs @ 12.08 hrs, Volume= 0.764 af, Atten= 0%, Lag= 0.2 min
Routed to Pond A : Pond

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.72 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.75 fps, Avg. Travel Time= 1.0 min

Peak Storage= 239 cf @ 12.08 hrs
Average Depth at Peak Storage= 1.42' , Surface Width= 1.81'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 16.00 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 100.0' Slope= 0.0050 '/
Inlet Invert= 230.00', Outlet Invert= 229.50'

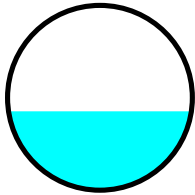
**Summary for Reach 15R: 12 in cpp**

Inflow Area = 0.660 ac, 40.91% Impervious, Inflow Depth = 2.50" for CT 25-year event
Inflow = 2.85 cfs @ 12.08 hrs, Volume= 0.138 af
Outflow = 2.85 cfs @ 12.08 hrs, Volume= 0.138 af, Atten= 0%, Lag= 0.2 min
Routed to Reach 16R : 12 in cpp

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 8.93 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.17 fps, Avg. Travel Time= 0.6 min

Peak Storage= 34 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.43' , Surface Width= 0.99'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 7.54 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 106.0' Slope= 0.0448 '/
Inlet Invert= 239.00', Outlet Invert= 234.25'

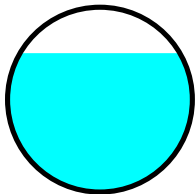
**Summary for Reach 16R: 12 in cpp**

Inflow Area = 1.100 ac, 41.82% Impervious, Inflow Depth = 2.42" for CT 25-year event
Inflow = 4.78 cfs @ 12.08 hrs, Volume= 0.222 af
Outflow = 4.78 cfs @ 12.08 hrs, Volume= 0.222 af, Atten= 0%, Lag= 0.1 min
Routed to Reach 11R : 18 in cpp

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.56 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.71 fps, Avg. Travel Time= 0.3 min

Peak Storage= 28 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.75' , Surface Width= 0.87'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.24 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 44.0' Slope= 0.0216 '/
Inlet Invert= 234.25', Outlet Invert= 233.30'

**Summary for Pond 1P: infiltration trench DA 1**

Inflow Area = 0.660 ac, 40.91% Impervious, Inflow Depth = 3.61" for CT 25-year event
Inflow = 2.90 cfs @ 12.07 hrs, Volume= 0.199 af
Outflow = 2.90 cfs @ 12.08 hrs, Volume= 0.199 af, Atten= 0%, Lag= 0.1 min
Discarded = 0.05 cfs @ 12.08 hrs, Volume= 0.061 af
Primary = 2.85 cfs @ 12.08 hrs, Volume= 0.138 af
Routed to Reach 15R : 12 in cpp

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 244.31' @ 12.08 hrs Surf.Area= 211 sf Storage= 254 cf

Plug-Flow detention time= 22.9 min calculated for 0.199 af (100% of inflow)
Center-of-Mass det. time= 22.9 min (844.1 - 821.2)

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Volume	Invert	Avail.Storage	Storage Description
#1	239.00'	419 cf	Custom Stage Data (Conic) Listed below (Recalc) 1,049 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
239.00	20	0	0	20
240.00	60	38	38	65
242.00	140	194	233	171
244.00	200	338	571	281
246.00	280	478	1,049	417

Device	Routing	Invert	Outlet Devices
#1	Discarded	239.00'	6.000 in/hr Exfiltration over Wetted area Conductivity to Groundwater Elevation = 230.00'
#2	Primary	244.10'	19.0" x 36.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.05 cfs @ 12.08 hrs HW=244.31' (Free Discharge)
 ↑**1=Exfiltration** (Controls 0.05 cfs)

Primary OutFlow Max=2.82 cfs @ 12.08 hrs HW=244.31' (Free Discharge)
 ↑**2=Orifice/Grate** (Weir Controls 2.82 cfs @ 1.49 fps)

Summary for Pond 2P: infiltration trench DA 2

Inflow Area = 0.440 ac, 43.18% Impervious, Inflow Depth = 3.72" for CT 25-year event
 Inflow = 1.99 cfs @ 12.07 hrs, Volume= 0.136 af
 Outflow = 1.99 cfs @ 12.08 hrs, Volume= 0.136 af, Atten= 0%, Lag= 0.1 min
 Discarded = 0.05 cfs @ 12.08 hrs, Volume= 0.052 af
 Primary = 1.94 cfs @ 12.08 hrs, Volume= 0.084 af
 Routed to Reach 16R : 12 in cpp

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 239.26' @ 12.08 hrs Surf.Area= 205 sf Storage= 279 cf

Plug-Flow detention time= 31.5 min calculated for 0.136 af (100% of inflow)
 Center-of-Mass det. time= 31.5 min (850.2 - 818.8)

Volume	Invert	Avail.Storage	Storage Description
#1	233.50'	342 cf	Custom Stage Data (Conic) Listed below (Recalc) 855 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
233.50	20	0	0	20
236.00	120	157	157	141
238.00	180	298	455	246
240.00	220	399	855	354

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Device	Routing	Invert	Outlet Devices
#1	Discarded	233.50'	6.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 230.00'
#2	Primary	239.10'	19.0" x 36.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.05 cfs @ 12.08 hrs HW=239.26' (Free Discharge)↑**1=Exfiltration** (Controls 0.05 cfs)**Primary OutFlow** Max=1.90 cfs @ 12.08 hrs HW=239.26' (Free Discharge)↑**2=Orifice/Grate** (Weir Controls 1.90 cfs @ 1.30 fps)**Summary for Pond 3P: infiltration trench DA 3**

Inflow Area = 0.790 ac, 46.84% Impervious, Inflow Depth = 3.82" for CT 25-year event
 Inflow = 3.66 cfs @ 12.07 hrs, Volume= 0.251 af
 Outflow = 3.66 cfs @ 12.08 hrs, Volume= 0.251 af, Atten= 0%, Lag= 0.1 min
 Discarded = 0.06 cfs @ 12.08 hrs, Volume= 0.076 af
 Primary = 3.59 cfs @ 12.08 hrs, Volume= 0.175 af
 Routed to Reach 11R : 18 in cpp

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 237.54' @ 12.08 hrs Surf.Area= 251 sf Storage= 317 cf

Plug-Flow detention time= 22.7 min calculated for 0.251 af (100% of inflow)
 Center-of-Mass det. time= 22.8 min (839.1 - 816.4)

Volume	Invert	Avail.Storage	Storage Description	
#1	232.50'	364 cf	Custom Stage Data (Conic) Listed below (Recalc) 909 cf Overall x 40.0% Voids	

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
232.50	20	0	0	20
234.00	120	94	94	128
236.00	220	335	429	264
238.00	260	479	909	380

Device	Routing	Invert	Outlet Devices
#1	Discarded	232.50'	6.000 in/hr Exfiltration over Wetted area Conductivity to Groundwater Elevation = 225.00'
#2	Primary	237.30'	19.0" x 36.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.06 cfs @ 12.08 hrs HW=237.54' (Free Discharge)↑**1=Exfiltration** (Controls 0.06 cfs)**Primary OutFlow** Max=3.57 cfs @ 12.08 hrs HW=237.54' (Free Discharge)↑**2=Orifice/Grate** (Weir Controls 3.57 cfs @ 1.61 fps)

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Summary for Pond 4P: infiltration trench DA 5

Inflow Area = 1.070 ac, 28.97% Impervious, Inflow Depth = 3.22" for CT 25-year event
 Inflow = 4.18 cfs @ 12.08 hrs, Volume= 0.287 af
 Outflow = 4.18 cfs @ 12.08 hrs, Volume= 0.287 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.02 cfs @ 12.08 hrs, Volume= 0.020 af
 Primary = 4.16 cfs @ 12.08 hrs, Volume= 0.267 af
 Routed to Reach 12R : 15 in cpp

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 233.97' @ 12.08 hrs Surf.Area= 117 sf Storage= 36 cf

Plug-Flow detention time= 1.9 min calculated for 0.287 af (100% of inflow)
 Center-of-Mass det. time= 1.9 min (832.4 - 830.5)

Volume	Invert	Avail.Storage	Storage Description
#1	232.50'	364 cf	Custom Stage Data (Conic) Listed below (Recalc) 909 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
232.50	20	0	0	20
234.00	120	94	94	128
236.00	220	335	429	264
238.00	260	479	909	380

Device	Routing	Invert	Outlet Devices
#1	Discarded	232.50'	6.000 in/hr Exfiltration over Wetted area Conductivity to Groundwater Elevation = 225.00'
#2	Primary	233.70'	19.0" x 36.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.02 cfs @ 12.08 hrs HW=233.97' (Free Discharge)
 ↑1=Exfiltration (Controls 0.02 cfs)

Primary OutFlow Max=4.14 cfs @ 12.08 hrs HW=233.97' (Free Discharge)
 ↑2=Orifice/Grate (Weir Controls 4.14 cfs @ 1.69 fps)

Summary for Pond A: Pond

Inflow Area = 4.420 ac, 37.56% Impervious, Inflow Depth = 2.94" for CT 25-year event
 Inflow = 18.36 cfs @ 12.08 hrs, Volume= 1.083 af
 Outflow = 16.91 cfs @ 12.12 hrs, Volume= 1.083 af, Atten= 8%, Lag= 2.0 min
 Discarded = 1.29 cfs @ 12.12 hrs, Volume= 0.528 af
 Primary = 15.62 cfs @ 12.12 hrs, Volume= 0.555 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 231.55' @ 12.12 hrs Surf.Area= 3,835 sf Storage= 7,747 cf

Plug-Flow detention time= 23.2 min calculated for 1.083 af (100% of inflow)
 Center-of-Mass det. time= 23.2 min (823.6 - 800.4)

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Volume	Invert	Avail.Storage	Storage Description		
#1	228.00'	10,504 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
228.00	348	69.0	0	0	348
229.00	1,572	206.0	887	887	3,349
230.00	2,469	270.0	2,004	2,890	5,785
232.00	4,283	316.0	6,669	9,559	8,009
232.20	5,181	335.0	945	10,504	8,995

Device	Routing	Invert	Outlet Devices
#1	Discarded	228.00'	6.000 in/hr Exfiltration over Wetted area Conductivity to Groundwater Elevation = 220.00'
#2	Primary	231.00'	19.0" x 36.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Primary	231.50'	10.0' long + 2.0 ' SideZ x 8.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74
#4	Primary	229.50'	10.0" Round Culvert L= 10.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 229.50' / 228.50' S= 0.1000 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf

Discarded OutFlow Max=1.29 cfs @ 12.12 hrs HW=231.55' (Free Discharge)↑ **1=Exfiltration** (Controls 1.29 cfs)**Primary OutFlow** Max=15.56 cfs @ 12.12 hrs HW=231.55' (Free Discharge)↑ **2=Orifice/Grate** (Weir Controls 12.30 cfs @ 2.43 fps)| **3=Broad-Crested Rectangular Weir** (Weir Controls 0.29 cfs @ 0.55 fps)| **4=Culvert** (Inlet Controls 2.96 cfs @ 5.43 fps)

JOB NO. 21283
DATE 1/5/23
BY JJB
CH'D BY _____

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401 Ravenelle Road
North Grosvenordale, CT 06255
(860) 923-2920 | www.jdcivilengineers.com

SHEET NO. 1
JOB KENNEDY DR
SUBJECT DRAINAGE
CLIENT POTNAM

STORMWATER QUALITY CALCULATIONS

$$WQV = \frac{1" RA}{12}$$

$$R = 0.05 + 0.009 I$$

$$I = \% \text{ IMPERVIOUS}$$

$$A = \text{SITE AREA (ACRES)}$$

A) WQV TO INFILTRATION TRENCH

DRAINAGE AREAS 1, 2, 3 DRAIN TO TRENCH
A IMP. AREA

1 0.39 AC 0.27 AC

2 0.25 AC 0.19 AC

3 0.42 AC 0.37 AC

1.06 0.83 AC

$$\therefore I = 0.83 / 1.06 = 0.78 = 78\%$$

$$R = 0.05 + 0.009(78) = 0.755$$

$$WQV = \frac{1(0.755)(1.06)}{12} = \underline{\underline{0.067 \text{ AC-FT}}}$$
$$= \underline{\underline{2904 \text{ FT}^3}}$$

B) WQV FOR REMAINING DRAINAGE AREAS 4, 5, 6

	AREA	IMP. AREA
4	0.54	0.32
5	0.76	0.31
6 (EXISTING RIVER TRAIL LOT)	<u>0.19</u>	<u>0.17</u>
	1.49	0.80

$$I = 0.80 / 1.49 = 0.54 = 54\%$$

$$R = 0.05 + 0.009(54) = 0.53$$

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DATE 1/5/23
BY JJB
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SHEET NO. 2
JOB KENNEDY DR
SUBJECT DRAINAGE
CLIENT PUTNAM

$$WQV = \frac{1" (0.53) 1.49}{12} = 0.067 \text{ AC-FT}$$
$$= \underline{\underline{2900 \text{ FT}^3}}$$

C) CALCULATE THE WQV THAT WILL BE INFILTRATED IN THE TRENCH/SWALE

FROM THE 2004 CT STORMWATER QUALMAN:

$$\text{BOTTOM AREA} = \frac{12 \text{ WQV}}{P(n)(t)} = A$$

WHERE $P = \frac{1}{2}$ INFILTRATION RATE IN IN/HR

$n = \text{POROSITY (\% VOID SPACE) IN CRUSHED STONE AGGREGAT}$
 $= 40\% \text{ OR } 0.40$

$t = \text{MAX DRAIN TIME} = 48 \text{ HR}$

$$\text{BOTTOM AREA} = 2'(298') = 596 \text{ FT}^2$$

FOR P : FROM NRCS (AND CONFIRMED BY NEARBY TEST PITS) INFILTRATION RATE = 0-2 $\therefore$ USING 1.0 IN/HR SHOULD BE CONSERVATIVE

$$\text{WQV PROVIDED} = \frac{A(P)(n)(t)}{12} = \frac{596(1.0)(0.4)(48)}{12}$$

$$= \underline{\underline{954 \text{ FT}^3}}$$

$$\text{WQV REQUIRED} = 2904 \text{ FT}^3$$

JOB NO. 21283
DATE 1/5/23
BY JJB
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SHEET NO. 3
JOB KENNEDY DR
SUBJECT DRAINAGE
CLIENT PUTNAM

SWALE/TRENCH PROVIDES ABOUT $\frac{1}{3}$ TREATMENT AREA
FOR D.A. 1, 2 & 3.

NEED $2904 - 954 = 1950 \text{ FT}^3$ ACROSS ST

D) DETERMINE REQUIRED SIZE OF INFILTRATION
BASIN

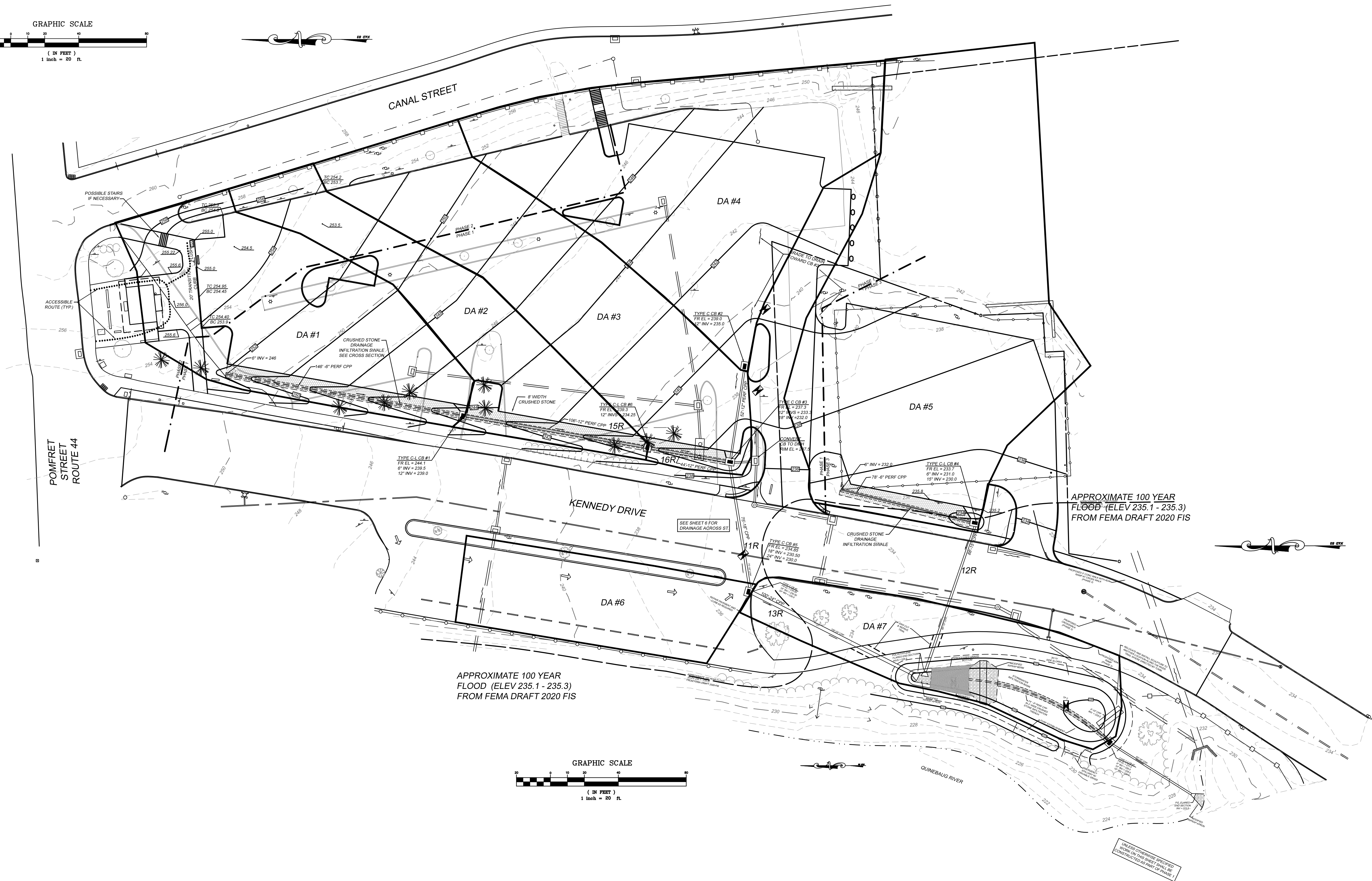
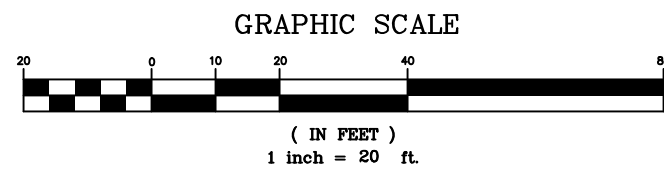
$$\text{BASIN SIZE REQ'D} = 1950 \text{ FT}^3 + 2900 \text{ FT}^3 \\ = \underline{\underline{4850 \text{ FT}^3}}$$

E) DETERMINE SIZE OF SEDIMENT FOREBAY

FOREBAY VOLUME SHOULD BE 10% WQV
FOR DA'S 4, 5 & 6. (FLOW FROM DA'S 1, 2 & 3
ALREADY PRETREATED IN INFILTRATION SWALE)

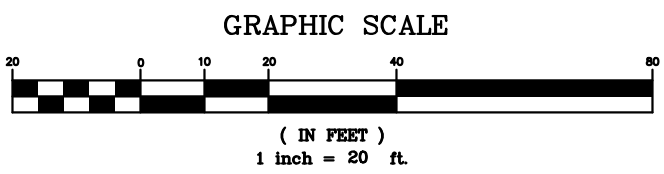
$$\therefore \text{VOLUME} = 0.10 (2900 \text{ FT}^3) = \underline{\underline{290 \text{ FT}^3}}$$

NOTE: THIS PROJECT HAS BEEN DESIGNED TO
TREAT 100% OF WQV. IN ORDER TO COUNT
TOWARD DCIA DISCONNECTION ONLY 50%
OF THE WQV REQUIRES TREATMENT
BECAUSE THE EXISTING DCIA COVERAGE
IS $> 40\%$.



APPROXIMATE 100 YEAR
FLOOD (ELEV 235.1 - 235.3)
FROM FEMA DRAFT 2020 FIS

APPROXIMATE 100 YEAR
FLOOD (ELEV 235.1 - 235.3)
FROM FEMA DRAFT 2020 FIS



LEGEND

- PROPERTY LINE
- EXISTING CONTOUR LINE
- PROPOSED CONTOUR LINE
- EDGE OF RIVER
- EROSION CONTROL DEVICES
- TEST PIT
- STONEWALL
- UTILITIES
- TREELINE
- GUARDRAIL
- FENCE
- EXISTING DRAINAGE
- PROPOSED DRAINAGE
- APPROX. EXISTING WATER
- APPROX. EXISTING SEWER
- EXISTING UTILITY POLE
- SIGN

DRAINAGE AREA MAP
KENNEDY DRIVE PARKING LOT
PREPARED FOR
THE TOWN OF PUTNAM
KENNEDY DRIVE AND ROUTE 44, PUTNAM, CT

J&D CIVIL
ENGINEERS, LLC
401 RAVENELLE ROAD
N. GROSVENORDALE, CT 06255
860-923-2920

DESIGNED: JJB CHECKED: DDB	REVISIONS:
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JOB NO: 21283 SCALE: 1" = 30'	DATE: JANUARY 23, 2023 SHEET: 1 OF 1
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INLAND WETLAND COMMISSION

APPENDIX A

APPLICATION FOR PERMIT

This application is for the use of inland wetlands and water courses.

The meetings are held on the second Wednesday of every month at 7:00pm in the Town Hall. If an on-site inspection is canceled due to inclement weather, the applicant is asked to call the office at 963-6803 30 minutes before the scheduled inspection to see if or when the inspection will be held.

Name of Applicant Dave Labossiere

Applicant's Address PO Box 27, Danielson, CT 06239

Phone # 860 377 0719

Owner of Land Juanita Cristina

Owner's Address 585 Five Mile River Road, Putnam, CT 06260

Location and description of proposed activity: Site is located at 585 Five Mile River Road.

Construction of 14' x 22' garage with 12' covered patio to rear located 50' from bank of Cady Brook

Activity & Purpose Code

Please **CHECK** one in each column that best describes the activity proposed.

<u>Code</u>	<u>Activity Type</u>	<u>Code</u>	<u>Activity Purpose</u>
☐ 1	Filling	☒ A	Residential Improvement by homeowner
☐ 2	Excavation	☐ B	New residential development - single family
☐ 3	Land Clearing	☐ C	New residential development - multi- family/condo
☐ 4	Stream Channel	☐ D	Commercial/Industrial Uses
☐ 5	Stream Stabilization	☐ E	Municipal Improvements
☐ 6	Stream Clearance	☐ F	Utility Company Improvements
☐ 7	Culverting	☐ G	Agriculture, Forestry or Conservation
☐ 8	Und. Grd. Util.	☐ H	Wetland Creation/Restoration
☐ 9	Roadway Construction	☐ I	Storm Water/Flood Control
☐ 10	Drainage Improvements	☐ J	Erosion/Sediment Control
☐ 11	Pond Dredge/Dam Construction	☐ K	Recreation/Boating/Navigation
☒ 12	Activity Buffer/Set Back Area	☐ L	Routine Maintenance
☐ 13	Other: Please describe: _____		

INLAND WETLAND COMMISSION

APPENDIX A *Continued*

Project Name (if applicable) n/a

Estimate of Linear Footage affecting Wetlands 30'

Affected number of acres in which Wetlands are part of
the impacted area for Multi-Family, Condos and
Commercial Development n/a

TO BE COMPLETED BY THE COMMISSION

Application Number 2023-10

Date of Receipt

8-2-2023 ck # 5650
\$100.00

Application Approved (date) _____

Conditions of approval if applicable _____

Application Denied (date) _____

Reason(s) for Denial _____

Signature of Chairman or Secretary of Commission

Date

INLAND WETLAND COMMISSION

APPENDIX A *Continued* *Application Procedure*

1. Applicant will have a map showing the property boundaries, any wetlands on the property, proposed buildings, septic area, drainage if applicable and the dimension between these areas in scale 1" - 200' or less
2. Applicant must provide an approximate estimate of the linear footage of the wetlands that are affected by said proposal. This is for multi-family, condominiums or commercial development. Contact with the Zoning Official may clarify the nature of your project
3. Applicant must provide an approximate estimate of the number of acres that are affected by said proposal dealing with multi-family, condominiums and commercial development in which wetlands are part of that impacted area within the watershed.
4. Applicant will supply a copy of the soil scientist report with the application to the Wetlands Commission to be reviewed at the meeting by the Commission.
5. Applicant will have the soil scientist number the wetland flags and record the numbers of the flags on the site plan according to their location in the field. The location on the site map must match the field location.
6. If the applicant's estimates are not accurate, payment of the correct amount must be made before the Wetlands final approval of the application.
7. And any other information deemed necessary by the Commission.

Fee Schedule

1.	Permitted and non-regulated	\$40.00
2.	One lot regulated	\$40.00
3.	Regulated Area	
	Two (2) - Ten (10) lots	\$100.00
	Ten (10) - Twenty (20) lots	\$200.00
	Over Twenty (20+) lots	\$300.00
4.	Multi-Family/Condominium Regulated area	
	Zero (0) to Five (5) Acres	\$50.00
	Per linear foot of wetlands additional	\$0.35
	Over Five (5) acres	\$100.00
	Per linear foot of wetlands additional	\$0.35
5.	Commercial	
	Zero (0) to Five (5) Acres	\$100.00
	Per linear foot of wetlands additional	\$0.50
	Over Five (5) acres	\$300.00
	Per linear foot of wetlands additional	\$0.50

All applications must be submitted one week prior to the regularly scheduled monthly meeting.

THE FACE OF THIS DOCUMENT HAS A COLORED BACKGROUND ON WHITE PAPER



survey associates, llc

63 SNAKE MEADOW ROAD
DANIELSON, CT 06239

BerkshireBank

53-7169/2118

5650

8/1/2023

PAY TO THE ORDER OF Town of Putnam

\$**100.00

One Hundred and 00/100*****

DOLLARS

Town of Putnam

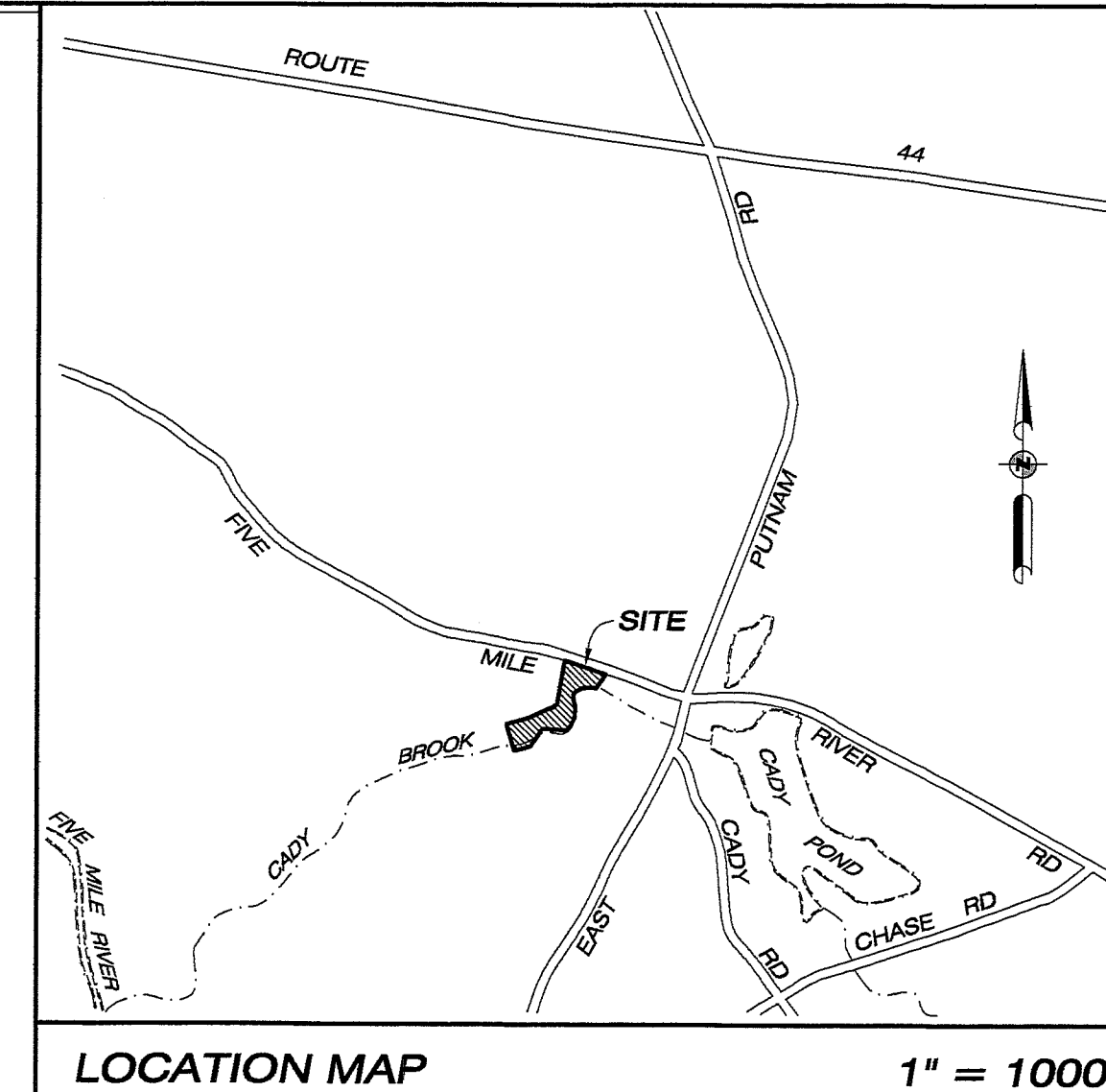
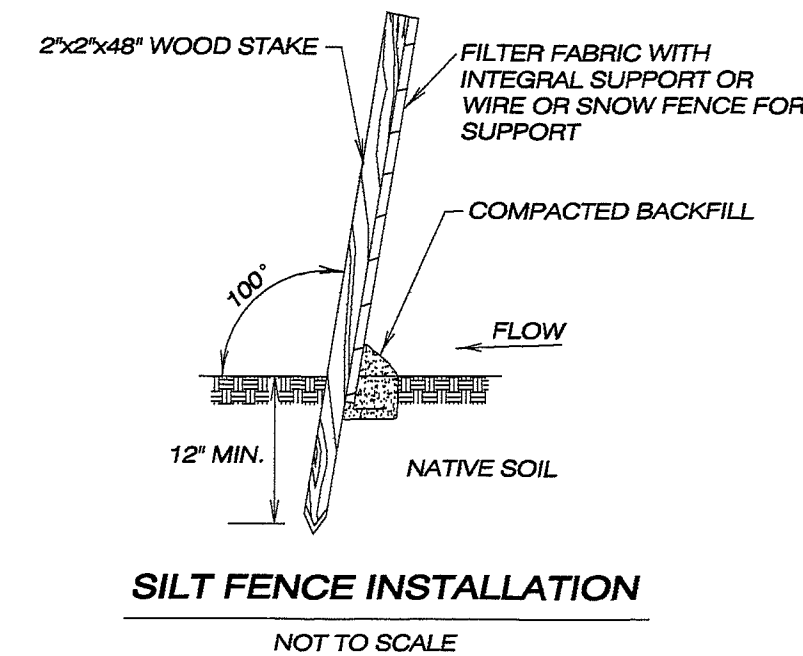
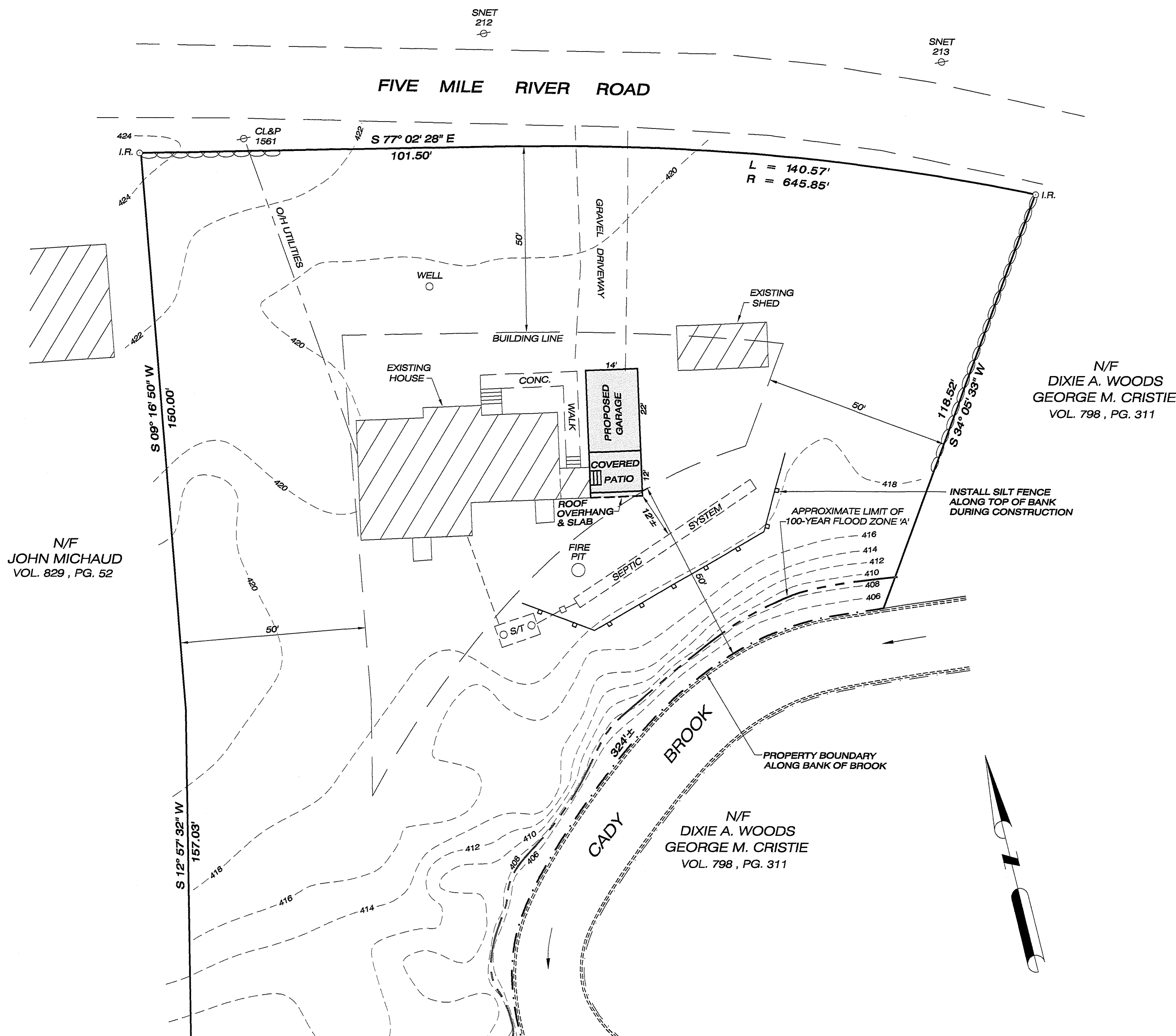
THIS IMAGE
FADES WITH HEAT

MEMO 585 Five Mile River Road Wetlands Application

THE BACK OF THIS DOCUMENT CONTAINS CHECK SECURITY WATERMARK AND COIN REACTIVE INK

⑈005650⑈ ⑈005650⑈ ⑈005650⑈

Details on back
Security Features Included



- NOTES:
1. THIS MAP AND SURVEY HAVE BEEN PREPARED IN ACCORDANCE WITH SECTIONS 20-300b-1 THRU 20-300b-20 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES - "STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT", AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. IT IS A GENERAL LOCATION SURVEY BASED ON A RESURVEY CONFORMING TO HORIZONTAL ACCURACY CLASS "C". TOPOGRAPHIC FEATURES DEPICTED WERE TAKEN FROM REFERENCED MAP B AND CONFORM TO TOPOGRAPHIC ACCURACY CLASS "D". VERTICAL DATUM IS APPROXIMATE NAVD88; CONTOUR INTERVAL = 2 FEET. THE PURPOSE OF THIS MAP AND SURVEY IS TO DEPICT THE LOCATION OF A PROPOSED GARAGE & PATIO FOR PERMITTING. THIS MAP WAS PREPARED FROM RECORD RESEARCH, OTHER MAPS, LIMITED FIELD MEASUREMENTS AND OTHER SOURCES. IT IS NOT TO BE CONSTRUED AS A PROPERTY/BOUNDARY OR LIMITED PROPERTY/BOUNDARY SURVEY AND IS SUBJECT TO SUCH FACTS AS SAID SURVEYS MAY DISCLOSE.
 2. SUBJECT PARCEL IS SHOWN AS MAP 34, LOT 23 OF THE PUTNAM ASSESSOR'S RECORDS.
 3. REFERENCE DEED: VOL. 854, PG. 594
 4. REFERENCE MAPS:
 - A. "DIVISION OF LAND OWNED BY FERNAND MICHAUD AND KATHLEEN L. MICHAUD - FIVE MILE RIVER ROAD, PUTNAM, CONNECTICUT - SCALE: 1 INCH = 40 FEET - 01 SEPT. 1989 - REVISED DEC. 4, 1989 - ALBERT L. FITZBACK, LLS"
 - B. "SITE DEVELOPMENT PLAN PREPARED FOR KEITH PASAY - 585 FIVE MILE RIVER ROAD, PUTNAM, CT - MAP 34, LOT 23 - SCALE: 1" = 20' - DATE: MAY 29, 2020 - J&D ENGINEERS"
 5. ZONING DISTRICT: AG2
 6. LOT AREA = 1.85± ACRES (80,566± SQ. FT.)
 7. LIMIT OF FEMA 100-YEAR FLOOD ZONE 'A' DEPICTED IS BASED ON FEMA FLOOD INSURANCE RATE MAP NO. 09015C0162F, VERSION 2.6.3.6, EFFECTIVE DATE: SEPTEMBER 7, 2023
 8. SEPTIC SYSTEM LOCATION IS BASED ON AS-BUILT INFORMATION ON FILE WITH THE NORTHEAST DISTRICT DEPARTMENT OF HEALTH.

LEGEND

- IRON ROD FOUND
- EXISTING CONTOUR
- ===== EDGE OF BROOK
- STONE WALL

TO THE BEST OF MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

Paul A. Terwilliger
PAUL A. TERWILLIGER, L.S. NO. 70155
DATE: 8/1/2023

NO CERTIFICATION IS EXPRESSED OR IMPLIED UNLESS THIS MAP BEARS THE EMBOSSED SEAL OF THE LAND SURVEYOR WHOSE SIGNATURE APPEARS HEREON.

GENERAL LOCATION SURVEY		SURVEYING • MAPPING • PLOT PLANS	
SHOWING PROPOSED GARAGE PREPARED FOR		TOPOGRAPHIC • SUBDIVISION	
JUANITA CRISTINA		LAND RECORD RESEARCH	
585 FIVE MILE RIVER ROAD		63 SNAKE MEADOW RD	
PUTNAM, CONNECTICUT		KILLINGLY, CT 06239	
DATE: JULY 2023		SHEET NO: 1 OF 1	
SCALE: 1" = 20'		REVISED: 8/1/23 - SILT FENCE DETAIL/LEGEND	
JOB NO: 23019		F.B. NO: 232	
DRAWN BY: P.A.T.		MAP NO:	