



Conservation Commission Meeting

Wednesday, June 5, 2024 at 7:00 PM

Remote Participation Only

Agenda

Pursuant to Chapter 2 of the Acts of 2023, the meeting and public hearing will be conducted with remote opportunities for participation. Remote participation and access methods include:

ACCESS INFORMATION:

- A. This meeting will be held on 6/5/24 at 7:00 pm. Location: Remote Participation Only
 - B. The meeting will be televised through WCATV (Watertown Cable Access Television): <http://vodwcatv.org/CablecastPublicSite/watch-now?site=3>
 - C. The Public may join the virtual meeting online: <https://watertown-ma.zoom.us/j/99597080710>
 - D. Public may join the virtual meeting audio only by phone: (877) 853-5257 or (888) 475-4499 (Toll Free) and enter Webinar ID: 995 9708 0710
 - E. Public may comment through email: sjenness@watertown-ma.gov
 - F. Please Visit the Conservation Commission Website here: <https://www.watertown-ma.gov/199/Conservation-Commission>
- 1. Call to Order
 - 2. Roll Call
 - 3. Wetland Decisions
 - A. 64 Pleasant Street: (MA DEP #: 321-0178) - Request for Extension of the Order of Conditions for a period of two (2) years. Berkley Investments, Inc (Property Owner) and Bohler (Representative).
 - B. Arsenal Park (Phase A): (MA DEP #: 321-0169) - Request for Certificate of Compliance. City of Watertown (Property Owner), and CDM Smith (Representative)
 - C. Arsenal Park Phase B - soil surplus and ball field
 - 4. Public Hearing
 - A. 10-30 Manley Way: Notice of Intent submitted for the re-purposing of the existing structure at 10 Manley Way, Watertown, MA, for light industry, lab/R&D/non-nuisance manufacturing, or warehousing use. Proposed work is within the locally regulated 150 ft buffer zone and state-regulated 100 ft buffer zone that includes new landscaping, new stormwater retention system, and fostering connectivity from Walker Pond to the rear of the site. PPF Industrial 20 Seyon LLC c/o Morgan Stanley Real Estate (Property Owner) and Christopher Lucas (Representative).
 - 5. Commission Discussion and Vote
 - A. Nominations and vote for new vice chair
 - 6. Updates

- A. CPC Update
- B. Agent Report
 - i. Arsenal Park Phase B progress update
 - ii. Student Conservation Association (SCA) trail improvement at Whitney Hill Park update
- 7. Acceptance of Minutes
 - A. May 1, 2024, Conservation Commission Meeting
- 8. Adjourn

May 24, 2024

City of Watertown
Conservation Commission
Attn: Katherine Swan
149 Main Street
Watertown, MA 02472

Re: Extension Request
OOC #321-0178
64 Pleasant Street
Watertown, MA 02472

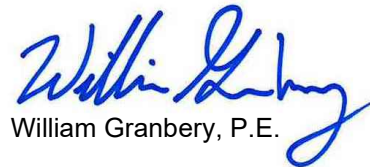
Dear Members of the Commission:

On behalf of the owner/applicant, Berkeley Investments, Inc., Bohler is pleased to submit the following request for an extension to the Order of Conditions for the project at 64 Pleasant St. Based on the Special Condition #28, the project is requesting an extension of two (2) years so that the required monitoring and growing seasons can be completed for the installed plantings. In support of this request is the following information:

- Landscape Plan Mark-up noting planting install seasons;
- Current Site Photos.

Should you have any questions regarding this letter or require additional information, please do not hesitate to contact me at 617-849-8040.

Sincerely,
BOHLER



William Granbery, P.E.



Zachary Richards, P.E.











May 29, 2024

Ms. Katie Swan
Watertown Conservation Commission
149 Main Street
Watertown, MA 02472-4410

Subject: MassDEP File No. 321-0169
Arsenal Park Improvements Project, Phase A (551 Rear Arsenal Park)
Certificate of Compliance Request

Dear Ms. Katie Swan:

On behalf of Community Development & Planning, CDM Smith Inc. is pleased to submit the enclosed Request for a Certificate of Compliance (COC) for Phase A of the Arsenal Park Improvements Project, DEP File No. 321-0169, pursuant to the Massachusetts Wetlands Protection Act (MGL Chapter 131, Section 40) and Wetlands Protection Act Regulations (310 CMR 10.00), and the Order of Conditions (issued July 17, 2019).

Glenn Howard, Project Manager, and Magdalena Lofstedt, Wetland Scientist met with Conservation Agent Katie Swan on site on May 9, 2024, to review the current conditions including plant material establishment, rain gardens, site stabilization and stormwater management features per Special Condition 36.a of the Order of Condition (OOC). Sediment controls were previously removed; plant materials have established as noted in the attached memorandum.

In addition to WPA Form 8a, As-Built Plan signed by a Registered P.E., and Letter of Substantial Completion signed by Registered L.A. the request includes per Special Conditions (S.C.) of the Order of Conditions (OOC):

- Letter of Responsibility for the implementation of the Operation and Maintenance plan associated with the stormwater management per S.C. 19.
- Memorandum from Glenn Howard, RLA, PMP, of CDM Smith Inc. per S.C. 27
- A maintenance schedule for all indoor and outdoor sumps and/or hoods of drainage structure per S.C. 37
- Figure 3 from the Notice of Intent for Phase A filed with the Commission in June 2019. CDM Smith has confirmed that there is no change in new/net impervious areas within the 200-ft Riverfront Area (RFA) since the filing of the NOI. Existing impervious are prior to construction of Phase A was 10,364 sf. A total of 3,919 sf of impervious area was removed as part of Phase A construction and 8,118 sf of new impervious area was added, leaving a net increase of 4,199 sf of impervious area. Total area of RFA on the parcel is 137,889 sf. After the completion of Phase A, a total of 10.6% of the RFA consists of impervious area.



Ms. Katie Swan
May 29, 2024
Page 2

Ms. Swan also asked for total impervious area of Phase A which we calculated as being 17,973 square feet (see Sheet L-3).

We look forward to discussing this COC request at your next scheduled public meeting.

Sincerely,

A handwritten signature in blue ink, appearing to read "Glen Howard", written in a cursive style.

Glen Howard
Project Manager
CDM Smith Inc.

cc: Steven Magoon, Community Development & Planning

WPA Form 8a



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 8A – Request for Certificate of Compliance

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

DEP File Number:

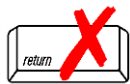
321-0169

Provided by DEP

A. Project Information

Important:

When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Upon completion of the work authorized in an Order of Conditions, the property owner must request a Certificate of Compliance from the issuing authority stating that the work or portion of the work has been satisfactorily completed.

1. This request is being made by:

Community Development & Planning (Steven Magoon)

Name

149 Main Street

Mailing Address

Watertown

City/Town

617-972-6417

Phone Number

MA

State

02472

Zip Code

2. This request is in reference to work regulated by a final Order of Conditions issued to:

Community Development & Planning (Steven Magoon)

Applicant

7/17/2019

Dated

321-0169

DEP File Number

3. The project site is located at:

551 Rear Arsenal Street

Street Address

140

Assessors Map/Plat Number

Watertown

City/Town

1301 2A 0

Parcel/Lot Number

4. The final Order of Conditions was recorded at the Registry of Deeds for:

Property Owner (if different)

Middlesex

County

--

Certificate (if registered land)

75693

Book

342

Page

5. This request is for certification that (check one):

☒ the work regulated by the above-referenced Order of Conditions has been satisfactorily completed.

☐ the following portions of the work regulated by the above-referenced Order of Conditions have been satisfactorily completed (use additional paper if necessary).

☐ the above-referenced Order of Conditions has lapsed and is therefore no longer valid, and the work regulated by it was never started.



Massachusetts Department of Environmental Protection

Bureau of Resource Protection - Wetlands

WPA Form 8A – Request for Certificate of Compliance

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

DEP File Number:

321-0169

Provided by DEP

A. Project Information (cont.)

6. Did the Order of Conditions for this project, or the portion of the project subject to this request, contain an approval of any plans stamped by a registered professional engineer, architect, landscape architect, or land surveyor?

☒ Yes

If yes, attach a written statement by such a professional certifying substantial compliance with the plans and describing what deviation, if any, exists from the plans approved in the Order.

☐ No

B. Submittal Requirements

Requests for Certificates of Compliance should be directed to the issuing authority that issued the final Order of Conditions (OOC). If the project received an OOC from the Conservation Commission, submit this request to that Commission. If the project was issued a Superseding Order of Conditions or was the subject of an Adjudicatory Hearing Final Decision, submit this request to the appropriate DEP Regional Office (see <http://www.mass.gov/eea/agencies/massdep/about/contacts/find-the-massdep-regional-office-for-your-city-or-town.html>).

As Built Plan

LEGEND

- — ELECTRIC HAND HOLE (EHH)
- ⊙ — DRAIN MANHOLE (DMH)
- ▣ — CATCH BASIN (CB)
- ⊗ — AREA DRAIN (ADRN)
- — UTILITY POLE (UP)
- GUY WIRE
- ⊕ — SEWER MANHOLE (SMH)
- ⚡ — HYDRANT (HYD)
- ⊖ — WATER SHUTOFF (WSO)
- ⦶ — WATER PIT
- — TRASH RECEPTACLE
- — DECIDUOUS TREE
- — CONIFEROUS TREE
- — TRASH RECEPTACLE
- BENCH
- ⌘ — STANDARD PICNIC TABLE
- ⌘ — ADA ACCESSIBLE PICNIC TABLE
- ===== PERFORATED HDPE PIPE
- ==== SOLID DRAIN LINE
- - - - ELECTRICAL CONDUIT
- W— WATER LINE
- S— SEWER LINE
- CHAIN LINK FENCE
- ORNAMENTAL FENCE
- - - MINOR CONTOURS
- - - MAJOR CONTOURS
- INV. INVERT
- DMH DRAIN MANHOLE
- CB CATCH BASIN
- R.C.P. REINFORCED CONCRETE PIPE
- PERF. PERFORATED
- HDPE HIGH DENSITY POLYETHYLENE
- PVC POLYVINYL CHLORIDE
- SMH SEWER MANHOLE
- MON. MONUMENT
- ICB. IRRIGATION CONTROL BOX

EXISTING DMH
RIM=33.87
A RCP INV IN=24.79
B PVC INV IN=27.79
C HDPE INV OUT=24.79

SMH
RIM=33.98

SMH
RIM=33.69

CBN
RIM=34.57
INVERT NOT VISIBLE
MEASURE DOWN TO
WATER LEVEL=6'3"

CBN
PVC 1FT
RIM=34.85
INV OUT=27.85

IRR VALVE (TYP.)

PARK ENTRANCE

CONTECH
PVC 1FT
RIM=36.82
INV IN=27.65
INV OUT=27.55

CONCRETE WALKING PATH

GRASS FIELD

INFILTRATION CHAMBERS
LOCATION AND SIZE IS FROM
RECORD INFORMATION

ICB
RIM=36.78
INV IN=28.45
INV OUT=28.36

DMH
RIM=35.84
BOTTOM OF STRUCTURE =24.26

GRASS FIELD

STONE DUST AREA

EXISTING DMH

AREA DRAIN
TOP OF DOME = 30.88
INV. OUT (12" PVC)=27.21

DMH
RIM=34.01
A PVC INV IN= 26.34
B PVC INV IN= 27.93
C PVC INV IN= 27.93
D PVC INV OUT= 26.43

AREA DRAIN
TOP OF DOME =29.73
INV. OUT (12" PVC) = 27.23

AREA DRAIN
RIM = 31.50
INV(12" PVC) =28.50

CONCRETE WALKING PATH

BITUMINOUS CONCRETE WALKING PATH

WOODEN FENCELINE

TRASH

LIGHT BOLLARD (TYP.)

GRASS AREA

GRASS AREA

EXISTING BASKETBALL COURTS

NOTE:

SURVEY COORDINATES ARE BASED ON MASSACHUSETTS MAINLAND STATE PLANE COORDINATE SYSTEM (NAD83).

SURVEY ELEVATIONS ARE BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

AS-BUILT INFORMATION IS COMPILED FROM ON THE GROUND GPS SURVEY, CONTRACTOR GPS SURVEY DATA AND MARKED UP RECORD PLANS.

0 20 40 60

1"=20'-0"

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**Letter of Responsibility for the implementation of the
Operation and Maintenance plan associated with the
stormwater management per S.C. 19**



CITY OF WATERTOWN
DEPARTMENT OF PUBLIC WORKS
124 ORCHARD STREET
WATERTOWN MA 02472

Gregory St. Louis, PE
Superintendent

(P) 617-972-6420
(F) 617-972-6402

May 13, 2024

Watertown Conservation Commission
149 Main Street
3rd Floor
Watertown, MA 02472

Letter of Responsibility

Per 19c, the City of Watertown acknowledges as the property owner of Arsenal Park (551 Rear Arsenal Street, Watertown, MA), have the legal responsibility for the implementation of the Operation and Maintenance Plan associated with the implemented stormwater improvements, in perpetuity, in accordance with the Order of Conditions provided by MassDEP, File #: 321-0169. If the property is sold, operation and maintenance of the BMPs will become the responsibility of the landowner on record.

Sincerely,

Gregory St. Louis, PE
City of Watertown
Superintendent of Public Works

**Memorandum from Glenn Howard, RLA, PMP, of CDM
Smith Inc. per S.C. 27**



Memorandum



To: Katherine Swan, Watertown Conservation Commission

From: Glenn Howard, RLA, PMP

Date: 5/14/2024

Subject: Arsenal Park Phase A Special Conditions and Certificate of Compliance Documentation

Special Conditions Item #27 Plantings

The plant installation for Arsenal Park Phase A was completed by Heimlich Landscaping and Construction Corp. in June 2021. At that time CDM Smith completed an inspection of the installation and provided provisional acceptance to begin the maintenance period in accordance with the bid documents. In addition to the Watertown Conservation Commission order of conditions the bid documents required replacement of dead or missing plant material after 1 year. On August 18, 2022 CDM Smith completed an inventory of dead or missing plant material and provided Heimlich with the plant material replacement list. More than 75% of shrub species and more than 80% of herb species had established themselves so the replacement request was based on the bid document warranty requirement which was more stringent. No action was taken by the contractor until June 2023.

On June 7, 2023 CDM Smith conducted a site visit with Heimlich Landscape and Construction Corp. More than 75% of shrub species and more than 80% of herb species and all tree species were established. To comply with the additional bid document requirements CDM Smith developed a supplemental planting replacement plan which was installed by the Contractor.

An inspection request was initiated with the Watertown Conservation Commission and on August 14, 2023 Katherine Swan accompanied CDM Smith for a final inspection of the plant installation. It was anticipated that a certificate of compliance request would be initiated at this time however, Heimlich Landscape and Construction Corp. had not provided an as-built plan.

On September 6, 2023 CDM Smith attended a commission hearing, requested and was granted an extension.

CDM Smith received the certified as-built plan in November 2023.

On May 8, 2024 Katherine Swan accompanied CDM Smith for a follow up inspection of the plant material installation and site inspection.

Arsenal Park Phase A Plant Inventory Report and Replacement List

Date: 08/18/2022

Location: Arsenal Park, Watertown, MA

Attendees: Aidan Murray

Tree Replacements:

3 - *Juniperus virginiana* 'emerald sentinel' (eastern red cedar)

1 - *Cornus x rutgersensis* (rutgan (stellar pink) dogwood stellar series)

Shrub Replacements:

27 - *Ilex verticillata* (winterberry)

16 - *Clethra alnifolia* (sweet pepper bush)

16 - *Kalmia latifolia* 'nipmuck' (nipmuck mountain laurel)

1 - *Leucothoe axillaris* (dog hobble coastal)

3 - *Rhododendron viscosum* (swamp azalea)

35 - *Hydrangea quercifolia* (oakleaf hydrangea)

28 - *Aronia melanocarpa* 'low scape mound' (low scape mound chokeberry)

12 - *Fothergilla gardenii* (dwarf fothergilla)

8 - *Ceanothus americanus* (New Jersey tea)

Perennial Replacements:

12 - *Rudbeckia lacinata* (cutleaf coneflower)

40 - *Pensemon digitalis* (foxglove beardtounge)

102 - *Carex stricata* (upright sedge)

20 - *Juncus effusus* (common rush)

98 - *Lobelia cradinalis* (cardinal flower)

69 - *Liatris spicata* (blazing star)

16 - *Clethra alnifolia* (sweet pepper bush)

30 - *Iris versicolor* (blue flag iris)

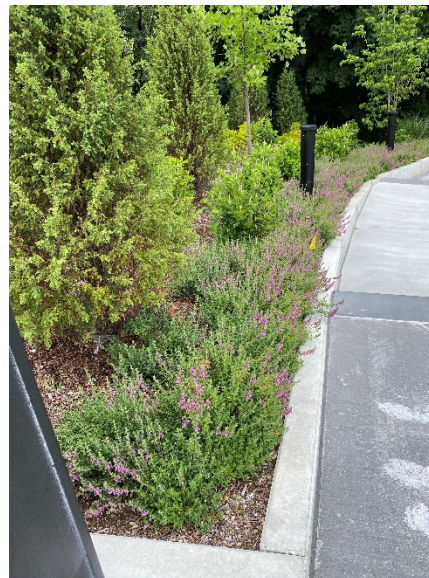
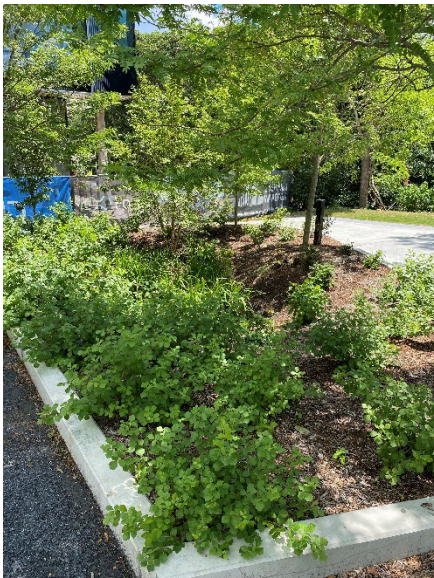
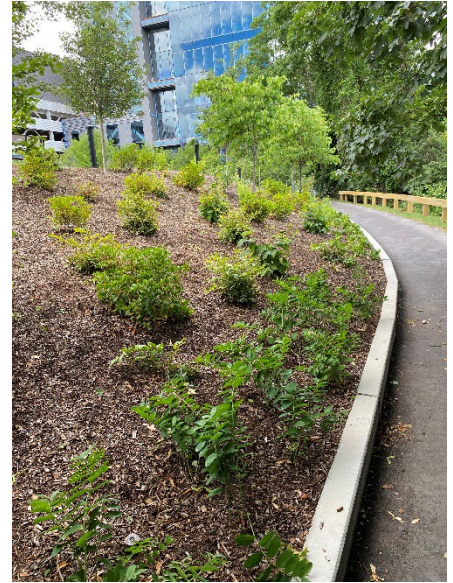
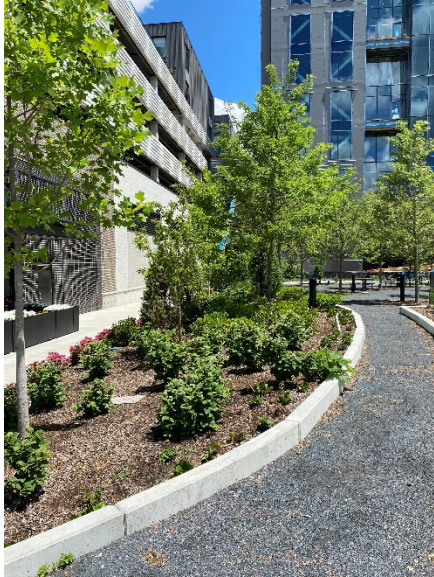
Perennial Replacements Cont.:

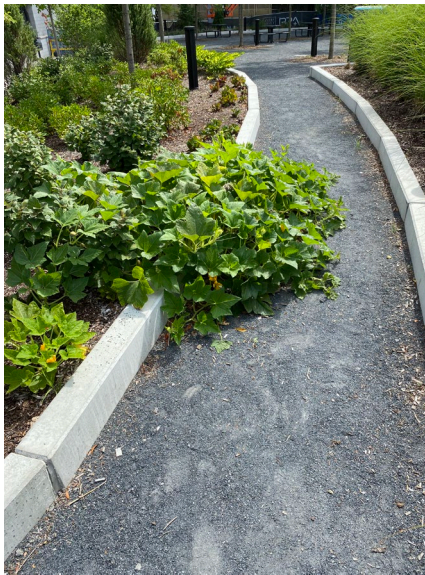
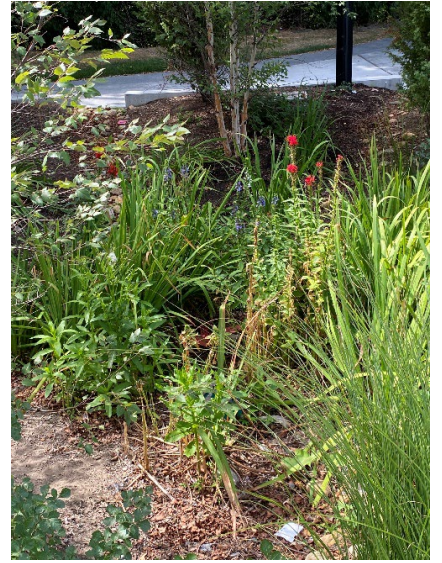
- 8 - *Miscanthus sinensis 'gracillmus'* (gracillmus grass maiden)
- 30 - *Osmunda cinamomea* (cinnamon fern)
- 15 - *Achillea x moonshine yarrow* (moonshine yarrow common)
- 7 - *Achillea millefolium apricot delight* (apricot delight yarrow common)
- 223 - *Bergenia cordifolia* (pigsqueak)
- 33 - *Polygonatum diflorum* (solomon's seal)
- 220 - *Aquilegia x songbird cardinal columbine* (cardinal columbine)
- 3 - *Phlox paniculata* (garden girls glamour girl phlox)
- 3 - *Phlox paniculata* (flame red tall garden phlox)
- 4 - *Phlox paniculata* (barfourteen (purple flame) phlox summer)
- 10 - *Lupinus polyphyllus* (tequila flame lupine)
- 13 - *Lupinus polyphyllus* (blacksmith lupine)
- 13 - *Lupinus polyphyllus* (Manhattan lights lupine)
- 17 - *Lupinus polyphyllus* (masterpiece lupine)
- 34 - *Baptisia australis* (blue wild indigo)
- 11 - *Asclepias tuberosa* (butterfly weed)

Arsenal Park Phase A Plant Inventory Report Photos

Date: 08/18/2022

Location: Arsenal Park, Watertown, MA





SUPPLEMENTAL PLANTING REPLACEMENT PLAN

FINAL PLANT MATERIAL WARRANTY WALK-THROUGH
6.27.2023

- LANDSCAPE ARCHITECT OF CONFLICTS.
- NO PLANT MATERIALS SHALL BE INSTALLED UNTIL ALL GRADING AND SIDEWALK CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA.
 - A 3-INCH DEEP SHREDDED PINE BARK SAUCER SHALL BE INSTALLED UNDER ALL TREES AND SHRUBS, AND IN ALL PLANTING BEDS, AS SHOWN ON THE PLANS, OR AS DIRECTED BY OWNER'S REPRESENTATIVE.
 - ALL TREES SHALL BE BALLED AND BURLAPPED, UNLESS OTHERWISE NOTED, OR APPROVED BY THE LANDSCAPE ARCHITECT.
 - FINAL QUANTITY FOR EACH PLANT TYPE SHALL BE AS SHOWN ON THE PLAN. THIS NUMBER SHALL TAKE PRECEDENCE IN CASE OF ANY DISCREPANCY BETWEEN QUANTITIES SHOWN ON THE PLANT LIST AND ON THE PLAN. THE CONTRACTOR SHALL REPORT ANY DISCREPANCIES BETWEEN THE NUMBER OF PLANTS SHOWN ON THE PLAN AND PLANT LABELS PRIOR TO BIDDING.
 - ANY PROPOSED PLANT SUBSTITUTIONS MUST BE APPROVED IN WRITING BY THE LANDSCAPE ARCHITECT.
 - ALL PLANT MATERIALS INSTALLED SHALL MEET OR EXCEED THE SPECIFICATIONS OF THE "AMERICAN STANDARDS FOR NURSERY STOCK" BY THE AMERICAN ASSOCIATION OF NURSEYMEN.
 - ALL PLANT MATERIALS SHALL BE MAINTAINED AND GUARANTEED AS SPECIFIED.
 - THIS PLAN IS INTENDED FOR LANDSCAPING PURPOSES ONLY. REFER TO SITE / CIVIL DRAWINGS FOR ALL OTHER SITE CONSTRUCTION INFORMATION.

PLANT MAINTENANCE NOTES:

- CONTRACTOR SHALL PROVIDE COMPLETE MAINTENANCE OF THE PLANTINGS AS SPECIFIED.
- WATERING SHALL BE REQUIRED DURING THE GROWING SEASON, WHEN NATURAL RAINFALL IS BELOW ONE INCH PER WEEK.
- CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR, AND EQUIPMENT FOR THE COMPLETE LANDSCAPE MAINTENANCE WORK.
- WATER SHALL BE APPLIED IN SUFFICIENT QUANTITY TO THOROUGHLY SATURATE THE SOIL IN THE ROOT ZONE OF EACH PLANT.
- CONTRACTOR SHALL REPLACE DEAD OR DYING PLANTS DURING AND A MAXIMUM OF ONE MONTH PRIOR TO THE END OF THE PLANT MAINTENANCE AND GUARANTEE PERIOD.

IRRIGATION NOTES:

- IRRIGATE AREAS WITHIN LIMITS OF IRRIGATION SHOWN. SEE IRRIGATION PLAN AND DETAILS. SEE SPECIFICATIONS FOR AUTOMATIC IRRIGATION SYSTEM.

FINAL PLANT MATERIALS TO BE REPLACED

TREE LIST

KEY	QTY	BOTANICAL/CULTIVAR NAME	COMMON NAME	SIZE	SPACING
AA	4	AMELANCHIER ARBOREA	SERVICEBERRY	10' HEIGHT	MULTISTEM, B&B
CR	1	CORNUS 'RUTGAN' STELLAR PINK	DOGWOOD	15' HEIGHT	TREE FORM, B&B

SHRUB LIST

KEY	QTY	BOTANICAL/CULTIVAR NAME	COMMON NAME	SIZE	SPACING
FG	10	FOTHERGILLA GARDENII	DWARF FOTHERGILLA	#3 CONT.	5' O.C.
HQ	15	HYDRANGEA QUERCIFOLIA	OAKLEAF HYDRANGEA	#3 CONT.	5' O.C.
IL	16	ILEX VERTICILLATA 'RED SPRITE'	WINTERBERRY	#3 CONT.	5' O.C.
LF	20	LEUCOTHOE FONTANESIANA	DROOPING LAUREL	#3 CONT.	5' O.C.
RA	42	RHUS AROMATICA 'GRO-LOW'	FRAGRANT SUMAC	#3 CONT.	3' O.C.

PERENNIAL LIST

KEY	QTY	BOTANICAL/CULTIVAR NAME	COMMON NAME	SIZE	SPACING
AC	40	AQUILEGIA CANADENSIS	EASTERN COLUMBINE	#1 CONT.	9"-12" O.C.
AM	40	ACHILLEA 'MOONSHINE'	YARROW	#1 CONT.	18" O.C.
AT	11	ASCLEPIAS TUBEROSA MILKWEED	BUTTERFLY WEED	#1 CONT.	18" O.C.
BA	20	BAPTISIA AUSTRALIS	BLUE WILD INDIGO	#1 CONT.	24" O.C.
MS	3	MISCANTHUS SINENSIS 'GRACILLIMUS'	GRACILLIMUS EULALIA GRASS	#1 CONT.	24" O.C.
TE	106	TEUCRIUM CHAMAEDRYS	WALL GERMANDER	#1 CONT.	15"-18" O.C.

SHRUB LIST

KEY	QTY	BOTANICAL/CULTIVAR NAME	COMMON NAME	SIZE	SPACING
AM	28	ARONIA MELANOCARPA 'LOW SCAPE MOUND'	DWARF BLACK CHokeberry	#3 CONT	3' O.C.
BA	120	ARCTOSTAPHYLOS UVA-URSI 'MASSACHUSETTS'	COMMON BEARBERRY	#1 CONT	8' PER PLANTER
BA	30	CLETHRA ALNIFOLIA	SWEET PEPPER BUSH	#3 CONT	5' O.C.
BA	19	CEANOTHUS AMERICANUS	NEW JERSEY TEA	#3 CONT	3' O.C.
BA	86	FOTHERGILLA GARDENII	DWARF FOTHERGILLA	#3 CONT	3' O.C.
BA	13	HYDRANGEA ARBORESCENS 'INCREDIBALL'	SMOOTH HYDRANGEA	#3 CONT	5' O.C.
HQ	35	HYDRANGEA QUERCIFOLIA	OAKLEAF HYDRANGEA	#3 CONT	5' O.C.
IL	27	ILEX VERTICILLATA 'RED SPRITE'	WINTERBERRY	#3 CONT	5' O.C.
LF	76	KALMIA LATIFOLIA 'NIPMUCK'	NIPMUCK MOUNTAIN LAUREL	#3 CONT	5' O.C.
LF	25	LEUCOTHOE FONTANESIANA	DROOPING LAUREL	#3 CONT	5' O.C.
RA	110	RHUS AROMATICA 'GRO-LOW'	FRAGRANT SUMAC	#3 CONT	3' O.C.
RA	10	RHODODENDRON VISCOSUM	SWAMP AZALEA	#3 CONT	5' O.C.

PERENNIAL LIST

KEY	QTY	BOTANICAL/CULTIVAR NAME	COMMON NAME	SIZE	SPACING
AC	305	AQUILEGIA CANADENSIS	EASTERN COLUMBINE	#1 CONT	9"-12" O.C.
BA	132	BAPTISIA AUSTRALIS	BLUE WILD INDIGO	#1 CONT	24" O.C.
BC	330	BERGENIA CORDIFOLIA	PIGSQUEEK	#1 CONT	12" O.C.
CS	117	CAREX STRICTA	UPRIGHT SEDGE	QUART	12" O.C.
IV	52	IRIS VERSICOLOR	BLUE FLAG	QUART	30" O.C.
JE	29	JUNCUS EFFUSUS	COMMON RUSH	QUART	24" O.C.
LC	117	LOBELIA CARDINALIS	CARDINAL FLOWER	QUART	12" O.C.
LI	69	LIATRIS SPICATA	BLAZING STAR	#1 CONT	24" O.C.
MF	16	MONARDA FISTULOSA	BEEBALM	#1 CONT	24" O.C.
MS	64	MISCANTHUS SINENSIS 'GRACILLIMUS'	GRACILLIMUS EULALIA GRASS	#1 CONT	24" O.C.
OB	1060	OENOTHERA BERLANDIERI 'SISKIYOU PINK'	EVENING PRIMROSE	#1 CONT	9"-12" O.C.
PB	100	POLYGONATUM BIFLORUM	SOLOMON'S SEAL	#1 CONT	8"-12" O.C.
PD	40	PENSEMON DIGITALIS	FOXGLOVE BEARDTONGUE	#1 CONT	12"-18" O.C.
RL	20	RUDBECKIA LACINIATA	CUTLEAF CONEFLOWER	#1 CONT	18"-24" O.C.
TE	315	TEUCRIUM CHAMAEDRYS	WALL GERMANDER	#1 CONT	15"-18" O.C.

CDM
Smith

75 State Street
Boston, MA 02109
Tel: (617) 452-6000



TOWN OF WATERTOWN, MASSACHUSETTS

ARSENAL PARK IMPROVEMENTS PROJECT
PHASE A

LANDSCAPING PLAN

PROJECT NO. 56318-238275
FILE NAME: C001STPL

SHEET NO.

L-7

ISSUED FOR BID

Page 24 of 342

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LANDSCAPE NOTES:

- ALL PROPOSED PLANTING LOCATIONS SHALL BE STAKED AS SHOWN ON THE PLANS FOR FIELD REVIEW BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
- CONTRACTOR SHALL VERIFY LOCATIONS OF ALL UTILITIES AND NOTIFY LANDSCAPE ARCHITECT OF CONFLICTS.
- NO PLANT MATERIALS SHALL BE INSTALLED UNTIL ALL GRADING AND SIDEWALK CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA.
- A 3-INCH DEEP SHREDDED PINE BARK SAUCER SHALL BE INSTALLED UNDER ALL TREES AND SHRUBS, AND IN ALL PLANTING BEDS, AS SHOWN ON THE PLANS, OR AS DIRECTED BY OWNER'S REPRESENTATIVE.
- ALL TREES SHALL BE BALLED AND BURLAPPED, UNLESS OTHERWISE NOTED, OR APPROVED BY THE LANDSCAPE ARCHITECT.
- FINAL QUANTITY FOR EACH PLANT TYPE SHALL BE AS SHOWN ON THE PLAN. THIS NUMBER SHALL TAKE PRECEDENCE IN CASE OF ANY DISCREPANCY BETWEEN QUANTITIES SHOWN ON THE PLANT LIST AND ON THE PLAN. THE CONTRACTOR SHALL REPORT ANY DISCREPANCIES BETWEEN THE NUMBER OF PLANTS SHOWN ON THE PLAN AND PLANT LABELS PRIOR TO BIDDING.
- ANY PROPOSED PLANT SUBSTITUTIONS MUST BE APPROVED IN WRITING BY THE LANDSCAPE ARCHITECT.
- ALL PLANT MATERIALS INSTALLED SHALL MEET OR EXCEED THE SPECIFICATIONS OF THE "AMERICAN STANDARDS FOR NURSERY STOCK" BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
- ALL PLANT MATERIALS SHALL BE MAINTAINED AND GUARANTEED AS SPECIFIED.
- THIS PLAN IS INTENDED FOR LANDSCAPING PURPOSES ONLY. REFER TO SITE / CIVIL DRAWINGS FOR ALL OTHER SITE CONSTRUCTION INFORMATION.

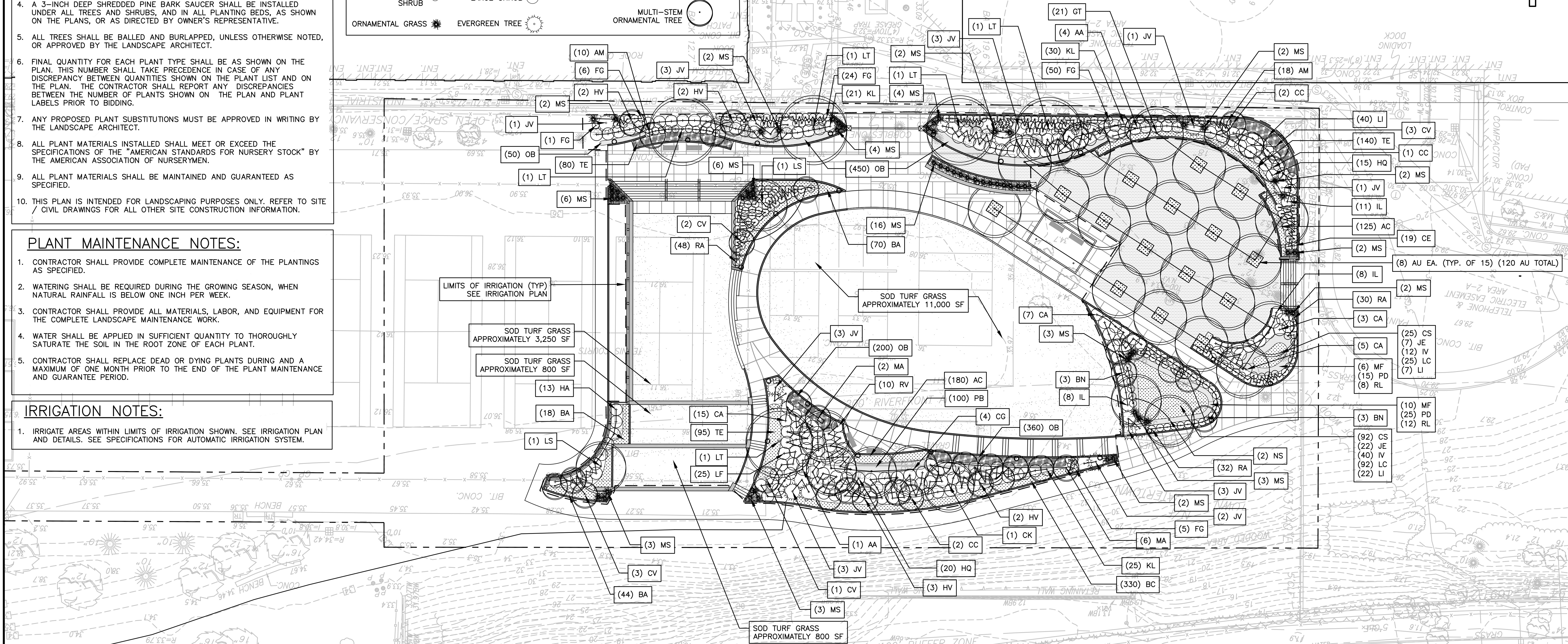
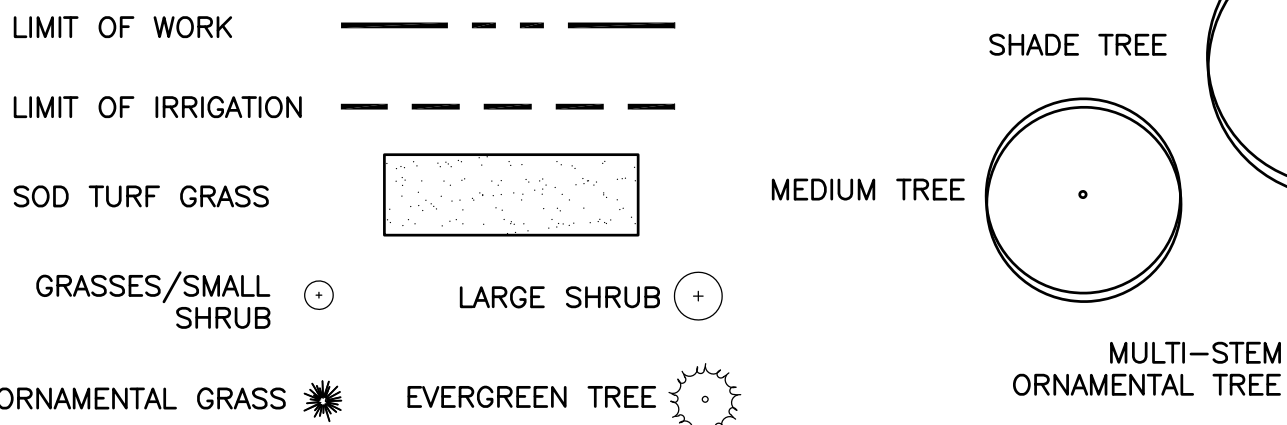
PLANT MAINTENANCE NOTES:

- CONTRACTOR SHALL PROVIDE COMPLETE MAINTENANCE OF THE PLANTINGS AS SPECIFIED.
- WATERING SHALL BE REQUIRED DURING THE GROWING SEASON, WHEN NATURAL RAINFALL IS BELOW ONE INCH PER WEEK.
- CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR, AND EQUIPMENT FOR THE COMPLETE LANDSCAPE MAINTENANCE WORK.
- WATER SHALL BE APPLIED IN SUFFICIENT QUANTITY TO THOROUGHLY SATURATE THE SOIL IN THE ROOT ZONE OF EACH PLANT.
- CONTRACTOR SHALL REPLACE DEAD OR DYING PLANTS DURING A MAXIMUM OF ONE MONTH PRIOR TO THE END OF THE PLANT MAINTENANCE AND GUARANTEE PERIOD.

IRRIGATION NOTES:

- IRRIGATE AREAS WITHIN LIMITS OF IRRIGATION SHOWN. SEE IRRIGATION PLAN AND DETAILS. SEE SPECIFICATIONS FOR AUTOMATIC IRRIGATION SYSTEM.

LEGEND:



**Maintenance schedule for all indoor and outdoor
sumps and/or hoods of drainage structurer per S.C. 37**

Post-Construction Operation and Maintenance Plan

Project: Arsenal Park Improvements – Phase A

Location: Between Arsenal Yards and Greenough Boulevard, Watertown, MA

Owner/Responsible Party: Town of Watertown

This document describes the operation and maintenance activities for the proposed stormwater management facilities associated with the Arsenal Park Improvements.

Deep-Sump Hooded Catch Basin

A deep-sump hooded catch basin is located near the Arsenal Yards entrance to the park. Maintenance activities include the following:

- Inspect the catch basin four times per year for depth of sediment and physical condition of the catch basin.
- Clean out the catch basin two times per year, particularly at the end of the foliage and snow removal seasons, or more frequently, if needed.
- Repair or replace damaged catch basin hood.
- Dispose of catch basin cleanings at a landfill or other facility permitted by MassDEP to accept solid waste, without any prior approval by MassDEP, unless the sediments are contaminated.

Rain Garden

Rain gardens are located around the bosque area. Maintenance activities include the following:

- Annually, check to ensure the filter surface remains well draining after storm events. If filter bed is clogged, is draining poorly, or has standing water that covers more than 50 percent of the surface 48 hours after a precipitation event, then remove top few inches of material, and till, or rake remaining material as needed. Upon failure, excavate rain garden, scarify bottom and sides, replace filter fabric and soil, replant, and mulch. On average, replacement or rehabilitation of the filtration media will occur every 8 years.
- Perform a minimum of one inspection during the growing season to ensure the health, density and diversity of the vegetation. Vegetation should cover more than 75 percent of the system. Remove and replace dead vegetation. In addition, look for erosion, scour and unwanted growth; any unwanted growth should be removed with minimum disruption to the remaining vegetation.
- During the fall, prior to the first snowfall, remove all fallen leaves and debris.
- Inspect the rain gardens monthly to remove trash and debris.
- Prune and weed the plantings periodically to control the growth of unwanted plants. To maintain the permeability of the system, the vegetation within the rain garden must be maintained with lightweight equipment, such as a hand-held line trimmer.

- Use zero-phosphorus fertilizers, if needed, to promote growth of the plantings.
- Replace the underlying mulch on a yearly basis.
- Do not use the rain garden for stockpiling of plowed snow and ice, compost, or any other material.

Gravel Infiltration Trench

A gravel infiltration trench is located along the southern concrete walk. Maintenance activities include the following:

- Inspect the gravel infiltration trench for the accumulation of debris after the first several rainfall events (upon completion of construction), after all major storms, and on regularly scheduled dates every six months. Any debris found in the gravel infiltration trench should be promptly removed. The frequency of inspections should be evaluated and adjusted, if warranted by inspection results.
- Inspect the gravel infiltration trench within 3 days after a major storm to look for ponded water. If there is ponded water at the surface, the gravel surface is likely clogged.
- To address surface clogging, remove and replace the first layer of stone aggregate and the filter fabric. If water is ponded inside the gravel infiltration trench, it may indicate that the bottom of the gravel infiltration trench has failed.
- To rehabilitate a failed gravel infiltration trench, strip all accumulated sediment from the bottom of the gravel infiltration trench, and then scarify and till the bottom of the trench to induce infiltration. Replace all the stone aggregate and filter fabric in the gravel infiltration trench.

Contech CDS Unit

- The CDS unit is a proprietary separator device located adjacent to the subsurface detention system. Routine maintenance should follow manufacturer's instructions, which are attached.

Subsurface Detention System

The subsurface detention system is located in the center green area. Maintenance activities include the following:

- During the first year of operation, inspect the chamber after major rainfall events, but at least twice per year to gain an understanding of the sediment buildup in this chamber. The actual frequency of maintenance can be determined after the first year of operation.
- Remove accumulated sediment using a vacuum.
- Dispose of the sediment at a landfill or other facility permitted by MassDEP to accept solid waste, without any prior approval by MassDEP, unless the sediments are contaminated.

Stormwater Management Facility Inspection Form

Location: Arsenal Park Improvements – Phase A
Between Arsenal Yards and Greenough Boulevard, Watertown, MA

Inspected By: _____

Inspection Date: _____

BMP Measure	Status/Inspection	Action Taken
Deep Sump Catch Basin		
Rain Garden		
Gravel Infiltration Trench		
CDS Unit		
Subsurface Detention		

Long-Term Pollution Prevention Plan

The following practices will be employed at Arsenal Park to provide source control and pollution prevention:

1. The walkways and plazas will be periodically swept to remove trash and debris.
2. The rain gardens will be inspected periodically to remove trash and debris.
3. The gravel infiltration trench will be periodically inspected to remove trash and debris.
4. No hazardous materials shall be stored outside at the park.
5. Salt and de-icing chemicals shall be used sparingly at the park.
6. Any spills that occur at the park shall be contained and cleaned up in a timely manner to prevent the spilled product from entering the catch basin, rain gardens, gravel infiltration trench, and subsurface detention system.

All personnel who provide regular maintenance at Arsenal Park shall be trained annually on the pollution prevention measures described above.

CDS® Inspection and Maintenance Guide



Maintenance

The CDS system should be inspected at regular intervals and maintained when necessary to ensure optimum performance. The rate at which the system collects pollutants will depend more heavily on site activities than the size of the unit. For example, unstable soils or heavy winter sanding will cause the grit chamber to fill more quickly but regular sweeping of paved surfaces will slow accumulation.

Inspection

Inspection is the key to effective maintenance and is easily performed. Pollutant transport and deposition may vary from year to year and regular inspections will help ensure that the system is cleaned out at the appropriate time. At a minimum, inspections should be performed twice per year (e.g. spring and fall) however more frequent inspections may be necessary in climates where winter sanding operations may lead to rapid accumulations, or in equipment washdown areas. Installations should also be inspected more frequently where excessive amounts of trash are expected.

The visual inspection should ascertain that the system components are in working order and that there are no blockages or obstructions in the inlet and separation screen. The inspection should also quantify the accumulation of hydrocarbons, trash, and sediment in the system. Measuring pollutant accumulation can be done with a calibrated dipstick, tape measure or other measuring instrument. If absorbent material is used for enhanced removal of hydrocarbons, the level of discoloration of the sorbent material should also be identified during inspection. It is useful and often required as part of an operating permit to keep a record of each inspection. A simple form for doing so is provided.

Access to the CDS unit is typically achieved through two manhole access covers. One opening allows for inspection and cleanout of the separation chamber (cylinder and screen) and isolated sump. The other allows for inspection and cleanout of sediment captured and retained outside the screen. For deep units, a single manhole access point would allow both sump cleanout and access outside the screen.

The CDS system should be cleaned when the level of sediment has reached 75% of capacity in the isolated sump or when an appreciable level of hydrocarbons and trash has accumulated. If absorbent material is used, it should be replaced when significant discoloration has occurred. Performance will not be impacted until 100% of the sump capacity is exceeded however it is recommended that the system be cleaned prior to that for easier removal of sediment. The level of sediment is easily determined by measuring from finished grade down to the top of the sediment pile. To avoid underestimating the level of sediment in the chamber, the measuring device must be lowered to the top of the sediment pile carefully. Particles at the top of the pile typically offer less resistance to the end of the rod than consolidated particles toward the bottom of the pile. Once this measurement is recorded, it should be compared to the as-built drawing for the unit to determine whether the height of the sediment pile off the bottom of the sump floor exceeds 75% of the total height of isolated sump.

Cleaning

Cleaning of a CDS system should be done during dry weather conditions when no flow is entering the system. The use of a vacuum truck is generally the most effective and convenient method of removing pollutants from the system. Simply remove the manhole covers and insert the vacuum hose into the sump. The system should be completely drained down and the sump fully evacuated of sediment. The area outside the screen should also be cleaned out if pollutant build-up exists in this area.

In installations where the risk of petroleum spills is small, liquid contaminants may not accumulate as quickly as sediment. However, the system should be cleaned out immediately in the event of an oil or gasoline spill should be cleaned out immediately. Motor oil and other hydrocarbons that accumulate on a more routine basis should be removed when an appreciable layer has been captured. To remove these pollutants, it may be preferable to use absorbent pads since they are usually less expensive to dispose than the oil/water emulsion that may be created by vacuuming the oily layer. Trash and debris can be netted out to separate it from the other pollutants. The screen should be power washed to ensure it is free of trash and debris.

Manhole covers should be securely seated following cleaning activities to prevent leakage of runoff into the system from above and also to ensure that proper safety precautions have been followed. Confined space entry procedures need to be followed if physical access is required. Disposal of all material removed from the CDS system should be done in accordance with local regulations. In many jurisdictions, disposal of the sediments may be handled in the same manner as the disposal of sediments removed from catch basins or deep sump manholes.



CDS Model	Diameter		Distance from Water Surface to Top of Sediment Pile		Sediment Storage Capacity	
	ft	m	ft	m	y ³	m ³
CDS1515	3	0.9	3.0	0.9	0.5	0.4
CDS2015	4	1.2	3.0	0.9	0.9	0.7
CDS2015	5	1.3	3.0	0.9	1.3	1.0
CDS2020	5	1.3	3.5	1.1	1.3	1.0
CDS2025	5	1.3	4.0	1.2	1.3	1.0
CDS3020	6	1.8	4.0	1.2	2.1	1.6
CDS3025	6	1.8	4.0	1.2	2.1	1.6
CDS3030	6	1.8	4.6	1.4	2.1	1.6
CDS3035	6	1.8	5.0	1.5	2.1	1.6
CDS4030	8	2.4	4.6	1.4	5.6	4.3
CDS4040	8	2.4	5.7	1.7	5.6	4.3
CDS4045	8	2.4	6.2	1.9	5.6	4.3
CDS5640	10	3.0	6.3	1.9	8.7	6.7
CDS5653	10	3.0	7.7	2.3	8.7	6.7
CDS5668	10	3.0	9.3	2.8	8.7	6.7
CDS5678	10	3.0	10.3	3.1	8.7	6.7

Table 1: CDS Maintenance Indicators and Sediment Storage Capacities



Support

- Drawings and specifications are available at www.contechstormwater.com.
- Site-specific design support is available from our engineers.

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CDS Inspection & Maintenance Log

CDS Model: _____ Location: _____

[illegible]

1. The water depth to sediment is determined by taking two measurements with a stadia rod: one measurement from the manhole opening to the top of the sediment pile and the other from the manhole opening to the water surface. If the difference between these measurements is less than the values listed in table 1 the system should be cleaned out. **Note: to avoid underestimating the volume of sediment in the chamber, the measuring device must be carefully lowered to the top of the sediment pile.**
2. For optimum performance, the system should be cleaned out when the floating hydrocarbon layer accumulates to an appreciable thickness. In the event of an oil spill, the system should be cleaned immediately.

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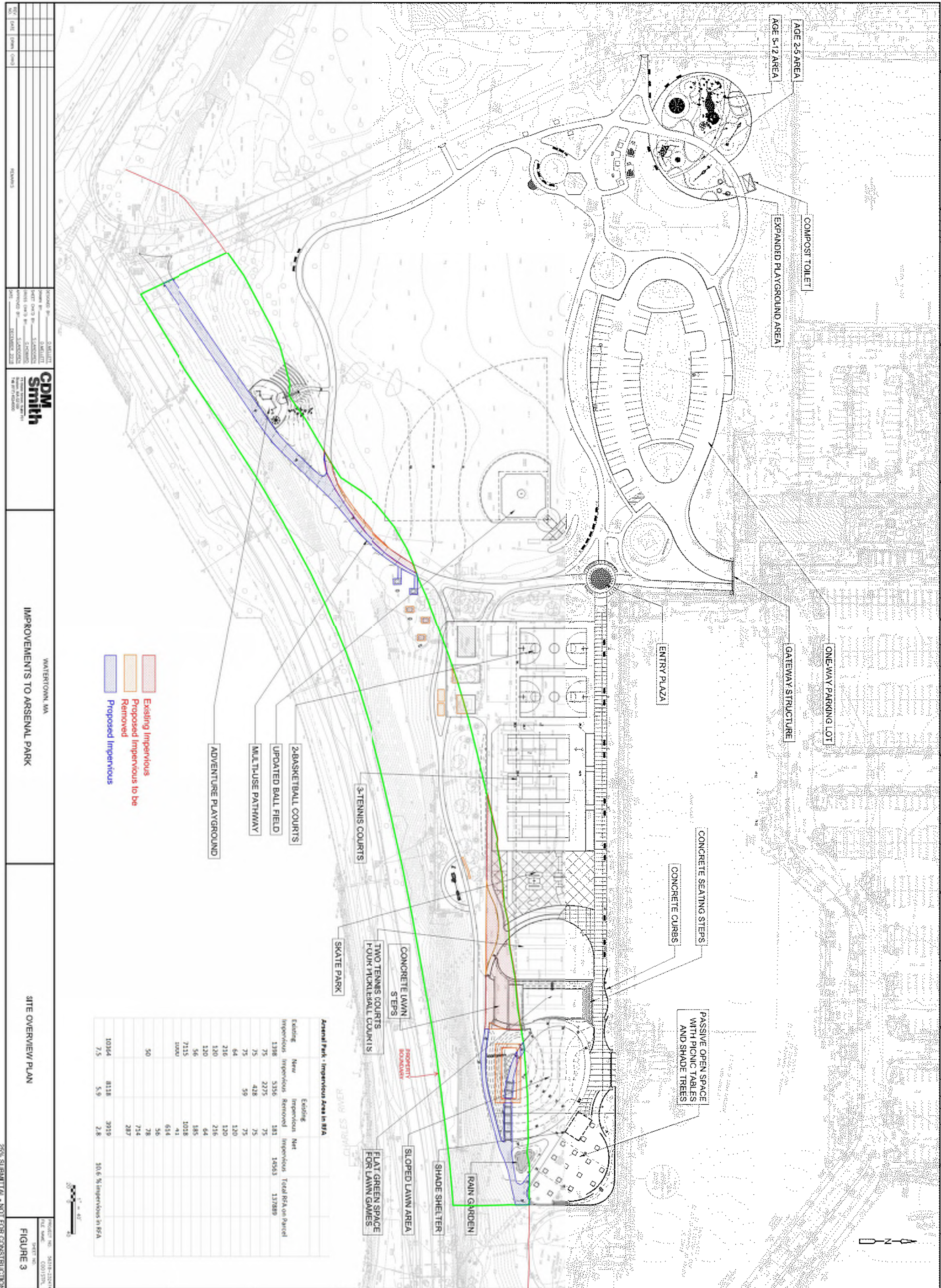
CDS Inspection & Maintenance Log

CDS Model: _____ Location: _____

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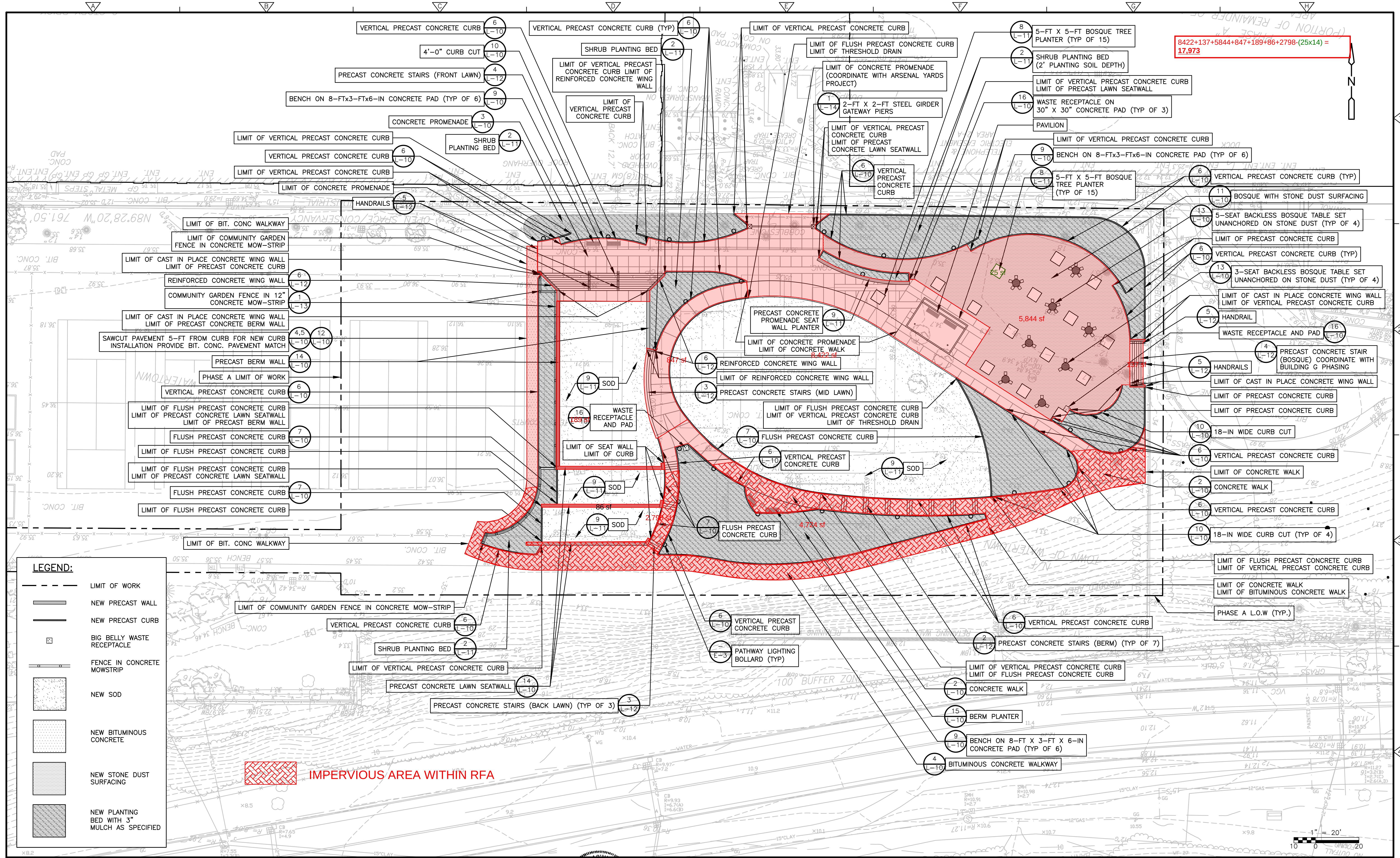
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Figure 3



Sheet L-3

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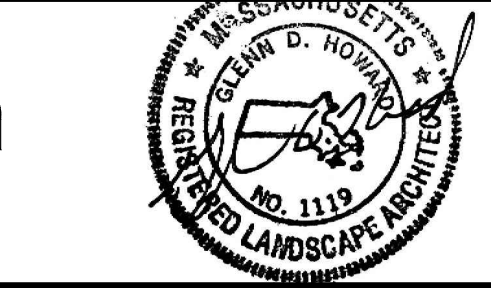
$8422+137+5844+847+189+86+2798-(25 \times 14) = 17,973$

LEGEND:

- LIMIT OF WORK
- NEW PRECAST WALL
- NEW PRECAST CURB
- ⊠ BIG BELLY WASTE RECEPTACLE
- FENCE IN CONCRETE MOWSTRIP
- NEW SOD
- NEW BITUMINOUS CONCRETE
- NEW STONE DUST SURFACING
- NEW PLANTING BED WITH 3" MULCH AS SPECIFIED

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: N.WATKINS
DRAWN BY: N.WATKINS
SHEET CHK'D BY: G.HOWARD
CROSS CHK'D BY: K.DRAKE
APPROVED BY: G.HOWARD
DATE: MAY 2020



TOWN OF WATERTOWN, MASSACHUSETTS
ARSENAL PARK IMPROVEMENTS PROJECT
PHASE A

MATERIALS PLAN

PROJECT NO. 56318-238275
FILE NAME: C003STPL
SHEET NO. L-3



CITY OF WATERTOWN
DEPARTMENT OF PUBLIC WORKS
124 ORCHARD STREET

Gregory M. St. Louis, PE
Superintendent

(P) 617-972-6420
(F) 617-972-6402

May 30, 2024

To: City of Watertown - Conservation Commission
Katie Swan – Conservation Commission Agent

From: Bob DiRico – DPW Parks Department
Ernie Thibeault – Recreation Director
Greg St. Louis – DPW Superintendent

CC: Glenn Howard – CDM Smith

RE: Arsenal Park Phase B – Proposed Revision

After careful consideration and thought, the Department of Public Works is requesting that the baseball infield at Arsenal Park be removed, and grass installed. This would allow for a regulation soccer field layout to supplement our field assets as we continue to grow our youth programs and engage with our residents. The DPW in conjunction with the Recreation Department believe this change would improve the utilization of the field and allow for additional configurations based upon programming.

Currently, the City has 3 regulation grass soccer fields; with Fillippello currently closed to allow for the grass to grow and the field to rest from overuse. When the Victory Phase 2 project (including the reconstruction of the Oval & track) begins as anticipated in the Spring 2025, the City will be limited to only 2 regulation grass fields; exacerbating the number of programs and annual wear and tear on the fields. Currently, the Youth Soccer layout includes 2 fields at Arsenal (7v7, 9v9) side by side running North-South. This change would allow us to accommodate the layout of an 11v11 East-West and other configurations.

In the last decade baseball and softball have been played on this field very infrequently. It is not used by Watertown Baseball Youth groups. If an outside rental group requests use of a baseball/softball field they can always be accommodated by renting the Fillippello Field.

If this change is approved, there may be some cost savings measures on the Arsenal Phase B project. We would anticipate a project credit for the new backstop as well as the potential for additional fill to remain on site as opposed to tipping fees for off-site disposal. Any savings would be used to finance the removal of the clay and installation of an appropriate cross-section for a grass field.

Thank you for your consideration.

Respectfully,

Gregory M. St. Louis, PE
Superintendent of Public Works



May 30, 2024

Ms. Katie Swan
Watertown Conservation Commission
149 Main Street
Watertown, MA 02472-4410

Subject: Arsenal Park Phase B – Proposed Revision – Grading Modifications

Dear Ms. Swan:

As the Arsenal Park Phase B construction work progresses CDM Smith is working with the City of Watertown Department of Public Works and Quirk Construction Corporation to identify permanent locations to place excess fill generated from the various improvements. One goal we outlined throughout the design process was the need to avoid offsite soil disposal. A significant volume of fill will be generated as Quirk Construction Corporation begins excavating the rain gardens over the next couple of weeks. In addition, a primary source of fill will be generated from the installation of the subsurface stormwater storage system. These improvements are critical in order to meet the City's stormwater requirements. We are requesting grading modifications in accordance with the attached grading plan. The grading modifications have been designed to integrate with the mounded area that was already part of the playground and will enhance the topographic variety of Arsenal Park.

The fill associated with the grading modifications will impact 10 trees which will need to be removed as part of the work. These trees will be replaced at a ratio as directed and at the discretion of the Tree Warden. Replacement tree selection will be complimentary to the current landscape plan and approved by the Conservation Commission and Watertown City Tree Warden.

Please feel free to contact me with any question or comments regarding this request.

Sincerely,

A handwritten signature in blue ink, appearing to read "Glen Howard".

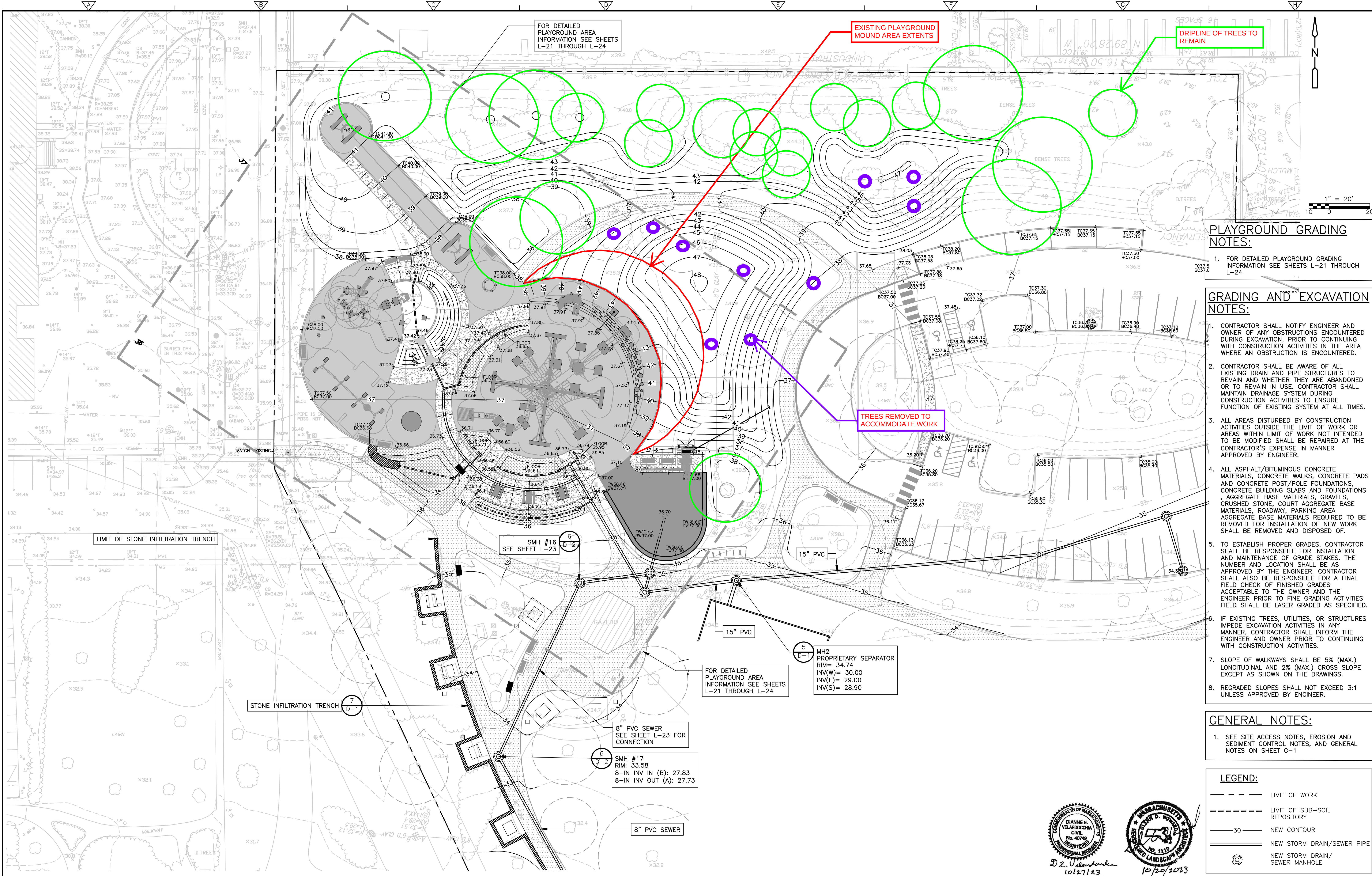
Glen Howard, RLA Massachusetts #1119
Project Manager
CDM Smith Inc.

cc: Greg St. Louis – DPW Superintendent
Tyler Glode – DPW City Engineer
Adam Squatrito – DPW Project Manager



Ms. Katie Swan
May 30, 2024
Page 2

Steven Magoon, Community Development & Planning
Bob Dirico – DPW Parks Department
Ernie Thebado – Recreation Director



PLAYGROUND GRADING NOTES:

1. FOR DETAILED PLAYGROUND GRADING INFORMATION SEE SHEETS L-21 THROUGH L-24

GRADING AND EXCAVATION NOTES:

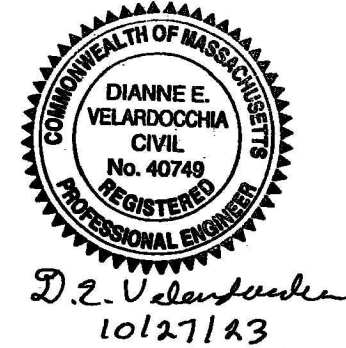
1. CONTRACTOR SHALL NOTIFY ENGINEER AND OWNER OF ANY OBSTRUCTIONS ENCOUNTERED DURING EXCAVATION, PRIOR TO CONTINUING WITH CONSTRUCTION ACTIVITIES IN THE AREA WHERE AN OBSTRUCTION IS ENCOUNTERED.
2. CONTRACTOR SHALL BE AWARE OF ALL EXISTING DRAIN AND PIPE STRUCTURES TO REMAIN AND WHETHER THEY ARE ABANDONED OR TO REMAIN IN USE. CONTRACTOR SHALL MAINTAIN DRAINAGE SYSTEM DURING CONSTRUCTION ACTIVITIES TO ENSURE FUNCTION OF EXISTING SYSTEM AT ALL TIMES.
3. ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES OUTSIDE THE LIMIT OF WORK OR AREAS WITHIN LIMIT OF WORK NOT INTENDED TO BE MODIFIED SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE IN MANNER APPROVED BY ENGINEER.
4. ALL ASPHALT/BITUMINOUS CONCRETE MATERIALS, CONCRETE WALKS, CONCRETE PADS AND CONCRETE POST/POLE FOUNDATIONS, CONCRETE BUILDING SLABS AND FOUNDATIONS, AGGREGATE BASE MATERIALS, GRAVELS, CRUSHED STONE, COURT AGGREGATE BASE MATERIALS, ROADWAY, PARKING AREA AGGREGATE BASE MATERIALS REQUIRED TO BE REMOVED FOR INSTALLATION OF NEW WORK SHALL BE REMOVED AND DISPOSED OF.
5. TO ESTABLISH PROPER GRADES, CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION AND MAINTENANCE OF GRADE STAKES. THE NUMBER AND LOCATION SHALL BE AS APPROVED BY THE ENGINEER. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR A FINAL FIELD CHECK OF FINISHED GRADES ACCEPTABLE TO THE OWNER AND THE ENGINEER PRIOR TO FINE GRADING ACTIVITIES. FIELD SHALL BE LASER GRADED AS SPECIFIED.
6. IF EXISTING TREES, UTILITIES, OR STRUCTURES IMPEDE EXCAVATION ACTIVITIES IN ANY MANNER, CONTRACTOR SHALL INFORM THE ENGINEER AND OWNER PRIOR TO CONTINUING WITH CONSTRUCTION ACTIVITIES.
7. SLOPE OF WALKWAYS SHALL BE 5% (MAX.) LONGITUDINAL AND 2% (MAX.) CROSS SLOPE EXCEPT AS SHOWN ON THE DRAWINGS.
8. REGRADED SLOPES SHALL NOT EXCEED 3:1 UNLESS APPROVED BY ENGINEER.

GENERAL NOTES:

1. SEE SITE ACCESS NOTES, EROSION AND SEDIMENT CONTROL NOTES, AND GENERAL NOTES ON SHEET G-1

LEGEND:

- LIMIT OF WORK
- LIMIT OF SUB-SOIL REPOSITORY
- 30 --- NEW CONTOUR
- NEW STORM DRAIN/SEWER PIPE
- NEW STORM DRAIN/SEWER MANHOLE



					DESIGNED BY: N.WATKINS	 75 State Street Boston, MA 02109 Tel: (617) 452-6000	CITY OF WATERTOWN, MASSACHUSETTS		GRADING, DRAINAGE, AND UTILITIES PLAN I		PROJECT NO. 56318-253750
					DRAWN BY: N.WATKINS		ARSENAL PARK IMPROVEMENTS PROJECT				FILE NAME: CSTPL004
					SHEET CHK'D BY: G.HOWARD		PHASE B				SHEET NO.
					CROSS CHK'D BY: S.LANDGREN						L-11
					APPROVED BY: G.HOWARD						
REV. NO.	DATE	DRWN	CHKD	REMARKS	DATE: OCTOBER 2023						
2	5/30/24	NPW	GDH	GRADING NORTH OF PLAYGROUND BERM							
1	5/1/24	MRC	SWL	DETAIL LABELS ADDED TO MANHOLES							

NOTICE OF INTENT

Proposed Redevelopment 10-30 Manley Way Watertown, Massachusetts

**SUBMITTED TO:**

City of Watertown
Conservation Commission
149 Main Street, 3rd Floor
Watertown, Massachusetts 02472-4410

PREPARED FOR:

Seyon Management as Agent for
PPF Industrial 20 SEYON LLC
533 Boylston Street, 11th Floor
Boston, Massachusetts 02116

PREPARED BY:

Lucas Environmental, LLC
500A Washington Street
Quincy, Massachusetts 02169

IN ASSOCIATION WITH:

RJO'Connell & Associates, Inc.
80 Montvale Avenue, Suite 201
Stoneham, Massachusetts 02180



500A Washington Street, Quincy, MA 02169

May 15, 2024

City of Watertown
Conservation Commission
149 Main Street, 3rd Floor
Watertown, MA 02472-4410

Re: Notice of Intent
Proposed Redevelopment
10-30 Manley Way
Watertown, MA 02472

Members of the Watertown Conservation Commission:

On behalf of Seyon Management acting as the Agent for PPF Industrial 20 SEYON LLC, Lucas Environmental, LLC (LE), in association with RJO'Connell & Associates, Inc. (RJOC), is pleased to submit this Notice of Intent (NOI) to the Watertown Conservation Commission for the proposed Redevelopment Project located at 10-30 Manley Way in Watertown, Massachusetts. The project entails re-purposing the existing structure for light industry, lab/R&D/non-nuisance manufacturing, or warehousing use and instituting numerous upgrades to the site, including new landscaping, the installation of a new stormwater retention system, and fostering connectivity through the site from Pleasant Street to the City's recently acquired land to the rear of the site. There will be a decrease in the amount of impervious area.

A portion of proposed repaving work and stormwater improvements are located within the 100-Foot Buffer Zone to Bank and BVW as well as the locally regulated 150-Foot Buffer Zone to Bank and BVW. Additionally, a new drainage pipe and outlet is proposed within the locally regulated 50-Foot No-Build Zone to Bank and BVW. Minor work is also proposed within 25 feet of the Bank and BVW. A request for a Variance is included for this site improvement. No activities are located within state-regulated wetlands or other resource areas. Erosion and sediment control measures will be installed as shown on the accompanying plans. A Utility work will also occur at the front of the site along Pleasant Street. This work is located outside of state and locally regulated resource areas and buffers.

This NOI is submitted in accordance with the Massachusetts Wetlands Protection Act (WPA; M.G.L. Ch. 131, Section 40) and implementing regulations (310 CMR 10.00 et seq.) and the City of Watertown Wetlands Ordinance (Chapter XV) and "Rules and Regulations for the Administration of the Watertown Wetlands Ordinance of 2008", revised December 2012.

Enclosed please find one (1) original and one (1) copy of the NOI and Site Plans. The NOI application package includes the WPA Form 3, project narrative, figures, photographic documentation, abutter information, and filing fees. The Site Plans and Stormwater Report are provided under separate cover. A link to an electronic copy of the pdf file of the NOI application and supporting documentation will be provided concurrently with this submittal. We respectfully request that you place this matter on your agenda for the June 5, 2024, Public Hearing.



500A Washington Street, Quincy, MA 02169

If you have any questions, please do not hesitate to contact me at 617.405.4140 or cml@lucasenviro.com. Thank you for your consideration in this matter.

Sincerely,
LUCAS ENVIRONMENTAL, LLC

A handwritten signature in blue ink that reads 'Christopher M. Lucas'.

Christopher M. Lucas, PWS, CWS, RPSS
Environmental Consultant/Wetland & Soil Scientist

Enclosures

cc : MassDEP – NERO (hard copy)
 Seyon Management for PPF Industrial 20 SEYON LLC, Brian Beck (electronic copy)
 PPF Industrial 20 Seyon LLC c/o Morgan Stanley Real Estate Bryan Blake (electronic copy)
 RJO'Connell & Associates, Inc. (electronic copy)
 City of Watertown, Town Engineer, Department of Public Works (hard copy)
 City of Watertown, Town Council (electronic copy via OpenGov)
 City of Watertown, Planning Board (electronic copy via OpenGov)
 City of Watertown, Board of Appeals (electronic copy via OpenGov)
 City of Watertown, Board of Health (electronic copy via OpenGov)
 City of Watertown, Building Inspector (electronic copy via OpenGov)
 City of Watertown, Town Manager (electronic copy via OpenGov)
 City of Waltham, Conservation Commission (electronic copy via OpenGov)

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SECTION I – FORMS



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Watertown

City/Town

Important:

When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Note:
Before completing this form consult your local Conservation Commission regarding any municipal bylaw or ordinance.

A. General Information

1. Project Location (**Note:** electronic filers will click on button to locate project site):

10-30 Manley Way

a. Street Address

Watertown

b. City/Town

02472

c. Zip Code

Latitude and Longitude:

42° 22' 6.5" N

d. Latitude

71° 12' 49.03" W

e. Longitude

Map 806, Lot 1D, Block 0

f. Assessors Map/Plat Number

Map 807, Lot 1B, Block 1A

g. Parcel /Lot Number

2. Applicant:

Brian

a. First Name

Beck

b. Last Name

Seyon Management LLC as Agent for PPF INDUSTRIAL 20 SEYON LLC

c. Organization

535 Boylston Street, 11th Floor

d. Street Address

Boston

e. City/Town

MA

f. State

02116

g. Zip Code

978.333.7568

h. Phone Number

i. Fax Number

bjbeck@seyonmanagement.com

j. Email Address

3. Property owner (required if different from applicant): ☐ Check if more than one owner

a. First Name

b. Last Name

PPF INDUSTRIAL 20 SEYON LLC C/O MORGAN STANLEY REAL ESTATE

c. Organization

1585 Broadway

d. Street Address

New York

e. City/Town

NY

f. State

10036

g. Zip Code

617.982.6592

h. Phone Number

i. Fax Number

bblake@seyon.com

j. Email address

4. Representative (if any):

Christopher

a. First Name

Lucas

b. Last Name

Lucas Environmental, LLC

c. Company

500A Washington Street

d. Street Address

Quincy

e. City/Town

MA

f. State

02169

g. Zip Code

617.405.4140

h. Phone Number

617.405.4465

i. Fax Number

cml@lucasenviro.com

j. Email address

5. Total WPA Fee Paid (from NOI Wetland Fee Transmittal Form):

\$500.00

a. Total Fee Paid

\$237.50

b. State Fee Paid

\$262.50

c. City/Town Fee Paid



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

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City/Town

A. General Information (continued)

6. General Project Description:

The proposed redevelopment project to re-purpose an existing structure for light industry, lab/R&D/non-nuisance manufacturing, or warehousing use and instituting numerous upgrades to the site, including new landscaping and the installation of a new stormwater retention system. Portions of the project are within the 100-Foot Buffer Zone to Bordering Vegetated Wetlands and Inland Bank.

7a. Project Type Checklist: (Limited Project Types see Section A. 7b.)

- | | |
|---|---|
| 1. ☐ Single Family Home | 2. ☐ Residential Subdivision |
| 3. ☒ Commercial/Industrial | 4. ☐ Dock/Pier |
| 5. ☐ Utilities | 6. ☐ Coastal engineering Structure |
| 7. ☐ Agriculture (e.g., cranberries, forestry) | 8. ☐ Transportation |
| 9. ☐ Other | |

7b. Is any portion of the proposed activity eligible to be treated as a limited project (including Ecological Restoration Limited Project) subject to 310 CMR 10.24 (coastal) or 310 CMR 10.53 (inland)?

1. ☐ Yes ☒ No If yes, describe which limited project applies to this project. (See 310 CMR 10.24 and 10.53 for a complete list and description of limited project types)

2. Limited Project Type

If the proposed activity is eligible to be treated as an Ecological Restoration Limited Project (310 CMR 10.24(8), 310 CMR 10.53(4)), complete and attach Appendix A: Ecological Restoration Limited Project Checklist and Signed Certification.

8. Property recorded at the Registry of Deeds for:

Middlesex

a. County

75943

c. Book

b. Certificate # (if registered land)

301

d. Page Number

B. Buffer Zone & Resource Area Impacts (temporary & permanent)

- ☒ Buffer Zone Only – Check if the project is located only in the Buffer Zone of a Bordering Vegetated Wetland, Inland Bank, or Coastal Resource Area.
- ☐ Inland Resource Areas (see 310 CMR 10.54-10.58; if not applicable, go to Section B.3, Coastal Resource Areas).

Check all that apply below. Attach narrative and any supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

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Watertown

City/Town

B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

For all projects affecting other Resource Areas, please attach a narrative explaining how the resource area was delineated.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. ☐ Bank	1. linear feet	2. linear feet
b. ☐ Bordering Vegetated Wetland	1. square feet	2. square feet
c. ☐ Land Under Waterbodies and Waterways	1. square feet 3. cubic yards dredged	2. square feet

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
d. ☐ Bordering Land Subject to Flooding	1. square feet 3. cubic feet of flood storage lost	2. square feet 4. cubic feet replaced
e. ☐ Isolated Land Subject to Flooding	1. square feet 2. cubic feet of flood storage lost	3. cubic feet replaced
f. ☐ Riverfront Area	1. Name of Waterway (if available) - specify coastal or inland	

2. Width of Riverfront Area (check one):

- ☐ 25 ft. - Designated Densely Developed Areas only
- ☐ 100 ft. - New agricultural projects only
- ☐ 200 ft. - All other projects

3. Total area of Riverfront Area on the site of the proposed project: _____ square feet

4. Proposed alteration of the Riverfront Area:

a. total square feet _____ b. square feet within 100 ft. _____ c. square feet between 100 ft. and 200 ft. _____

5. Has an alternatives analysis been done and is it attached to this NOI? ☐ Yes ☐ No

6. Was the lot where the activity is proposed created prior to August 1, 1996? ☐ Yes ☐ No

3. ☐ Coastal Resource Areas: (See 310 CMR 10.25-10.35)

Note: for coastal riverfront areas, please complete **Section B.2.f.** above.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

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Provided by MassDEP:

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Watertown

City/Town

B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

Check all that apply below. Attach narrative and supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

Online Users:
Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

<u>Resource Area</u>	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
a. ☐ Designated Port Areas	Indicate size under Land Under the Ocean, below	
b. ☐ Land Under the Ocean	1. square feet	
	2. cubic yards dredged	
c. ☐ Barrier Beach	Indicate size under Coastal Beaches and/or Coastal Dunes below	
d. ☐ Coastal Beaches	1. square feet	2. cubic yards beach nourishment
e. ☐ Coastal Dunes	1. square feet	2. cubic yards dune nourishment
	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
f. ☐ Coastal Banks	1. linear feet	
g. ☐ Rocky Intertidal Shores	1. square feet	
h. ☐ Salt Marshes	1. square feet	2. sq ft restoration, rehab., creation
i. ☐ Land Under Salt Ponds	1. square feet	
	2. cubic yards dredged	
j. ☐ Land Containing Shellfish	1. square feet	
k. ☐ Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above	
	1. cubic yards dredged	
l. ☐ Land Subject to Coastal Storm Flowage	1. square feet	

4. ☐ Restoration/Enhancement

If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.2.b or B.3.h above, please enter the additional amount here.

a. square feet of BVW

b. square feet of Salt Marsh

5. ☐ Project Involves Stream Crossings

a. number of new stream crossings

b. number of replacement stream crossings



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

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C. Other Applicable Standards and Requirements

- ☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section C and complete Appendix A: Ecological Restoration Limited Project Checklists – Required Actions (310 CMR 10.11).

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

1. Is any portion of the proposed project located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage and Endangered Species Program (NHESP)? To view habitat maps, see the *Massachusetts Natural Heritage Atlas* or go to http://maps.massgis.state.ma.us/PRI_EST_HAB/viewer.htm.

- a. ☐ Yes ☒ No **If yes, include proof of mailing or hand delivery of NOI to:**

Natural Heritage and Endangered Species Program
Division of Fisheries and Wildlife
1 Rabbit Hill Road
Westborough, MA 01581

August 1, 2021

b. Date of map

If yes, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18). To qualify for a streamlined, 30-day, MESA/Wetlands Protection Act review, please complete Section C.1.c, and include requested materials with this Notice of Intent (NOI); *OR* complete Section C.2.f, if applicable. *If MESA supplemental information is not included with the NOI, by completing Section 1 of this form, the NHESP will require a separate MESA filing which may take up to 90 days to review (unless noted exceptions in Section 2 apply, see below).*

- c. Submit Supplemental Information for Endangered Species Review*

1. ☐ Percentage/acreage of property to be altered:

(a) within wetland Resource Area

percentage/acreage

(b) outside Resource Area

percentage/acreage

2. ☐ Assessor's Map or right-of-way plan of site

2. ☐ Project plans for entire project site, including wetland resource areas and areas outside of wetlands jurisdiction, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work **

(a) ☐ Project description (including description of impacts outside of wetland resource area & buffer zone)

(b) ☐ Photographs representative of the site

* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review (see <https://www.mass.gov/endangered-species-act-mesa-regulatory-review>).

Priority Habitat includes habitat for state-listed plants and strictly upland species not protected by the Wetlands Protection Act.

** MESA projects may not be segmented (321 CMR 10.16). The applicant must disclose full development plans even if such plans are not required as part of the Notice of Intent process.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

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C. Other Applicable Standards and Requirements (cont'd)

- (c) ☐ MESA filing fee (fee information available at <https://www.mass.gov/how-to/how-to-file-for-a-mesa-project-review>).

Make check payable to "Commonwealth of Massachusetts - NHESP" and **mail to NHESP** at above address

Projects altering 10 or more acres of land, also submit:

- (d) ☐ Vegetation cover type map of site
- (e) ☐ Project plans showing Priority & Estimated Habitat boundaries
- (f) OR Check One of the Following

1. ☐ Project is exempt from MESA review.
Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, <https://www.mass.gov/service-details/exemptions-from-review-for-projectsactivities-in-priority-habitat>; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)

2. ☐ Separate MESA review ongoing. a. NHESP Tracking # _____ b. Date submitted to NHESP _____

3. ☐ Separate MESA review completed.
Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.

3. For coastal projects only, is any portion of the proposed project located below the mean high water line or in a fish run?

- a. ☒ Not applicable – project is in inland resource area only b. ☐ Yes ☐ No

If yes, include proof of mailing, hand delivery, or electronic delivery of NOI to either:

South Shore - Bourne to Rhode Island border, and the Cape & Islands:

North Shore - Plymouth to New Hampshire border:

Division of Marine Fisheries -
Southeast Marine Fisheries Station
Attn: Environmental Reviewer
836 South Rodney French Blvd.
New Bedford, MA 02744
Email: dmf.envreview-south@mass.gov

Division of Marine Fisheries -
North Shore Office
Attn: Environmental Reviewer
30 Emerson Avenue
Gloucester, MA 01930
Email: dmf.envreview-north@mass.gov

Also if yes, the project may require a Chapter 91 license. For coastal towns in the Northeast Region, please contact MassDEP's Boston Office. For coastal towns in the Southeast Region, please contact MassDEP's Southeast Regional Office.

- c. ☐ Is this an aquaculture project? d. ☐ Yes ☐ No

If yes, include a copy of the Division of Marine Fisheries Certification Letter (M.G.L. c. 130, § 57).



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

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Watertown

City/Town

C. Other Applicable Standards and Requirements (cont'd)

Online Users:

Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

4. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?
a. ☐ Yes ☒ No If yes, provide name of ACEC (see instructions to WPA Form 3 or MassDEP Website for ACEC locations). **Note:** electronic filers click on Website.
- b. ACEC
5. Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00?
a. ☐ Yes ☒ No
6. Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L. c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L. c. 130, § 105)?
a. ☐ Yes ☒ No
7. Is this project subject to provisions of the MassDEP Stormwater Management Standards?
a. ☒ Yes. Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) and check if:
1. ☒ Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook Vol. 2, Chapter 3)
2. ☒ A portion of the site constitutes redevelopment
3. ☒ Proprietary BMPs are included in the Stormwater Management System.
b. ☐ No. Check why the project is exempt:
1. ☐ Single-family house
2. ☐ Emergency road repair
3. ☐ Small Residential Subdivision (less than or equal to 4 single-family houses or less than or equal to 4 units in multi-family housing project) with no discharge to Critical Areas.

D. Additional Information

- ☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section D and complete Appendix A: Ecological Restoration Notice of Intent – Minimum Required Documents (310 CMR 10.12).

Applicants must include the following with this Notice of Intent (NOI). See instructions for details.

Online Users: Attach the document transaction number (provided on your receipt page) for any of the following information you submit to the Department.

1. ☒ USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site. (Electronic filers may omit this item.)
2. ☒ Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative to the boundaries of each affected resource area.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

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Watertown

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D. Additional Information (cont'd)

3. ☒ Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s), Determination of Applicability, Order of Resource Area Delineation, etc.), and attach documentation of the methodology.

4. ☒ List the titles and dates for all plans and other materials submitted with this NOI.

Site Plan for Redevelopment of 10-30 Manley Way - Watertown, MA

a. Plan Title

RJO'Connell & Associates, Inc. (RJOC)

Brian P. Dundon

b. Prepared By

c. Signed and Stamped by

May 13, 2024

1" = 20'

d. Final Revision Date

e. Scale

Stormwater Report prepared by RJOC

March 19, 2024

f. Additional Plan or Document Title

g. Date

5. ☐ If there is more than one property owner, please attach a list of these property owners not listed on this form.
6. ☐ Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.
7. ☐ Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed.
8. ☒ Attach NOI Wetland Fee Transmittal Form
9. ☒ Attach Stormwater Report, if needed.

E. Fees

1. ☐ Fee Exempt: No filing fee shall be assessed for projects of any city, town, county, or district of the Commonwealth, federally recognized Indian tribe housing authority, municipal housing authority, or the Massachusetts Bay Transportation Authority.

Applicants must submit the following information (in addition to pages 1 and 2 of the NOI Wetland Fee Transmittal Form) to confirm fee payment:

30793

May 13, 2024

2. Municipal Check Number

3. Check date

30792

May 13, 2024

4. State Check Number

5. Check date

R.J.O'Connell & Associates, Inc.

6. Payor name on check: First Name

7. Payor name on check: Last Name



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

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City/Town

F. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(a).

I further certify under penalties of perjury that all abutters were notified of this application, pursuant to the requirements of M.G.L. c. 131, § 40. Notice must be made by Certificate of Mailing or in writing by hand delivery or certified mail (return receipt requested) to all abutters within 100 feet of the property line of the project location.

DocuSigned by:

Seyon Management LLC as agent for
PPF Industrial 20 Seyon LLC

5021311FB7F3422

1. Signature of Applicant

DocuSigned by:

Bryan Blake

3. Signature of Property Owner (if different)

5. Signature of Representative (if any)

05/13/2024 | 1:28:29 PM EDT

2. Date

05/13/2024 | 10:37:22 AM PDT

4. Date

May 13, 2024

6. Date

For Conservation Commission:

Two copies of the completed Notice of Intent (Form 3), including supporting plans and documents, two copies of the NOI Wetland Fee Transmittal Form, and the city/town fee payment, to the Conservation Commission by certified mail or hand delivery.

For MassDEP:

One copy of the completed Notice of Intent (Form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form, and a **copy** of the state fee payment to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery.

Other:

If the applicant has checked the "yes" box in any part of Section C, Item 3, above, refer to that section and the Instructions for additional submittal requirements.

The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.



City of Watertown
Administration Building
149 Main Street
Watertown, Massachusetts 02472
Conservation Commission
Tel: (617) 972-6426 • Fax: (617) 972-6484

WATERTOWN WETLANDS ORDINANCE

Application for Permit/Determination

Application for:

- ☐ Request for Determination of Applicability ☒ Notice of Intent
☐ Other

Owner*		Applicant	
Name	PPF Industrial 20 SEYON LLC	Name	Seyon Management as Agent for Owner
Street	1585 Broadway	Street	535 Bolyston Street, 11 Floor
City	New York	City	Boston
State	New York	State	Massachusetts
Zip	10036	Zip	02116
Phone	617.982.6592	Phone	978.333.7568
e-mail	bblake@seyon.com	e-mail	bjbeck@seyonmanagement.com

**Name(s) and address(s) under which title of property is recorded at Registry of Deeds.*

1. Location of site where work is proposed: _____
10-30 Manley Way, Watertown, MA

Town of Watertown Assessor's Information:

Map: 806 and 807 Lot: 1D and 1B Block: 0 and 1A

2. Briefly describe the proposed work:

The project entails re-purposing the existing structure for lab/R&D/non-nuisance manufacturing use and instituting numerous upgrades to the site, including new landscaping, the installation of a new stormwater retention system, and fostering connectivity through the site from Pleasant Street to the City's recently acquired land to the rear of the site. There will be no increase in the amount of impervious area.

3. Are there any impediments to accessing the site? No X Yes

If yes, what are they (fence, dog, topography, etc.):

Chain link fencing at rear of property divides the parking lot work area and
separates wetland resources from parking lot.

If yes, what arrangements have been or will be made to ensure that the Conservation Commission members and designated representatives have safe and easy access to the site?

Property Owner and Applicant will ensure that access to the site is provided
when needed.

6. Do you understand that notification of this application and the Public Hearing will be published in a newspaper of local circulation at your expense? Please check-off appropriate box: ☒ Yes ☐ No
7. How much is the filing fee, for this project, under the local ordinance? And under the Wetlands Protection Act?
\$ 1,000.00
(See Fee Schedule). Make check payable to the Town of Watertown.
\$ 262.50
(See NOI Wetland Fee Transmittal Form wpaform3.doc) Make check payable to the Watertown Conservation Commission)

I hereby certify, under the pains and penalties of perjury, that the contents of this application are true and complete.

Signature of Applicant:

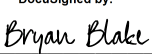
DocuSigned by:

5021311FB7F3422... Seyon Management LLC as agent for PPF Industrial 20 Seyon LLC

Date: 05/13/2024 | 1:27:02 PM EDT

By signing this application the owner grants permission to the Conservation Commission for its members and designated representative to enter upon the premises of the site.

Signature of Owner:

DocuSigned by:

B7E7FD96722F424... Bryan Blake

Date: 05/13/2024 | 10:37:22 AM PDT

Waiver

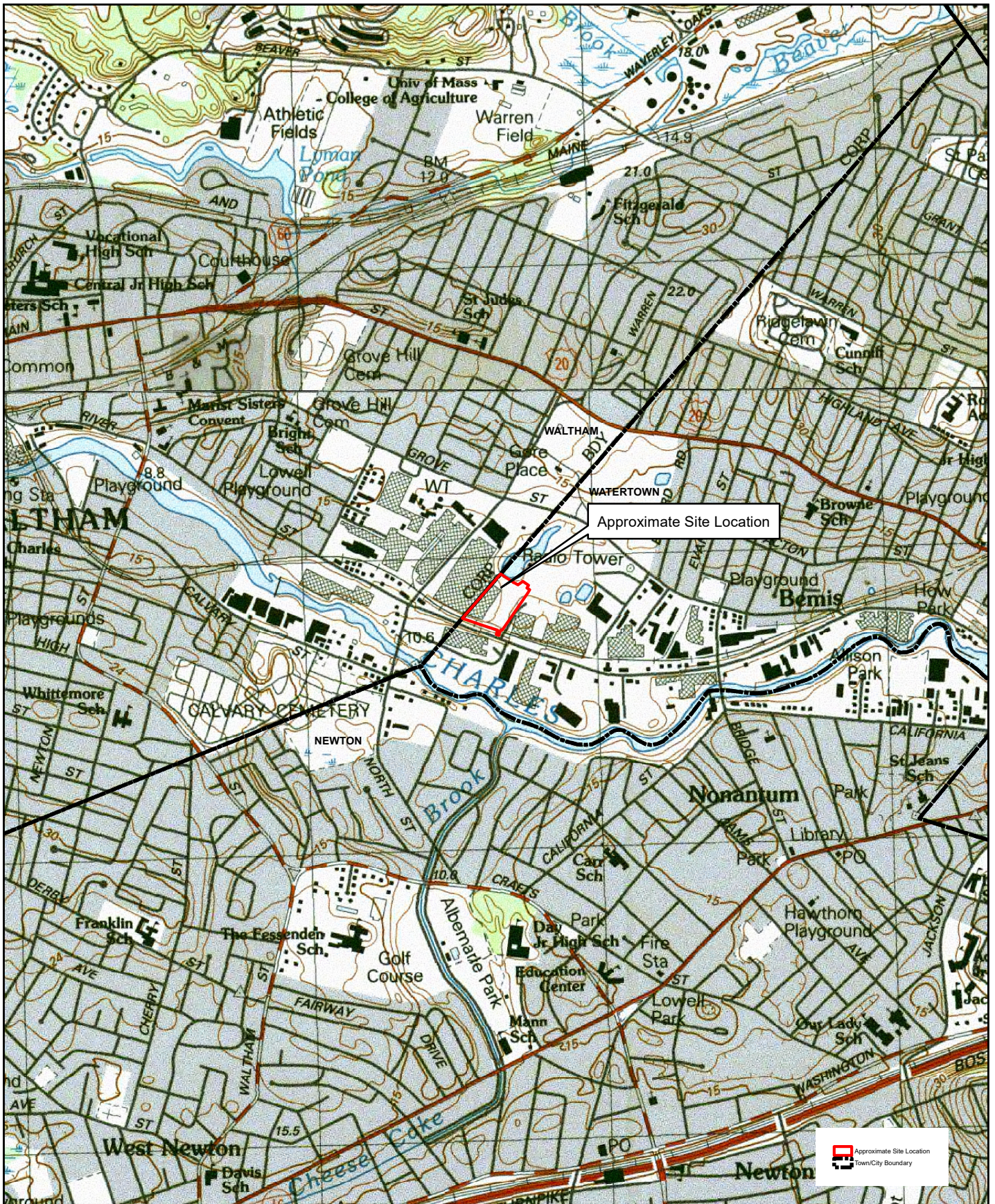
If the next regular meeting of the Conservation Commission is not within 21 days of submission of this filing, or if the agenda for the next regular meeting is full, I waive the 21 day requirement and agree to a later date for this Hearing no later than the next regular scheduled meeting or 30 days from the date of the filing a complete application (whichever is less).

Signature of Applicant:

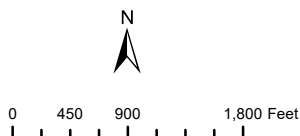
DocuSigned by:

5021311FB7F3422... Seyon Management LLC as agent for PPF Industrial 20 Seyon LLC

Date: 05/13/2024 | 1:27:02 PM EDT



Source: Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Environmental Affairs; USGS Topographic Quadrangle Images



USGS Map
Notice of Intent
10-30 Manley Way
Watertown, MA

FIGURE 1





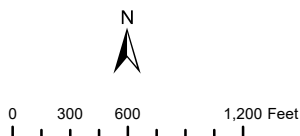
Source: Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Environmental Affairs; USGS Color Ortho Imagery - 15cm (2021)



Aerial Map
Notice of Intent
10-30 Manley Way
Watertown, MA



FIGURE 2



NHESP Map
Notice of Intent
10-30 Manley Way
Watertown, MA



FIGURE 3



Source: Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Environmental Affairs; USGS Color Ortho Imagery - 15cm (2021)



FEMA Map
Notice of Intent
10-30 Manley Way
Watertown, MA

FIGURE 4



RJOCC

3,182± S.F.
EASEMENT
ADDITION –

1,500± S.F.
EASEMENT
REDUCTION

WALKWAY EASEMENT TO AVOID DRAIN OUTLET AND WETLAND

**10' WIDE PEDESTRIAN
WALKWAY EASEMENT TO
THE CITY OF WATERTOWN
(1,640± S.F.)**

REPLACE 5,867 S.F. EXISTING DRIVEWAY WITH GRASS

RJO'CONNELL
& ASSOCIATES, INC.
CIVIL ENGINEERS, SURVEYORS & LAND PLANNERS

DATE: 03/28/2024 SCALE: 1"=30'

**WB-67 TRUCK TURNING
OPTION 1 DOCK 1 - IN**
WAREHOUSE FACILITY
10-30 MANLEY WAY
WATERTOWN, MA

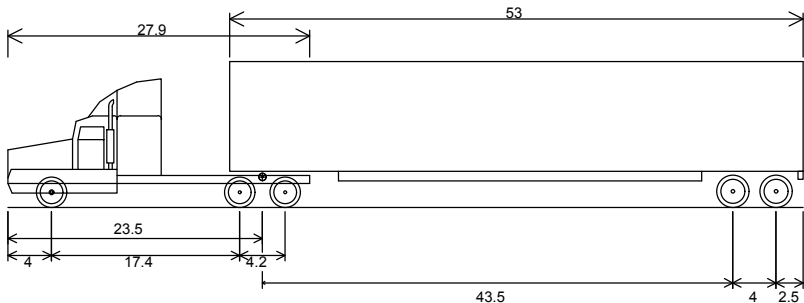
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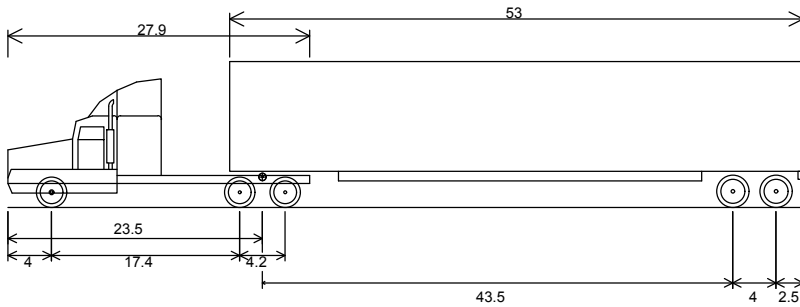
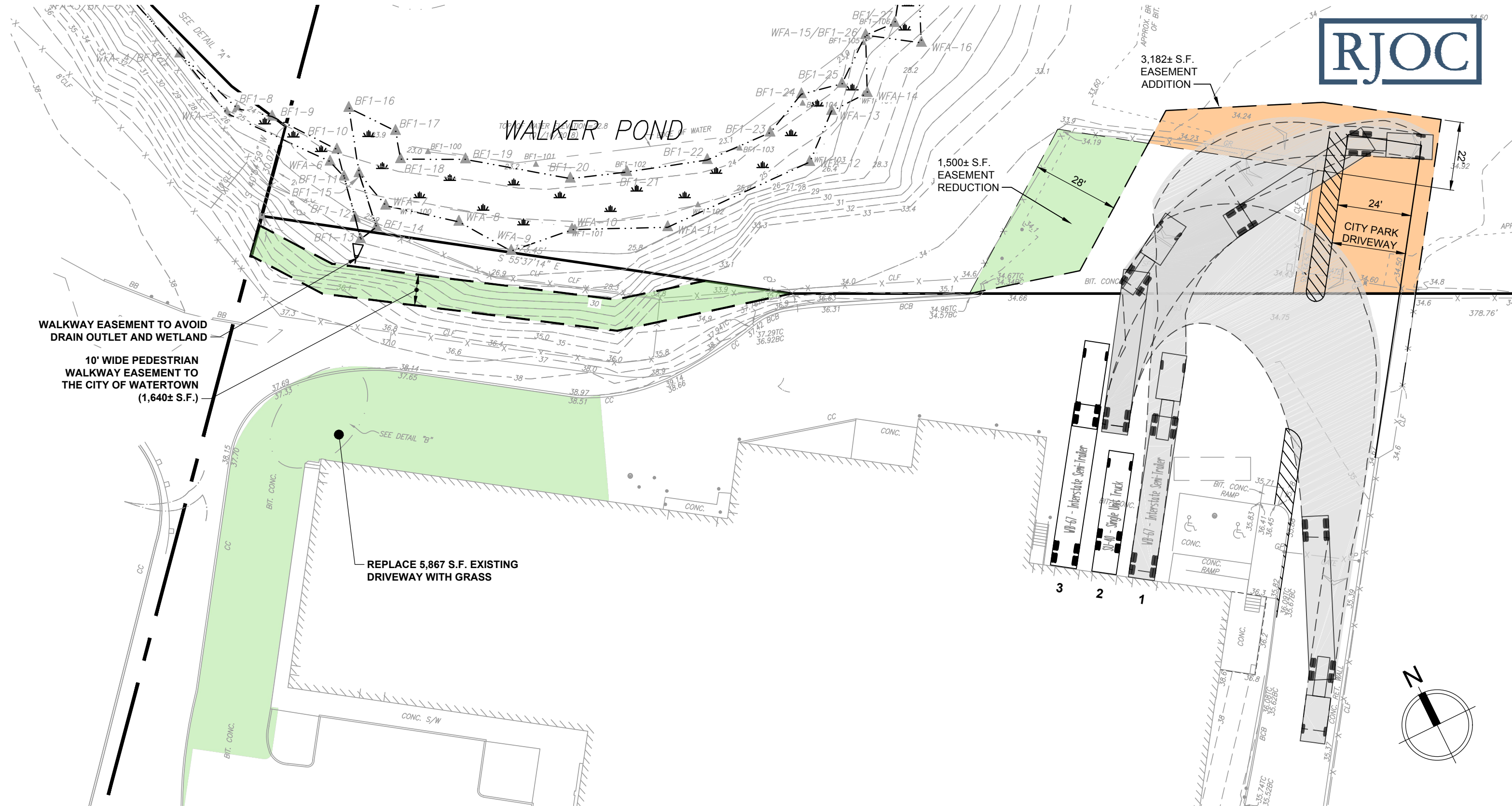
GRAPHIC SCALE IN FEET

WB-67 - Interstate Semi-Trailer

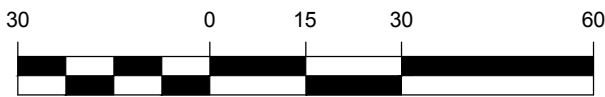
Overall Length	73.501ft
Overall Width	8.500ft
Overall Body Height	13.500ft
Min Body Ground Clearance	1.334ft
Max Track Width	8.500ft
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	28.40°



Drawing name: G:\MA\Watertown\Seyon Group\20 Seyon Street\Main\Truck Turns\Plan Existing Conditions\21049 TT-1 Truck Turning Plan Option 1.dwg
Mar 28, 2024 - 15:21pm



WB-67 - Interstate Semi-Trailer	
Overall Length	73.501ft
Overall Width	8.500ft
Overall Body Height	13.500ft
Min Body Ground Clearance	1.334ft
Max Track Width	8.500ft
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	28.40°



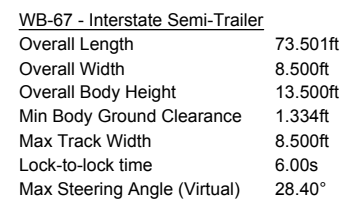
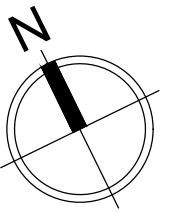
GRAPHIC SCALE IN FEET

RJO'CONNELL
& ASSOCIATES, INC.

CIVIL ENGINEERS, SURVEYORS & LAND PLANNERS

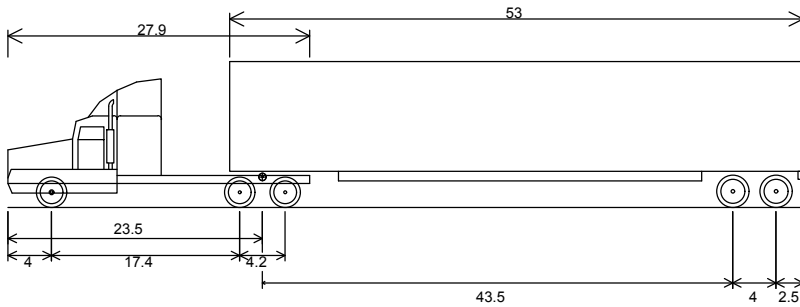
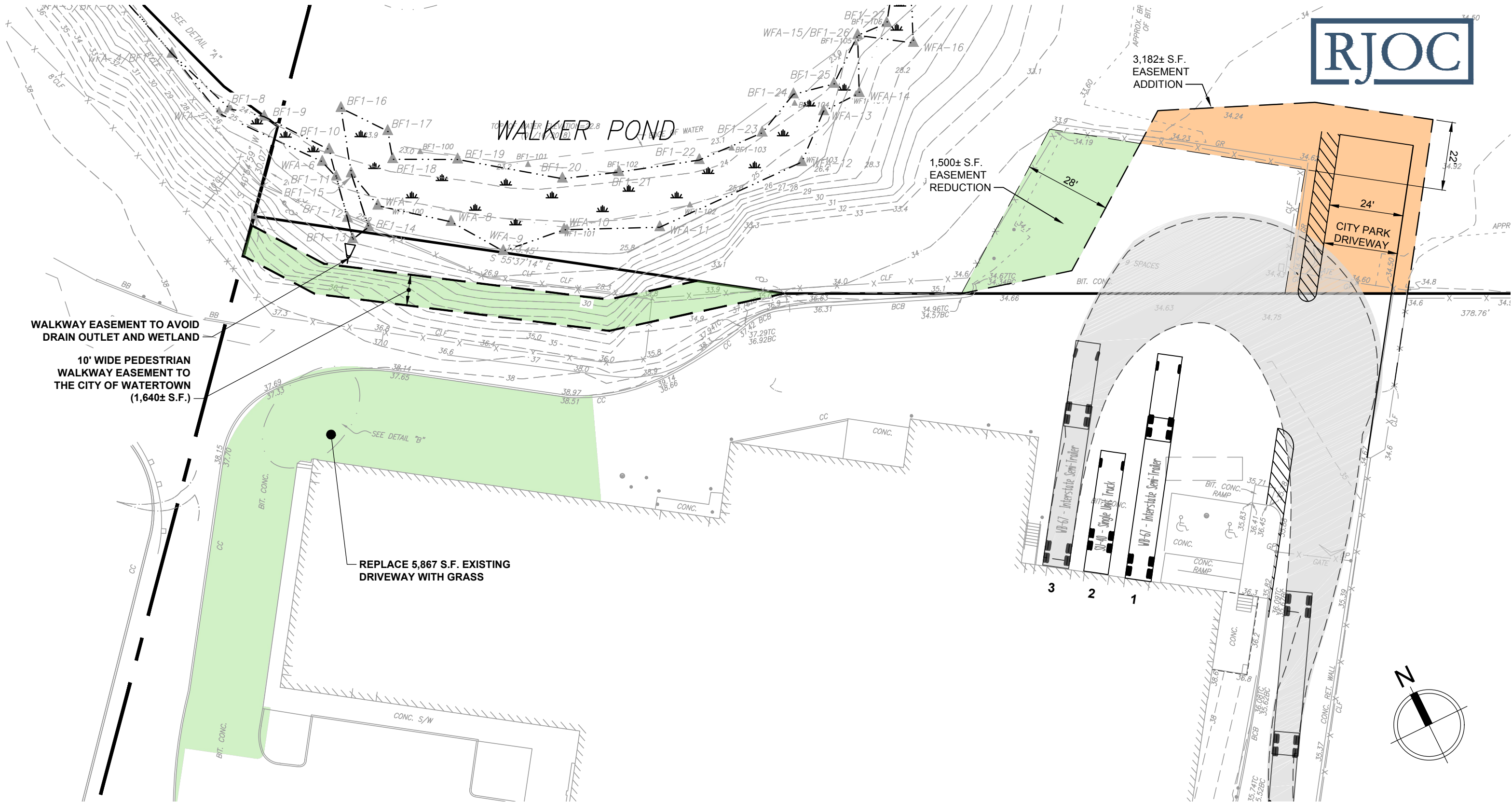
DATE: 03/28/2024SCALE: 1"=30'

WB-67 TRUCK TURNING
OPTION 1 DOCK 1 - OUT
WAREHOUSE FACILITY
10-30 MANLEY WAY
WATERTOWN, MA

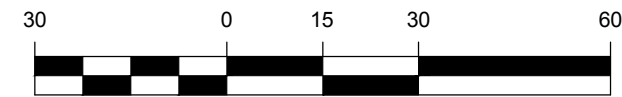


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Drawing name: G:\MA\Watertown\Seyon Group\20 Seyon Street\Main\Truck Turns\Plan Existing Conditions\21049 TT-1 Truck Turning Plan Option 1.dwg
Mar 28, 2024 - 15:24pm



WB-67 - Interstate Semi-Trailer	
Overall Length	73.501ft
Overall Width	8.500ft
Overall Body Height	13.500ft
Min Body Ground Clearance	1.334ft
Max Track Width	8.500ft
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	28.40°



GRAPHIC SCALE IN FEET

**RJO'CONNELL
& ASSOCIATES, INC.**

CIVIL ENGINEERS, SURVEYORS & LAND PLANNERS

DATE: 03/28/2024

SCALE: 1"=30'

WB-67 TRUCK TURNING

OPTION 1 DOCK 3 - OUT

WAREHOUSE FACILITY

10-30 MANLEY WAY

WATERTOWN, MA

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PHOTOGRAPHIC DOCUMENTATION

DATE: December 8, 2021



Photograph 1: View north of paved area requiring repair; Walker Pond and associated wetland fringe in distance beyond fence.



Photograph 2: View north adjacent to Photograph 1.

PHOTOGRAPHIC DOCUMENTATION

DATE: December 8, 2021



Photograph 3: View north of drainage channel that discharges to Walker Pond and Wetland A (BVW).



Photograph 4: View northeast of Walker Pond and Wetland A (BVW).

WATERTOWN WETLANDS ORDINANCE
MASSACHUSETTS WETLANDS PROTECTION ACT M.G.L. C. 131. §40

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CITY OF WATERTOWN

BOARD OF ASSESSORS

Administration Building

149 Main Street

Watertown, Massachusetts 02472-4410

EARL L. SMITH, CHAIR
RICHARD V. MOYNIHAN
KATHLEEN COLLEARY

TELEPHONE (617) 972-6410
FAX (617) 972-6497

ABUTTERS CERTIFICATION

In consideration of the request for a certified abutters list, the Watertown Board of Assessors hereby certifies for the property located at:

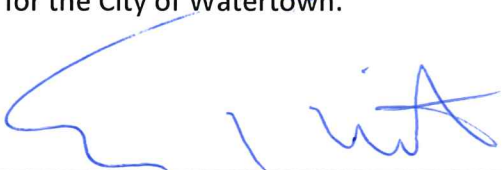
_10 30 Manley Way, Watertown, MA_____ 806 1D 0
Location Parcel #

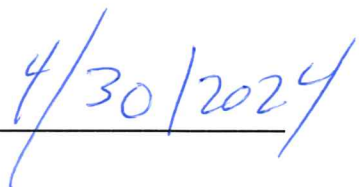
That the record of owner and mailing addresses as outlined in this email attached hereto specifies the abutters to the subject locus property. This is for Watertown Properties only.

Per Massachusetts General Laws Chapter 40A, Sub Section 11:

For purposes of notification, "Parties in interest" as used in this chapter shall mean the petitioner, abutters, owners of land directly opposite on any public or private street or way, and abutters to the abutters within three hundred feet of the property line of the petitioner as they appear on the most recent applicable tax list.

The above record is herein certified based upon an examination of the most recent list of property owners for the City of Watertown.

By: 
Earl L. Smith
Chairman, Board of Assessors

Date: 

**Property Information**

Property ID 807 1B 1A
Location STANLEY AV
Building Value 0
Land Value 7,075,600
Total Value 7,075,600

**MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT**

City of Watertown, MA makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated 01/17/2023
Data updated Daily

Print map scale is approximate.
Critical layout or measurement
activities should not be done using
this resource.

#	ID	Site Address	Owner Name	Owner Address	Owner Address (cont)	Owner City	Owner State	Owner Zip
1	702 1A 0	249 WALTHAM ST	GORE PLACE SOCIETY	52 GORE ST		WALTHAM	MA	02154
2	806 3 0	REPTON CR	VRS/MCRT WATERTOWN MEWS LLC	1 REPTON PL		WATERTOWN	MA	02472
3	806 3 3101	3 REPTON CR	FUXMAN YAIR DAVID	3 REPTON CR #3101		WATERTOWN	MA	02472
4	806 3 3102	3 REPTON CR	MARCOTTE EUGENE	3 REPTON CR #3102		WATERTOWN	MA	02472
5	806 3 3103	3 REPTON CR	OLIVAR KAIHLA	3 REPTON CR #3103		WATERTOWN	MA	02472
6	806 3 3104	3 REPTON CR	LIU TIANZI	5550 GROSVENOR BLVD # 451		LOS ANGELES	CA	90066
7	806 3 3105	3 REPTON CR	ZOPHIN REBECCA	3 REPTON CR #3105		WATERTOWN	MA	02472
8	806 3 3106	3 REPTON CR	YOON KYUNGMOON	3 REPTON CR 3106		WATERTOWN	MA	02472
9	806 3 3107	3 REPTON CR	HURLEY CORNELIUS K	9 BIRCHWOOD LANE		SANDWICH	MA	02563
10	806 3 3108	3 REPTON CR	GULATI ANMOL	3 REPTON CR U3108		WATERTOWN	MA	02472
11	806 3 3109	3 REPTON CR	SZETO AMY LEE	3 REPTON CR #3109		WATERTOWN	MA	02472
12	806 3 3110	3 REPTON CR	YEN LUCY	3 REPTON CR #3110		WATERTOWN	MA	02472
13	806 3 3111	3 REPTON CR	ZIRLINGER ANDRES	190 TEMPLE STREET		WEST NEWTON	MA	02465
14	806 3 3112	3 REPTON CR	DONABED RALPH ETUX SANDRA TRUSTEE	125 SOTA DRIVE		JUPITER	FL	33458
15	806 3 3113	3 REPTON CR	VANSANT VICKI TRUSTEE	3 REPTON CR UNIT 3113		WATERTOWN	MA	02472
16	806 3 3114	3 REPTON CR	MIRKATOULI ZOHREH B	3 REPTON CR U3114		WATERTOWN	MA	02472
17	806 3 3201	3 REPTON CR	CHANG SUCHENG CHASE	3 REPTON CR U3201		WATERTOWN	MA	02472
18	806 3 3202	3 REPTON CR	MAHMOOD AHMED	3 REPTON CR U 3202		WATERTOWN	MA	02472
19	806 3 3203	3 REPTON CR	JOSHI AJAY D.	3 REPTON CR U3203		WATERTOWN	MA	02472
20	806 3 3204	3 REPTON CR	CAROSELLA LUCIA A	3 REPTON CR #3204		WATERTOWN	MA	02472
21	806 3 3205	3 REPTON CR	MAZUMDER MARK M	3 REPTON CR #3205		WATERTOWN	MA	02472
22	806 3 3206	3 REPTON CR	CAULFIELD MAUREEN	3 REPTON CR #3206		WATERTOWN	MA	02472
23	806 3 3207	3 REPTON CR	JALILI KIMIA	3 REPTON C R #3207		WATERTOWN	MA	02472
24	806 3 3208	3 REPTON CR	EATON ANTHONY	3 REPTON CR #3208		WATERTOWN	MA	02472
25	806 3 3209	3 REPTON CR	JALILIAN MELISA	3 REPTON CR #3209		WATERTOWN	MA	02472
26	806 3 3210	3 REPTON CR	SANGHA SIMREN	18 MIGNON ROAD		NEWTON	MA	02472
27	806 3 3211	3 REPTON CR	EGAN MAUREEN A	3 REPTON CR #3211		WATERTOWN	MA	02472
28	806 3 3212	3 REPTON CR	GEE NANCY	3 REPTON CR #3212		WATERTOWN	MA	02472
29	806 3 3213	3 REPTON CR	BASS KERRI	3 REPTON CR #3213		WATERTOWN	MA	02472
30	806 3 3214	3 REPTON CR	LEWIS NANCY F	3 REPTON CR #3214		WATERTOWN	MA	02472
31	806 3 3215	3 REPTON CR	KADANIAN SERGE	3 REPTON CR 3215		WATERTOWN	MA	02472
32	806 3 3301	3 REPTON CR	HROMI JONATHAN	3 REPTON CR #3301		WATERTOWN	MA	02472
33	806 3 3302	3 REPTON CR	MURPHY DIANE M	3 REPTON CR #3302		WATERTOWN	MA	02472
34	806 3 3303	3 REPTON CR	SANFTLEBEN CHRISTINE M	3 REPTON CR U3303		WATERTOWN	MA	02472
35	806 3 3304	3 REPTON CR	KIM ONE-TAE	3 REPTON CR #3304		WATERTOWN	MA	02472
36	806 3 3305	3 REPTON CR	DORFMAN MARK	3 REPTON CR #3305		WATERTOWN	MA	02472
37	806 3 3306	3 REPTON CR	RUPANI ZUBIN	3 REPTON CR #3306		WATERTOWN	MA	02472
38	806 3 3307	3 REPTON CR	NOORANI ZARINA	3 REPTON CR #3307		WATERTOWN	MA	02472
39	806 3 3308	3 REPTON CR	MISKINIS ELIZABETH A	3 REPTON CIRCLE, UNIT 3308		WATERTOWN	MA	02472
40	806 3 3309	3 REPTON CR	GOLDSTONE MATTHEW A	3 REPTON CR #3309		WATERTOWN	MA	02472
41	806 3 3310	3 REPTON CR	HILLIKER WILLIAM	3 REPTON CR #3310		WATERTOWN	MA	02472
42	806 3 3311	3 REPTON CR	CZMUT JR WALTER J	7603 NOVARA CT		NAPLES	FL	34114
43	806 3 3312	3 REPTON CR	LEE KAREN J	3 REPTON CR 3312		WATERTOWN	MA	02472
44	806 3 3313	3 REPTON CR	POSNICK WAKSMAN BETSY R.	3 REPTON CR #3313		WATERTOWN	MA	02472

#	ID	Site Address	Owner Name	Owner Address	Owner Address (cont)	Owner City	Owner State	Owner Zip
45	806 3 3314	3 REPTON CR	BERKOWITZ STEPHEN M	3 REPTON CR #3314		WATERTOWN	MA	02472
46	806 3 3315	3 REPTON CR	PEZESHKI FARNAZ	3 REPTON CR UNIT 3315		WATERTOWN	MA	02472
47	806 3 3401	3 REPTON CR	NIU JINLI	3 REPTON CR U3401		WATERTOWN	MA	02472
48	806 3 3402	3 REPTON CR	DVINOV ELENA	3 REPTON CR U3402		WATERTOWN	MA	02472
49	806 3 3403	3 REPTON CR	SEWELL MARK	3 REPTON CR UNIT 3403		WATERTOWN	MA	02472
50	806 3 3404	3 REPTON CR	PANTAZOPOULOS STELIOS	3 REPTON CIRCLE UNIT 3404		WATERTOWN	MA	02472
51	806 3 3405	3 REPTON CR	YUEN DANA	3 REPTON CR U-3405		WATERTOWN	MA	02472
52	806 3 3406	3 REPTON CR	DINU DAN	3 REPTON CR 3406		WATERTOWN	MA	02472
53	806 3 3407	3 REPTON CR	ZHANG YUYAN	3 REPTON CIRCLE U3407		WATERTOWN	MA	02472
54	806 3 3408	3 REPTON CR	BOLTRUS JASON	32 MORTON STREET		WATERTOWN	MA	02472
55	806 3 3409	3 REPTON CR	YEN KUEILAN GLORIA	3 REPTON CR U3409		WATERTOWN	MA	02472
56	806 3 3410	3 REPTON CR	BASEVICH ANNA ESTER	3 REPTON CR #3410		WATERTOWN	MA	02472
57	806 3 3411	3 REPTON CR	WIJAYA CINDY	3 REPTON CR U3411		WATERTOWN	MA	02472
58	806 3 3412	3 REPTON CR	LEWIS RANDALL M	3 REPTON CR U-3412		WATERTOWN	MA	02472
59	806 3 3413	3 REPTON CR	VALLUCCI MARK D TRUSTEE	3 REPTON CR #3413		WATERTOWN	MA	02472
60	806 3 3414	3 REPTON CR	TAMBASCIO SARAH L TRUSTEE	3 REPTON CR #3414		WATERTOWN	MA	02472
61	806 3 3415	3 REPTON CR	YU JIE	3 REPTON CR U3415		WATERTOWN	MA	02472
62	806 3 4101	4 REPTON CR	NOBLE WILLIAM R	4 REPTON CR #4101		WATERTOWN	MA	02472
63	806 3 4102	4 REPTON CR	DOYON KATHERINE	4 REPTON CR U4102		WATERTOWN	MA	02472
64	806 3 4103	4 REPTON CR	LEVIN HANNAH KING	4 REPTON CR #4103		WATERTOWN	MA	02472
65	806 3 4104	4 REPTON CR	PIERRE-LOUIS ETIENNE	4 REPTON CR #4104		WATERTOWN	MA	02472
66	806 3 4105	4 REPTON CR	ZATOONIAN CHRISTOPHER	130 PIGEON LN		WALTHAM	MA	02452
67	806 3 4106	4 REPTON CR	LI VINCENT	4 REPTON CR #4106		WATERTOWN	MA	02472
68	806 3 4107	4 REPTON CR	JASSET JANET M	4 REPTON CR #4107		WATERTOWN	MA	02472
69	806 3 4108	4 REPTON CR	MAGNISALIS VASILLA	4 REPTON CR U4108		WATERTOWN	MA	02472
70	806 3 4109	4 REPTON CR	SHAH ANUMEHA	4 REPTON CIRCLE UNIT 4109		WATERTOWN	MA	02472
71	806 3 4110	4 REPTON CR	ASHFIELD VIVIANNE A TRUSTEE	4 REPTON CR U-4110		WATERTOWN	MA	02472
72	806 3 4111	4 REPTON CR	TINO GRACE	4 REPTON CR #4111		WATERTOWN	MA	02472
73	806 3 4112	4 REPTON CR	ZHU ZHENYI	4 REPTON CR U4112		WATERTOWN	MA	02472
74	806 3 4113	4 REPTON CR	HERSHON MARK J	4 REPTON CR #4113		WATERTOWN	MA	02472
75	806 3 4114	4 REPTON CR	LAMKIN KAREN H	4 REPTON CR U-4114		WATERTOWN	MA	02472
76	806 3 4115	4 REPTON CR	MARCUS HENRY L	4 REPTON CR #4115		WATERTOWN	MA	02472
77	806 3 4201	4 REPTON CR	ABBOTT NEIL F	4 REPTON CR #4201		WATERTOWN	MA	02472
78	806 3 4202	4 REPTON CR	CHIU DANIEL M.	4 REPTON CR #4202		WATERTOWN	MA	02472
79	806 3 4203	4 REPTON CR	HU CHRISTOPHER C	4 REPTON CR #4203		WATERTOWN	MA	02472
80	806 3 4204	4 REPTON CR	THE COLACO TRUST	13 MOSES WHEELOCK LANE		WESTBOROUGH	MA	01581
81	806 3 4205	4 REPTON CR	LEVY RANDY	4 REPTON CR U4205		WATERTOWN	MA	02472
82	806 3 4206	4 REPTON CR	MAY ARNOLD	4 REPTON CR #4206		WATERTOWN	MA	02472
83	806 3 4207	4 REPTON CR	MCKENZIE CHRISTOPHER	4 REPTON CR #4207		WATERTOWN	MA	02472
84	806 3 4208	4 REPTON CR	DU XIAORAN	4 REPTON CR U-4208		WATERTOWN	MA	02472
85	806 3 4209	4 REPTON CR	McTAGUE KARA E	4 REPTON CR #4209		WATERTOWN	MA	02472
86	806 3 4210	4 REPTON CR	ADRIANZA YENNIFERT K	4 REPTON CR #4210		WATERTOWN	MA	02472
87	806 3 4211	4 REPTON CR	BRADLEY LINDA TRUSTEE	4 REPTON CR 4211		WATERTOWN	MA	02472
88	806 3 4212	4 REPTON CR	NICOLAS ROSE M	4 REPTON CR 4212		WATERTOWN	MA	02472

#	ID	Site Address	Owner Name	Owner Address	Owner Address (cont)	Owner City	Owner State	Owner Zip
89	806 3 4213	4 REPTON CR	CAROSELLA ANTHONY L	4 REPTON CIRCLE #4213		WATERTOWN	MA	02472
90	806 3 4214	4 REPTON CR	WANG YIYUAN	4 REPTON CR #4214		WATERTOWN	MA	02472
91	806 3 4215	4 REPTON CR	SHIRAZI SHAYNA	4 REPTON CR #4215		WATERTOWN	MA	02472
92	806 3 4301	4 REPTON CR	HERRANZ DAVID	4 REPTON CR #4301		WATERTOWN	MA	02472
93	806 3 4302	4 REPTON CR	HUANG RAYMOND	4 REPTON CR #4302		WATERTOWN	MA	02472
94	806 3 4303	4 REPTON CR	GAMMERMAN DEBRA J	4 REPTON CR 4303		WATERTOWN	MA	02472
95	806 3 4304	4 REPTON CR	HSIAO JAMES	4 REPTON CR 4304		WATERTOWN	MA	02472
96	806 3 4305	4 REPTON CR	MERINGOLO THOMAS TRUSTEE	4 REPTON CR #4305		WATERTOWN	MA	02472
97	806 3 4306	4 REPTON CR	ISENIA ARACELI	4 REPTON CR 4306		WATERTOWN	MA	02472
98	806 3 4307	4 REPTON CR	JEWERS KIMBERLY	4 REPTON CR U4307		WATERTOWN	MA	02472
99	806 3 4308	4 REPTON CR	AMERI SHARON C TRUSTEE	3 VERANDA CIRCLE		HAMILTON	MA	01982
100	806 3 4309	4 REPTON CR	LI ZHI	4 REPTON CR #4309		WATERTOWN	MA	02472
101	806 3 4310	4 REPTON CR	WEISBERG GWEN P	4 REPTON CR #4310		WATERTOWN	MA	02472
102	806 3 4311	4 REPTON CR	TCHORBANOVA-DJOGOVA VESSELA	4 REPTON CIRCLE UNIT 4311		WATERTOWN	MA	02472
103	806 3 4312	4 REPTON CR	DOHERTY EMINA	4 REPTON CR #4312		WATERTOWN	MA	02472
104	806 3 4313	4 REPTON CR	NEWELL KANDEE S	4 REPTON CIRCLE	UNIT 4313	WATERTOWN	MA	02472
105	806 3 4314	4 REPTON CR	SIMON EDUARDO ETUX GABRIELA	5 POND PLACE LANE		CONCORD	NH	03301
106	806 3 4315	4 REPTON CR	KATZ ANA G.	4 REPTON CR #4315		WATERTOWN	MA	02472
107	806 3 4401	4 REPTON CR	LVOVICH TAMARA L/E	4 REPTON CR #4401		WATERTOWN	MA	02472
108	806 3 4402	4 REPTON CR	WARE JANICE	4 REPTON CIR U4402		WATERTOWN	MA	02472
109	806 3 4403	4 REPTON CR	MENEGON LYNN TRUSTEE	4 REPTON CR U 4403		WATERTOWN	MA	02472
110	806 3 4404	4 REPTON CR	BOYER KRISTEN	4 REPTON CR #4404		WATERTOWN	MA	02472
111	806 3 4405	4 REPTON CR	MAN CHIU-FAI	4 REPTON CR #4405		WATERTOWN	MA	02472
112	806 3 4406	4 REPTON CR	LAFARGUE KATHRYN M	4 REPTON CR #4406		WATERTOWN	MA	02472
113	806 3 4407	4 REPTON CR	RANDO RICHARD J	4 REPTON CR 4407		WATERTOWN	MA	02472
114	806 3 4408	4 REPTON CR	CHOU YI-TING	442 SELBY LANE		LIVERMORE	CA	94551
115	806 3 4409	4 REPTON CR	BODE TRUSTEE JAMES A	22 MEAD ST		ARLINGTON	MA	02474
116	806 3 4410	4 REPTON CR	TSENG LEWIS	4 REPTON CR #4410		WATERTOWN	MA	02472
117	806 3 4411	4 REPTON CR	CHANG SUE HUA	4 REPTON CR #4411		WATERTOWN	MA	02472
118	806 3 4412	4 REPTON CR	LAO DARA	4 REPTON CR 4412		WATERTOWN	MA	02472
119	806 3 4413	4 REPTON CR	WILLIG JERILYN G	4 REPTON CR U4413		WATERTOWN	MA	02472
120	806 3 4414	4 REPTON CR	HAMANN LISA A	4 REPTON CR #4414		WATERTOWN	MA	02472
121	806 3 4415	4 REPTON CR	JIN MIN	4 REPTON CR #4415		WATERTOWN	MA	02472
122	806 3 5101	5 REPTON CR	MANSSSEN LYNTON BRENT	5 REPTON CR U 5101		WATERTOWN	MA	02472
123	806 3 5102	5 REPTON CR	OZARGUN MEHMET	5 REPTON CR #5102		WATERTOWN	MA	02472
124	806 3 5103	5 REPTON CR	BUDDHARAJU LAKSHMI NARAYANA RAJU	1175 CHESTNUT STREET APT 16		NEWTON	MA	02464
125	806 3 5104	5 REPTON CR	NANSUBUGA AGNES	5 REPTON CR #5104		WATERTOWN	MA	02472
126	806 3 5105	5 REPTON CR	BATTE KERRY A	5 REPTON CR 5105		WATERTOWN	MA	02472
127	806 3 5106	5 REPTON CR	DOBRUSHKIN MAXWELL V	5 REPTON CR U5106		WATERTOWN	MA	02472
128	806 3 5107	5 REPTON CR	HEHN REBECCA S	5 REPTON CR #5107		WATERTOWN	MA	02472
129	806 3 5108	5 REPTON CR	CASCAP METSTATE HOUSING LLC	231 SOMERVILLE AV		SOMERVILLE	MA	02143
130	806 3 5109	5 REPTON CR	CROWE MARY L/E	5 REPTON CR U5109		WATERTOWN	MA	02472
131	806 3 5110	5 REPTON CR	KIM ELBERT B	5 REPTON CR #5110		WATERTOWN	MA	02472
132	806 3 5111	5 REPTON CR	CATHERINE WEI REVOCABLE TRUST	91 WOODLAND RD		AUBURNDALE	MA	02466

#	ID	Site Address	Owner Name	Owner Address	Owner Address (cont)	Owner City	Owner State	Owner Zip
133	806 3 5112	5 REPTON CR	MACLEOD WAYNE P	5 REPTON CR #5112		WATERTOWN	MA	02472
134	806 3 5113	5 REPTON CR	CHIN JOHNY	5 REPTON CR U5113		WATERTOWN	MA	02472
135	806 3 5114	5 REPTON CR	RAOUI KAMAL D	5 REPTON CR 5114		WATERTOWN	MA	02472
136	806 3 5115	5 REPTON CR	ZIRLINGER MARIELA	5 REPTON CR 5115		WATERTOWN	MA	02472
137	806 3 5201	5 REPTON CR	DIFELICE LISA	5 REPTON CR U-5201		WATERTOWN	MA	02472
138	806 3 5202	5 REPTON CR	TRUSTEE DAVID HACK	1033 ARBORGATE CIRCLE		CHAPEL HILL	NC	27514
139	806 3 5203	5 REPTON CR	LIAO XIANG	5 REPTON CR 5203		WATERTOWN	MA	02472
140	806 3 5204	5 REPTON CR	BOXER MATTHEW	5 REPTON CR U5204		WATERTOWN	MA	02472
141	806 3 5205	5 REPTON CR	NOBLE CHRISTOPHER M TRUSTEE	5 REPTON CR U-5205		WATERTOWN	MA	02472
142	806 3 5206	5 REPTON CR	HUH JIN HANG	5 REPTON CR #5206		WATERTOWN	MA	02472
143	806 3 5207	5 REPTON CR	CASCAP-METSTATE HOUSING LLC	231 SOMERVILLE AV		SOMERVILLE	MA	02143
144	806 3 5208	5 REPTON CR	PEI JIANHONG	96 GLEN STREET		SOMERVILLE	MA	02145
145	806 3 5209	5 REPTON CR	BEH CHARLENE	5 REPTON CR U-5209		WATERTOWN	MA	02472
146	806 3 5210	5 REPTON CR	GAO JOY	5 REPTON CR #5210		WATERTOWN	MA	02472
147	806 3 5211	5 REPTON CR	LIAO WENCHI	5 REPTON CR #5211		WATERTOWN	MA	02472
148	806 3 5212	5 REPTON CR	CASSERLY MATTHEW	5 REPTON CR #5212		WATERTOWN	MA	02472
149	806 3 5213	5 REPTON CR	FREUND SIDNEY	807 KNOLL WOOD COURT		NAPLES	FL	34108
150	806 3 5214	5 REPTON CR	ZAKHARY MARK ET WAGDY	1604 E CLEMENT ST		BALTIMORE	MD	21230
151	806 3 5215	5 REPTON CR	BILLINGS ROBERT	5 REPTON CR #5215		WATERTOWN	MA	02472
152	806 3 5301	5 REPTON CR	PARK JUNG AE	5 REPTON CR U-5301		WATERTOWN	MA	02472
153	806 3 5302	5 REPTON CR	CHEN TRUSTEE DONGLING	39 PARKER ST		LEXINGTON	MA	02421
154	806 3 5303	5 REPTON CR	VANARIA JAMIE	5 REPTON CIRCLE U#5303		WATERTOWN	MA	02472
155	806 3 5304	5 REPTON CR	RENCURREL DANIEL B	5 REPTON CR U5304		WATERTOWN	MA	02472
156	806 3 5305	5 REPTON CR	ZWIEBEL BEN	5 REPTON CIR UNIT 5305		WATERTOWN	MA	02472
157	806 3 5306	5 REPTON CR	REAL ESTATE, LLC RH WHEELER	894 WATERTOWN STREET	UNIT 894	WATERTOWN	MA	02472
158	806 3 5307	5 REPTON CR	KARAGOZIAN NANOR	22 BARTLETT ST		WATERTOWN	MA	02472
159	806 3 5308	5 REPTON CR	ORLEWICZ DANUTA	5 REPTON CR #5308		WATERTOWN	MA	02472
160	806 3 5309	5 REPTON CR	BABAJANYAN ARTUR	5 REPTON CR U5309		WATERTOWN	MA	02472
161	806 3 5310	5 REPTON CR	BRYSON ELIZABETH M	5 REPTON CR #5310		WATERTOWN	MA	02472
162	806 3 5311	5 REPTON CR	SULLIVAN OLGA	5 REPTON CR #5311		WATERTOWN	MA	02472
163	806 3 5312	5 REPTON CR	BARRY MICHAEL J	5 REPTON CR #5312		WATERTOWN	MA	02472
164	806 3 5313	5 REPTON CR	MELIKYAN ARTEM	5 REPTON CIR #5313		WATERTOWN	MA	02472
165	806 3 5314	5 REPTON CR	GE QIN QIN	5 REPTON CR 5314		WATERTOWN	MA	02472
166	806 3 5315	5 REPTON CR	CHAKRABARTI PRAKRITI	5 REPTON CR #5315		WATERTOWN	MA	02472
167	806 3 5401	5 REPTON CR	PINSKY VLADIMIR	5 REPTON CR #5401		WATERTOWN	MA	02472
168	806 3 5402	5 REPTON CR	DEW VICTORIA ANITA	5 REPTON CR U5402		WATERTOWN	MA	02472
169	806 3 5403	5 REPTON CR	HUNT TAMI J	5 REPTON CR 5403		WATERTOWN	MA	02472
170	806 3 5404	5 REPTON CR	CUTONE ANTONETTE E	5 REPTON CR 5404		WATERTOWN	MA	02472
171	806 3 5405	5 REPTON CR	TANCO CATHERINE PICKETT	5 REPTON CR UNIT 5405		WATERTOWN	MA	02472
172	806 3 5406	5 REPTON CR	ROTHMAN LAURA B	5 REPTON CR #5406		WATERTOWN	MA	02472
173	806 3 5407	5 REPTON CR	HEVESH LILY J.	5 REPTON CR U5407		WATERTOWN	MA	02472
174	806 3 5408	5 REPTON CR	DUTTA-ROY NIKHIL	5 REPTON CR U-5408		WATERTOWN	MA	02472
175	806 3 5409	5 REPTON CR	PLATO LISA A	9 ISLINGTON ST		ALLSTON	MA	02134
176	806 3 5410	5 REPTON CR	KORETSKY IGOR AND ELEANOR L/E	KORETSKY IRREV TRUST	5 REPTON CR U5410	WATERTOWN	MA	02472

#	ID	Site Address	Owner Name	Owner Address	Owner Address (cont)	Owner City	Owner State	Owner Zip
177	806 3 5411	5 REPTON CR	CARMI RAJA ROBERT	5 REPTON CR U5411		WATERTOWN	MA	02472
178	806 3 5412	5 REPTON CR	PANTAZOPOULOS STELIOS	5 REPTON CR U5412		WATERTOWN	MA	02472
179	806 3 5413	5 REPTON CR	LEYFER VAL	2239 COMMONWEALTH AVENUE		AUBURNDALE	MA	02466
180	806 3 5414	5 REPTON CR	WANG YOUZHEN	53 BROOKDALE ROAD		NEWTON	MA	02460
181	806 3 5415	5 REPTON CR	MAO CHENCHEN	5 REPTON CR U5415		WATERTOWN	MA	02472
182	806 4 0	625 PLEASANT ST	MELKONIAN GROUP LLC	185 MAIN STREET		STONEHAM	MA	02180
183	807 1B 0	57 STANLEY AV	JEWISH COMMUNITY DAY SCH INC	57 STANLEY AV		WATERTOWN	MA	02472
184	810 4 1A	650 PLEASANT ST	HSRE-WATERBIO, LLC	444 WEST LAKE STREET STE 2100		CHICAGO	IL	60606
185	812 1 3	700 PLEASANT ST	BREM SIMBA 700 PLEASANT, LLC	20 PICKERING STREET SUITE 200		NEEDHAM	MA	02492

PARCELID	LOCATION	OWNER NAME	OWNER ADDRESS	OWNER CITY	OWNER STATE	OWNER ZIP
R063 025 0001	52 GORE ST	GORE PLACE SOCIETY	52 GORE ST.	WALTHAM	MA	02453-6866
R071 004 0002	66 SEYON ST	I-PARK WEST SEYON, LLC C/O JOSEPH CLANCY	1285 AVES OF THE AMERICAS	NEW YORK	NY	10019-0000
R071 004 0004	26 SEYON ST	WATERTOWN FORD SERVICE LLC.	185 MAIN ST.	STONEHAM	MA	02180-0000
R071 005 0001	37 RIVER ST	EXTRA SPACE PROPERTIES TWO LLC. C/O ESS STORAGE	P.O. BOX 320099	ALEXANDRIA	VA	22320-0000
R071 005 0002	37-R RIVER ST	MELKONIAN GROUP, LLC % WATERTOWN FORD, INC.	625 PLEASANT ST	WATERTOWN	MA	02472-0000
R071 008 0001	36 RIVER ST	UDR CURRENTS ON THE CHARLES LLC	1745 SHEA CENTER DR S-200	HIGHLANDS RANCH	CO	80129-0000
R071 008 0002	10 RIVER ST	LCP SUPERMARKETS REMAINDER 2000 LLC.,STOP & SHOP CO.	P.O.BOX 6500	CARLISLE	PA	17013-0000
R072 004 0005 001	8 GROVE ST, Unit 1	MATUSZ, PHILIP DANIEL & JILLIAN BYERS MATUSZ	8 GROVE ST. #1	WALTHAM	MA	02453-0000
R072 004 0005 002	8 GROVE ST, Unit 2	LACAVA, ANTHONY J & JENNA M LACAVA	8 GROVE ST #2	WALTHAM	MA	02453-0000
R072 004 0006 001	12 GROVE ST, Unit 1	CHENG, LEO & YING WANG	12 GROVE ST #1	WALTHAM	MA	02453-0000
R072 004 0006 002	12 GROVE ST, Unit 2	SOLOMON, PAUL R & ELIZABETH VASSEY	12 GROVE ST #2	WALTHAM	MA	02453-0000
R072 004 0007 001	18 GROVE ST, Unit 1	COMEAU, THOMAS F. & ANN M.	18 GROVE ST #1	WALTHAM	MA	02453-0000
R072 004 0007 002	18 GROVE ST, Unit 2	KUMAR, SANGEETA & RIJU KUMAR	18 GROVE ST #2	WALTHAM	MA	02453-0000
R072 004 0008 001	22 GROVE ST, Unit 1	XIA, ZHINAN & NANCY Y SU	22 GROVE ST #1	WALTHAM	MA	02453-0000
R072 004 0008 002	22 GROVE ST, Unit 2	DEBRA COLEMAN REV. TRUST; DEBRA COLEMAN TR.	22 GROVE ST #2	WALTHAM	MA	02453-0000
R072 004 0009 001	30 GROVE ST, Unit 1	LIN, TAI-AN & WAN-LIN YANG	30 GROVE ST #1	WALTHAM	MA	02453-0000
R072 004 0009 002	30 GROVE ST, Unit 2	SWANSON, KENNETH D. & LILY I. PAO	30 GROVE ST #2	WALTHAM	MA	02453-0000
R072 004 0010 001	34 GROVE ST, Unit 1	34 GROVE STREET UNIT 1 REALTY TRUST KAILAS NATH NANDI &	34 GROVE ST.#1	WALTHAM	MA	02451
R072 004 0010 002	34 GROVE ST, Unit 2	YEO, SEUNGHWAN & YOON KYUNG KIM	34 GROVE ST #2	WALTHAM	MA	02453-0000

**VERIFICATION OF INFORMATION
PROVIDED**

Imykh Cassie
**APPROVED BY THE
WALTHAM BOARD OF ASSESSORS**

DATE *5/01/2024*

20 SEYON STREET,
100 WOODVIEW WAY,
AND 0 STANLEY AVENUE
PARCEL ABUTTERS
CITY OF WALTHAM
MASSACHUSETTS



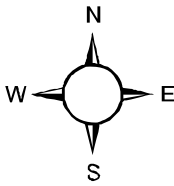
DISCLAIMER:
This map is for reference and planning purposes only. It is prepared for the inventory of real property within the City of Waltham and is compiled from tax maps, recorded deeds and plats. Users of this tax map are hereby notified that the aforementioned public primary information sources should be consulted for the verification of the information contained on this map. The City of Waltham and its mapping contractors assume no legal responsibility for the information contained herein.

DATA SOURCE:
The digital planimetric base map data were developed by Chas H Sells, Inc. and are updated using spring 2023 1"= 40' scale color orthophotographs. The parcel data and are current as of January 2024. Map prepared by City of Waltham GIS.

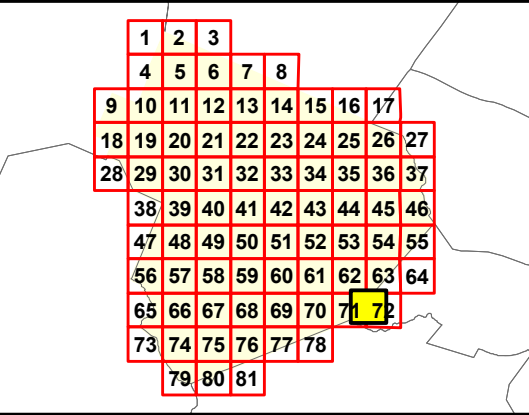
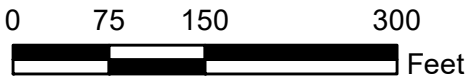
Legend

- 300 Foot Radius
- Edge of Pavement
- Unpaved Road
- Fence
- Guard Rail
- Retaining Wall
- Stone Wall
- Rail Lines
- Stream
- Tax Map Grid
- Parcel Lines
- Watertown Parcels
- Walkway/Sidewalk
- Building Footprint
- Deck
- Paved Area
- Water Bodies
- Wetland Area
- Vegetated Area
- Park

Parcel Number
R022 015 0001
Address Number
19



1 inch = 150 feet



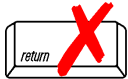
Map No.:

71



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
NOI Wetland Fee Transmittal Form
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



To calculate filing fees, refer to the category fee list and examples in the instructions for filling out WPA Form 3 (Notice of Intent).

A. Applicant Information

1. Location of Project:

10-30 Manley Way

a. Street Address

30792

c. Check number

Watertown

b. City/Town

\$237.50

d. Fee amount

2. Applicant Mailing Address:

Brian

a. First Name

Beck

b. Last Name

Seyon Management LLC as Agent for PPF INDUSTRIAL 20 SEYON LLC

c. Organization

535 Boylston Street, 11th Floor

d. Mailing Address

Boston

e. City/Town

MA

f. State

02116

g. Zip Code

978.333.7568

h. Phone Number

i. Fax Number

bjbeck@seyonmanagement.com

j. Email Address

3. Property Owner (if different):

Bryan

a. First Name

Blake

b. Last Name

PPF INDUSTRIAL 20 SEYON LLC C/O MORGAN STANLEY REAL ESTATE

c. Organization

1585 Broadway, 37th Floor

d. Mailing Address

New York

e. City/Town

NY

f. State

10036

g. Zip Code

617.982.6592

h. Phone Number

i. Fax Number

bblake@seyon.com

j. Email Address

B. Fees

Fee should be calculated using the following process & worksheet. **Please see Instructions before filling out worksheet.**

Step 1/Type of Activity: Describe each type of activity that will occur in wetland resource area and buffer zone.

Step 2/Number of Activities: Identify the number of each type of activity.

Step 3/Individual Activity Fee: Identify each activity fee from the six project categories listed in the instructions.

Step 4/Subtotal Activity Fee: Multiply the number of activities (identified in Step 2) times the fee per category (identified in Step 3) to reach a subtotal fee amount. Note: If any of these activities are in a Riverfront Area in addition to another Resource Area or the Buffer Zone, the fee per activity should be multiplied by 1.5 and then added to the subtotal amount.

Step 5/Total Project Fee: Determine the total project fee by adding the subtotal amounts from Step 4.

Step 6/Fee Payments: To calculate the state share of the fee, divide the total fee in half and subtract \$12.50. To calculate the city/town share of the fee, divide the total fee in half and add \$12.50.



Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee
Category 2.b.	1	\$500.00	\$500.00
Step 5/Total Project Fee:			\$500.00

Total Project Fee:	<u>\$500.00</u>
	a. Total Fee from Step 5
State share of filing Fee:	<u>\$237.50</u>
	b. 1/2 Total Fee less \$12.50
City/Town share of filling Fee:	<u>\$262.50</u>
	c. 1/2 Total Fee plus \$12.50

a.) Complete pages 1 and 2 and send with a check or money order for the state share of the fee, payable to the Commonwealth of Massachusetts.

b.) **To the Conservation Commission:** Send the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and the city/town fee payment.

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City of Watertown
Administration Building
149 Main Street
Watertown, Massachusetts 02472
Conservation Commission
Tel: (617) 972-6426 • Fax: (617) 972-6484

WATERTOWN WETLANDS ORDINANCE Fee Calculation and Transmittal Form

Owner		Applicant	
Name	PPF Industrial 20 SEYON LLC	Name	Seyon Management as Agent for Owner
Street	1585 Broadway	Street	535 Bolyston Street, 11 Floor
City	New York	City	Boston
State	New York	State	Massachusetts
Zip	10036	Zip	02116
Phone	617.982.6592	Phone	978.333.7568
e-mail	bblake@seyon.com	e-mail	bjbeck@seyonmanagement.com

Project Location:

10-30 Manley Way, Watertown, MA

Any person filing an Application for Permit/RDA/NOI pursuant to the Ordinance shall, at the same time, pay a filing fee in accordance with the Filing Fee Schedule contained in the *Rules and Regulations for the Administration of the Watertown Wetlands Ordinance of 2008*. Municipal agencies are exempt from this requirement.

A. Fee Schedule:

Project Size	Fees
Less than 1,000 sq. ft.	\$50.00
1,000 sq. ft. to less than 2,000 sq. ft.	\$100.00
2,000 sq. ft. to less than 3,000 sq. ft.	\$150.00
3,000 sq. ft. to less than 4,000 sq. ft.	\$200.00
4,000 sq. ft. to less than 5,000 sq. ft.	\$250.00
5,000 sq. ft. to less than 6,000 sq. ft.	\$300.00
6,000 sq. ft. to less than 10,000 sq. ft.	\$400.00
10,000 sq. ft. to less than 15,000 sq. ft.	\$500.00
15,000 sq. ft. to less than 20,000 sq. ft.	\$650.00
20,000 sq. ft. to less than 30,000 sq. ft.	\$750.00
30,000 sq. ft. to less than 50,000 sq. ft.	\$850.00
50,000 sq. ft. or greater	\$1000.00

Project Fee

\$1,000.00

Fee Exemption

The Commission may waive the filing fee for an Application or Request for Determination filed by a government agency, for an RDA filed by a person having no financial connection with the subject property, for any projects whose sole effect is to substantially enhance a Resource Area, or for other reasonable grounds a determined by the Commission at its discretion.

Grounds for Exemption (to be filled out by CC staff)

Signature of Owner or Applicant: _____

Date: _____

Enclose this form with a check or money order for the calculated amount payable to the Town of Watertown with the Application for Permit or Request for Determination of Applicability. These fees are non-refundable.

Please note this payment does not relieve the Applicant from the further fee requirements as stated in the Wetlands Protection Act Regulations MGL Chapter 44, Section 53G.

30792

Reading
CO-OPERATIVE BANK
READING, MA
53-7240/2113

R. J. O'CONNELL & ASSOCIATES, INC.
80 MONTVALE AVE., SUITE 201
STONEHAM, MA 02180



CHECK DATE 5/13/24

PAY two hundred thirty seven and 50/100
TO Commonwealth of Massachusetts

AMOUNT \$237.50



Brian J. O'Connell
AUTHORIZED SIGNATURE

R. J. O'CONNELL & ASSOCIATES, INC.

30792

21049

Notice of Intent Filing fee

30793

Reading
COOPERATIVE BANK
READING, MA
53-7240/2113

R. J. O'CONNELL & ASSOCIATES, INC.
80 MONTVALE AVE., SUITE 201
STONEHAM, MA 02180

CHECK DATE 5/13/24

PAY two hundred sixty two and 50/100

TO City of Watertown MA

AMOUNT \$262.50

Brian Dunch
AUTHORIZED SIGNATURE

Security features. Details on back.

R. J. O'CONNELL & ASSOCIATES, INC.

Notice of Intent filing fee
21049

30794

Reading
CO-OPERATIVE BANK
READING, MA
53-7240/2113

R. J. O'CONNELL & ASSOCIATES, INC.
80 MONTVALE AVE., SUITE 201
STONEHAM, MA 02180



CHECK DATE 5/13/24

PAY One thousand and 00/100
TO City of Woburn MA

AMOUNT \$1,000.00



Brian Dunch
AUTHORIZED SIGNATURE

Security features. Details on back.

R. J. O'CONNELL & ASSOCIATES, INC.

30794

Notice of Intent Filing Fee
21049

BORDERING VEGETATED WETLAND DETERMINATION FORM

Project/Site: 10-30 Manley Way City/Town: Watertown Sampling Date: 12/08/21
 Applicant/Owner: PPF Industrial 20 SEYON LLC Sampling Point or Zone: WFA-9/10 WET
 Investigator(s): Lucas Environmental, LLC Latitude / Longitude: 42° 22' 2.33 N / 71° 12' 38.32" W
 Soil Map Unit Name: Urban Land NWI or DEP Classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? (If yes, explain in Remarks)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If yes, explain in Remarks)

SUMMARY OF FINDINGS – Attach site map and photograph log showing sampling locations, transects, etc.

Wetland vegetation criterion met?	Yes ☒	No ☐	Is the Sampled Area within a Wetland? Yes ☒ No ☐
Hydric Soils criterion met?	Yes ☒	No ☐	
Wetlands hydrology present?	Yes ☒	No ☐	
Remarks, Photo Details, Flagging, etc.: The wetland is adjacent to a commercially developed parking lot.			

HYDROLOGY

Field Observations:		
Surface Water Present?	Yes ☐	No ☐ Depth (inches) _____
Water Table Present?	Yes ☒	No ☐ Depth (inches) <u>11.00</u>
Saturation Present (including capillary fringe)?	Yes ☒	No ☐ Depth (inches) <u>8.00</u>
Wetland Hydrology Indicators		
Reliable Indicators of Wetlands Hydrology	Indicators that can be Reliable with Proper Interpretation	Indicators of the Influence of Water
☐ Water-stained leaves ☐ Evidence of aquatic fauna ☐ Iron deposits ☐ Algal mats or crusts ☐ Oxidized rhizospheres/pore linings ☐ Thin muck surfaces ☐ Plants with air-filled tissue (aerenchyma) ☐ Plants with polymorphic leaves ☐ Plants with floating leaves ☐ Hydrogen sulfide odor	☐ Hydrological records ☒ Free water in a soil test hole ☒ Saturated soil ☐ Water marks ☐ Moss trim lines ☐ Presence of reduced iron ☐ Woody plants with adventitious roots ☐ Trees with shallow root systems ☐ Woody plants with enlarged lenticels	☐ Direct observation of inundation ☐ Drainage patterns ☐ Drift lines ☐ Scoured areas ☐ Sediment deposits ☐ Surface soil cracks ☐ Sparsely vegetated concave surface ☐ Microtopographic relief ☐ Geographic position (depression, toe of slope, fringing lowland)
Remarks (describe recorded data from stream gauge, monitoring well, aerial photos, previous inspections, if available): The wetland is bordering on Walker Pond.		

This form is only for BVW delineations. Other wetland resource areas may be present and should be delineated according to the applicable regulatory provisions.

VEGETATION – Use both common and scientific names of plants.

<u>Tree Stratum</u>		Plot size <u>30</u>		Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indicator? (yes/no)
Common name	Scientific name						
1. Red maple	Acer rubrum	FAC	63.0	Yes	Yes		
2. Red oak	Quercus rubra	FACU	20.5	Yes	No		
3.							
4.							
5.							
6.							
7.							
8.							
9.							
				<u>83.5</u> = Total Cover			
<u>Shrub/Sapling Stratum</u>		Plot size <u>15</u>		Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indicator? (yes/no)
Common name	Scientific name						
1. Red maple	Acer rubrum	FAC	10.5	Yes	Yes		
2. Glossy buckthorn	Frangula alnus	FAC	20.5	Yes	Yes		
3.							
4.							
5.							
6.							
7.							
8.							
9.							
				<u>31.0</u> = Total Cover			
<u>Herb Stratum</u>		Plot size <u>15</u>		Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indicator? (yes/no)
Common name	Scientific name						
1. Time of Year - Herbaceous Lacking							
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							
				<u>0.0</u> = Total Cover			

VEGETATION – continued.

<u>Woody Vine Stratum</u>		Plot size <u>5</u>		Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indicator? (yes/no)
Common name		Scientific name					
1.							
2.							
3.							
4.							
				<u>0.0</u> = Total Cover			

Rapid Test: Do all dominant species have an indicator status of OBL or FACW?				Yes ☐ No ☒
Dominance Test:	Number of dominant species	Number of dominant species that are wetland indicator plants		Do wetland indicator plants make up ≥ 50% of dominant plant species?
	4	3		Yes ☒ No ☐
Prevalence Index:		Total % Cover (all strata)	Multiply by:	Result
	OBL species		X 1	= 0.00
	FACW species		X 2	= 0.00
	FAC species		X 3	= 0.00
	FACU species		X 4	= 0.00
	UPL species		X 5	= 0.00
	Column Totals	(A) 0		(B) 0
Prevalence Index		B/A = 0.00		Is the Prevalence Index ≤ 3.0?
				Yes ☐ No ☐
Wetland vegetation criterion met? Yes ☒ No ☐				

Definitions of Vegetation Strata

- Tree - Woody plants 3 in. (7.62 cm) or more in diameter at breast height (DBH), regardless of height
- Shrub / Sapling - Woody plants less than 3 in. (7.62 cm) DBH and greater than or equal to 3.3 ft. (1 m) tall
- Herb - All herbaceous (non-woody plants, regardless of size, and woody plants less than 3.3 ft. (1 m) tall
- Woody vines - All woody vines greater than 3.3 ft. (1 m) in height

Cover Ranges	
Range	Midpoint
1-5 %	3.0 %
6-15 %	10.5 %
15-25 %	20.5 %
26-50 %	38.0 %
51-75 %	63.0 %
76-95 %	85.5 %
96-100 %	98.0 %

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Location ²		
1.00		0.0%		0.0%			Organic	Leaf Litter
4.00	10YR 2/1	0.0%		0.0%			Loam	
9.00	10YR 3/2	90.0%	10YR 5/2	0.0%	D	M	Fine Sandy Loam	
21.00	10YR 2/1	0.0%		0.0%			Fine Sandy Loam	Mucky; Buried O/A
		0.0%		0.0%				
		0.0%		0.0%				
		0.0%		0.0%				
		0.0%		0.0%				
		0.0%		0.0%				
		0.0%		0.0%				
		0.0%		0.0%				

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators (Check all that apply)		Indicators for Problematic Hydric Soils
☐ Histosol (A1)	☐ Polyvalue Below Surface (S8)	☐ 2 cm Muck (A10)
☐ Histic Epipedon (A2)	☐ Thin Dark Surface (S9)	☐ 5 cm Mucky Peat or Peat (S3)
☐ Black Histic (A3)	☐ Loamy Mucky Mineral (F1)	☐ Dark Surface (S7)
☐ Hydrogen Sulfide (A4)	☐ Loamy Gleyed Matrix (F2)	☐ Polyvalue Below Surface (S8)
☐ Stratified Layers (A5)	☐ Depleted Matrix (F3)	☐ Thin Dark Surface (S9)
☐ Depleted Below Dark Surface (A11)	☒ Redox Dark Surface (F7)	☐ Iron-Manganese Masses (F12)
☐ Thick Dark Surface (A12)	☐ Depleted Dark Surface (F8)	☐ Mesic Spodic (A17)
☐ Sandy Mucky Mineral (S1)		☐ Red Parent Material (F21)
☐ Sandy Gleyed Matrix (S4)		☐ Very Shallow Dark Surface (TF12)
☐ Sandy Redox (S5)		☐ Other (Include Explanation in Remarks)
☐ Stripped Matrix (S6)		
☐ Dark Surface (S7)		

Restrictive Layer (if observed) Type: _____ Depth (inches): _____

Remarks:

Hydric Soils criterion met? Yes ☒ No ☐

BORDERING VEGETATED WETLAND DETERMINATION FORM

Project/Site: 10-30 Manley Way City/Town: Watertown Sampling Date: 12/08/21
 Applicant/Owner: PPF Industrial 20 SEYON LLC Sampling Point or Zone: WFA-9/10 UPL
 Investigator(s): Lucas Environmental, LLC Latitude / Longitude: 42° 22' 2.33 N / 71° 12' 38.32" W
 Soil Map Unit Name: Urban Land NWI or DEP Classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? (If yes, explain in Remarks)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If yes, explain in Remarks)

SUMMARY OF FINDINGS – Attach site map and photograph log showing sampling locations, transects, etc.

Wetland vegetation criterion met?	Yes ☐	No ☒	Is the Sampled Area within a Wetland? Yes ☐ No ☒
Hydric Soils criterion met?	Yes ☐	No ☒	
Wetlands hydrology present?	Yes ☐	No ☒	
Remarks, Photo Details, Flagging, etc.: The wetland is adjacent to a commercially developed parking lot.			

HYDROLOGY

Field Observations:		
Surface Water Present?	Yes ☐	No ☐ Depth (inches) _____
Water Table Present?	Yes ☐	No ☐ Depth (inches) _____
Saturation Present (including capillary fringe)?	Yes ☒	No ☐ Depth (inches) <u>22.00</u>
Wetland Hydrology Indicators		
Reliable Indicators of Wetlands Hydrology	Indicators that can be Reliable with Proper Interpretation	Indicators of the Influence of Water
☐ Water-stained leaves ☐ Evidence of aquatic fauna ☐ Iron deposits ☐ Algal mats or crusts ☐ Oxidized rhizospheres/pore linings ☐ Thin muck surfaces ☐ Plants with air-filled tissue (aerenchyma) ☐ Plants with polymorphic leaves ☐ Plants with floating leaves ☐ Hydrogen sulfide odor	☐ Hydrological records ☐ Free water in a soil test hole ☐ Saturated soil ☐ Water marks ☐ Moss trim lines ☐ Presence of reduced iron ☐ Woody plants with adventitious roots ☐ Trees with shallow root systems ☐ Woody plants with enlarged lenticels	☐ Direct observation of inundation ☐ Drainage patterns ☐ Drift lines ☐ Scoured areas ☐ Sediment deposits ☐ Surface soil cracks ☐ Sparsely vegetated concave surface ☐ Microtopographic relief ☐ Geographic position (depression, toe of slope, fringing lowland)
Remarks (describe recorded data from stream gauge, monitoring well, aerial photos, previous inspections, if available): The wetland is bordering on Walker Pond.		

This form is only for BVW delineations. Other wetland resource areas may be present and should be delineated according to the applicable regulatory provisions.

VEGETATION – Use both common and scientific names of plants.

<u>Tree Stratum</u> Plot size <u>30</u>		Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indicator? (yes/no)
Common name	Scientific name				
1. Shagbark hickory	Carya ovata	FACU	63.0	Yes	No
2. Red oak	Quercus rubra	FACU	38.0	Yes	No
3. Norway maple	Acer platanoides	UPL	10.5	No	No
4.					
5.					
6.					
7.					
8.					
9.					
			<u>111.5</u> = Total Cover		
<u>Shrub/Sapling Stratum</u> Plot size <u>15</u>		Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indicator? (yes/no)
Common name	Scientific name				
1. Norway maple	Acer platanoides	UPL	10.5	Yes	No
2. Glossy buckthorn	Frangula alnus	FAC	3.0	Yes	Yes
3.					
4.					
5.					
6.					
7.					
8.					
9.					
			<u>13.5</u> = Total Cover		
<u>Herb Stratum</u> Plot size <u>15</u>		Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indicator? (yes/no)
Common name	Scientific name				
1. Time of Year - Herbaceous Lacking					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
			<u>0.0</u> = Total Cover		

VEGETATION – continued.

<u>Woody Vine Stratum</u>		Plot size <u>5</u>		Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indicator? (yes/no)
Common name		Scientific name					
1.	Poison ivy	Toxicodendron radicans		FAC	3.0	Yes	Yes
2.							
3.							
4.							
				<u>3.0</u> = Total Cover			

Rapid Test: Do all dominant species have an indicator status of OBL or FACW?				Yes ☐ No ☒
Dominance Test:	Number of dominant species	Number of dominant species that are wetland indicator plants		Do wetland indicator plants make up ≥ 50% of dominant plant species?
	5	2		Yes ☐ No ☒
Prevalence Index:		Total % Cover (all strata)	Multiply by:	Result
	OBL species		X 1	= 0.00
	FACW species		X 2	= 0.00
	FAC species		X 3	= 0.00
	FACU species		X 4	= 0.00
	UPL species		X 5	= 0.00
	Column Totals	(A) 0		(B) 0
Prevalence Index		B/A = 0.00		Is the Prevalence Index ≤ 3.0?
				Yes ☐ No ☐
Wetland vegetation criterion met? Yes ☐ No ☒				

Definitions of Vegetation Strata

- Tree - Woody plants 3 in. (7.62 cm) or more in diameter at breast height (DBH), regardless of height
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Cover Ranges	
Range	Midpoint
1-5 %	3.0 %
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26-50 %	38.0 %
51-75 %	63.0 %
76-95 %	85.5 %
96-100 %	98.0 %

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Location ²		
2.00		0.0%		0.0%			Organic	Leaf Litter
5.00		0.0%		0.0%			Fine Sandy Loam	
22.00	10YR 3/2	0.0%		0.0%			Fill	Fill Material - Steep Slope
		0.0%		0.0%				
		0.0%		0.0%				
		0.0%		0.0%				
		0.0%		0.0%				
		0.0%		0.0%				
		0.0%		0.0%				
		0.0%		0.0%				
		0.0%		0.0%				

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators (Check all that apply)		Indicators for Problematic Hydric Soils
☐ Histosol (A1)	☐ Polyvalue Below Surface (S8)	☐ 2 cm Muck (A10)
☐ Histic Epipedon (A2)	☐ Thin Dark Surface (S9)	☐ 5 cm Mucky Peat or Peat (S3)
☐ Black Histic (A3)	☐ Loamy Mucky Mineral (F1)	☐ Dark Surface (S7)
☐ Hydrogen Sulfide (A4)	☐ Loamy Gleyed Matrix (F2)	☐ Polyvalue Below Surface (S8)
☐ Stratified Layers (A5)	☐ Depleted Matrix (F3)	☐ Thin Dark Surface (S9)
☐ Depleted Below Dark Surface (A11)	☐ Redox Dark Surface (F7)	☐ Iron-Manganese Masses (F12)
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☐ Sandy Mucky Mineral (S1)		☐ Red Parent Material (F21)
☐ Sandy Gleyed Matrix (S4)		☐ Very Shallow Dark Surface (TF12)
☐ Sandy Redox (S5)		☐ Other (Include Explanation in Remarks)
☐ Stripped Matrix (S6)		
☐ Dark Surface (S7)		

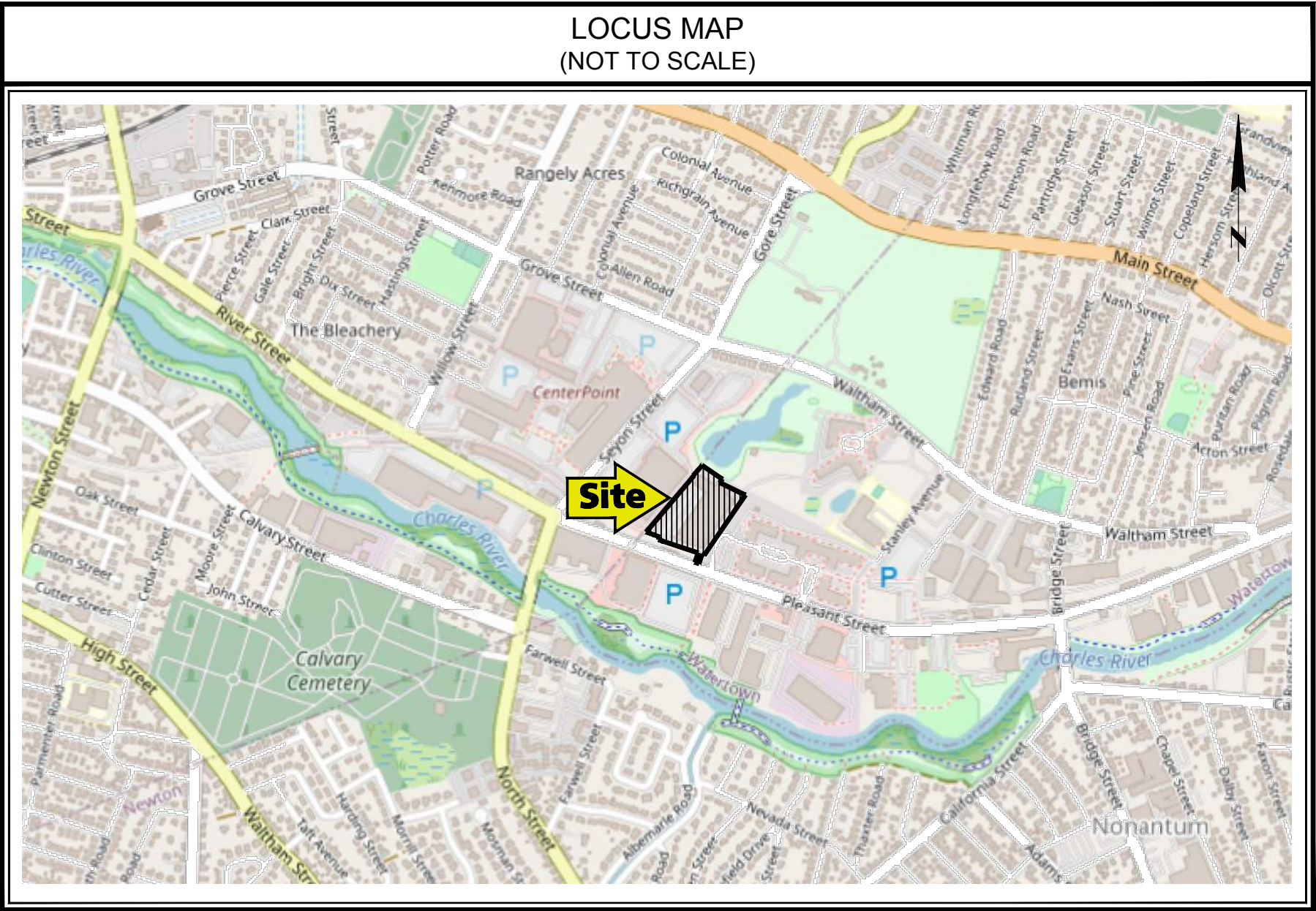
Restrictive Layer (if observed) Type: _____ Depth (inches): _____

Remarks:

Hydric Soils criterion met? Yes ☐ No ☒

SITE PLAN FOR REDEVELOPMENT OF 10-30 MANLEY WAY - WATERTOWN, MA

DRAWING INDEX			
DRAWING DATE	LAST REVISION	DRAWING	DRAWING DESCRIPTION
05/04/2023	05/13/2024	C-0	COVER SHEET
02/01/2022	-	2 SHEETS	PARTIAL TOPOGRAPHIC PLAN (FELDMAN SURVEY)
01/06/2023	-	2 SHEETS	PARTIAL TOPOGRAPHIC PLAN (FELDMAN SURVEY)
05/04/2023	05/13/2024	OS-1	OVERALL SITE PLAN
05/04/2023	05/13/2024	C-1A	DEMOLITION AND EROSION CONTROL PLAN
05/04/2023	05/13/2024	C-1B	DEMOLITION AND EROSION CONTROL PLAN
05/04/2023	05/13/2024	C-2A	GRADING, DRAINAGE, & UTILITY PLAN
05/04/2023	05/13/2024	C-2B	GRADING, DRAINAGE, & UTILITY PLAN
06/30/2023	05/13/2024	C-2C	SEWER PROFILE
05/04/2023	05/13/2024	C-3A	PARKING AND TRAFFIC CONTROL PLAN
05/04/2023	05/13/2024	C-3B	PARKING AND TRAFFIC CONTROL PLAN
05/04/2023	05/13/2024	C-4	PAVEMENT PLAN
05/04/2023	05/13/2024	C-5	DETAILS I
05/04/2023	05/13/2024	C-6	DETAILS II
05/04/2023	05/13/2024	C-7	DETAILS III
05/04/2023	05/13/2024	C-8	DETAILS IV
05/04/2023	05/13/2024	C-9	SOIL LOGS
05/04/2023	05/13/2024	FT-1	FIRE TRUCK TURNING PLAN
05/04/2023	05/13/2024	TT-1	TRUCK TURNING PLAN
06/09/2023	06/30/2023	ES2.01	ELECTRICAL SITE PLAN LIGHTING PHOTOMETRIC (AHA ENGINEERS)
06/09/2023	06/30/2023	ES2.02	ELECTRICAL SITE PLAN LIGHTING PHOTOMETRIC (AHA ENGINEERS)
05/04/2023	05/13/2024	L-0	OVERALL LANDSCAPE KEY PLAN
05/04/2023	05/13/2024	L-1	SITE PREPARATION PLAN - SOUTH ENLARGEMENT
05/04/2023	05/13/2024	L-2	SITE PREPARATION PLAN - NORTH ENLARGEMENT
05/04/2023	05/13/2024	L-3	LANDSCAPE PLANTING PLAN - SOUTH ENLARGEMENT
05/04/2023	05/13/2024	L-4	LANDSCAPE PLANTING PLAN - NORTH ENLARGEMENT
05/04/2023	05/13/2024	L-5	LANDSCAPE PLANTING PLAN - MAIN ENTRY ENLARGEMENT
05/04/2023	05/13/2024	L-6	LANDSCAPE DETAILS
05/04/2023	05/13/2024	L-7	LANDSCAPE DETAILS



NOTICE OF INTENT SUBMISSION 05/13/2024



RJO'CONNELL & ASSOCIATES, INC.

CIVIL ENGINEERS, SURVEYORS & LAND PLANNERS
80 MONTVALE AVENUE, SUITE 201 STONEHAM, MA 02180
PHONE: 781.279.0180 RJOCONNELL.COM

PREPARED FOR:

PPF INDUSTRIAL 20 SEYON LLC

c/o SEYON
535 BOYLSTON STREET
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BOSTON, MA 02116
PHONE: 617.982.6592

DESIGN TEAM

CIVIL ENGINEERING:
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80 MONTVALE AVENUE
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SURVEY:
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BOSTON, MA 02119

LANDSCAPE ARCHITECTURE:
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PHONE: (617) 405-4140

ENVIRONMENTAL ENGINEER:
McPHAIL ASSOCIATES, LLC
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CAMBRIDGE, MA 02140
PHONE: (617) 868-1420

GOVERNMENT/UTILITY CONTACTS

CITY MANAGER
CITY HALL
149 MAIN STREET
WATERTOWN, MA 02472
ATTN: GEORGE PROAKIS
PHONE: (617) 972-6465

PLANNING AND ZONING
CITY HALL
149 MAIN STREET
WATERTOWN, MA 02472
ATTN: GIDEON SCHREIBER, ASSISTANT DIRECTOR
PHONE: (617) 972-6417

HEALTH DEPARTMENT:
CITY HALL
149 MAIN STREET
WATERTOWN, MA 02472
ATTN: ABBEY MYERS, DIRECTOR
PHONE: (617) 972-6446

BUILDING INSPECTIONAL SERVICES
CITY HALL
149 MAIN STREET
WATERTOWN, MA 02472
ATTN: PAUL JOHNSON, INSPECTOR OF BUILDINGS
PHONE: (617) 972-6480

FIRE DEPARTMENT:
99 MAIN STREET
WATERTOWN, MA 02472
ATTN: RYAN NICHOLSON, FIRE CHIEF
PHONE: (617) 972-6512

ELECTRIC:
EVERSOURCE
ONE NSTAR WAY
WESTWOOD, MA 02090
PHONE: (617) 424-2000

GAS:
NATIONAL GRID
201 RIVERMOOR STREET
WEST ROXBURY, MA 02132
PHONE: (617) 323-9210

COMMUNITY DEVELOPMENT AND PLANNING:
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149 MAIN STREET
WATERTOWN, MA 02472
ATTN: STEVE MAGOON, PLANNING DIRECTOR
PHONE: (617) 972-6417

TRANSPORTATION PLANNING
CITY HALL
149 MAIN STREET
WATERTOWN, MA 02472
ATTN: ZEKE MERMELL, SENIOR TRANSPORTATION PLANNER
PHONE: (617) 972-6417

PUBLIC WORKS DEPARTMENT:
124 ORCHARD STREET
WATERTOWN, MA 02472
ATTN: GREGORY ST. LOUIS, SUPERINTENDENT
TYLER GLODE, CITY ENGINEER
PHONE: (617) 972-6420

ZONING & CODE ENFORCEMENT:
CITY HALL
149 MAIN STREET
WATERTOWN, MA 02472
ATTN: TONY MANCINI, ZONING ENFORCEMENT
PHONE: (617) 972-6472

POLICE DEPARTMENT:
552 MAIN STREET
WATERTOWN, MA 02472
ATTN: JUSTIN HANRAHAN, CHIEF OF POLICE
PHONE: (617) 972-6537

TELEPHONE:
VERIZON
275 WILDWOOD AVENUE
WOBURN, MA 01801
PHONE: (781) 376-8172

DRAWING NUMBER:

C-0

PROJECT NUMBER:

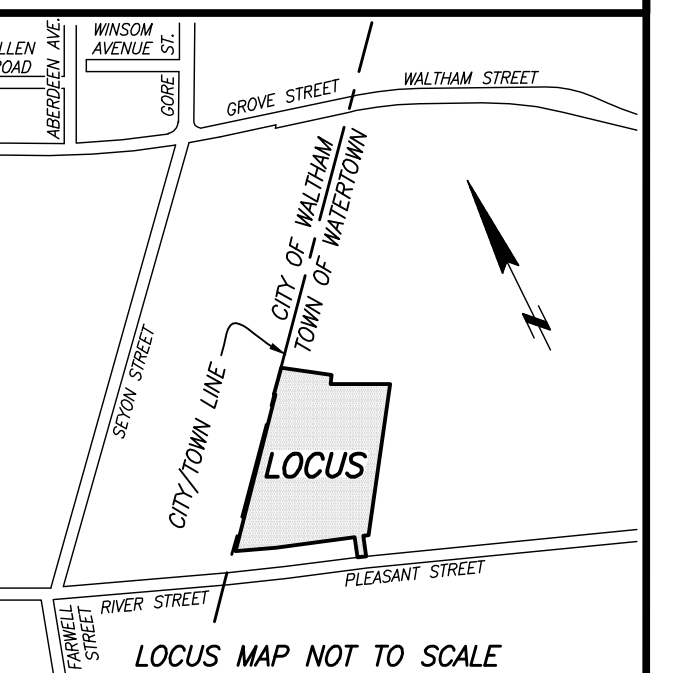
21049

BOSTON HEADQUARTERS
152 HAMPDEN STREET
BOSTON, MA 02119

WORCESTER OFFICE
27 MECHANIC STREET
WORCESTER, MA 01608

(617)357-9740
www.feldmangeo.com

Right. From the Ground Up



ADDRESS:

20 SEYON STREET
WATERTOWN, MASS.

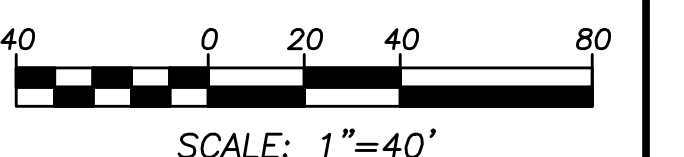
RESEARCH: MJB	FIELD CHIEF: JW
PROJ MGR: MJB	APPROVED:
CALC: MJB	CADD: MJB
FIELD CHK:	CRD FILE: 2100795

REVISIONS:

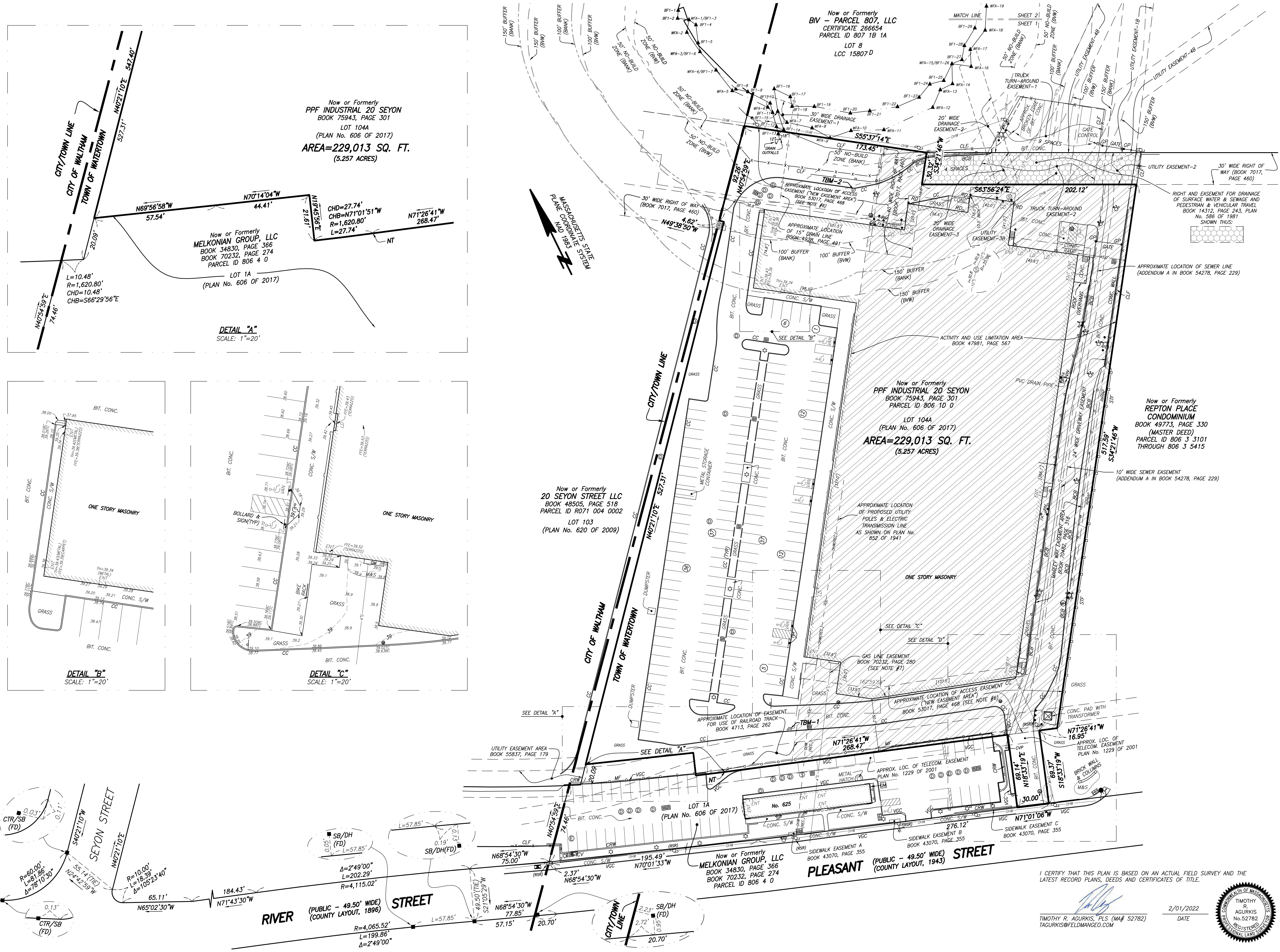
DRAWING NAME:

PARTIAL
TOPOGRAPHIC PLAN

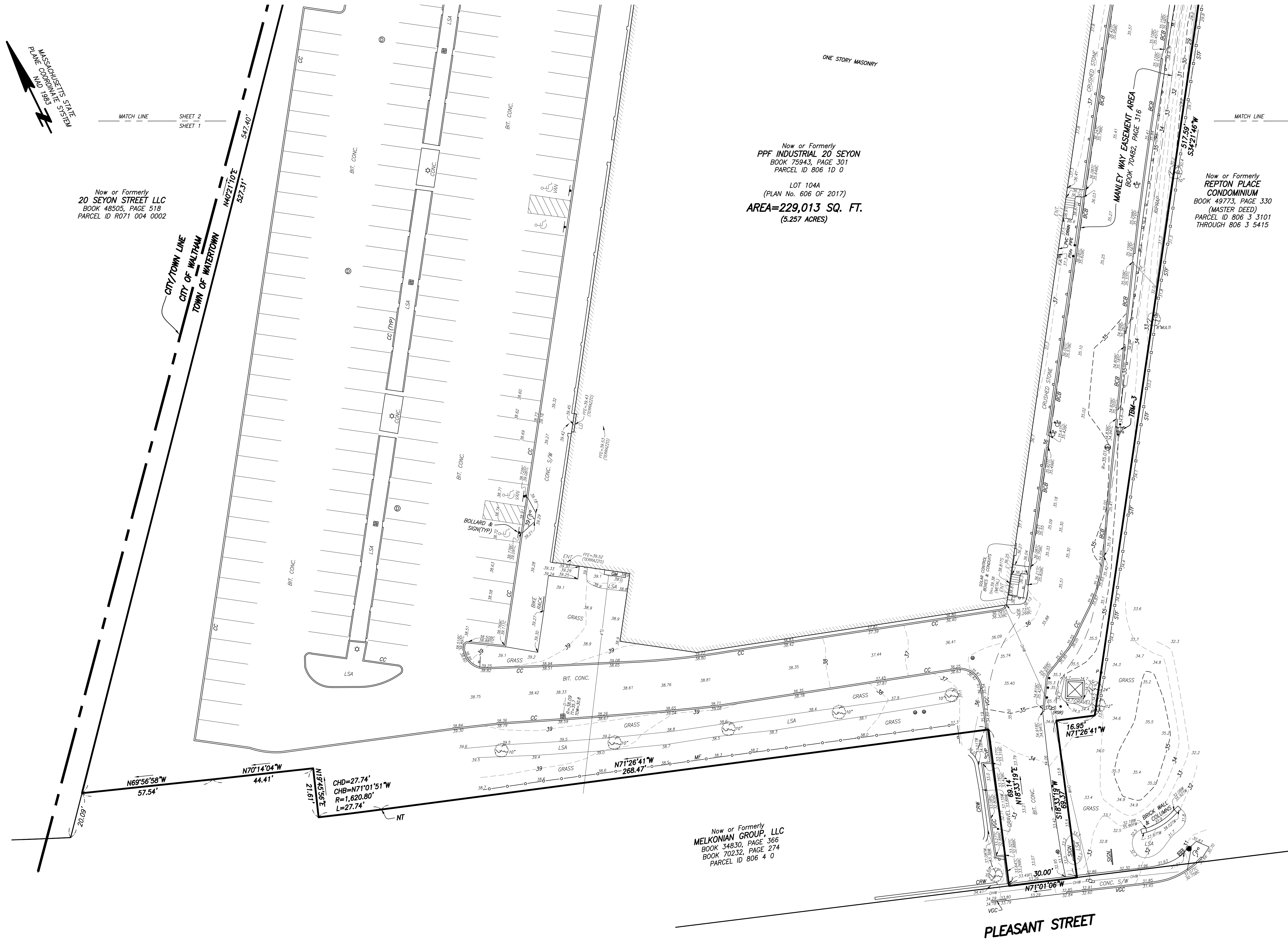
DATE: JANUARY 10, 2022



SHEET NO. 1 OF 2



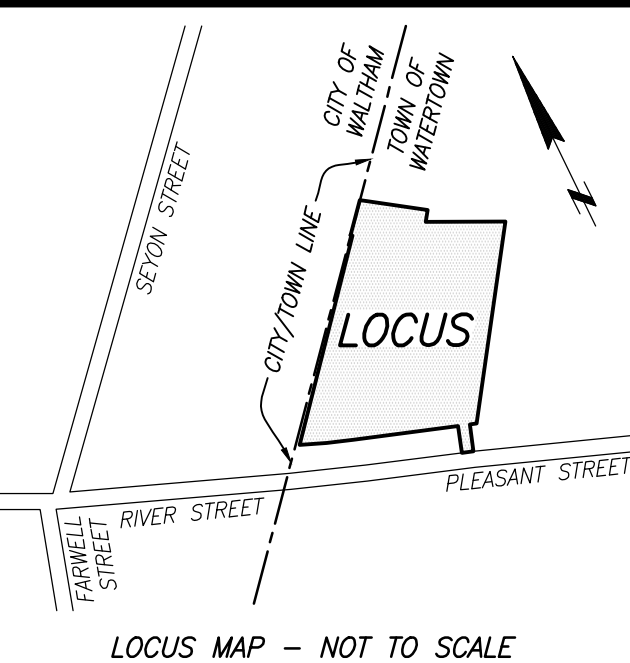
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BOSTON HEADQUARTERS
152 HAMPDEN STREET
BOSTON, MA 02119

WORCESTER OFFICE
27 MECHANIC STREET
WORCESTER, MA 01608

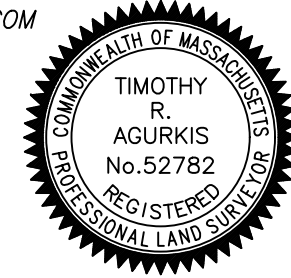
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I CERTIFY THAT THIS PLAN IS BASED ON AN
ACTUAL FIELD SURVEY AND THE LATEST RECORD
PLANS, DEEDS AND CERTIFICATES OF TITLE.

TIMOTHY R. AGURKIS, PLS
(MA# 52782)
TAGURKIS@FELDMANGEO.COM

1/6/2023
DATE



DRAWING NAME:

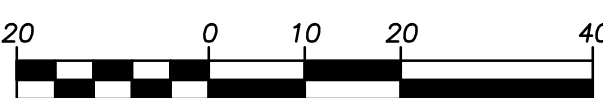
**PARTIAL
TOPOGRAPHIC PLAN**
**10 MANLEY WAY
(FORMERLY 20
SEYON STREET)
WATERTOWN, MASS.**

DATE: SEPTEMBER 2, 2022

REVISIONS:

FILENAME: 2201007-TOPO-1.dwg

RESEARCH: MJB	FIELD CHIEF: XXX
PROJ MGR: MJB	APPROVED:
CALC: MJB	CADD: MJB
FIELD CHK:	CRD FILE: 2201007



SHEET NO. 1 OF 2

- LEGEND**
- SEWER MANHOLE
○ DRAIN MANHOLE
○ MANHOLE
○ HYDRANT
○ WATER SHUT OFF/WATER GATE
○ CATCH BASIN
○ GUY WIRE
○ TRAFFIC SIGNAL
○ GUY POLE
○ UTILITY POLE
○ (RSR) UTILITY POLE WITH RISER
○ RECORD UTILITY POLE
○ LIGHT POLE
○ ELECTRIC HANDHOLE
○ BOLLARD
○ SIGN
○ CO CLEAN OUT
○ FA FIRE ALARM
○ CVP CAPPED VERTICAL PIPE
○ PIV POST INDICATOR VALVE
○ RD ROOF DRAIN
○ P POST
○ OBSERVATION WELL
○ SECURITY CAMERA
○ STAND PIPE/SIAMESE CONNECTION
○ UTILITY POLE W/ LIGHT
○ TRANSFORMER
○ AIR CONDITIONING UNIT
○ GAS METER
○ DISABLED PARKING SPACE
○ DECIDUOUS TREE
○ FLARED END SECTION
○ HANDICAP RAMP
○ GP GATE POST
○ IRRIGATION CONTROL VALVE
○ APPROX. APPROXIMATE
○ BC BOTTOM OF CURB
○ BCB BIT. CONC. BERM
○ [X.X'] BUILDING DIMENSION
○ BIT BITUMINOUS
○ BW BOTTOM OF WALL
○ CC CONCRETE CURB
○ CHB CHORD BEARING
- CHD CHORD DISTANCE
CLF CHAIN LINK FENCE
CONC CONCRETE
CRW CONCRETE RETAINING WALL
CW CONCRETE WALL
Δ DELTA ANGLE
DH DRILL HOLE
ENT ENTRANCE
FD FOUND
FEE FINISH FLOOR ELEVATION
GD GARAGE DOOR
In INVERT ELEVATION
L ARC LENGTH
LCC LAND COURT CASE
LD LOADING DOCK
LOC LOCATION
MF METAL FENCE
M&S MULCH & SHRUBS
NTS NOT TO SCALE
R RADIUS OR RIM ELEVATION
SB STONE BOUND
SQ. FT. SQUARE FEET
STF STOCKADE FENCE
S/W SIDEWALK
TBM TEMPORARY BENCH MARK
TC TOP OF CURB
TH THRESHOLD
TELECOM. TELECOMMUNICATIONS
TOP TOP OF PIPE
TOW TOP OF WATER
TTS TOP OF TRAP
TW TOP OF WALL
TYP TYPICAL
VCC VERTICAL GRANITE CURB
C GAS
OHW OVERHEAD WIRES
S SEWER
X CHAIN LINK FENCE
X METAL FENCE
X WOOD FENCE
X GUARD RAIL
X (CIP) CAST IRON PIPE
X (CPV) CORRUGATED PLASTIC PIPE
X (PVC) POLYVINYL CHLORIDE
X (RCP) REINFORCED CONCRETE PIPE
X (VCP) VITRIFIED CLAY PIPE

NOTES:

1. BENCH MARK INFORMATION:
- BENCH MARK USED
(FELDMAN JOB #15987):
- TBM-1: X-MARK ON THE RIGHT FRONT BOLT ON A HYDRANT AS SHOWN ON THIS PLAN. ELEVATION = 35.90
- TBM-2: X-MARK ON THE BOLT CLOSEST TO THE BUILDING ON A HYDRANT AS SHOWN ON THIS PLAN. ELEVATION = 38.44
- TBM-3: X-MARK ON THE FRONT BOLT OVER THE MAIN OUTLET ON A HYDRANT AS SHOWN ON THIS PLAN. ELEVATION = 38.56
2. ELEVATIONS REFER TO NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
3. CONTOUR INTERVAL EQUALS ONE (1) FOOT.
4. BY GRAPHIC PLOTTING ONLY, THE PARCEL SHOWN HEREON LIES WITHIN A ZONE "X" (UNSHADED), AN AREA OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOOD, AS SHOWN ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY (F.E.M.A) FLOOD INSURANCE RATE MAP (F.I.R.M.) FOR MIDDLESEX COUNTY, MASSACHUSETTS, MAP NUMBER 2501700552E, TOWN OF WATERTOWN, COMMUNITY NUMBER 250223, PANEL NUMBER 0552-E, HAVING AN EFFECTIVE DATE OF JUNE 4, 2010.
5. THIS PLAN WAS PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT AND IS SUBJECT TO ANY FINDINGS SUCH A REPORT MIGHT DISCLOSE.
17. THIS DOCUMENT IS AN INSTRUMENT OF SERVICE OF FELDMAN GEOSPATIAL ISSUED TO OUR CLIENT FOR PURPOSES RELATED DIRECTLY AND SOLELY TO FELDMAN GEOSPATIAL'S SCOPE OF SERVICES UNDER CONTRACT TO OUR CLIENT FOR THIS PROJECT. ANY USE OR REUSE OF THIS DOCUMENT FOR ANY REASON BY ANY PARTY FOR PURPOSES UNRELATED DIRECTLY AND SOLELY TO SAID CONTRACT SHALL BE AT THE USER'S SOLE AND EXCLUSIVE RISK AND LIABILITY, INCLUDING LIABILITY FOR VIOLATION OF COPYRIGHT LAWS, UNLESS WRITTEN CONSENT IS PROVIDED BY FELDMAN GEOSPATIAL.

MATCH LINE
SHEET 2
SHEET 1

Now or Formerly
20 SEYON STREET LLC
BOOK 48505, PAGE 518
PARCEL ID R071 004 0002

DETAIL "A"
(NOT TO SCALE)

Now or Formerly
BIV - PARCEL 807, LLC
CERTIFICATE 266654
PARCEL ID 807 1B 1A
LOT 8
LCC 15807 D

Now or Formerly
PPF INDUSTRIAL 20 SEYON
BOOK 75943, PAGE 301
PARCEL ID 806 1D 0

LOT 104A
(PLAN No. 606 OF 2017)
AREA=229,013 SQ. FT.
(5.257 ACRES)

Now or Formerly
REPTON PLACE
CONDOMINIUM
BOOK 49773, PAGE 330
(MASTER DEED)
PARCEL ID 806 3 3101
THROUGH 806 3 5415

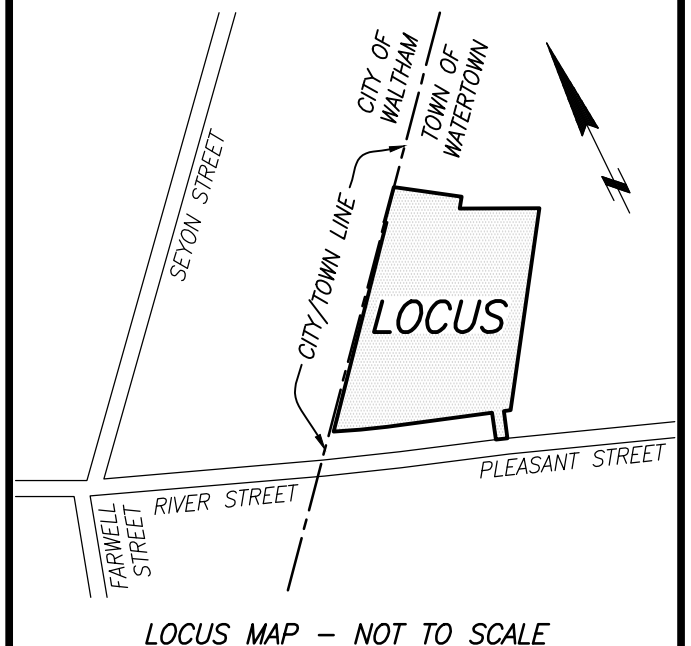
FELDMAN
GEOSPATIAL

BOSTON HEADQUARTERS
152 HAMPDEN STREET
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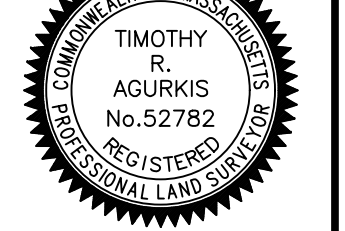
Right. From the Ground Up



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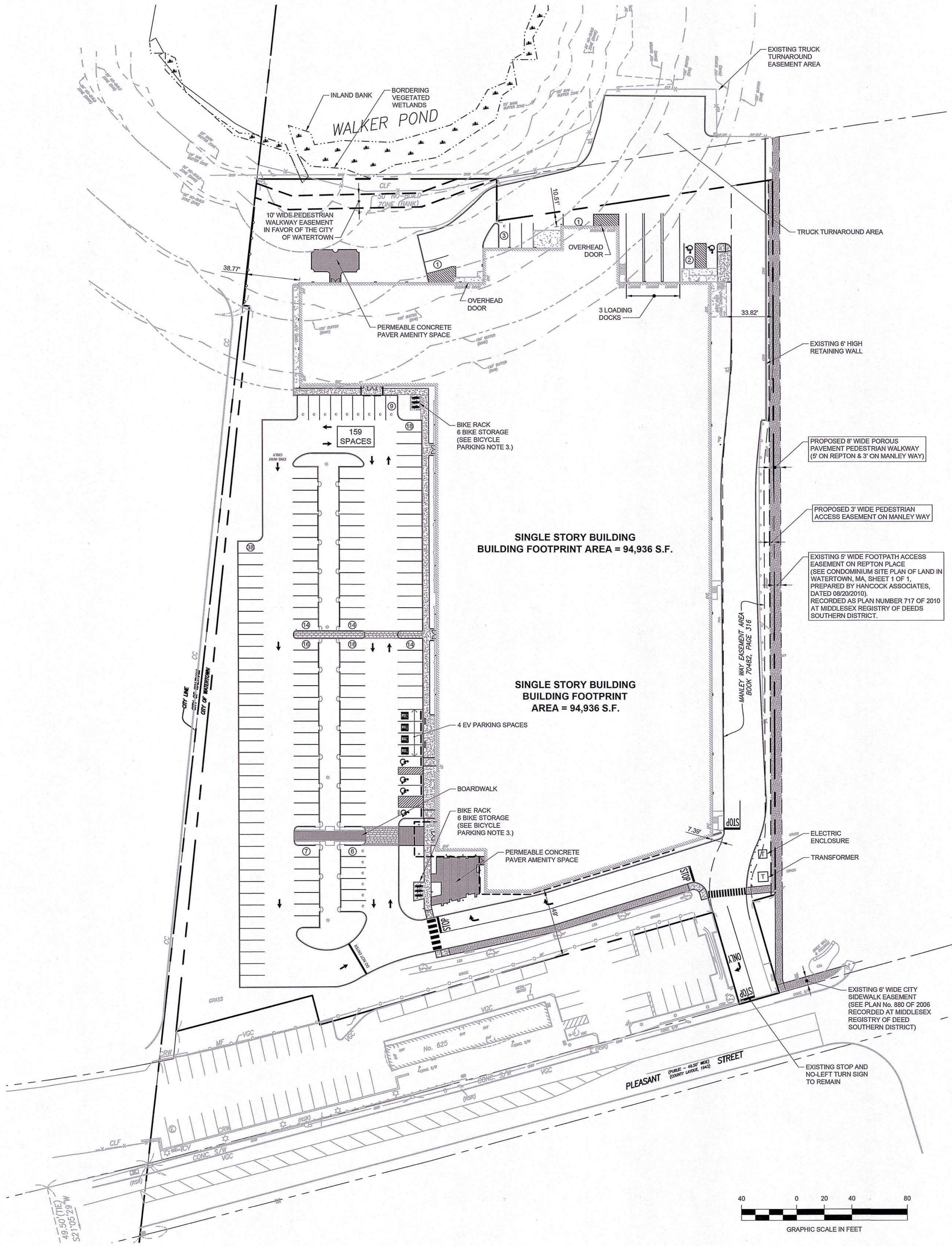
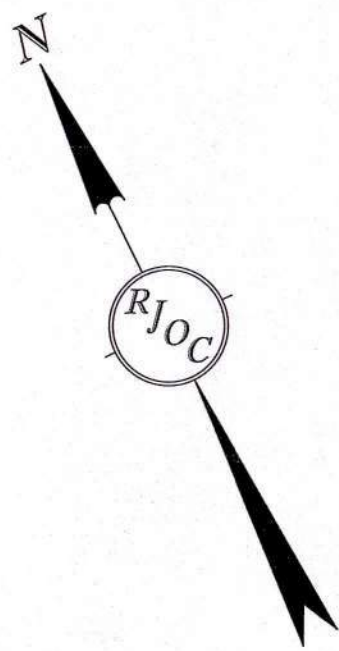
1/6/2023
DATE



DRAWING NAME:

**PARTIAL
TOPOGRAPHIC PLAN**
10 MANLEY WAY
(FORMERLY 20
SEYON STREET)
WATERTOWN, MASS.

DATE:	SEPTEMBER 2, 2022
REVISIONS:	
FILENAME:	2201007-TOPO-1.dwg
RESEARCH:	MJB
PROJ MGR:	MJB
CALC:	MJB
FIELD CHK:	MJB
FIELD CHIEF:	XXX
APPROVED:	
CADD:	MJB
CRD FILE:	2201007
SCALE:	1"=20'
SHEET NO.	2 OF 2



ZONING TABLE			
ZONING DISTRICT: PLEASANT STREET CORRIDOR DISTRICT (PSCD-3)			
ZONING CRITERIA	REQUIRED	EXISTING	PROPOSED
MINIMUM LOT SIZE	10,000 S.F.	229,013 S.F.	229,013 S.F.
MINIMUM LOT FRONTAGE	N/A	N/A	N/A
BUILD-TO-LINE	10 FT. MAX.	50.2 ⁽¹⁾	49 ⁽¹⁾
MINIMUM REAR YARD SETBACK	18 FT.	10.51 FT. ⁽²⁾	10.51 FT. ⁽²⁾
MINIMUM SIDE YARD SETBACK (LEFT)	18 FT.	38.77 FT.	38.77 FT.
MINIMUM SIDE YARD SETBACK (RIGHT)	18 FT.	33.82 FT.	33.82 FT.
MAXIMUM BUILDING COVERAGE	50% MAX	42%	42%
MAXIMUM IMPERVIOUS COVERAGE	80% MAX	80% (184,850 S.F.)	76.4% (174,898 S.F.) ⁽³⁾
MAXIMUM HEIGHT# OF STORIES	55 FT/5 MAX	39 FT/1	39 FT/1
LOT AREA PER UNIT	N/A	N/A	N/A
MAXIMUM FLOOR AREA RATIO (FAR)	1.0	0.42	0.42
MINIMUM OPEN SPACE	20%	20% (44,163 S.F.)	23.6% (54,115 S.F.) ⁽³⁾
INTERIOR PARKING LANDSCAPING	5% MIN.	6.8%	12.5%

(1) MEASURED FROM WATERTOWN FORD PROPERTY LINE. EXISTING NON-CONFORMITY PREVIOUSLY APPROVED IN SPECIAL PERMIT #89-90-17 DATED 03/28/90. PROPOSED SETBACK IS TO NEW CANOPY.

(2) EXISTING NON-CONFORMITY PREVIOUSLY APPROVED IN SPECIAL PERMIT #89-90-17 DATED 03/28/90

(3) IMPERVIOUS AREA IN TRUCK TURNAROUND EASEMENT HAS BEEN REDUCED BY 2,050 S.F. THIS IS NOT INCLUDED IN THE NUMBERS IN THE ZONING TABLE AS IT IS OUTSIDE THE LOT AREA.

PARKING CALCULATIONS:

EXISTING PARKING SPACES

154 SPACES ON THE LOT (INCLUDES 8 ACCESSIBLE SPACES)

REQUIRED PARKING SPACES

1 SPACE PER 600 S.F. - RESEARCH & DEVELOPMENT REQUIREMENT PER ZONING
1 SPACE PER 600 S.F. - LIGHT MANUFACTURING, NON-NUISANCE MANUFACTURING
94,936 S.F. / 600 S.F. = 159 SPACES

PROPOSED PARKING SPACES

PARKING SPACES PROVIDED - 159 SPACES (INCLUDES 16 COMPACT SPACES - 10% AND 6 ACCESSIBLE SPACES)
REGULAR PARKING SPACES 8.5' WIDE x 18'. COMPACT SPACES 8' WIDE x 18'.

LOADING SPACES:

REQUIRED = 3 SPACES FOR 5,000 S.F. TO 100,000 S.F.
LOADING SPACE SIZE REQUIRED = 12' WIDE x 50' LONG x 14' HIGH IN INDUSTRIAL. LENGTH MAY BE REDUCED TO 30' IN BUSINESS DISTRICT.

PROVIDED - 3 SPACES. 12' WIDE AND 50' LONG

BICYCLE PARKING:

1. PER SECTION 6.07 OF ZONING 1 BICYCLE PARKING SPACE/15 AUTOMOBILE SPACES IS REQUIRED. 159/15=11

2. PROVIDED = 12 OUTSIDE, 7 INSIDE THE BUILDING

3. BIKE RACKS SHALL BE INVERTED U OR RING AND POST STYLE FRAMES THAT SUPPORT THE BICYCLE AT TWO OR MORE POINTS ABOVE AND ON EITHER SIDE OF THE BICYCLE'S CENTER GRAVITY.

GENERAL NOTES:

1. THIS PLAN HAS BEEN PREPARED FROM THE FOLLOWING:

- PLAN ENTITLED "AS BUILT PLAN, 20 SEYON STREET, WALTHAM/WATERTOWN, MA", PREPARED BY R.J. O'CONNELL & ASSOCIATES, INC., DATED 3/17/2006.
- PLAN ENTITLED "ALTA/ACSM LAND TITLE SURVEY, LOT 104 - OFF SEYON STREET & 625 PLEASANT STREET, WATERTOWN, MASS.", PREPARED BY FELDMAN PROFESSIONAL LAND SURVEYORS, DATED NOVEMBER 22, 2013.

2. ALL ELEVATION REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

LEGEND	
	POROUS PAVEMENT
	PERMEABLE PAVERS
	CONCRETE PAVING/SIDEWALK
C	COMPACT SPACES (8' x 18')

RJOC

REVISION		NO.	DATE
1.	ISSUED FOR SPECIAL PERMIT/SITE PLAN REVIEW	05/04/2023	
2.	REVISED PER DPW COMMENTS	06/14/2023	
3.	ISSUED FOR SITE PLAN REVIEW	06/30/2023	
4.	REDUCED TRUCK TURNAROUND AREA	09/21/2023	
5.	REVISED PER ENGINEERING COMMENTS	03/19/2024	
6.	NOTICE OF INTENT SUBMISSION	05/13/2024	

PREPARED BY:

RJO'CONNELL & ASSOCIATES, INC.
CIVIL ENGINEERS, SURVEYORS & LAND PLANNERS
80 MONTVALE AVENUE, SUITE 201 STONEHAM, MA 02186
PHONE: 781.279.0189 RJOC@CONNELL.COM

PREPARED FOR:

PPF INDUSTRIAL 20 SEYON LLC
c/o SEYON
535 BOYLSTON STREET, 11TH FLOOR
BOSTON, MA 02116
PHONE: 617.982.6592

PROJECT NAME:

10-30 MANLEY WAY
WATERTOWN, MA

SEAL:



DESIGNED BY: BJM/MAC
DRAWN BY: MCR
REVIEWED BY: BJM
SCALE: 1" = 40'
DATE: 05/04/2023
DRAWING NAME:

OVERALL SITE PLAN

DRAWING NUMBER:

OS-1

PROJECT NUMBER:

21049

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PREPARED FOR:

**PPF INDUSTRIAL
20 SEYON LLC**

c/o SEYON

535 BOYLSTON STREET, 11TH FLOOR
BOSTON, MA 02116
PHONE: 617.982.6592

REAL:  5-13-2024

DESIGNED BY: BJMMMA
DRAWN BY: MCH
REVIEWED BY: BJMM
SCALE: 1" = 20'
DATE: 05/04/2024
DRAWING NAME:

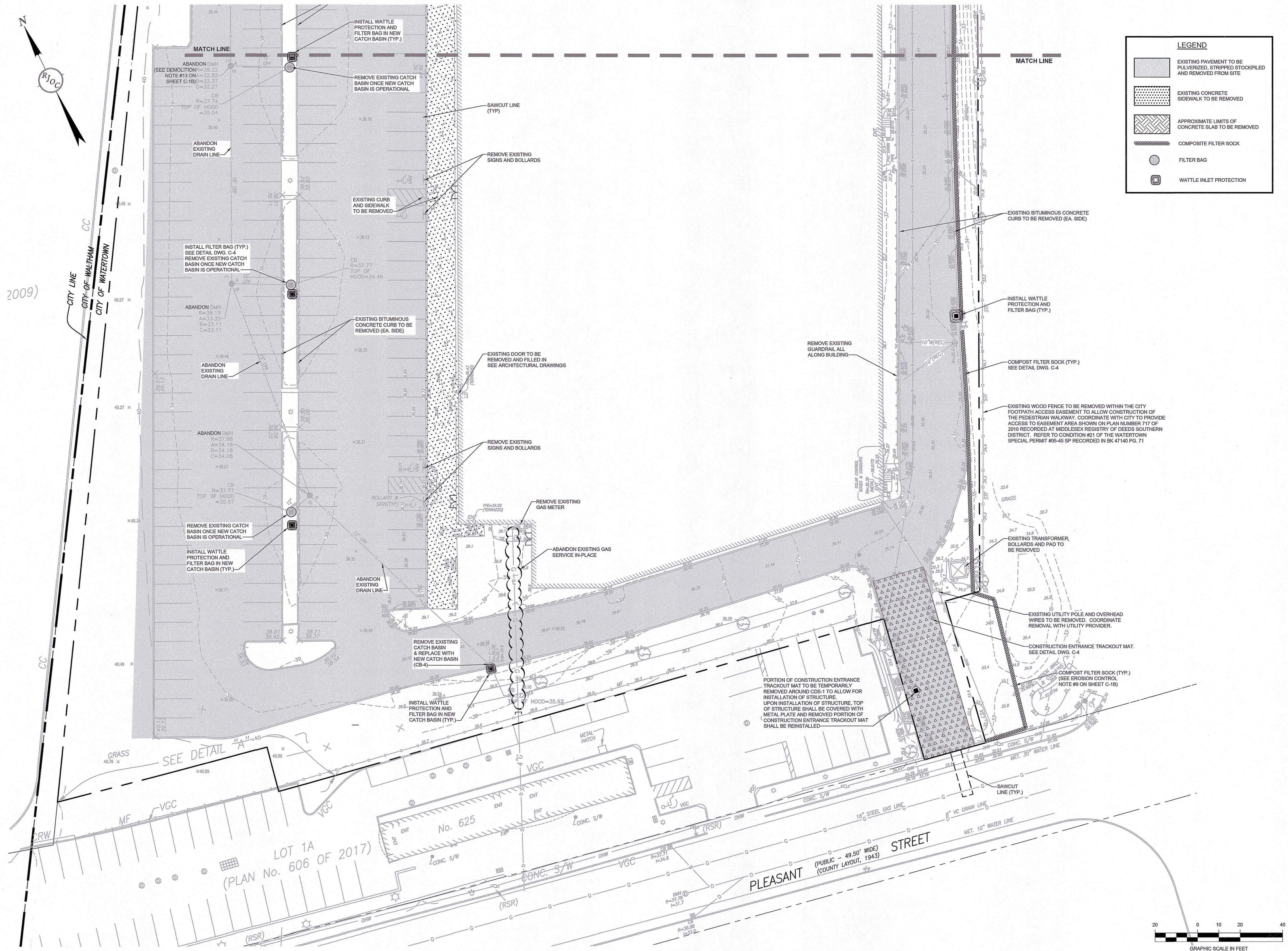
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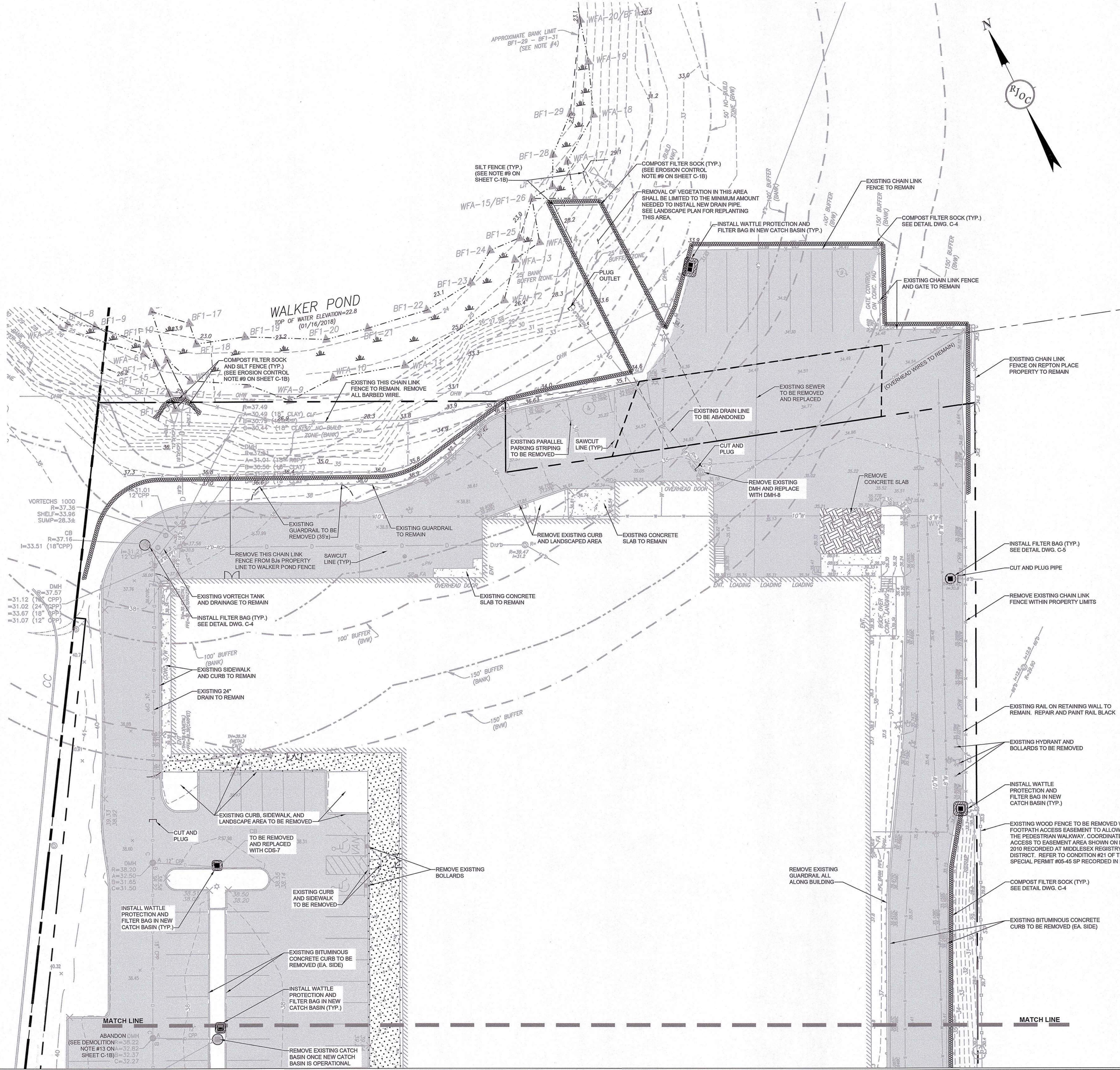
PROJECT NUMBER:

21049

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Drawing name: G:\MA\Watertown\Seyon Group\20 Seyon Street\Main\21049 C-1 Demolition & Erosion Control Plan.dwg
May 13, 2024 - 10:41am



EROSION CONTROL NOTES:

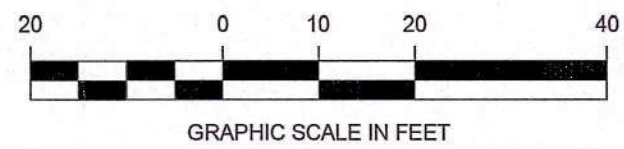
1. PRIOR TO THE START OF CONSTRUCTION, ALL EROSION CONTROLS SHOWN ON THIS PLAN SHALL BE SET IN PLACE.
2. THE CONTRACTOR SHALL KEEP ON SITE AT ALL TIMES ADDITIONAL COMPOST FILTER SOCKS AND EXTRA SILTATION FENCING FOR INSTALLATION AT THE DIRECTION OF THE ENGINEER TO MITIGATE ANY EMERGENCY CONDITION.
3. THE AREA OR AREAS OF ENTRANCE AND EXIT TO AND FROM THE SITE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO THE PUBLIC RIGHT-OF-WAY MUST BE REMOVED IMMEDIATELY.
4. CATCH BASINS WITH SILT BAGS MUST BE INSPECTED EVERY 7 CALENDAR DAYS AND WITHIN 24 HOURS OF A RAIN EVENT OF 0.25 INCHES OR GREATER. SILT BAGS WILL BE REMOVED FROM EACH BASIN IN ACCORDANCE WITH THE SILT BAG MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.
5. UPON COMPLETION OF ALL SITE WORK CONSTRUCTION, THE SITE CONTRACTOR SHALL INSPECT ALL ON-SITE CATCH BASINS AND DRAINAGE STRUCTURES AND REMOVE ALL SEDIMENT, TRASH AND DEBRIS THAT HAS ACCUMULATED WITHIN EACH STRUCTURE DURING THE COURSE OF CONSTRUCTION.
6. PRIOR TO THE START OF ANY AUTHORIZED ACTIVITY THE GENERAL CONTRACTOR SHALL SUBMIT FOR INFORMATION A DUST CONTROL PLAN TO THE ENGINEER. THE DUST CONTROL PLAN WILL OUTLINE MEASURES TO CONTROL AND MITIGATE DUST DURING ALL PHASES OF DEMOLITION AND CONSTRUCTION AND IN ALL TYPES OF WEATHER CONDITIONS. THE APPROVED DUST CONTROL PLAN SHALL BE IMPLEMENTED DURING ALL PHASES OF THE AUTHORIZED ACTIVITIES AND WILL CONTINUE UNTIL THE PROJECT HAS BEEN GRANTED AS-BUILT APPROVAL.
7. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED AND/OR CONSTRUCTED IN ACCORDANCE WITH THE MASSACHUSETTS EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS, DATED MARCH 1997, REPRINTED MAY 2003, AND ALL LOCAL MUNICIPAL REGULATIONS.
8. TO MINIMIZE THE MIGRATION OF DUST AND SILT FROM THE CONSTRUCTION SITE, THE FOLLOWING MEASURES SHALL BE IMPLEMENTED AS REQUIRED:
 - SPRAY DISTURBED AREAS WITH WATER DURING DRY AND WINDY DAYS
 - WASH WHEELS OF VEHICLES BEFORE LEAVING THE SITE
 - PERIODICALLY CLEAN SURROUNDING ROADWAYS NEAR THE ENTRANCE TO THE SITE
 - ALL VEHICLES HAULING MATERIAL TO AND FROM THE SITE SHALL PLACE SECURE COVERS OVER THEIR LOADS
9. THE APPLICANT SHALL COORDINATE WITH ALL APPLICABLE ADJUTERS PRIOR TO INSTALLATION OF ANY EROSION CONTROLS LOCATED OFFSITE.
10. EROSION CONTROLS SHALL BE INSTALLED AND INSPECTED PRIOR TO ANY SITE DISTURBANCE. THE CONTRACTOR SHALL CONTACT THE DPW AT LEAST 24 HOURS PRIOR TO ANTICIPATED INSTALLATION COMPLETION FOR THE APPLICABLE INSPECTION.

DEMOLITION NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF DEMOLISHED MATERIALS OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL REQUIREMENTS.
2. PRIOR TO THE START OF ANY DEMOLITION ACTIVITIES, ON-SITE EROSION AND SEDIMENT CONTROL MEASURES AS SHOWN ON DRAWINGS C-1A AND C-1B MUST BE INSTALLED AND APPROVED BY THE OWNER'S REPRESENTATIVE.
3. THE CONTRACTOR SHALL PROTECT AND/OR CAP OFF ALL EXISTING ON-SITE UTILITY SERVICES WHETHER DESIGNATED ON THESE DRAWINGS OR DISCOVERED DURING CONSTRUCTION. SERVICES SHALL BE CAPPED OFF AT THE PROPERTY IN ACCORDANCE WITH THE APPROPRIATE UTILITY COMPANY/ENTITY STANDARDS.
4. REUSE OF EXISTING GRANULAR PAVEMENT SUBBASE MATERIAL AND EXCAVATED MATERIAL SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING AND PROTECTING ALL EXISTING AND NEW DRAINAGE AND UTILITIES TO REMAIN AND/OR BE CONSTRUCTED.
6. DURING ON-SITE DEMOLITION WORK, STORM RUNOFF SHALL BE CONTROLLED AND DIRECTED TOWARD TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES.
7. THE EROSION CONTROL MEASURES AS SHOWN ON THE DRAWINGS DEPICT THE MINIMUM REQUIRED CONTROLS AND ARE REPRESENTATIVE OF A SINGLE PHASE OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SITING, RELOCATION AND AUGMENTATION OF EROSION CONTROL DEVICES AS THE PROJECT PROGRESSES AND SITE DRAINAGE CONDITIONS CHANGE.
8. THE CONTRACTOR SHALL MODIFY EROSION CONTROL MEASURES IF REQUIRED DUE TO WEATHER AND SEASONAL CONDITIONS AND CONSTRUCTION ACTIVITIES.
9. THE CONTRACTOR SHALL MINIMIZE THE AREA OF DISTURBED SOIL. EFFORTS SHALL BE MADE TO LIMIT THE TIME OF EXPOSURE OF DISTURBED AREAS.
10. COMPOST FILTER SOCKS OR SILT BAGS SHALL BE INSTALLED AT ALL EXISTING AND PROPOSED CATCH BASINS AS INDICATED. NO SEDIMENT SHALL BE ALLOWED TO ENTER THE ON-SITE DRAINAGE SYSTEM AT ANY TIME.
11. ALL CONSTRUCTION DUMPSTERS SHALL BE PROPERLY MAINTAINED. ALL DUMPSTERS SHALL BE LOCATED ON A BITUMINOUS CONCRETE OR CONCRETE SURFACE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TRASH DISPOSAL ON A REGULAR BASIS AND SHALL ENSURE THAT THE DUMPSTER AREAS ARE PROPERLY MAINTAINED.
12. THE CONTRACTOR SHALL EMPLOY THE SERVICES OF A PEST CONTROL CONTRACTOR TO DEVELOP AND IMPLEMENT A PEST CONTROL PLAN.
13. EXISTING CASTINGS AND TOP CONE SECTION OF MANHOLES AND CATCH BASINS TO BE ABANDONED SHALL BE REMOVED AND THE REMAINING STRUCTURE SHALL BE FILLED WITH 3/4-INCH CRUSHED STONE.

LEGEND

	EXISTING PAVEMENT TO BE PULVERIZED, STRIPPED STOCKPILED AND REMOVED FROM SITE
	EXISTING CONCRETE SIDEWALK TO BE REMOVED
	APPROXIMATE LIMITS OF CONCRETE SLAB TO BE REMOVED
	COMPOSITE FILTER SOCK
	SILT FENCE
	FILTER BAG
	WATTLE INLET PROTECTION



REVISION		NO.	DATE
1.	ISSUED FOR SPECIAL PERMITS/PLAN REVIEW	05/04/2023	
2.	REVISED PER DPW COMMENTS	09/14/2023	
3.	ISSUED FOR SITE PLAN REVIEW	09/30/2023	
4.	REVISED PER ENGINEERING COMMENTS	09/19/2024	
5.	NOTICE OF INTENT SUBMISSION	09/13/2024	

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PREPARED FOR:
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c/o SEYON
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BOSTON, MA 02116
PHONE: 617.982.6592

PROJECT NAME:
10-30 MANLEY WAY
WATERTOWN, MA

SEAL:

DESIGNED BY: BJM/MAC
DRAWN BY: MCR
REVIEWED BY: BJM
SCALE: 1" = 20'
DATE: 05/04/2023
DRAWING NAME:

DEMOLITION AND EROSION CONTROL PLAN

DRAWING NUMBER:
C-1B

PROJECT NUMBER:
21049

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NO.	REVISION	DATE
1.	ISSUED FOR SPECIAL PERMIT/SITE PLAN REVIEW	05/04/2023
2.	REVISED PER DPW COMMENTS	06/14/2023
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PHONE: 781.279.8180 RJOC@RJOC.COM

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20 SEYON LLC
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535 BOYLSTON STREET, 11TH FLOOR
BOSTON, MA 02116
PHONE: 617.982.6592

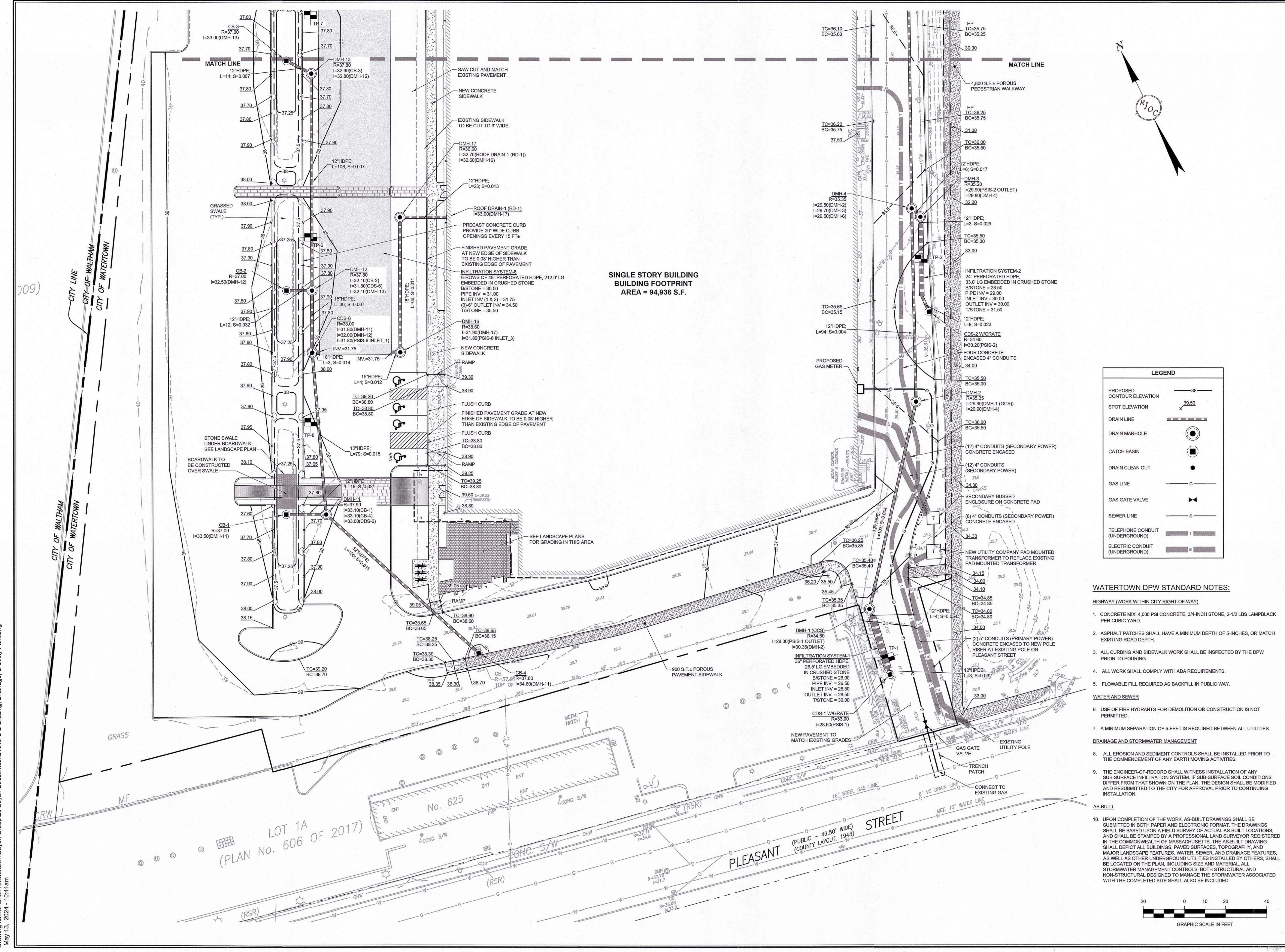
PROJECT NAME:
10-30 MANLEY WAY
WATERTOWN, MA

SEAL:

DESIGNED BY: BJM/MAC
DRAWN BY: WJH/MCR
REVIEWED BY: BJM
SCALE: 1" = 20'
DATE: 05/04/2023
DRAWING NAME:

**GRADING,
DRAINAGE AND
UTILITY PLAN**

DRAWING NUMBER:
C-2A
PROJECT NUMBER:
21049



DIG SAFE



BEFORE YOU DIG
CALL 811

LEGEND	
PROPOSED CONTOUR ELEVATION	38
SPOT ELEVATION	39.50
DRAIN LINE	
DRAIN MANHOLE	
CATCH BASIN	
DRAIN CLEAN OUT	
GAS LINE	G
SEWER LINE	S
TELEPHONE CONDUIT (UNDERGROUND)	T
ELECTRIC CONDUIT (UNDERGROUND)	E

GRADING AND DRAINAGE NOTES:

- SITE GRADING ACTIVITIES SHALL NOT PROCEED UNTIL APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES HAVE BEEN INSTALLED AND APPROVED BY THE OWNER'S REPRESENTATIVE AND/OR ENGINEER.
- THE EXISTING UTILITIES SHOWN HEREON SHALL BE CONSIDERED APPROXIMATE. CONTRACTOR SHALL VERIFY VIA TEST PIT EXCAVATION THE LOCATION AND ELEVATION PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER AND ENGINEER OF DISCREPANCIES ENCOUNTERED IN THE FIELD.
- ALL PROPOSED STORM DRAINAGE PIPES SHALL BE HIGH DENSITY POLYETHYLENE PIPE (HDPE) AND STRUCTURES SHALL BE PRECAST CONCRETE UNLESS NOTED OTHERWISE. HIGH DENSITY POLYETHYLENE PIPE (HDPE) SHALL CONFORM TO AASHTO DESIGNATIONS M24 AND M22, AND SHALL BE N-12 PIPE AS MANUFACTURED BY ADVANCED DRAINAGE SYSTEMS (ADS) OR APPROVED EQUAL. PIPE JOINTS SHALL BE INTEGRAL BELL AND SPIGOT, SOIL TIGHT (ST) WITH FACTORY INSTALLED, O-RING RUBBER GASKETS CONFORMING TO ASTM F477.
- ALL CATCH BASINS AND OTHER DRAINAGE STRUCTURES TO BE INSTALLED SHALL CONFORM TO CURRENT MASSACHUSETTS HIGHWAY DEPARTMENT STANDARDS AS PUBLISHED BY MassDOT. ALL NEW CATCH BASINS SHALL BE EQUIPPED WITH APPROPRIATELY SIZED "TEE" OR HOODS AND A FOUR (4) FOOT SUMP.
- ALL MANHOLES, CATCH BASINS AND PARTICLE SEPARATORS SHALL BE PUMPED "DRY" AND CLEANED AT THE END OF CONSTRUCTION. SEDIMENT AND OTHER POLLUTANTS SHALL BE REMOVED OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL REQUIREMENTS.
- EXISTING PIPES AND/OR CULVERTS THAT ARE TO REMAIN WITHIN THE LIMIT OF WORK AREA SHALL BE CLEANED OF ANY DEBRIS AND/OR SEDIMENTATION. SEDIMENTATION AND OTHER POLLUTANTS SHALL BE REMOVED OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL REQUIREMENTS.
- ALL PROPOSED DRAINAGE STRUCTURES AND PIPES SHALL MEET HEAVY-DUTY TRAFFIC (H20) LOADING AND BE INSTALLED IN ACCORDANCE WITH MassDOT AND/OR DPW SPECIFICATIONS.
- ALL EROSION AND SEDIMENT CONTROLS SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY EARTH MOVING ACTIVITIES.
- THE CONTRACTOR SHALL KEEP ON-SITE, AT ALL TIMES, ADDITIONAL SILTATION FENCING AND FILTER FABRIC FOR INSTALLATION AS DIRECTED BY THE TOWN TO MITIGATE ANY EMERGENCY CONDITIONS.
- THE ENGINEER-OF-RECORD SHALL WITNESS INSTALLATION OF ANY SUB-SURFACE INFILTRATION SYSTEM. IF SUB-SURFACE SOIL CONDITIONS DIFFER FROM THAT SHOWN ON THE PLAN, THE DESIGN SHALL BE MODIFIED AND RESUBMITTED TO THE CITY FOR APPROVAL PRIOR TO CONTINUING INSTALLATION.
- BOTTOM OF BED INSPECTIONS ARE REQUIRED FOR ALL STORMWATER MANAGEMENT INFILTRATION BEST MANAGEMENT PRACTICES (BMPs). BED INSPECTIONS SHALL BE PERFORMED ONCE THE EXCAVATION HAS BEEN PERFORMED AND THE FIT IS AT DESIGN GRADE. NO STONE SHALL BE INSTALLED PRIOR TO BED INSPECTIONS. CONTACT DPW FOR A BED INSPECTION AT LEAST 24 HOURS PRIOR TO ANTICIPATED EXCAVATION.
- PIPE CONNECTION INSPECTIONS ARE REQUIRED FOR ALL PIPE CONNECTIONS TO INFILTRATIVE BMPs. SYSTEMS SHALL NOT BE BACKFILLED UNTIL A PIPE CONNECTION INSPECTION HAS OCCURRED. PLEASE CONTACT DPW AT LEAST 24 HOURS PRIOR TO THE ANTICIPATED PIPE CONNECTION INSPECTION.

UTILITY NOTES:

A. GENERAL NOTES

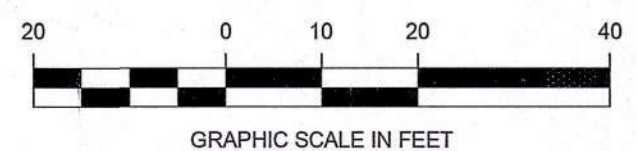
- THE CONTRACTOR IS SPECIFICALLY ADVISED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES ESPECIALLY WHERE NEW UTILITIES CONNECT TO OR CROSS EXISTING, SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DIG SAFE" (1-888-344-7233 OR 811) AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF UTILITIES AND THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR IS HEREBY NOTIFIED THAT SOME PUBLIC AND PRIVATE UTILITY COMPANIES ARE NOT PART OF DIGSAFE AND MAY HAVE ADDITIONAL NOTIFICATION REQUIREMENTS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
- ANY WORK AND MATERIAL TO BE PLACED WITHIN THE CITY RIGHT-OF-WAY, SHALL CONFORM TO THE CITY OF WATERTOWN'S DEPARTMENT OF PUBLIC WORKS REQUIREMENTS. THE CONTRACTOR SHALL OBTAIN A STREET OPENING PERMIT PRIOR TO ANY CONSTRUCTION WITHIN THE TOWN RIGHT-OF-WAY.
- ANY DAMAGE INCURRED WITHIN THE CITY RIGHT-OF-WAY, AS A DIRECT OR INDIRECT RESULT OF CONTRACTOR'S OPERATIONS, SHALL BE REPAIRED BY THE CONTRACTOR AT NO EXPENSE TO THE CITY OF WATERTOWN.
- PRIOR TO THE START OF ANY AUTHORIZED ACTIVITY THE SITE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FROM THE CITY OF WATERTOWN. THE CONTRACTOR SHALL OBTAIN FINAL CERTIFICATIONS AND/OR SIGN OFFS UPON MUNICIPALITY AND/OR UTILITY PROVIDER ACCEPTANCE OF WORK WITH COPIES OF FINAL ACCEPTANCE DOCUMENTATION PROVIDED TO THE OWNER.
- THE SITE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND PAYING FOR ALL PERMITS AND/OR CONNECTION FEES REQUIRED FOR THE INSTALLATION OF ALL SITE UTILITIES.
- ALL UTILITIES, PIPE MATERIALS, STRUCTURES, AND INSTALLATION METHODS, SHALL CONFORM TO THE WATERTOWN DPW/ENGINEERING DEPARTMENT STANDARDS AND REQUIREMENTS. UNLESS OTHERWISE NOTED OR DETAILED.
- UTILITY CONTRACTOR MUST BE LICENSED TO PERFORM WORK IN THE MUNICIPALITY.
- ALL REQUIRED UTILITY CROSSING ENCASEMENTS (CONCRETE) SHALL EXTEND TEN FEET (10') FROM EITHER SIDE OF THE CROSSING.
- EXISTING STRUCTURES, LIGHT POLE BASES, CONDUIT AND FIXTURES TO BE REMOVED ARE TO BE DISPOSED OF OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS.
- EXISTING UTILITY CASTINGS INDICATED TO REMAIN SHALL BE RESET TO FINISHED GRADE AS REQUIRED AND SHOWN ON GRADING AND DRAINAGE PLAN.
- DETECTABLE WARNING TAPE SHALL BE INSTALLED A MINIMUM ONE (1) FOOT ABOVE THE UTILITY IN ACCORDANCE WITH THE APPROPRIATE UTILITY COMPANY'S REQUIREMENTS.
- FLOWABLE FILL REQUIRED AS BACKFILL IN THE PUBLIC WAY.
- UPON COMPLETION OF THE WORK, AS-BUILT DRAWINGS SHALL BE SUBMITTED IN BOTH PAPER AND ELECTRONIC FORMAT. THE DRAWINGS SHALL BE BASED UPON A FIELD SURVEY AND ACTUAL AS-BUILT LOCATIONS, AND SHALL BE STAMPED BY A PROFESSIONAL LAND SURVEYOR REGISTERED IN THE COMMONWEALTH OF MASSACHUSETTS. THE AS-BUILT DRAWING SHALL DEPICT ALL BUILDINGS, PAVED SURFACES, TOPOGRAPHY, AND MAJOR LANDSCAPE FEATURES. WATER, SEWER, AND DRAINAGE FEATURES, AS WELL AS OTHER UNDERGROUND UTILITIES AND STRUCTURES, SHALL BE LOCATED ON THE PLAN, INCLUDING SIZE AND MATERIAL. ALL STORMWATER MANAGEMENT CONTROLS, BOTH STRUCTURAL AND NON-STRUCTURAL, DESIGNED TO MANAGE THE STORMWATER ASSOCIATED WITH THE COMPLETED SITE SHALL ALSO BE INCLUDED.
- USE OF FIRE HYDRANTS FOR DEMOLITION OR CONSTRUCTION IS NOT PERMITTED UNLESS APPROVED BEFOREHAND BY THE DEPARTMENT OF PUBLIC WORKS.

B. SEWER NOTES

- ALL GRAVITY SEWER PIPE SHALL BE POLYVINYL CHLORIDE PIPE (P.V.C.), S.D.R. 35 AND SHALL CONFORM WITH ASTM-D3034 UNLESS NOTED OTHERWISE.
- ALL SEWER MAIN APPURTENANCES, MATERIALS, METHODS OF INSTALLATION AND TESTING REQUIREMENTS SHALL MEET OR EXCEED THE MUNICIPALITY'S SEWER DEPARTMENT'S STANDARDS.
- DETECTABLE WARNING TAPE TO BE INSTALLED A MINIMUM ONE (1) FOOT ABOVE SEWER MAIN AND IN ACCORDANCE WITH THE MUNICIPALITY'S SEWER DEPARTMENT'S REQUIREMENTS.
- ALL NEW SEWER MAINS AND ASSOCIATED MANHOLES SHALL BE TESTED FOR WATER TIGHTNESS IN THE PRESENCE OF THE AUTHORITY HAVING JURISDICTION.

C. GAS NOTES

- CONTRACTOR IS RESPONSIBLE FOR THE LAYOUT, EXCAVATION AND BACKFILLING OF GAS MAIN TRENCH. EXCAVATION AND BACKFILLING REQUIREMENTS SHALL BE PERFORMED IN ACCORDANCE WITH THE GAS COMPANY REQUIREMENTS.
- THE GAS TRENCH SHALL BE LAID OUT SO AS TO PROVIDE A MINIMUM OFFSET OF THIRTY-SIX (36) INCHES FROM OTHER UTILITIES. NO TRENCHING SHALL BE STARTED UNTIL AN ON-SITE MEETING HAS BEEN HELD BETWEEN THE EXCAVATING CONTRACTOR AND NATIONAL GRID PERSONNEL. PRIOR TO THE MEETING, THE EXCAVATING CONTRACTOR MUST NOTIFY DIG SAFE OF THE PROPOSED WORK. THE FOLLOWING SHALL BE CONFIRMED AT THE MEETING:
 - THE EXCAVATING CONTRACTOR MUST PAD THE TRENCH BOTTOM WITH SIX (6) INCHES OF SAND AND MUST PROVIDE SAND SUFFICIENT TO PROVIDE A MINIMUM OF (6) INCHES OF COVER ABOVE THE GAS PIPE.
 - THE ROUTE OF THE TRENCH.
 - MINIMUM FOOTAGE OF THE TRENCH TO BE OPENED BEFORE NATIONAL GRID MOBILIZES CREWS TO START INSTALLING THE GAS PIPE.
 - MINIMUM TWO (2) WEEK NOTICE REQUIRED FOR NATIONAL GRID TO START INSTALLING PIPE.
- ASPHALT PATCHES SHALL HAVE A MINIMUM DEPTH OF 5-INCHES, OR MATCH EXISTING ROAD DEPTH.



RJOC

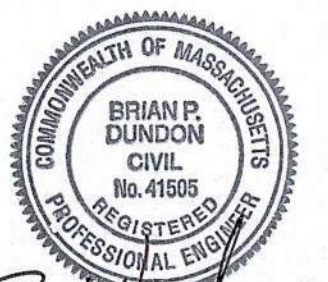
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05/13/2024	NOTICE OF INTENT SUBMISSION	1
05/19/2024	REVISED PER ENGINEERING COMMENTS	2
05/20/2024	ISSUED FOR SITE PLAN REVIEW	3
05/14/2023	REVISED PER DPW COMMENTS	4
05/04/2023	ISSUED FOR SPECIAL PERMITS/SITE PLAN REVIEW	5

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PPF INDUSTRIAL
20 SEYON LLC
c/o SEYON
535 BOYLSTON STREET, 11TH FLOOR
BOSTON, MA 02116
PHONE: 617.982.6592

PROJECT NAME:
10-30 MANLEY WAY
WATERTOWN, MA

SEAL:

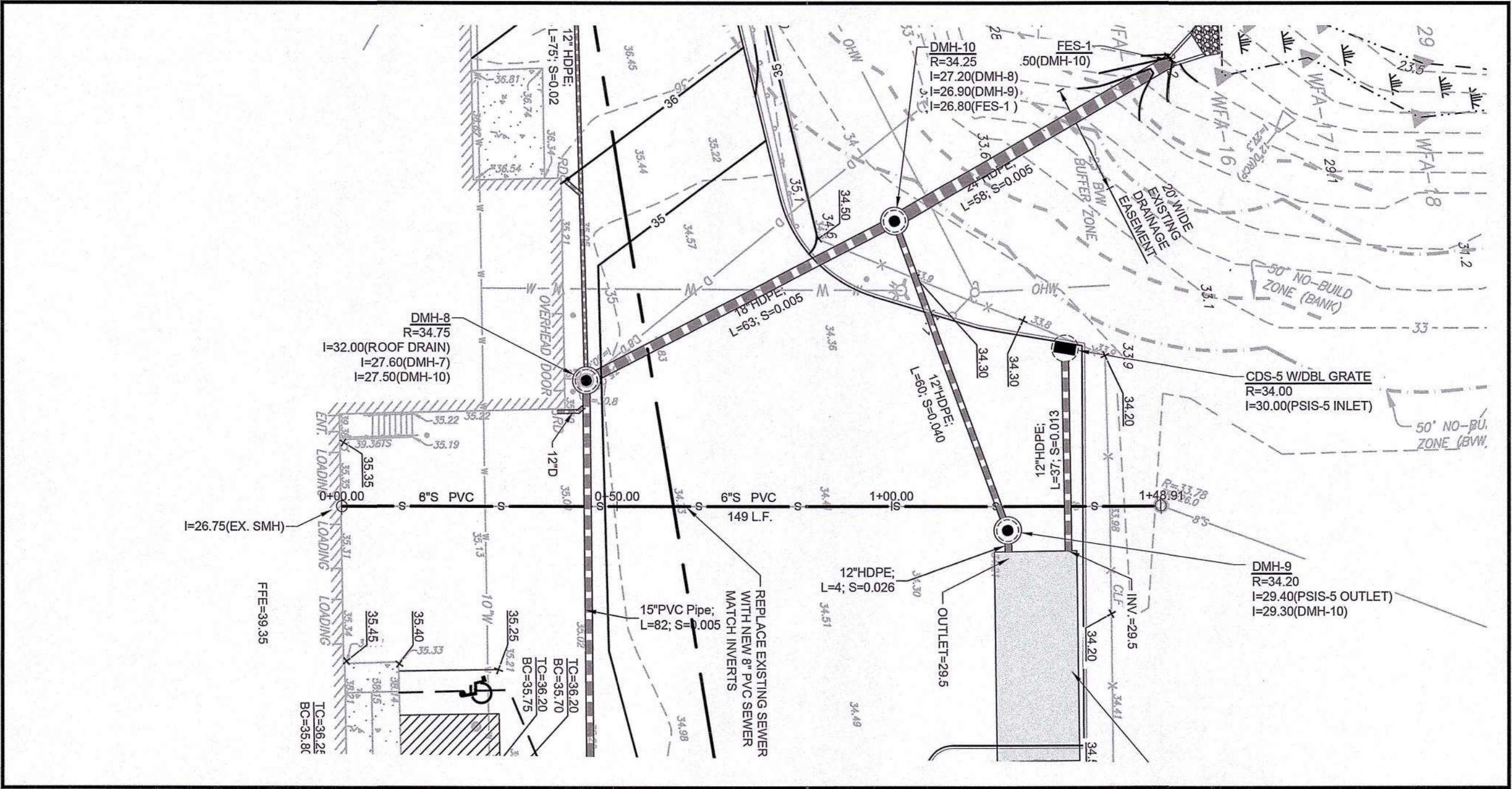
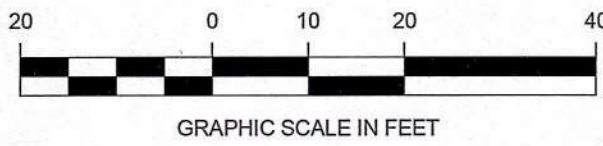


DESIGNED BY: BJM/MAC
DRAWN BY: WJH/MCR
REVIEWED BY: BJM
SCALE: 1" = 20'
DATE: 05/04/2023
DRAWING NAME:

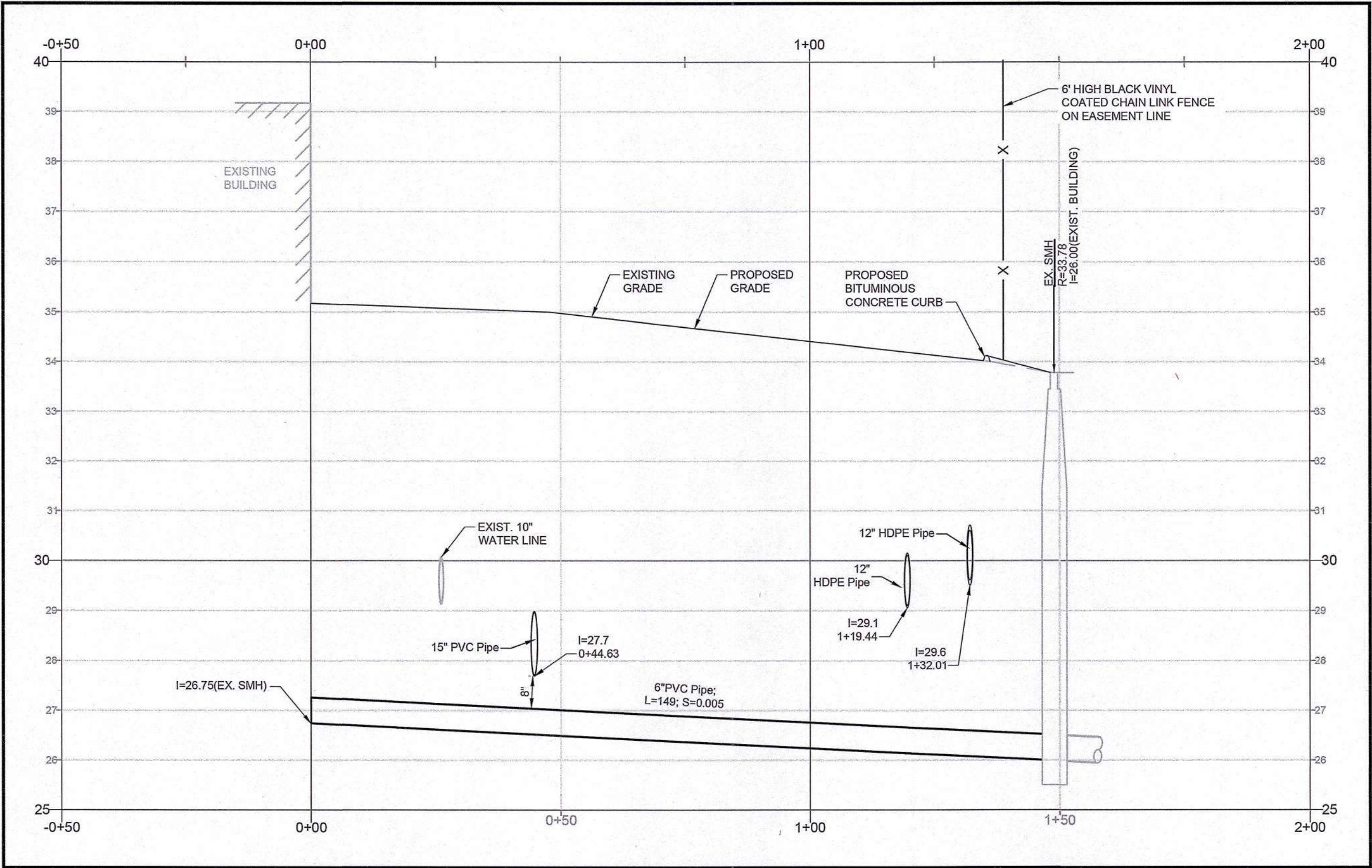
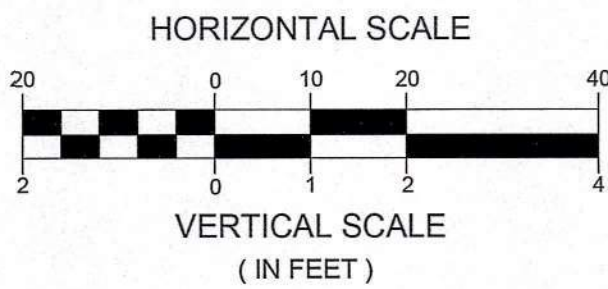
**GRADING,
DRAINAGE AND
UTILITY PLAN**

DRAWING NUMBER:
C-2B
PROJECT NUMBER:
21049

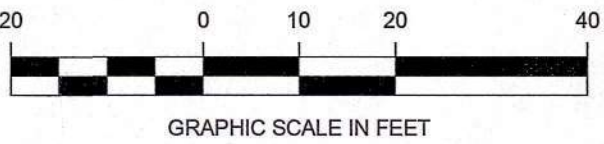
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PLAN
1" = 20'



PROFILE
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'



RJOC

REVISION		DATE
3.	NOTICE OF INTENT SUBMISSION	05/13/2024
2.	REVISED PER ENGINEERING COMMENTS	03/19/2024
1.	ISSUED FOR SITE PLAN REVIEW	06/30/2023
NO.		DATE

PREPARED BY:
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BOSTON, MA 02116
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PROJECT NAME:
10-30 MANLEY WAY
WATERTOWN, MA

SEAL:

5-13-2024
DESIGNED BY: BJM/MAC
DRAWN BY: MCR
REVIEWED BY: BJM
SCALE: AS NOTED
DATE: 06/30/2023
DRAWING NAME:

SEWER PROFILE

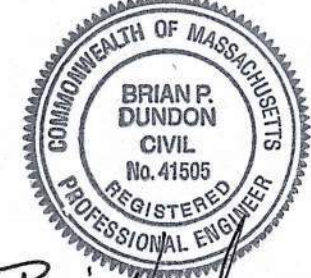
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C-2C
PROJECT NUMBER:
21049

REVISION		DATE
NO.		
1.	ISSUED FOR SPECIAL PERMIT/SITE PLAN REVIEW	05/04/2023
2.	REVISED PER DFV COMMENTS	06/14/2023
3.	ISSUED FOR SITE PLAN REVIEW	06/30/2023
4.	REVISED PER ENGINEERING COMMENTS	03/19/2024
5.	REVISED PER CITY COMMENTS	04/23/2024
6.	NOTICE OF INTENT SUBMISSION	05/13/2024

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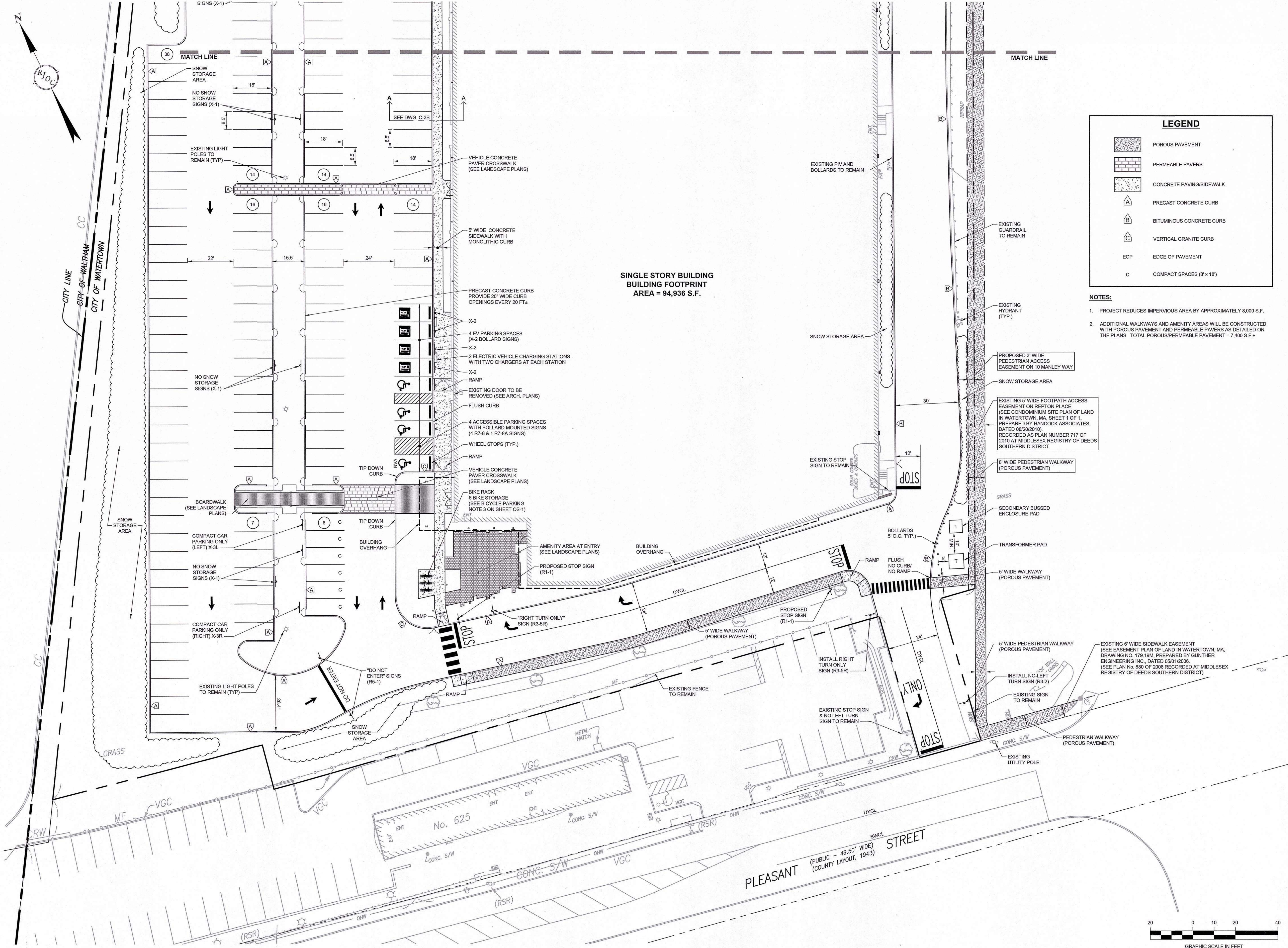
PREPARED FOR:
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PROJECT NAME:
10-30 MANLEY WAY
WATERTOWN, MA

SEAL:

DESIGNED BY: BJM/MAC
DRAWN BY: MCR
REVIEWED BY: BJM
SCALE: 1" = 20'
DATE: 05/04/2023
DRAWING NAME:

PARKING AND TRAFFIC CONTROL PLAN

DRAWING NUMBER:
C-3A
PROJECT NUMBER:
21049



NO.	DATE	REVISION
6.	06/13/2024	NOTICE OF INTENT SUBMISSION
5.	04/23/2024	REVISED PER CITY COMMENTS
4.	03/19/2024	REVISED PER ENGINEERING COMMENTS
3.	06/30/2023	ISSUED FOR SITE PLAN REVIEW
2.	06/14/2023	REVISED PER DPW COMMENTS
1.	06/04/2023	ISSUED FOR SPECIAL PERMIT/SITE PLAN REVIEW

PREPARED BY:
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 PHONE: 617.982.6592

PROJECT NAME:
10-30 MANLEY WAY
 WATERTOWN, MA

SEAL:

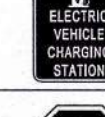
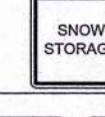
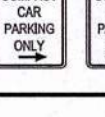
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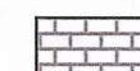
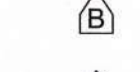
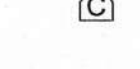
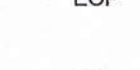
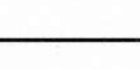
PARKING AND TRAFFIC CONTROL PLAN

DRAWING NUMBER:
C-3B

PROJECT NUMBER:
 21049

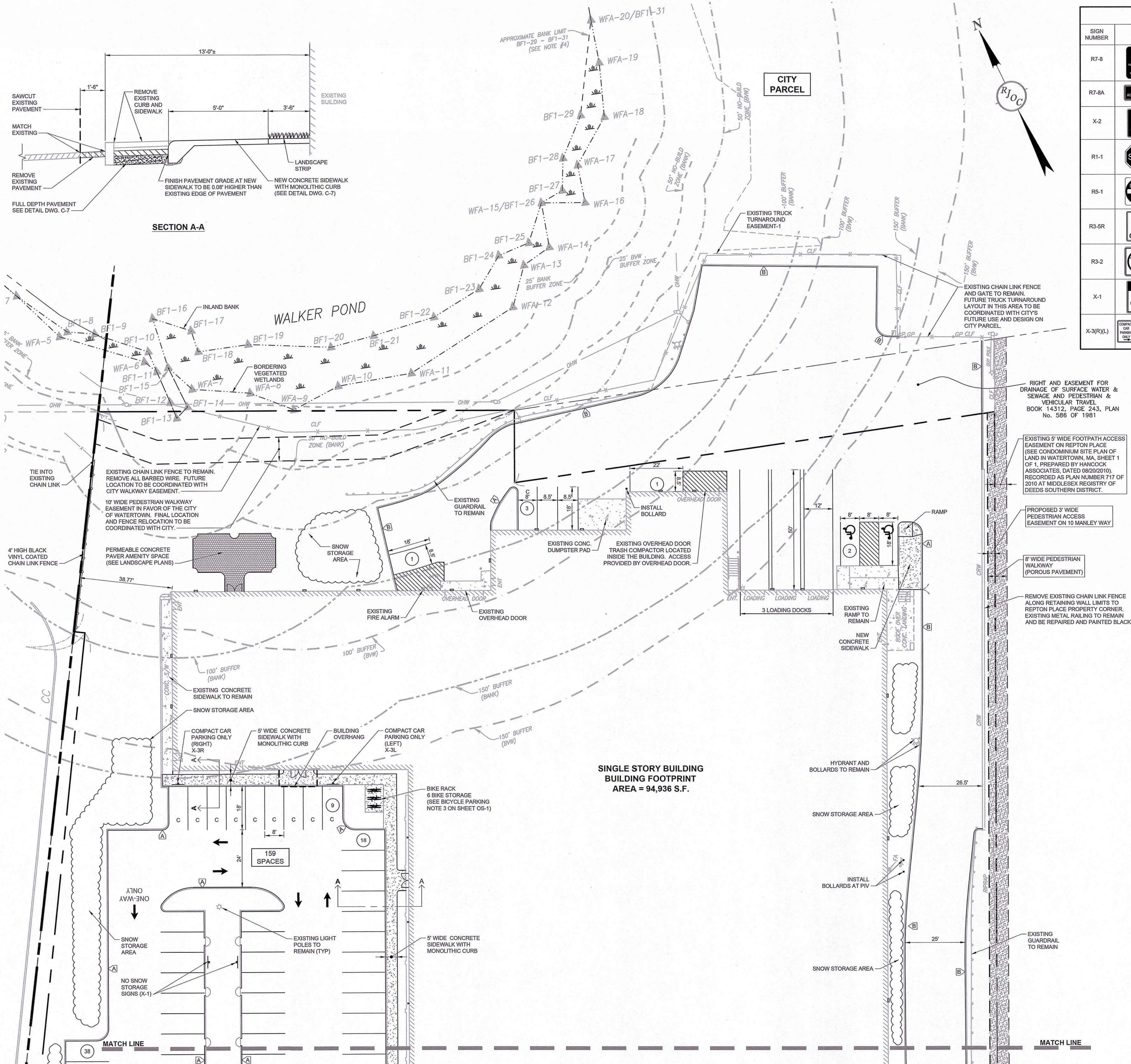
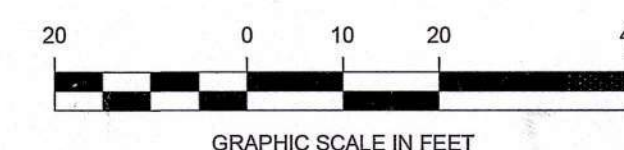
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TRAFFIC CONTROL SIGN SCHEDULE								
SIGN NUMBER	SIGN	SIZE OF SIGN		BACKGROUND	LEGEND	BORDER	MOUNT TYPE	MOUNT SIZE
		WIDTH	HEIGHT					
R7-8		12"	18"	BLUE	WHITE	-	CHANNEL	7'-0"
R7-8A		12"	6"	BLUE	WHITE	-	CHANNEL	6'-6"
X-2		18"	24"	BLUE	WHITE	WHITE	CHANNEL	7'-0"
R1-1		30"	30"	RED	WHITE	WHITE	CHANNEL	7'-0"
R5-1		30"	30"	RED & WHITE	WHITE	WHITE	CHANNEL	7'-0"
R3-5R		30"	36"	WHITE	BLACK	BLACK	CHANNEL	7'-0"
R3-2		24"	24"	WHITE	BLACK & RED	BLACK	CHANNEL	7'-0"
X-1		18"	24"	WHITE	RED	-	CHANNEL	7'-0"
X-3(R)(L)		12"	18"	WHITE	GREEN	-	CHANNEL	7'-0"

LEGEND	
	POROUS PAVEMENT
	PERMEABLE PAVERS
	CONCRETE PAVING/SIDEWALK
	PRECAST CONCRETE CURB
	BITUMINOUS CONCRETE CURB
	VERTICAL GRANITE CURB
	EDGE OF PAVEMENT
	COMPACT SPACES (8' x 18')

PARKING AND TRAFFIC CONTROL NOTES:

- PER SECTION 6.01(d) WHERE THE COMPUTATIONS OF REQUIRED SPACES RESULTS IN A FRACTIONAL NUMBER, A FRACTION OF ONE-HALF OR MORE SHALL BE COUNTED AS ONE.
- PER SECTION 6.01 (g) REQUIRED OFF-STREET PARKING SHALL BE PROVIDED ON THE SAME LOT THEY SERVE, EXCEPT THAT A SPECIAL PERMIT MAY BE GRANTED TO PROVIDE OFF-STREET PARKING ON ANOTHER LOT.
- PARKING SHALL BE SETBACK A MINIMUM OF 5' FROM BUILDINGS AND ALL LOT LINES.
- PARKING SPACE SIZE REQUIRED = 8.5' x 18' (ANGLED) 8.5' x 22' (PARALLEL)
- 10% OF PARKING SPACES CAN BE COMPACT AT 8' x 18'
- 5% OF INTERIOR OF PARKING AREA SHALL BE LANDSCAPED.
- ACCESSIBLE PARKING SPACES SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT (A.D.A.) ACCESSIBILITY GUIDELINES AND THE MASSACHUSETTS ARCHITECTURAL ACCESS BOARD REGULATION, 521 CMR, LATEST EDITIONS UNLESS OTHERWISE NOTED.
- VAN ACCESSIBLE HANDICAP PARKING SPACES SHALL BE SIGNED AS "VAN ACCESSIBLE" PER A.D.A. (SEE 4.1.2.5B).
- ALL PROPOSED CONCRETE CURBING SHALL BE PRECAST CONCRETE UNLESS OTHERWISE NOTED.
- BITUMINOUS CONCRETE CURB SHALL BE INSTALLED WHERE NOTED.
- ALL PAVEMENT STRIPING SHALL BE PAINTED WITH 2 COATS OF PAINT. PARKING STALLS SHALL BE MARKED WITH FOUR (4") INCH WIDE PAINTED LINES.
- PARKING AND TRAFFIC CONTROL PLAN IS SCHEMATIC AND FOR LOCATION OF MARKINGS ONLY. SPECIFIC DETAILS OF PAVEMENT MARKINGS ARE PROVIDED AS PART OF THIS PLAN SET.
- THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL/BUILDING PLANS FOR EXACT BUILDING LOCATIONS, BUILDING DIMENSIONS, EXACT UTILITY ENTRANCE LOCATIONS, TRUCK DOCKS, BUILDING SIDEWALKS AND DOOR LOCATIONS.
- FOR PAVEMENT SECTION SEE DETAIL SHEET C-7.
- THE CONTRACTOR SHALL ADJUST ALL UTILITY CASINGS TO THE PROPER LINE AND ELEVATION PRIOR TO THE PLACEMENT OF THE TOP COURSE OF PAVEMENT. NECESSARY ADJUSTMENTS SHALL BE MADE TO CASTINGS IF REQUIRED, TO MAKE THEM FLUSH WITH FINISHED GRADE. NO DEPRESSIONS OR MOUNDS TO ACCOMMODATE CASTINGS WILL BE PERMITTED.
- ALL WORK SHALL COMPLY WITH ADA AND MAAB REQUIREMENTS.
- ALL ACCESSIBLE CURB RAMPS SHALL BE CONSTRUCTED OF CEMENT CONCRETE.
- CONCRETE MIX SHALL BE: 4,000 PSI CONCRETE, 3/4-INCH STONE, 2 1/2-LBS LAMPBLACK PER CUBIC YARD.



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20 SEYON LLC
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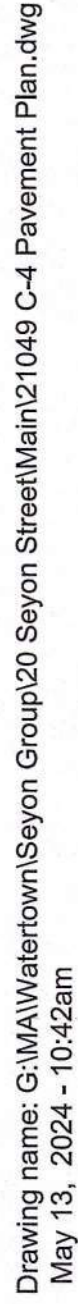
Brian Dundon 5-13-2024

DESIGNED BY: BJM/MAC
 DRAWN BY: MCR
 REVIEWED BY: BJM
 SCALE: 1" = 40'
 DATE: 05/04/2023
 DRAWING NAME:

DRAWING NUMBER: **C-4**

PROJECT NUMBER: 21049

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NO.	REVISION	DATE
4.	NOTICE OF INVENT SUBMISSION	05/13/2024
3.	REVISED PER ENGINEERING COMMENTS	05/13/2024
2.	ISSUED FOR SITE PLAN REVIEW	06/03/2023
1.	ISSUED FOR SPECIAL PERMIT/SITE PLAN REVIEW	05/04/2023

PREPARED BY:
RJO'CONNELL & ASSOCIATES, INC.
 CIVIL ENGINEERS, SURVEYORS & LAND PLANNERS
 80 MONTVALE AVENUE, SUITE 201 STONEHAM, MA 02180
 PHONE: 781.278.0180 RJOC@CONNELL.COM

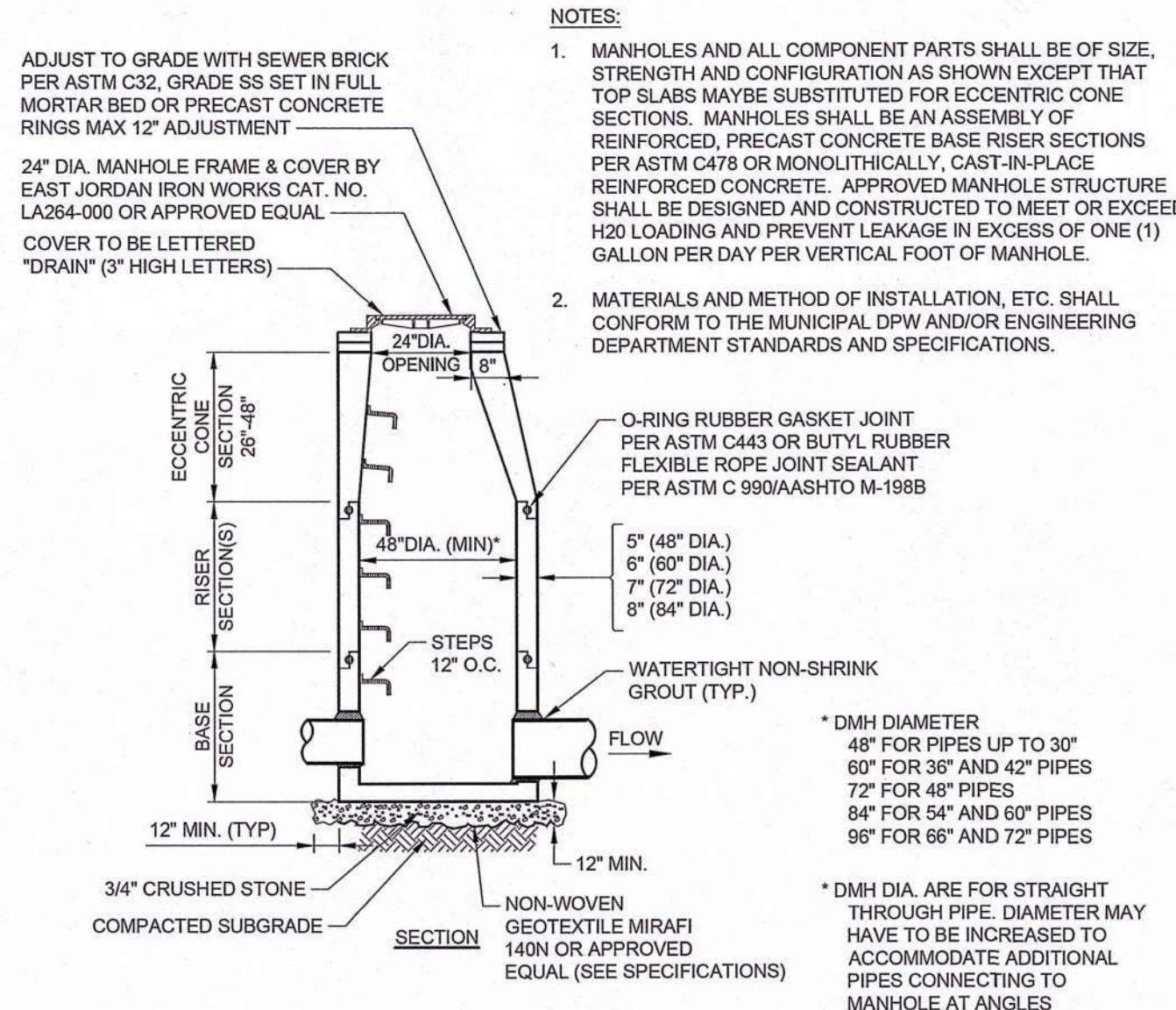
PREPARED FOR:
PPF INDUSTRIAL
20 SEYON LLC
 c/o SEYON
 535 BOYLSTON STREET, 11TH FLOOR
 BOSTON, MA 02116
 PHONE: 617.982.6592

PROJECT NAME:
10-30 MANLEY WAY
 WATERTOWN, MA

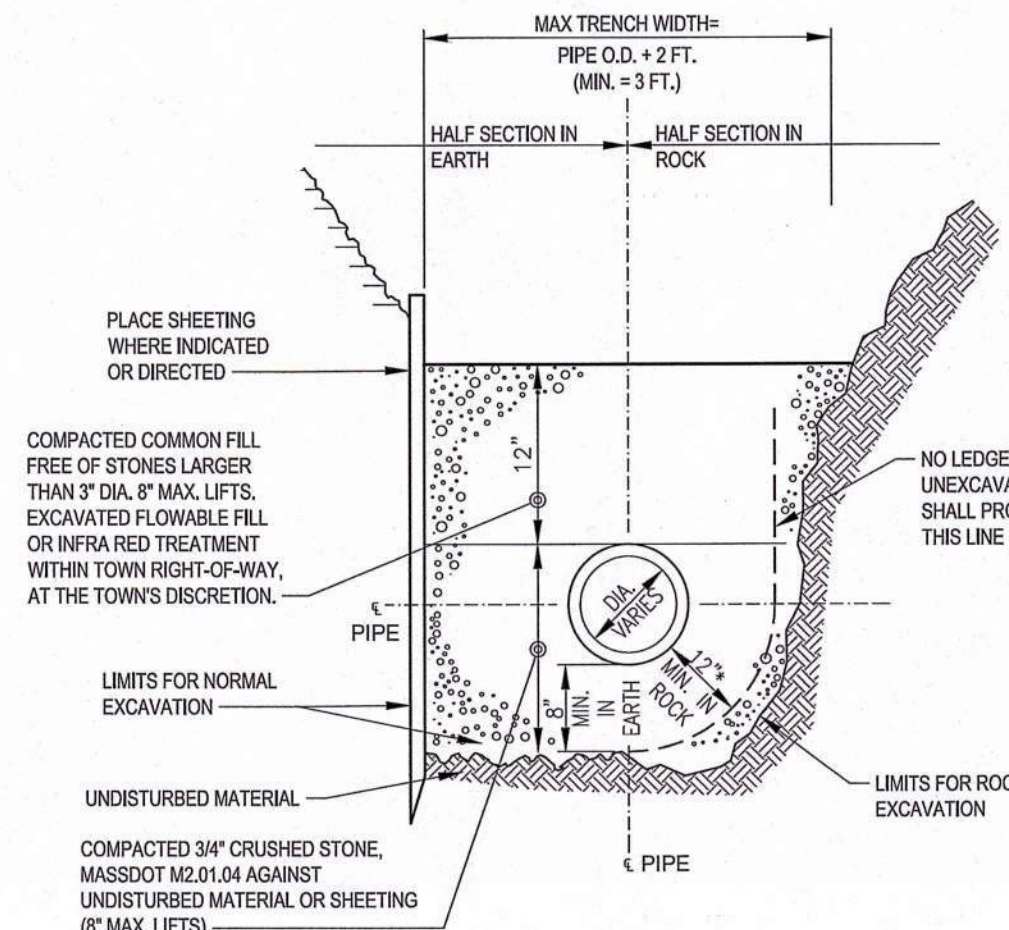
DESIGNED BY: BJM
 DRAWN BY: MCR
 REVIEWED BY: BJM
 SCALE: N.T.S.
 DATE: 05/04/2023
 DRAWING NAME:

DETAILS I

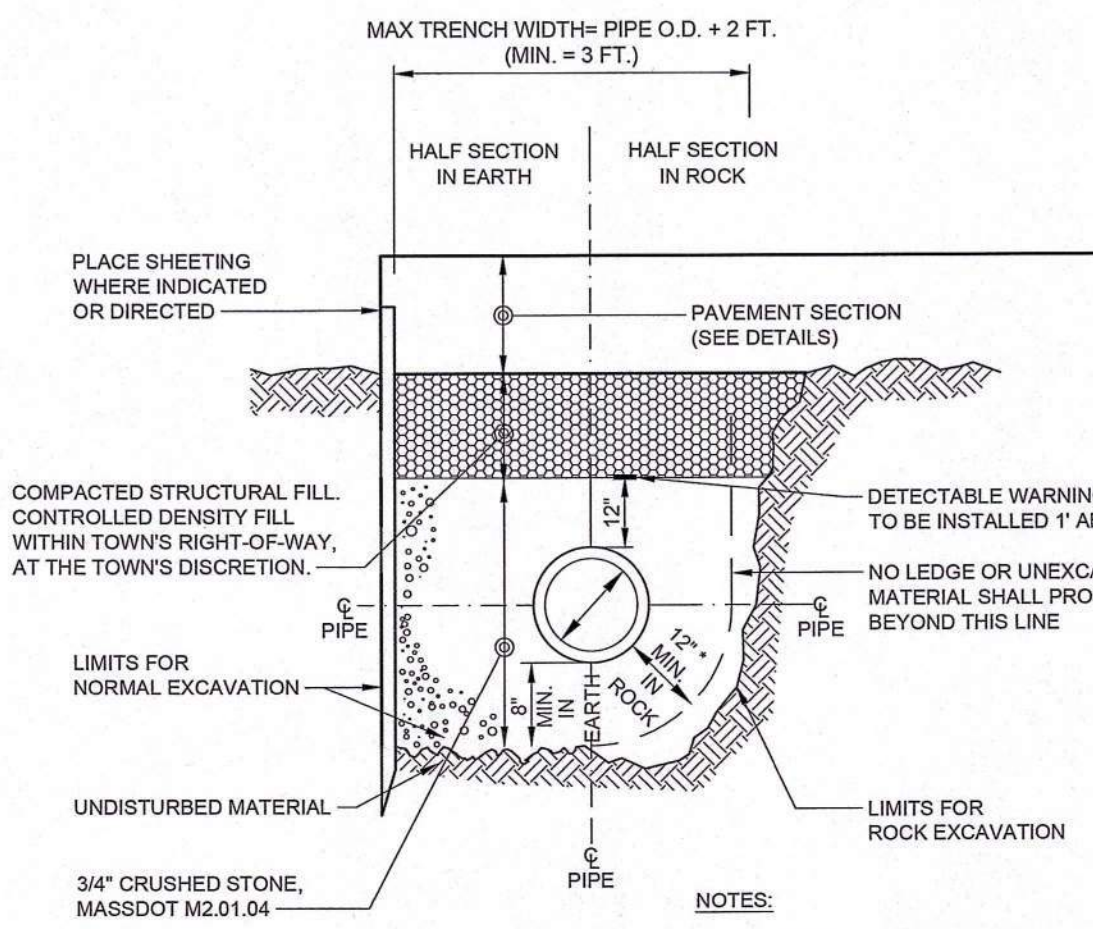
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C-5
 PROJECT NUMBER:
 21049



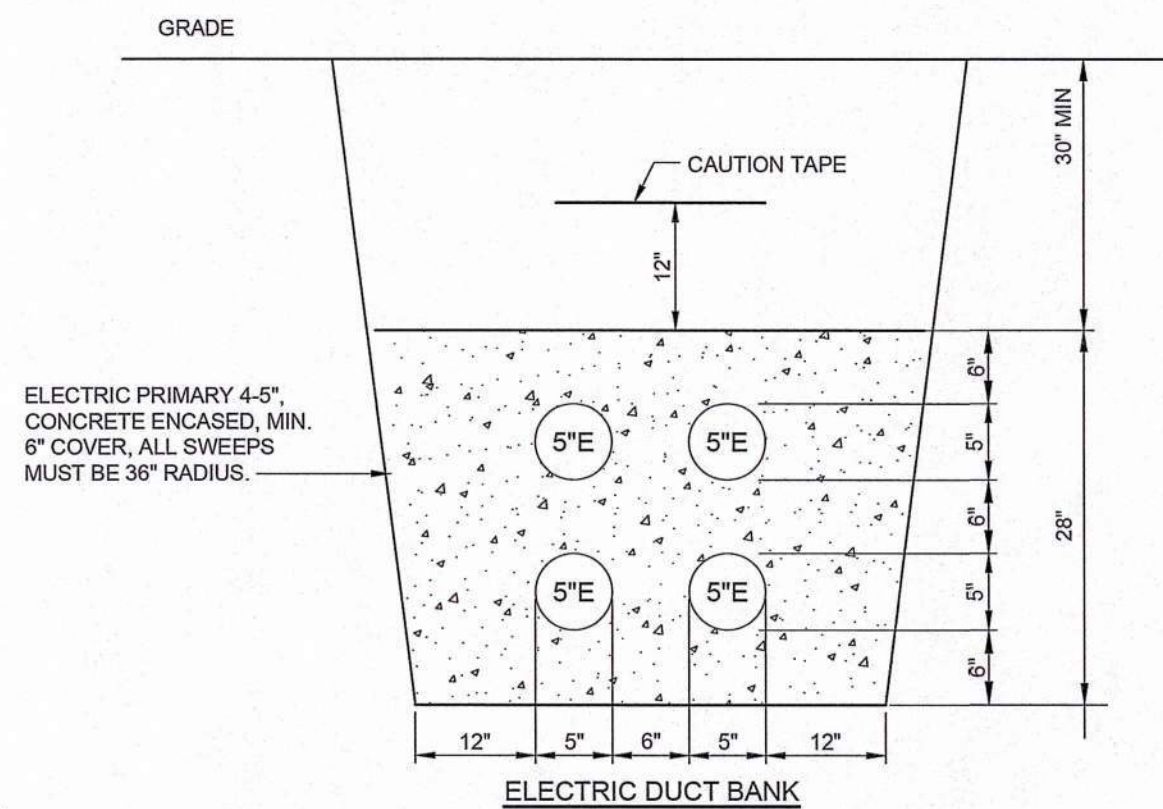
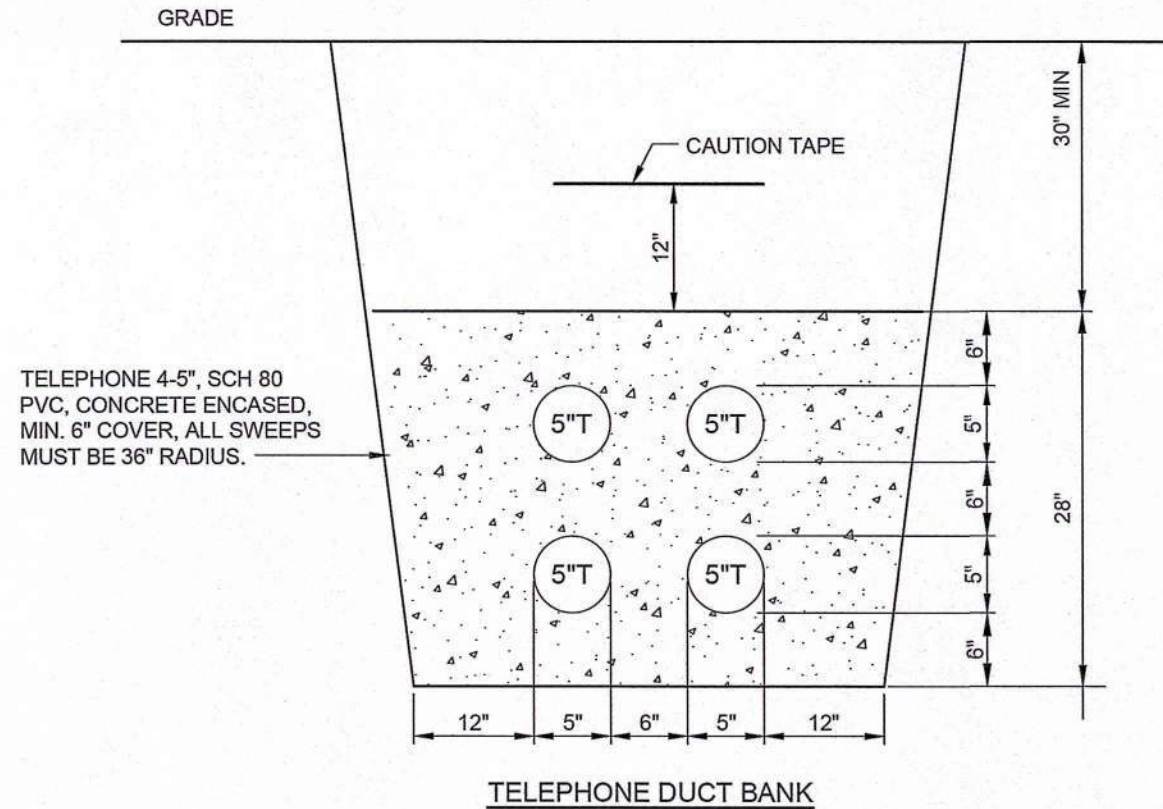
PRECAST CONCRETE DRAIN MANHOLE (DMH)
 SCALE: N.T.S.



TYPICAL DRAIN TRENCH DETAIL
 SCALE: N.T.S.

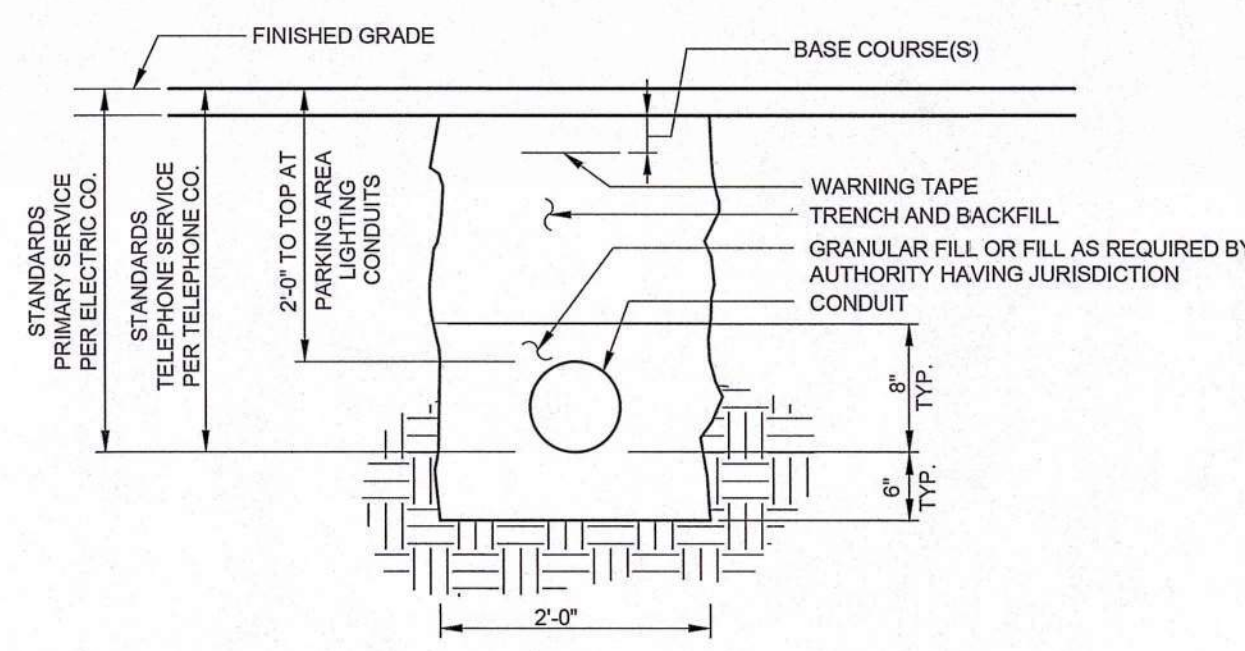


TYPICAL SEWER TRENCH DETAIL
 SCALE: N.T.S.

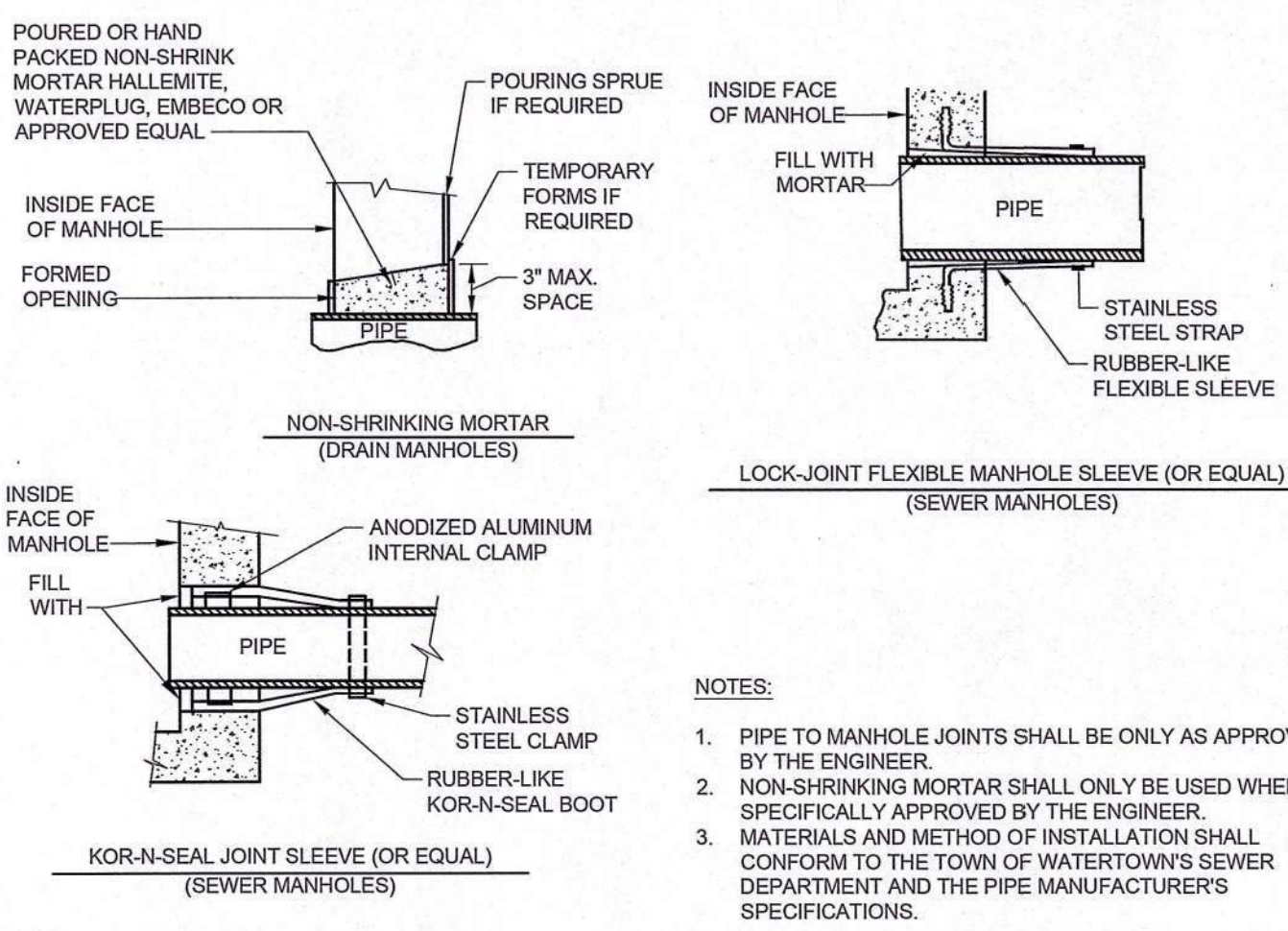


- NOTES:**
- PULLING STRINGS MUST BE INSTALLED IN ALL DUCTS.
 - PRIMARY ELECTRIC AND TELEPHONE CONDUITS MUST HAVE A MINIMUM OF 30 INCHES OF COVER.
 - ALL CONDUITS TO BE SCHEDULE 80 PVC.
 - ELECTRIC AND TELEPHONE CONDUITS TO BE ENCASED IN CONCRETE.
 - REFER TO DRAWING C-3, UTILITY PLAN FOR LOCATION OF UTILITY TRENCHES.

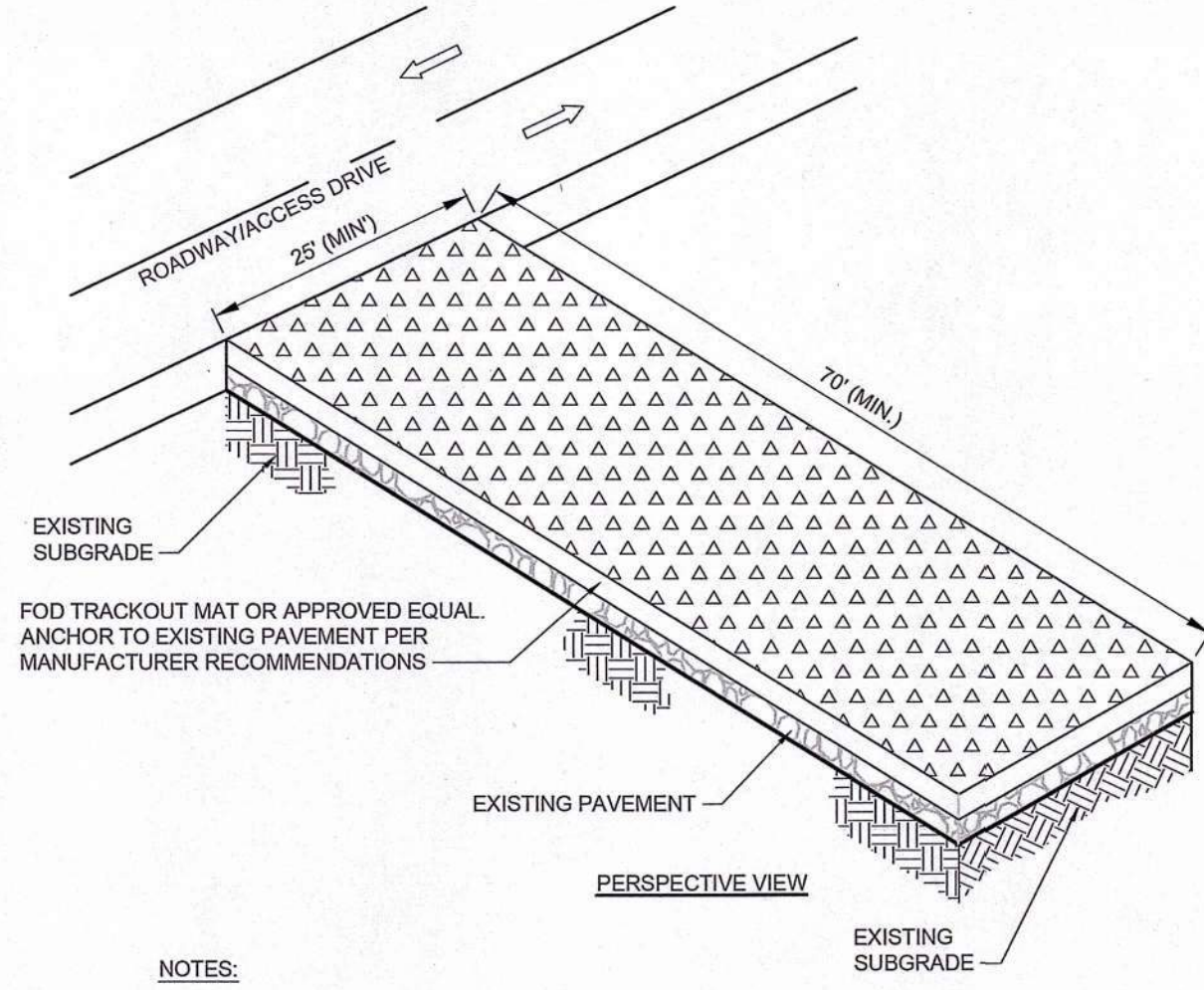
ELECTRIC AND TELEPHONE DUCT BANK TRENCH DETAIL
 SCALE: N.T.S.



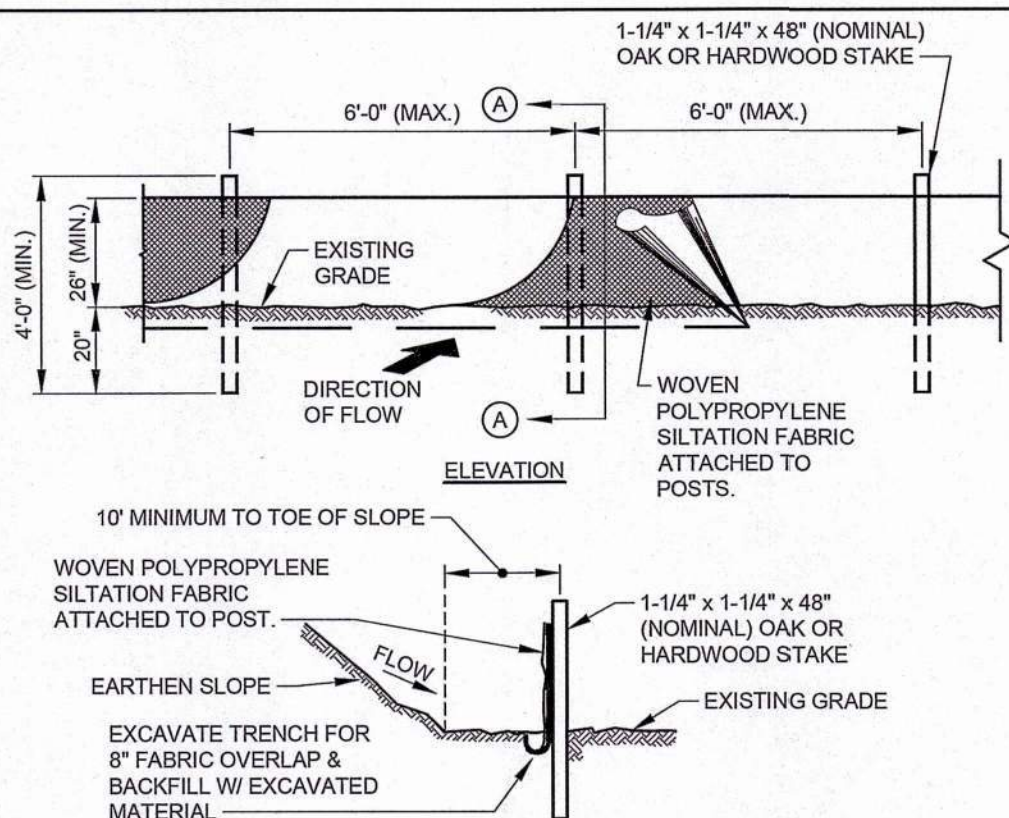
TYPICAL CONDUIT BEDDING DETAIL
 SCALE: N.T.S.



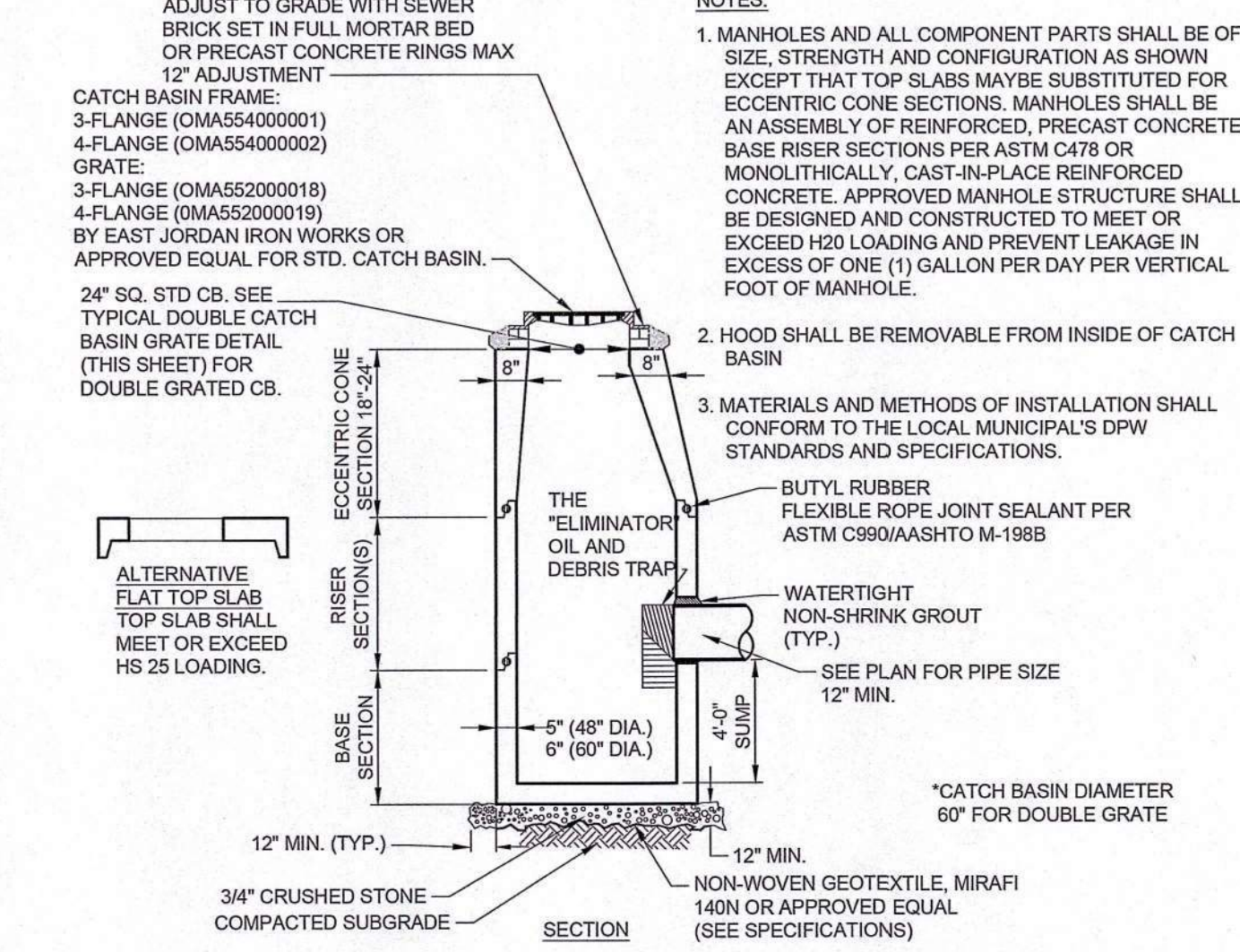
PIPE CONNECTIONS TO MANHOLE DETAIL
 SCALE: N.T.S.



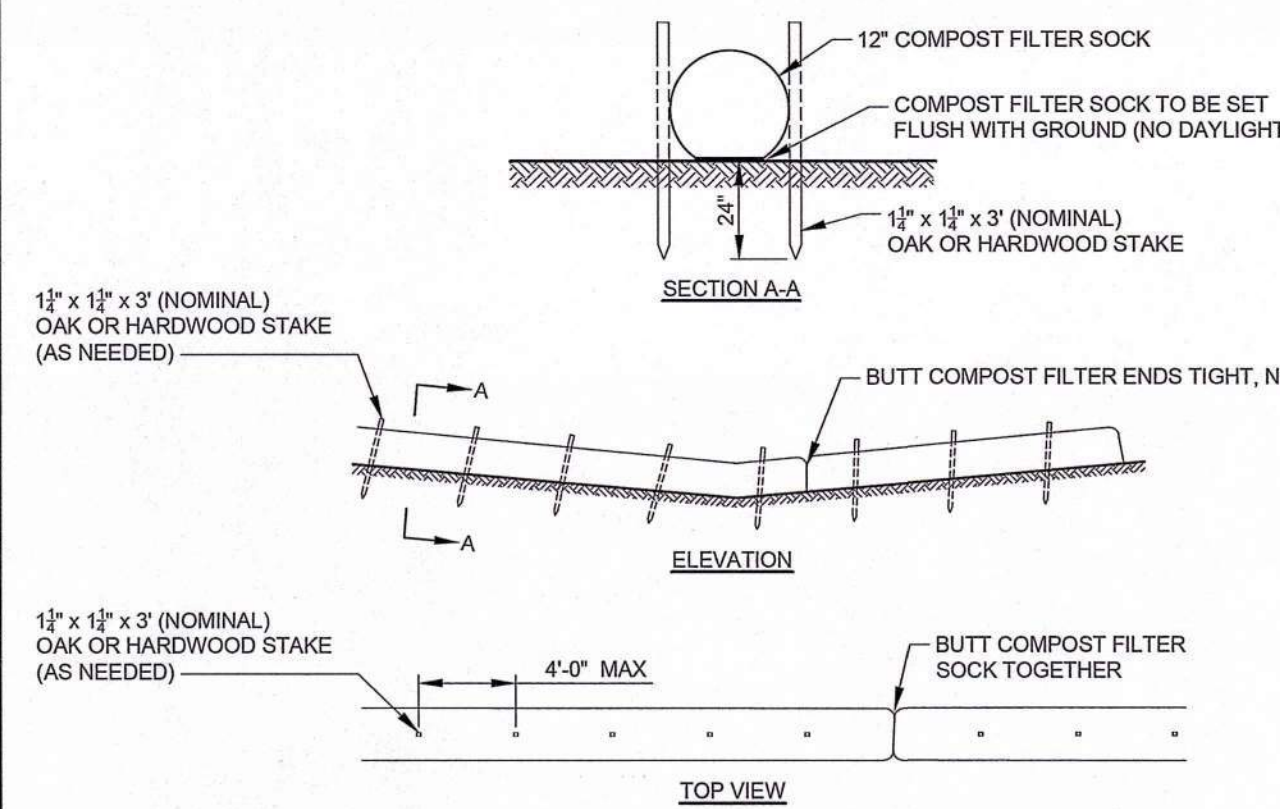
CONSTRUCTION ENTRANCE
 SCALE: N.T.S.



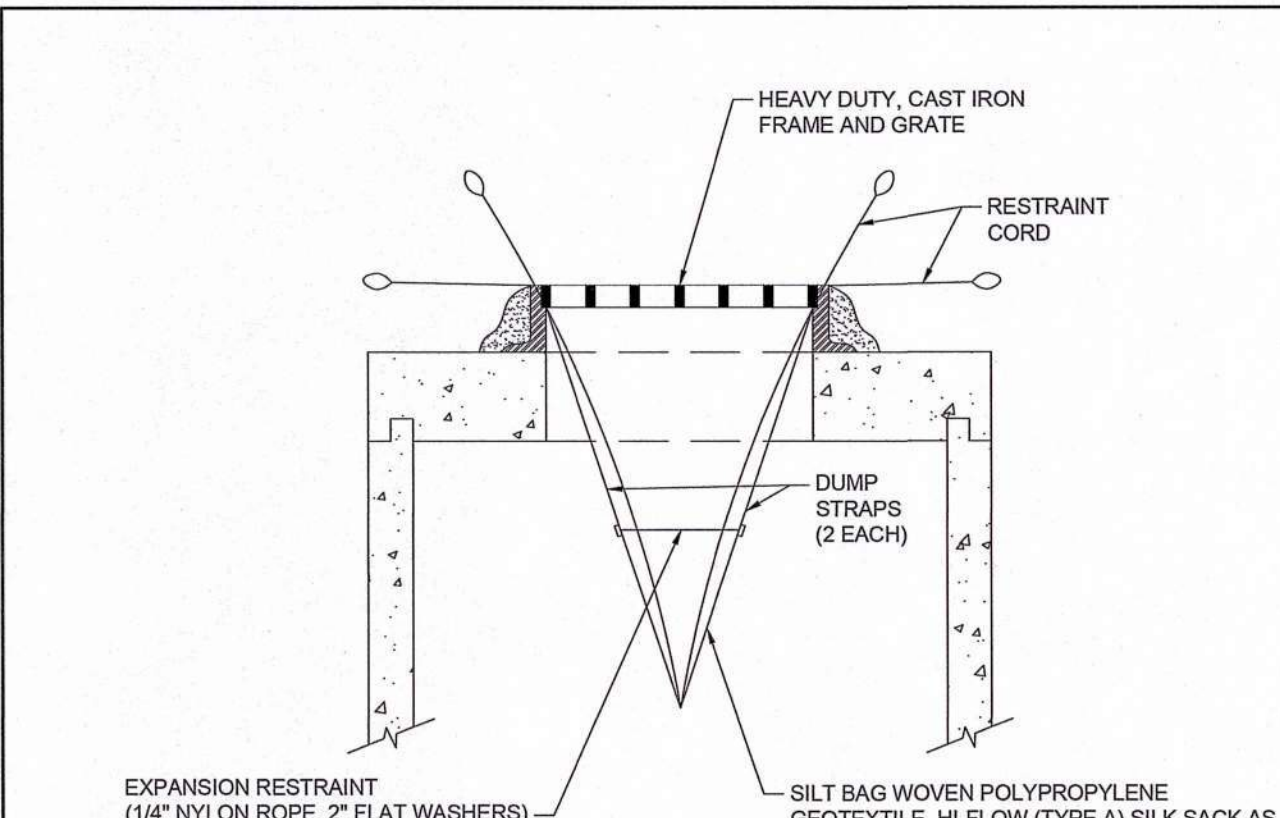
TYPICAL SILTATION FENCE DETAIL
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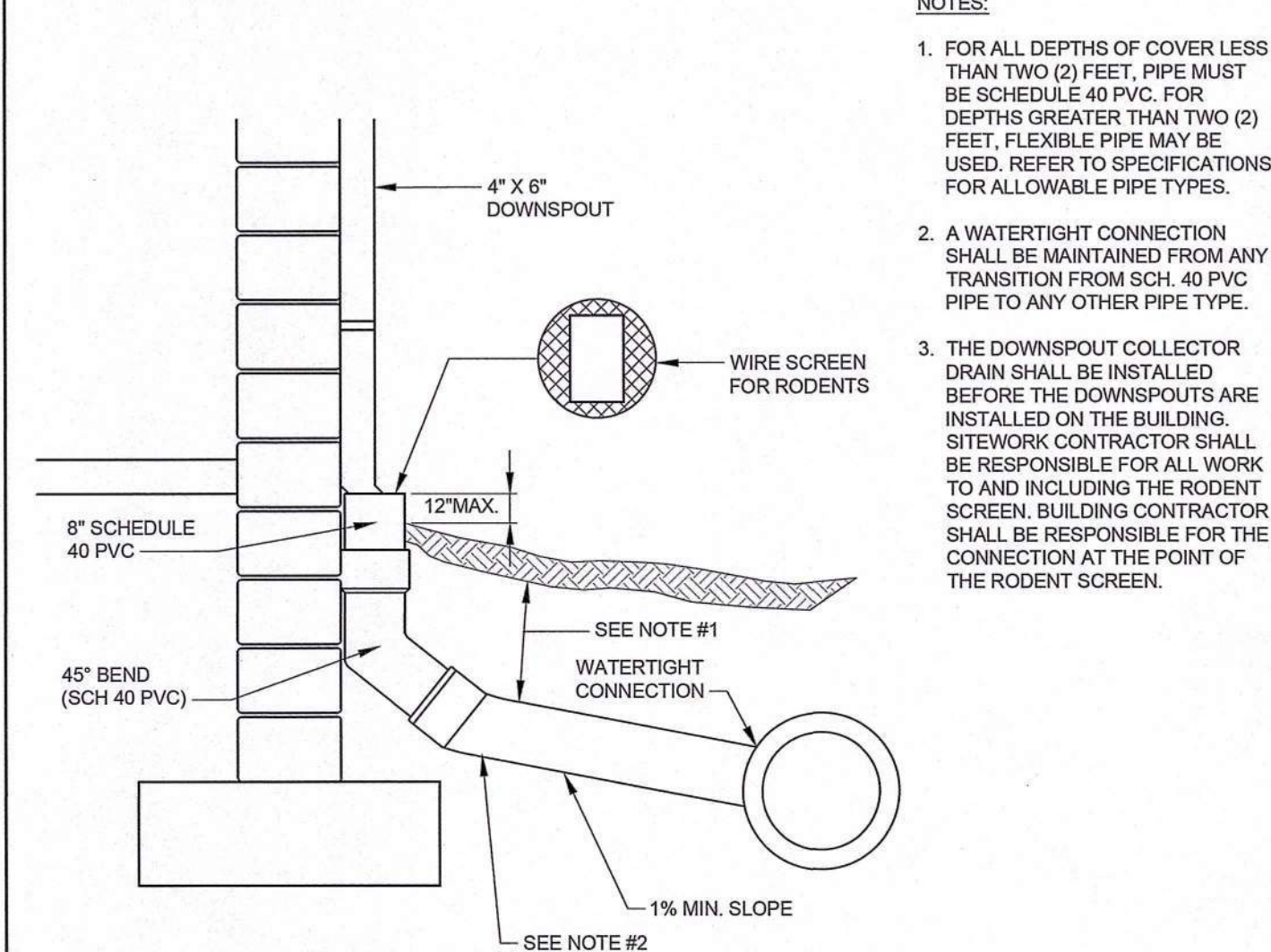
TYPICAL PRECAST CONCRETE CATCH BASIN WITH DEEP SUMP AND HOOD
 SCALE: N.T.S.



TYPICAL SINGLE ROW COMPOST FILTER SOCK DETAIL
 SCALE: N.T.S.

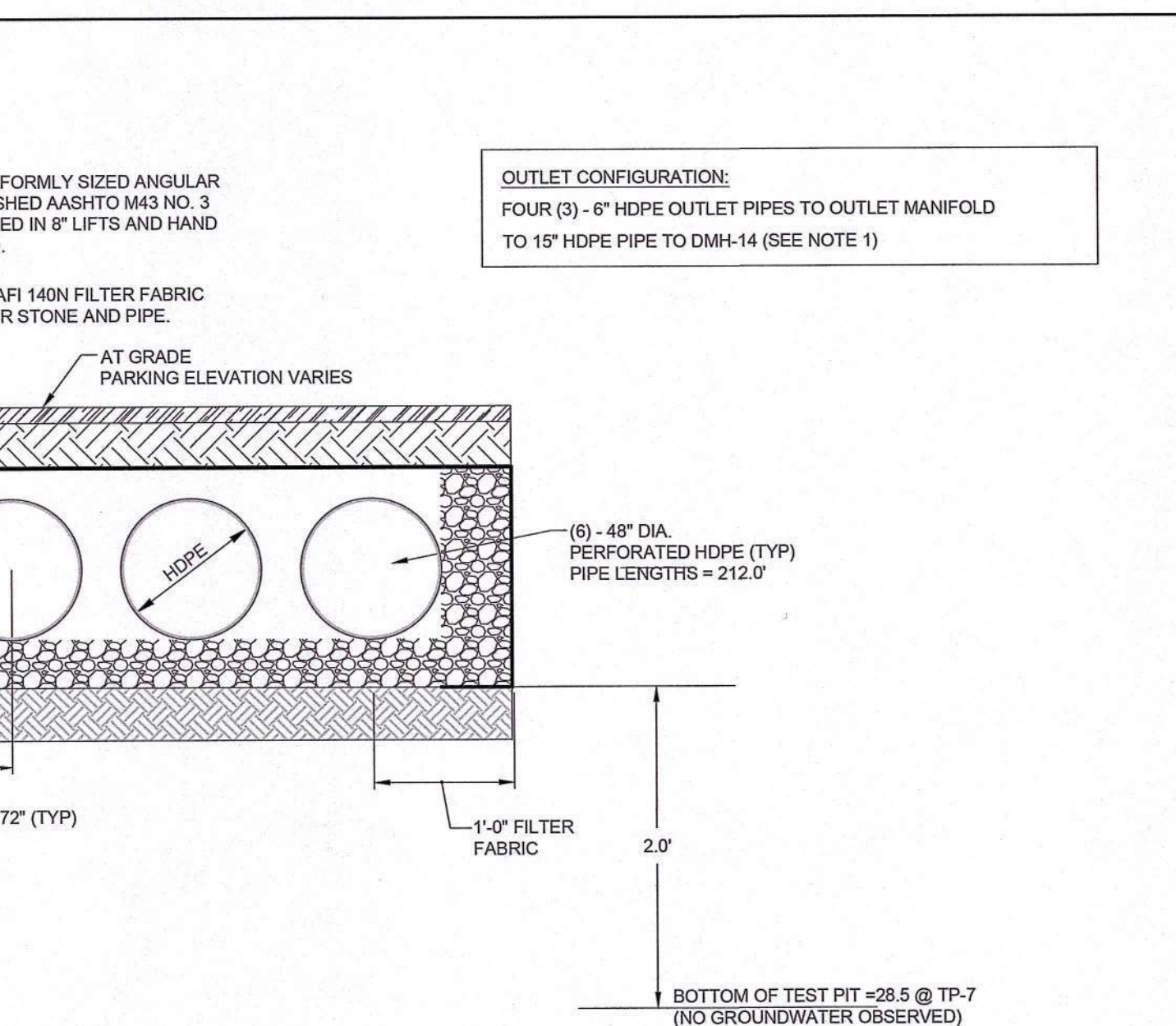


TYPICAL FILTER BAG DETAIL
 SCALE: N.T.S.



TYPICAL DOWNSPOUT COLLECTOR DETAIL
 SCALE: N.T.S.

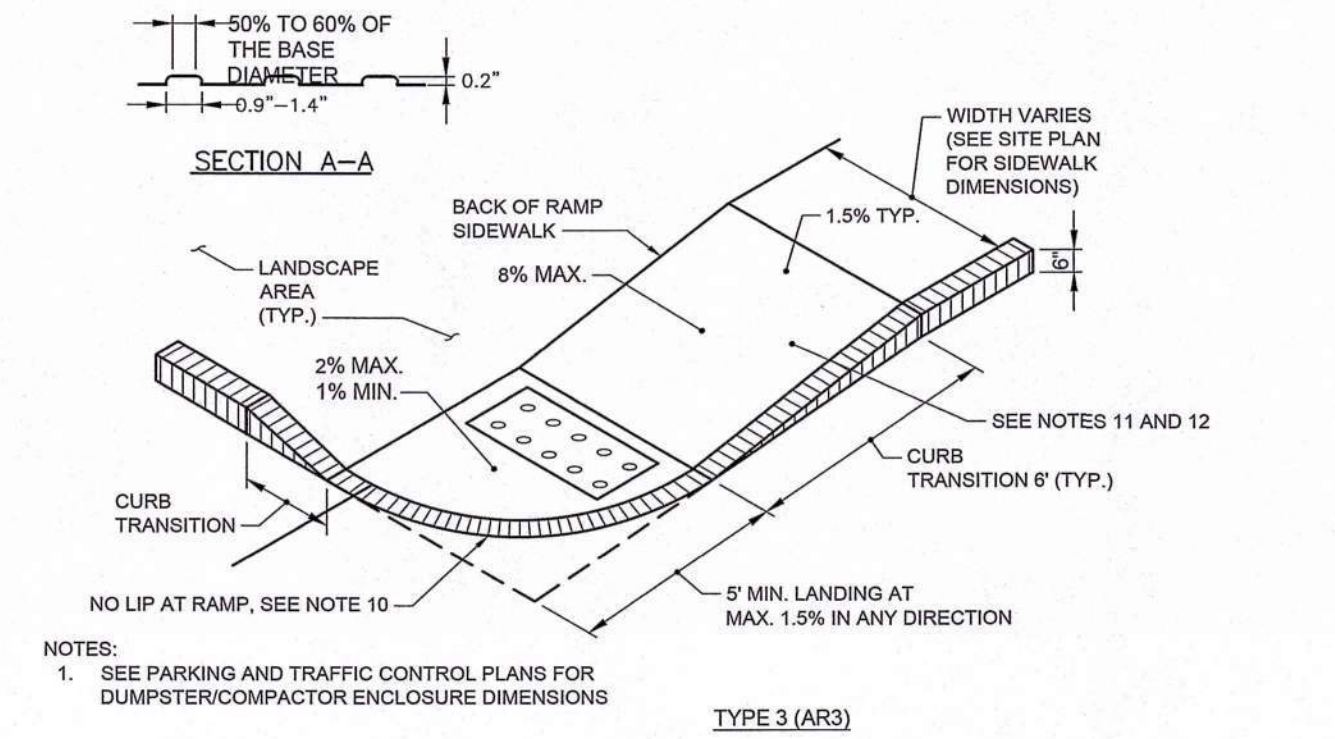
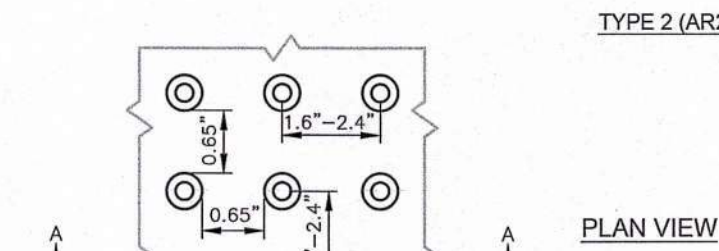
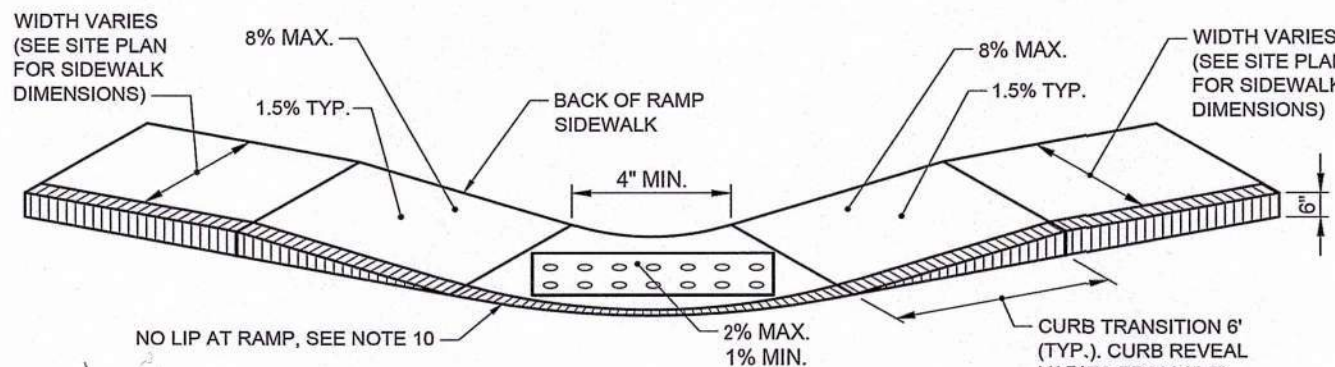
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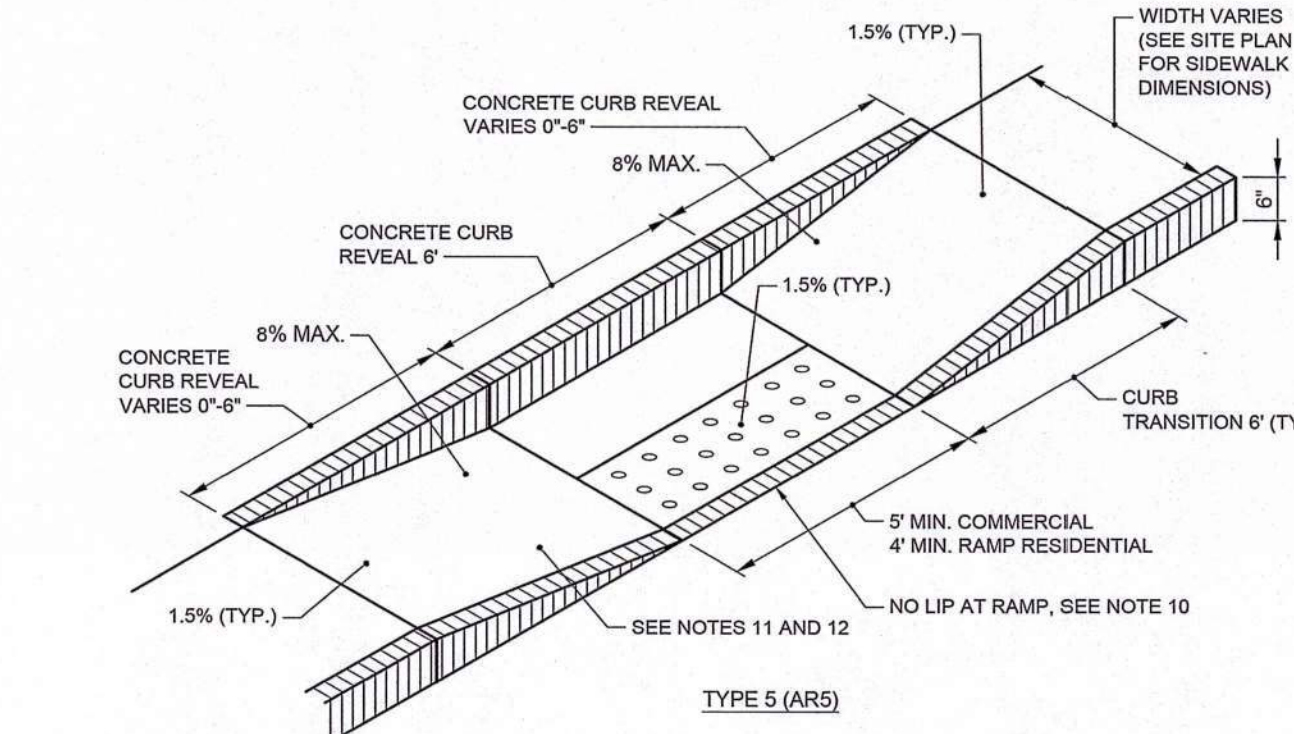
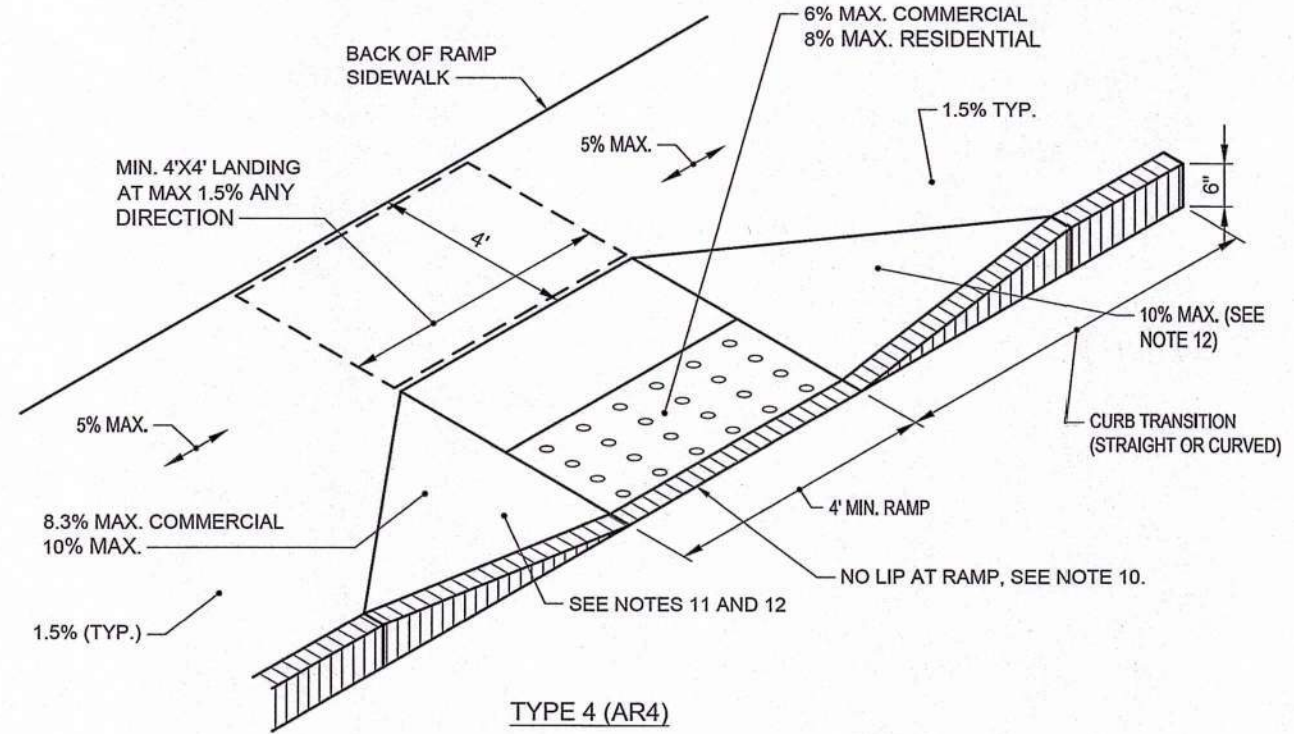
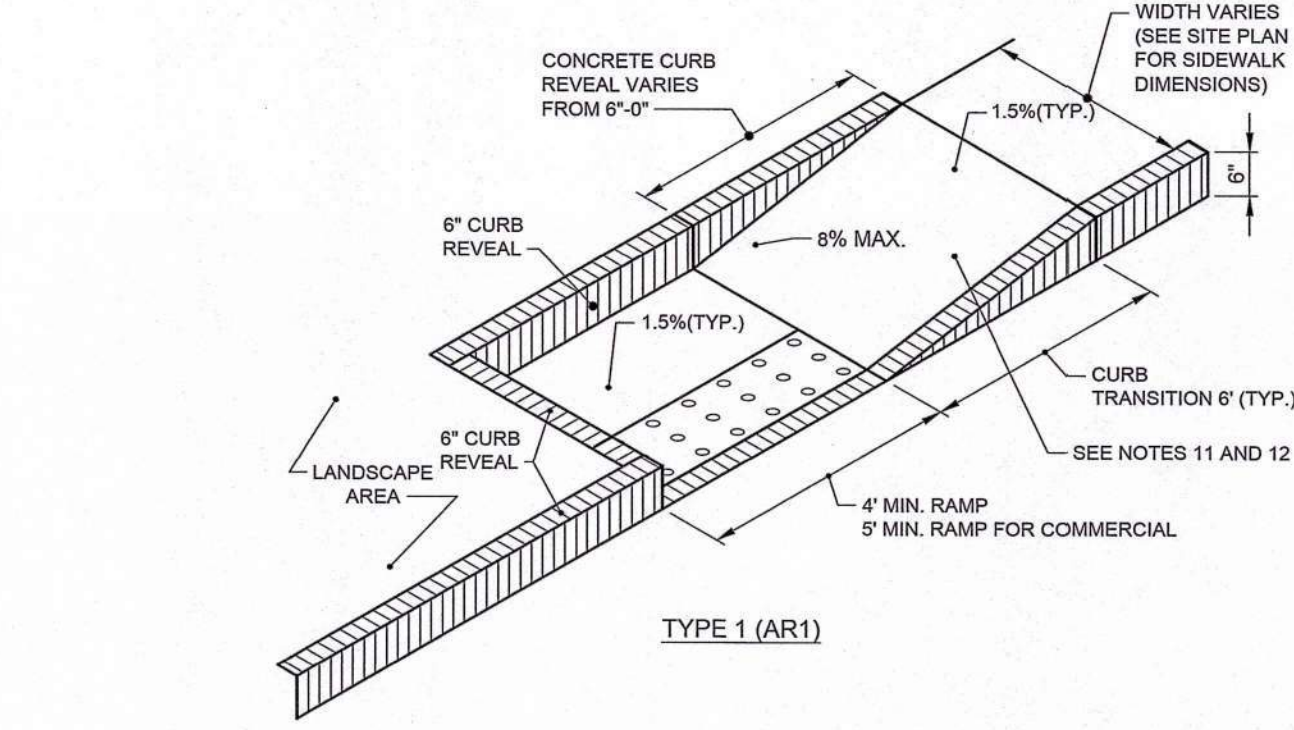
Drawing name: G:\MA\Water\TownSeyon Group\20 Seyon Street\Main\21049 C-8 Details IV.dwg
May 13, 2024 - 10:43am

- NOTES:
1. SEE PLANS FOR RAMP TYPE.
 2. CURB TREATMENT VARIES, SEE PLANS FOR CURB TYPE
 3. CURBS AND WALKS ALONG ACCESSIBLE ROUTES SHALL MEET OR EXCEED THE APPLICABLE MA REGULATIONS AND ADA.
 4. THE MAXIMUM ALLOWABLE SIDEWALK AND CURB RAMP CROSS SLOPES SHALL BE 2% (1% MIN).
 5. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE EXCLUDING CURB RAMPS SHALL BE 5%.
 6. THE MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE CURB RAMPS SHALL BE 8%.
 7. MAINTAIN A MINIMUM OF 3 FEET CLEAR AT ANY PERMANENT OBSTACLE IN ACCESSIBLE ROUTE (I.E., HYDRANTS, UTILITY POLES, TREE WELLS, SIGNS ETC.)
 8. GRADE BASE OF RAMP TO PREVENT PONDING.
 9. RAMP CONSTRUCTION SHALL CONFORM TO TYPICAL SIDEWALK SECTION.
 10. WHERE ACCESSIBLE ROUTES ARE LESS THAN 5' IN WIDTH (EXCLUDING CURBING) A 5'X5' PASSING AREA SHALL BE PROVIDED AT INTERVALS NOT TO EXCEED 200 FEET.
 11. ALL CURBING AT RAMPS SHALL BE VERTICAL CURBING. ELIMINATE CURBING AT RAMP WHERE IT ABUTS ROADWAY, EXCEPT WHERE VERTICAL CURBING IS INDICATED ON THE DRAWINGS TO BE INSTALLED AND SET FLUSH.
 12. ALL RESIDENTIAL RAMPS SHALL BE CEMENT CONCRETE WITH BROOM NON-SLIP SURFACE AND DETECTABLE WARNING PANEL.
 13. ALL CONTROL JOINTS TO BE SAW CUT 1" DEEP WITH $\frac{1}{8}$ " CHAMFER EACH SIDE.
 14. ALL CONSTRUCTION JOINTS TO BE TOOLED, DOWELED AND SLEEVED, AND SEALED WITH PREFORMED EXPANSION JOINT FILLER AND EXPANSION JOINT SEALANT.



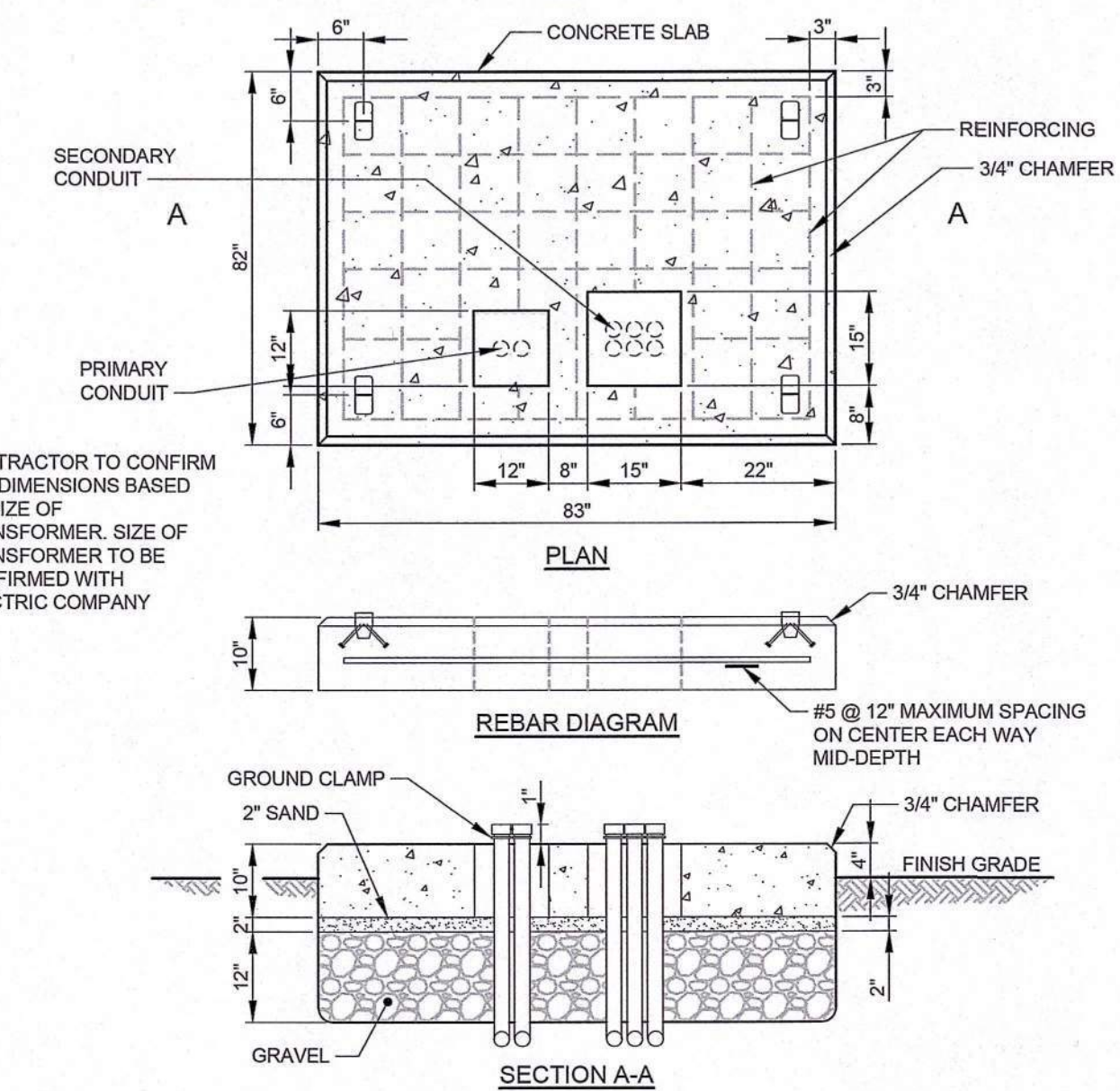
ACCESSIBLE CURB RAMPS (AR)

SCALE: N.T.S.

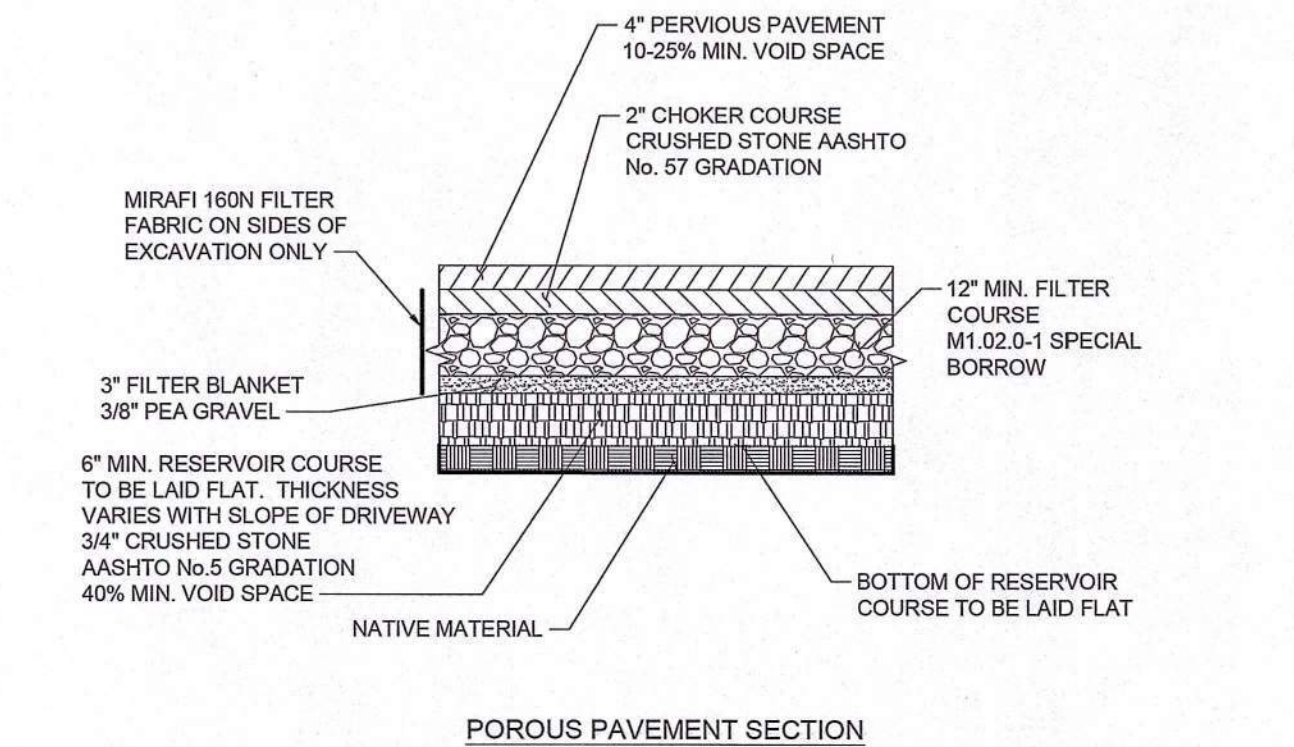


ACCESSIBLE CURB RAMPS (AR)

SCALE: N.T.S.



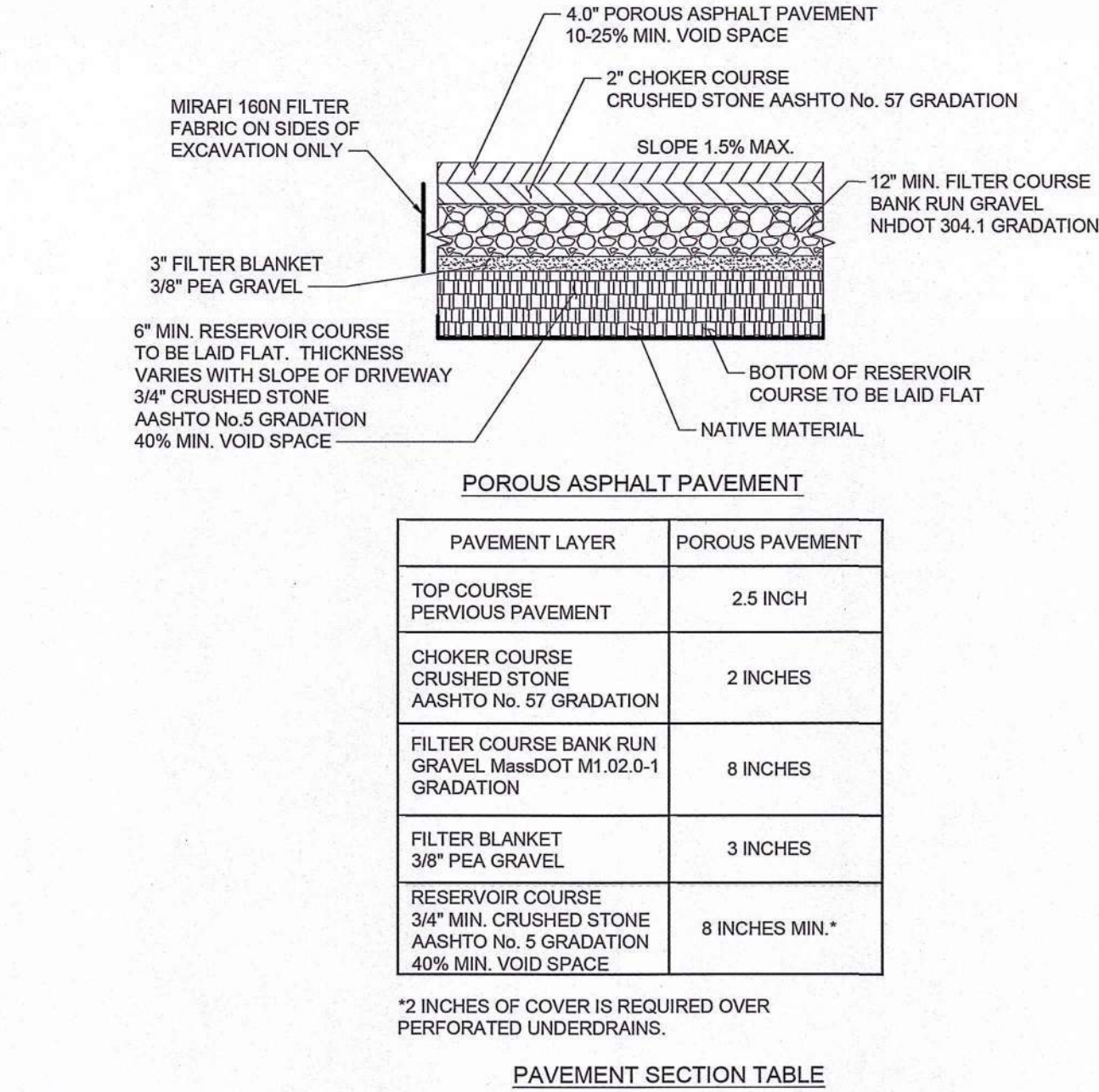
TRANSFORMER PAD DETAIL (75-500 KVA TRANSFORMER)



- NOTES:
1. 62% TP REMOVAL PROVIDED WITH 12" FILTER COURSE (SEE BMP PERFORMANCE TABLE FOR POROUS PAVEMENT).
 2. TO BE INSTALLED BY A QUALIFIED CONTRACTOR WITH EXPERIENCE IN PERMEABLE PAVING INSTALLATION.

POROUS PAVEMENT DETAIL

SCALE: N.T.S.



- NOTES:
1. REFER TO THE MASSACHUSETTS STORMWATER HANDBOOK FOR ADDITIONAL DETAILS ON POROUS PAVEMENT.
 2. REFER TO UNHSC PAVEMENT SPECIFICATION FOR ADDITIONAL DETAILS BEYOND THE MASSACHUSETTS STORMWATER HANDBOOK.
 3. TO BE INSTALLED BY A QUALIFIED CONTRACTOR WITH EXPERIENCE IN PERMEABLE PAVING INSTALLATION.
 4. 62% TP REMOVAL PROVIDED WITH 12" FILTER COURSE. SEE BMP PERFORMANCE TABLE FOR POROUS PAVEMENT.

POROUS PAVEMENT WALKWAY DETAIL

SCALE: N.T.S.

HOOP RACK - Specifications and Space Use

Product Name
Dero Hoop Rack
As manufactured by Dero Bike Racks

Bikes Parked per Unit: 2

Materials:
1.5" schedule 40 pipe (1.9" OD)

- Finishes**
An after fabrication hot dipped galvanized finish is standard. 250 TGIC powder coat colors and a stainless steel option are also available.
- Our powder coat finish assures a high level of adhesion and durability by following these steps:
1. Sandblast
 2. Iron phosphate pretreatment
 3. Epoxy primer electrostatically applied
 4. Final thick TGIC polyester powder coat

Stainless Steel: 304 grade stainless steel material finished in either a high polished shine or a satin finish.

A rubbery PVC Dip is also available

- Installation Methods**
- In ground mount is embedded into concrete base. Specify in ground mount for this option.
 - Foot Mount has two 2.5"x6"x.25" feet with two anchors per foot. Specify foot mount for this option.
 - Rail Mounted Hoops are bolted to two parallel rails which can be left freestanding or anchored to the ground. Rails are heavy duty 3"x1.4"x3/16" thick galvanized mounting rails. Specify rail mount for this option.

SETBACKS

Wall Setbacks:
For racks set parallel to a wall:
Minimum: 24"
Recommended: 36"

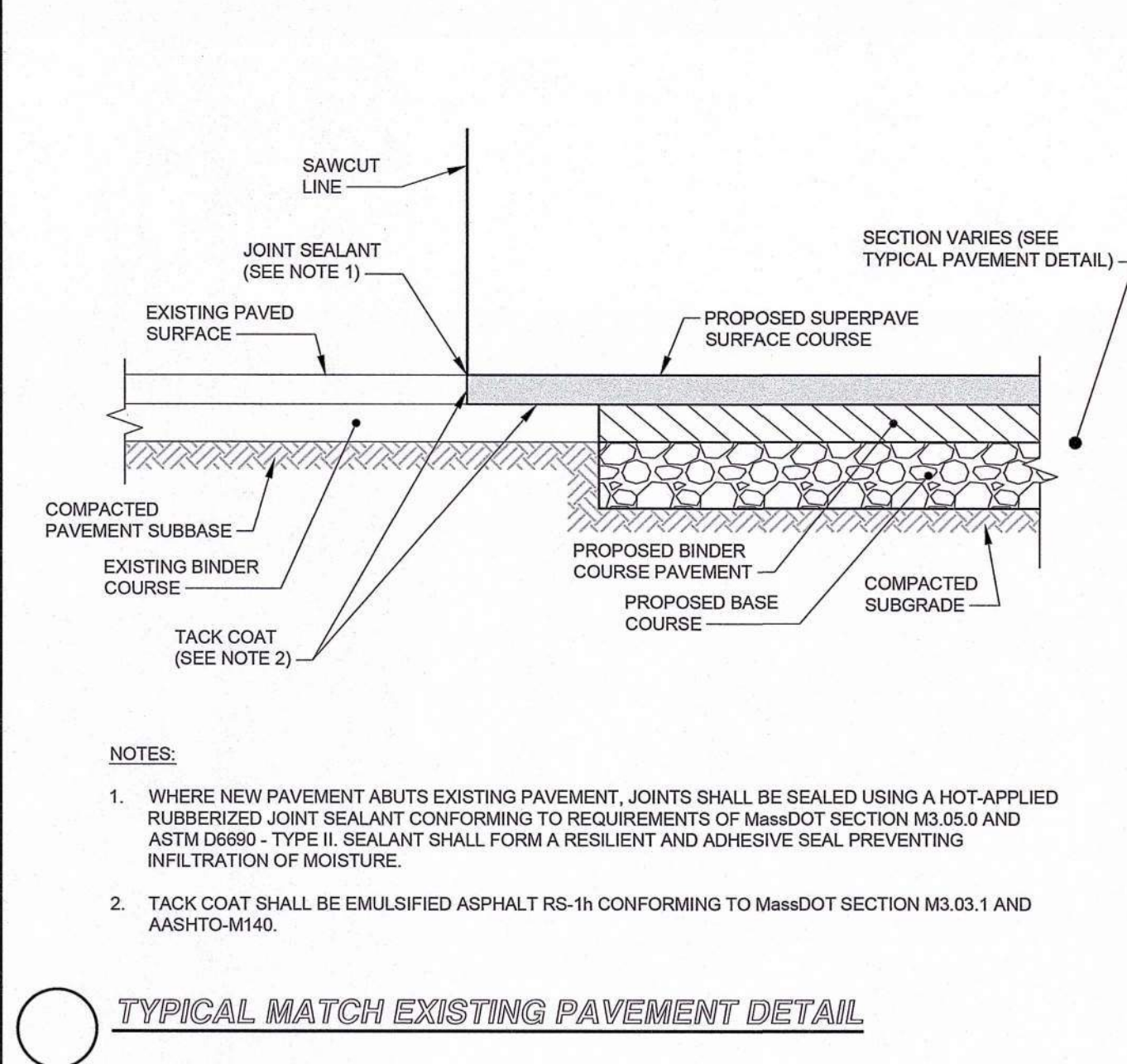
For racks set perpendicular to a wall:
Minimum: 28"
Recommended: 36"

Distance Between Racks:
Minimum: 24"
Recommended: 36"

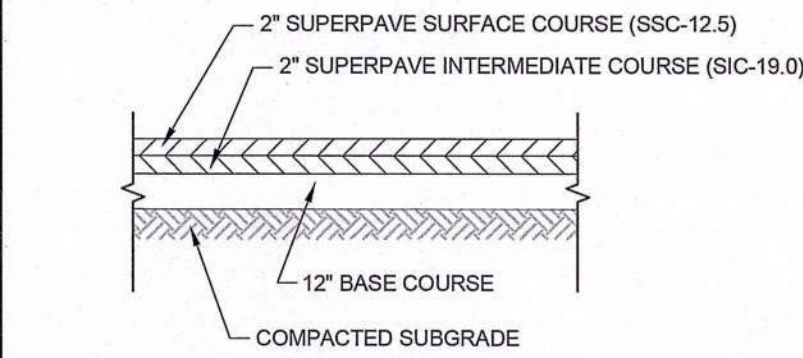
Street Setbacks:
Minimum: 24"
Recommended: 36"

HOOP RACK DETAIL

SCALE: N.T.S.



TYPICAL MATCH EXISTING PAVEMENT DETAIL



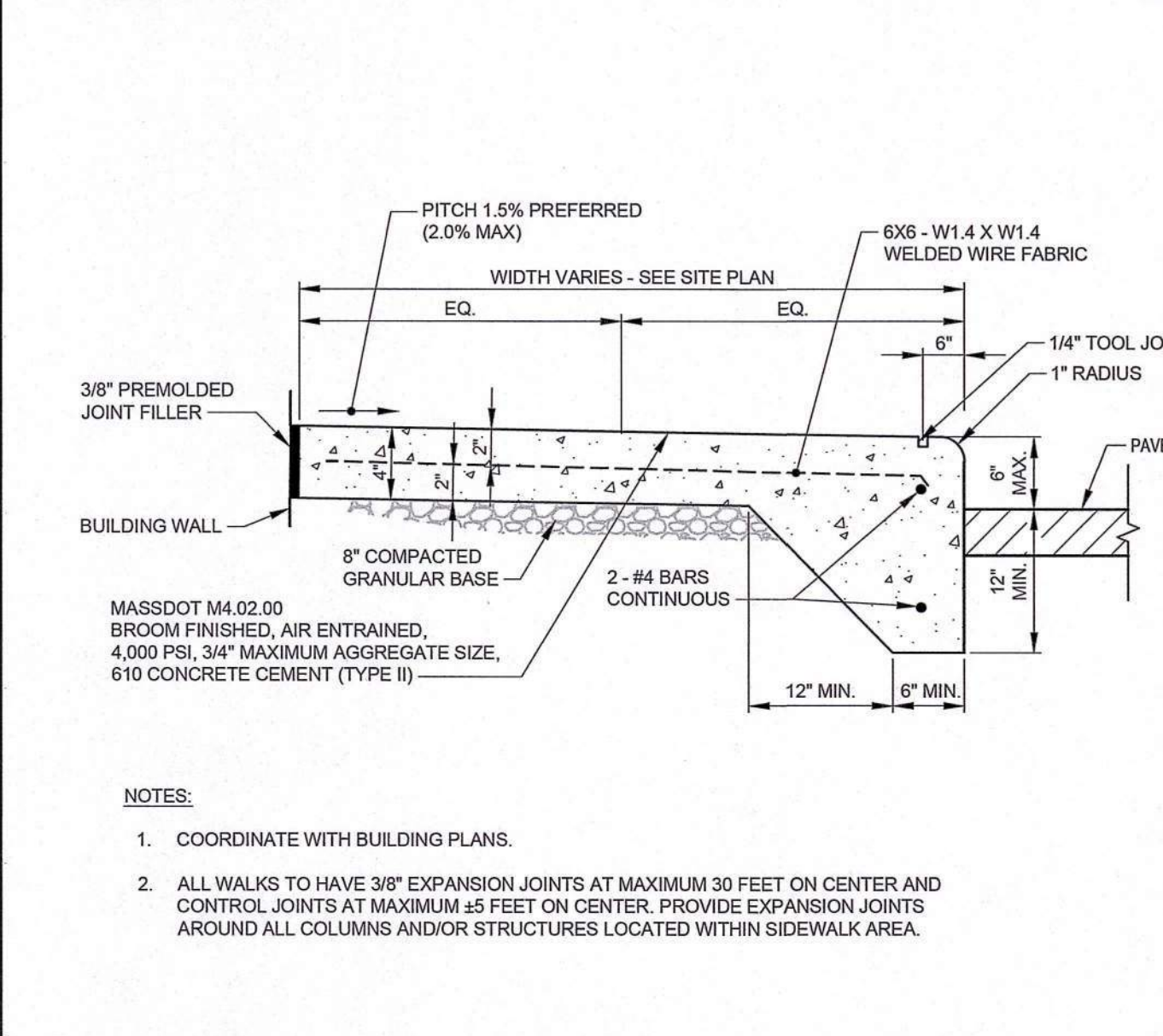
STANDARD DUTY PAVEMENT

PAVEMENT LAYER	STANDARD DUTY PAVEMENT
SUPERPAVE SURFACE COURSE BITUMINOUS PAVEMENT SECTION M3.11.1	2 INCHES
SUPERPAVE INTERMEDIATE COURSE BITUMINOUS PAVEMENT SECTION M3.11.1	2 INCHES
BASE COURSE/ RECLAIMED ASPHALT SEE NOTES 3, 4 AND 5	12 INCHES

PAVEMENT SECTION TABLE

TYPICAL PAVEMENT DETAIL

SCALE: N.T.S.



- NOTES:
1. COORDINATE WITH BUILDING PLANS.
 2. ALL WALKS TO HAVE 3/8" EXPANSION JOINTS AT MAXIMUM 30 FEET ON CENTER AND CONTROL JOINTS AT MAXIMUM 45 FEET ON CENTER. PROVIDE EXPANSION JOINTS AROUND ALL COLUMNS AND/OR STRUCTURES LOCATED WITHIN SIDEWALK AREA.

MONOLITHIC CONCRETE CURB AND SIDEWALK DETAIL

SCALE: N.T.S.

RJOC

DATE	REVISION	NO.
05/13/2024	NOTICE OF INTENT SUBMISSION	4.
03/19/2024	REVISED PER ENGINEERING COMMENTS	3.
06/30/2023	ISSUED FOR SITE PLAN REVIEW	2.
05/04/2023	ISSUED FOR SPECIAL PERMIT/SITE PLAN REVIEW	1.

PREPARED BY:
RJO'CONNELL & ASSOCIATES, INC.
CIVIL ENGINEERS, SURVEYORS & LAND PLANNERS
80 MONTVALE AVENUE, SUITE 201 STONEHAM, MA 02180
PHONE: 781.278.0180 RJOC@CONNELL.COM

PREPARED FOR:
PPF INDUSTRIAL
20 SEYON LLC
c/o SEYON
535 BOYLSTON STREET, 11TH FLOOR
BOSTON, MA 02116
PHONE: 617.982.6592

PROJECT NAME:
10-30 MANLEY WAY
WATERTOWN, MA

SEAL:

DESIGNED BY: BJM
DRAWN BY: MCR
REVIEWED BY: BJM
SCALE: N.T.S.
DATE: 05/04/2023
DRAWING NAME:

DETAILS IV

DRAWING NUMBER:
C-8
PROJECT NUMBER:
21049

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RJOC					
NO.	REVISION	DATE	NO.	REVISION	DATE
4.	NOTICE OF INTENT SUBMISSION	05/13/2024			
3.	REVISED PER ENGINEERING COMMENTS	03/19/2024			
2.	ISSUED FOR SITE PLAN REVIEW	06/30/2023			
1.	ISSUED FOR SPECIAL PERMIT/SITE PLAN REVIEW	05/04/2023			

PREPARED BY:

**RJO'CONNELL
& ASSOCIATES, INC.**
CIVIL ENGINEERS, SURVEYORS & LAND PLANNERS
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PHONE: 781.279.0180 RJOCONNELL.COM

PREPARED FOR:

**PPF INDUSTRIAL
20 SEYON LLC**
c/o SEYON
535 BOYLSTON STREET, 11TH FLOOR
BOSTON, MA 02116
PHONE: 617.982.6592

PROJECT NAME:

10-30 MANLEY WAY
WATERTOWN, MA

SEAL



DESIGNED BY:	BJM
DRAWN BY:	MCR
REVIEWED BY:	BJM
SCALE:	N.T.S.
DATE:	05/04/2023
DRAWING NAME:	

SOIL LOGS

DRAWING NUMBER:

C-9

PROJECT NUMBER:

21049

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20 SEYON LLC
c/o SEYON
35 BOYLSTON STREET, 11TH FLOOR
BOSTON, MA 02116
PHONE: 617.982.6592

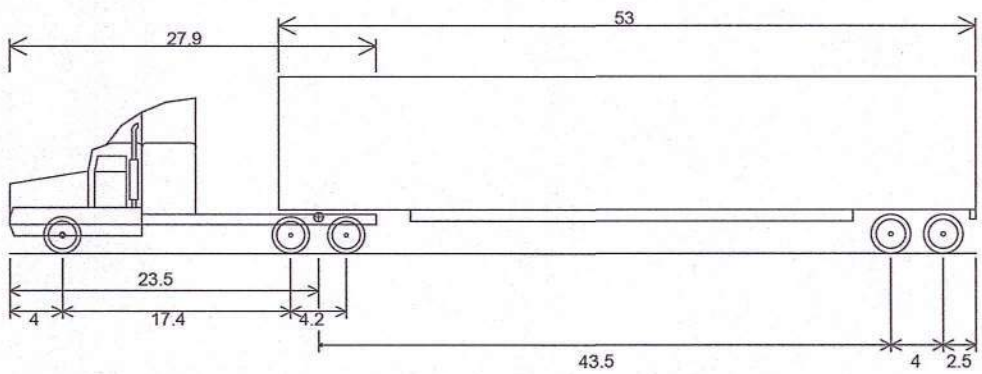
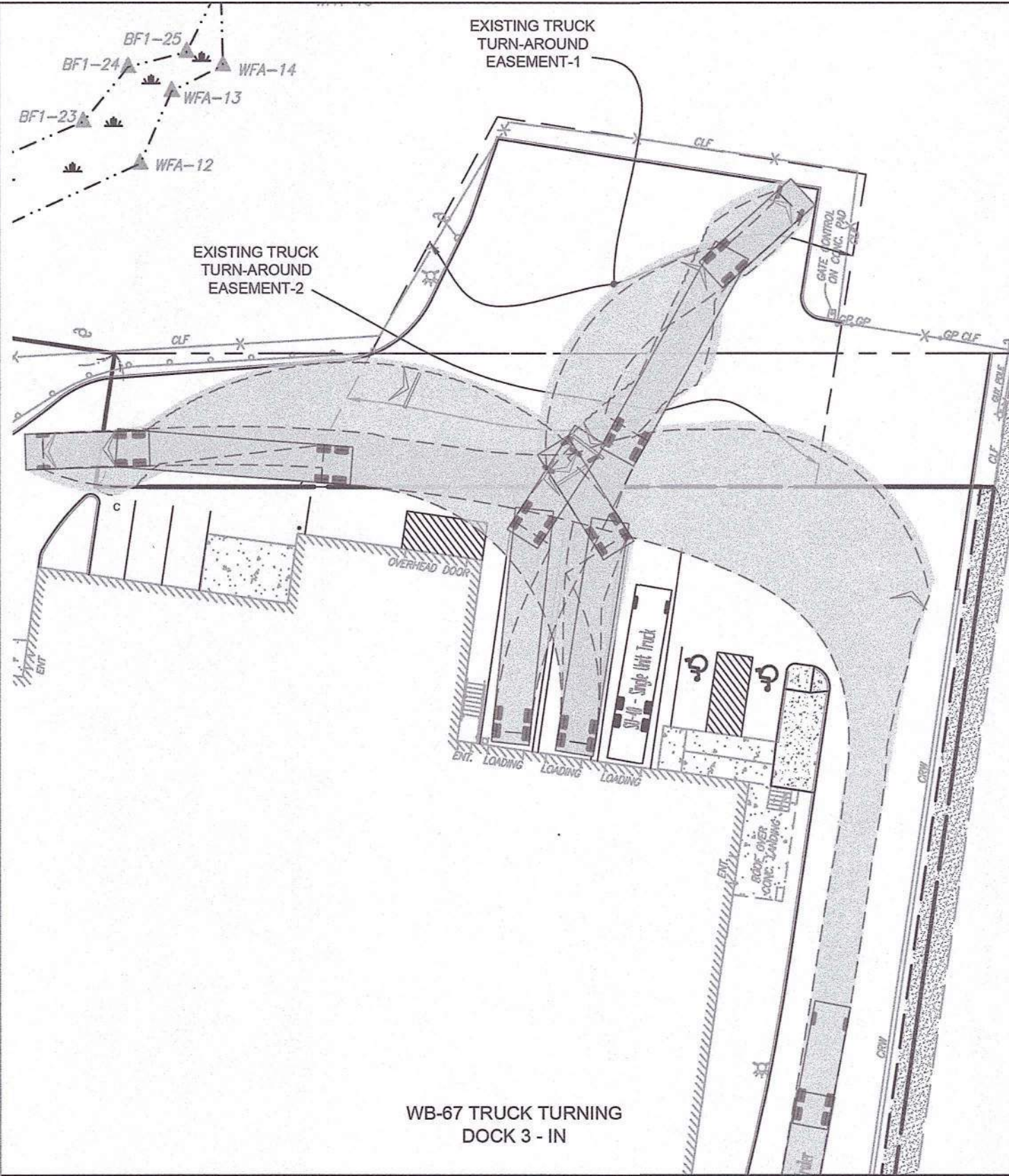
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DESIGNED BY:	BJM/MAC
DRAWN BY:	MCR
REVIEWED BY:	BJM
SCALE:	1" = 40'
DATE:	05/04/2023
DRAWING NAME:	

FT-1

21049



PROJECT NUMBER: 21049



WB-67 - Interstate Semi-Trailer	
Overall Length	73.50ft
Overall Width	8.500ft
Overall Body Height	13.500ft
Min Body Ground Clearance	1.334ft
Max Track Width	8.500ft
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	28.40°



77 South Bedford Street
Suite 140
Burlington, MA 01803
781.372.3000
aha-engineers.com

THE SEYON GROUP
535 Boylston St. 11th FL
Boston, MA 02116

Stamp:

No.	Description	Date

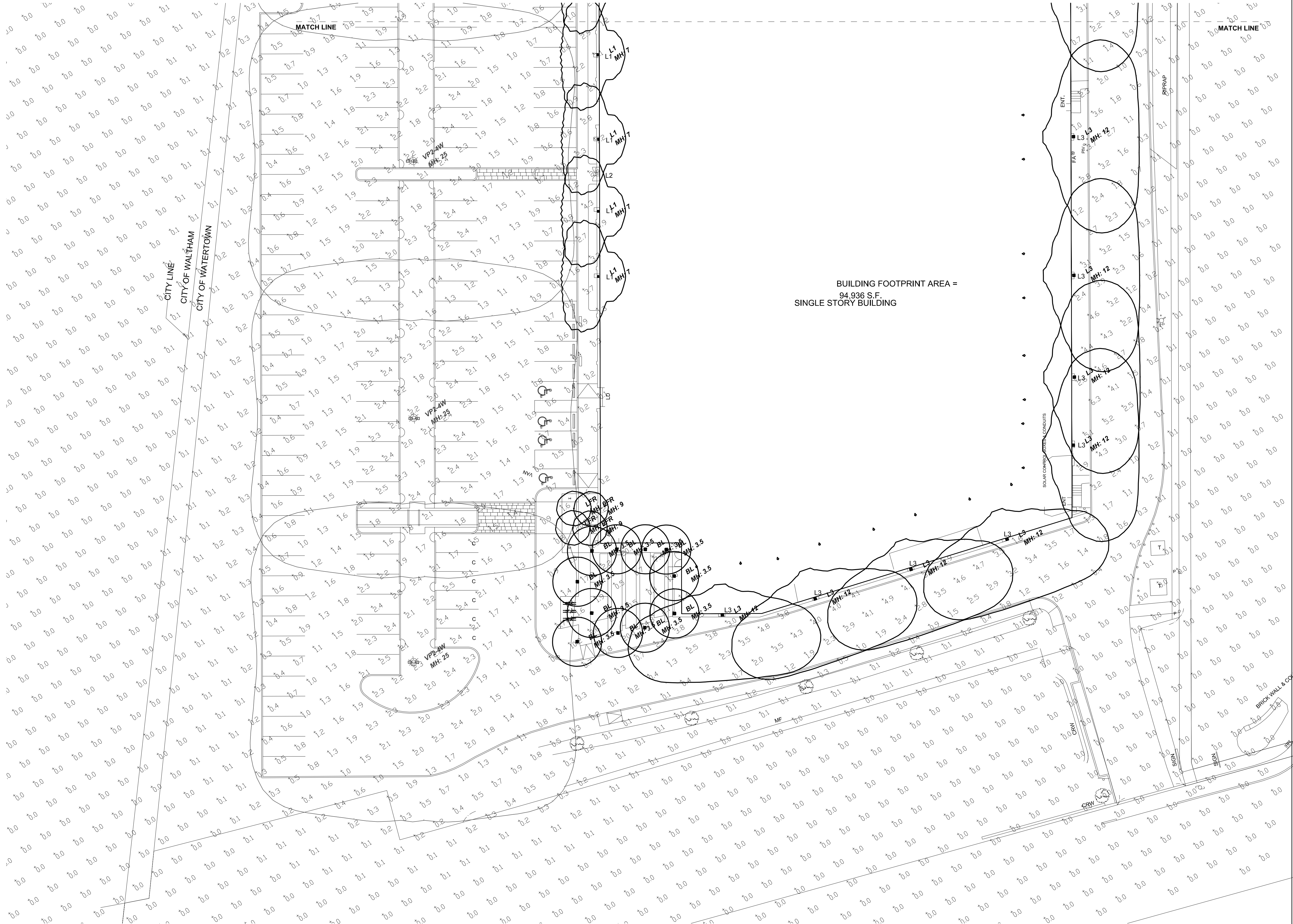
10-30 MANLEY WAY
WATERTOWN, MA

DRAWING NAME:
ELECTRICAL
SITE PLAN
LIGHTING
PHOTOMTERIC

Project Number	M0650-065.00
Date	JUNE 30, 2023
Drawn By	KPL
Checked By	BDS

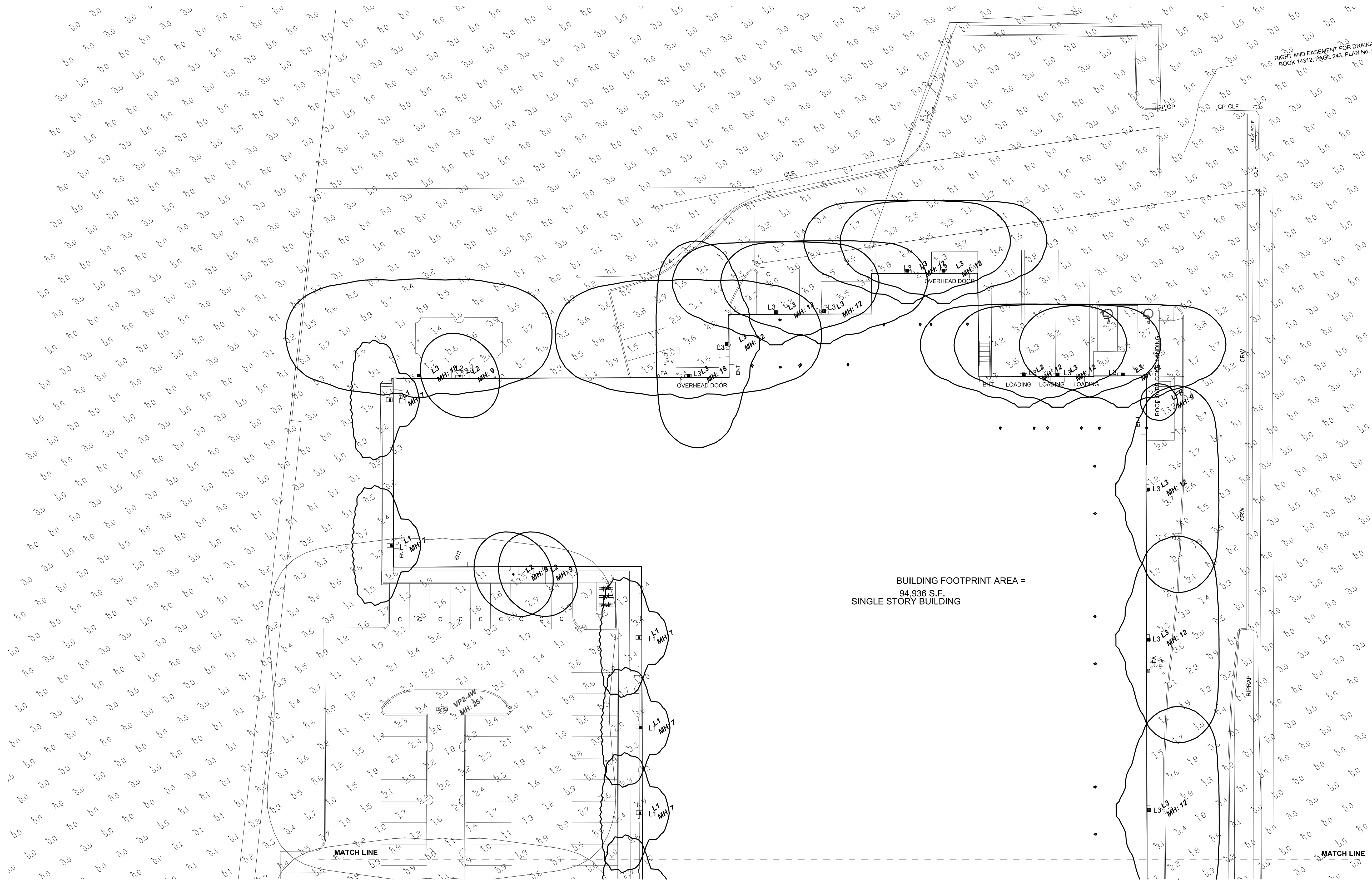
ES2.01

Scale 1/32"=1'-0"



Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Site Off Site	Illuminance	Fc	0.57	20.3	0.0	N.A.	N.A.

Outdoor Luminaire Schedule							
Symbol	Qty	Label	Description	Arrangement	Arm	Lum. Lumens	LLF
	11	BL	S-KL0203US-21S-0871001D-830-21US	Single	0	1550	0.900
	9	L1	CY1-15-3K7-1-3-F	Single	0	1661	0.900
	3	L2	RN-D-2-10-3K8-SM-DL	Single	0	2105	0.900
	21	L3	RWL-148L-35-3K7-3-U	Single	0	4545	0.900
	5	LFR	LFR-4RD-M-10L2230TD9WD-DMT_LFR-4RD-T-S	Single	0	1024	0.900
	4	VP2-4W	VP-1-160L-100-3K7-4W	Back-Back	1.5	12364	0.900



77 South Bedford Street
Suite 140
Burlington, MA 01803
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535 Boylston St. 11th FL
Boston, MA 02116

Stamp:

[illegible]

10-30 MANLEY WAY
WATERTOWN, MA

DRAWING NAME:

ELECTRICAL
SITE PLAN
LIGHTING
PHOTOMETERIC

Project Number	M0650-065.00
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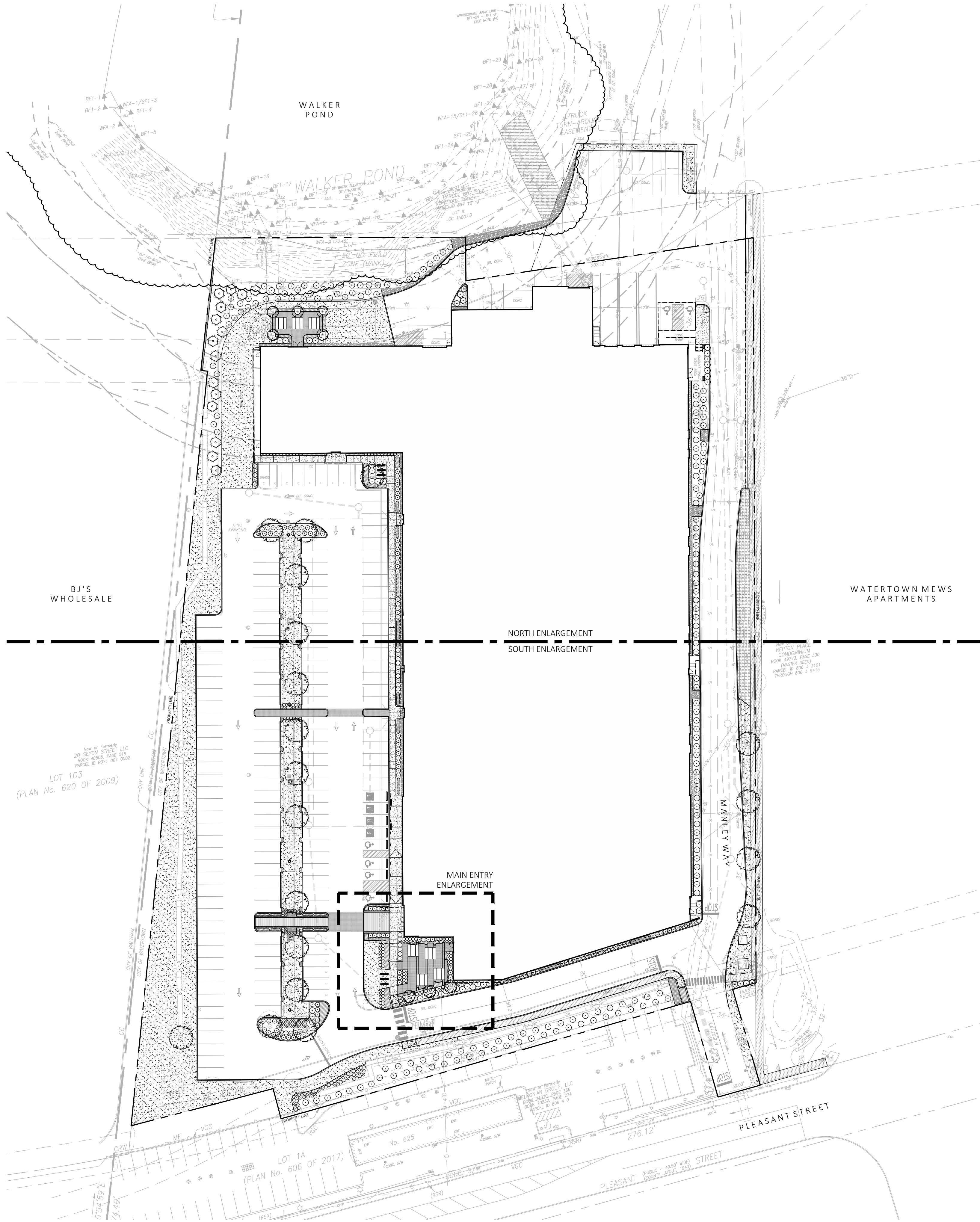
Date JUNE 30, 2023

Drawn By KPL

Checked By	BDS
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ES2.02

Scale 1"=20'-0"



SHEET LIST:

- LANDSCAPE
- L0 - OVERALL LANDSCAPE KEY PLAN
 - L1 - SITE PREPARATION PLAN - SOUTH ENLARGEMENT
 - L2 - SITE PREPARATION PLAN - NORTH ENLARGEMENT
 - L3 - LANDSCAPE PLANTING PLAN - SOUTH ENLARGEMENT
 - L4 - LANDSCAPE PLANTING PLAN - NORTH ENLARGEMENT
 - L5 - LANDSCAPE PLANTING PLAN - MAIN ENTRY ENLARGEMENT
 - L6 - SITE DETAILS
 - L7 - SITE DETAILS

SITE PLAN REVIEW SET

NOT FOR
CONSTRUCTION

RODE

535 Albany Street | 405
Boston, MA 02118
617.422.0090 | T
rodearchitects.com

Design Team

CIVIL
R.J. O'Connell & Associates
80 Montvale Ave #201
Stoneham, MA 02180
781.279.0180 | T

LANDSCAPE
Michael D'Angelo Landscape Architecture
LLC
840 Summer Street, Suite 201A
Boston, MA 02127
203.592.4788 | T

MDLA

MICHAEL D'ANGELO landscape architecture



20 SEYON

10 - 30 MANLEY WAY
WATERTOWN, MA 02472

THE SEYON GROUP

535 Boylston St. 11th FL
Boston, MA 02116



PROJECT: 2301

No.	Description	Date
1	Revised per City Comment	04/23/2024
2	Notice of Intent Submission	05/13/2024

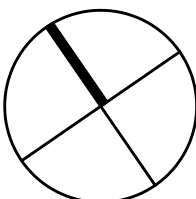
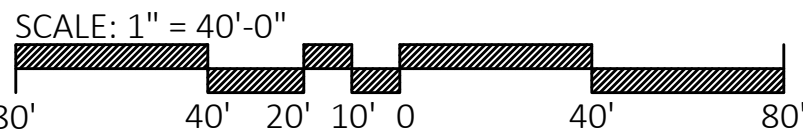
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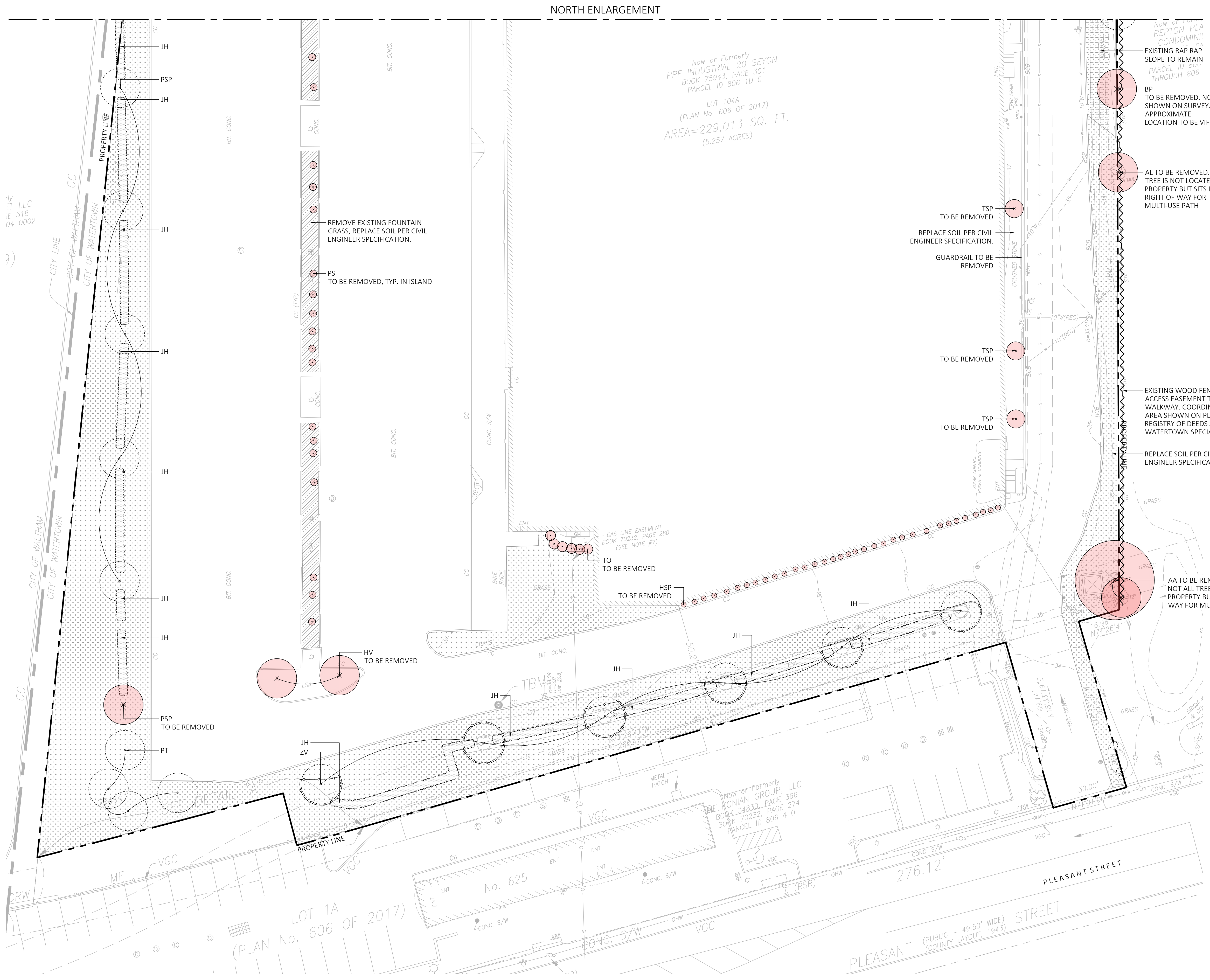
SCALE: AS NOTED

OVERALL LANDSCAPE
KEY PLAN

L-0

1 OVERALL LANDSCAPE KEY PLAN
SCALE: 1" = 40'-0"





EXISTING PLANT SCHEDULE		
SYMBOL	LATIN NAME	COMMON NAME
EXISTING TREES		
PSP	PRUNUS SP.	CHERRY TREE
PT	PINUS STROBUS	WHITE PINE
AA	AILANTHUS ALTISSIMA	TREE OF HEAVEN
BP	BETULA PENDULA	SILVER BIRCH
AL	ALBIZIA LEBBECK	SILK TREE
ZV	ZELKOVA SP.	ZELKOVA SPECIES
EXISTING SHRUBS, PERENNIALS, AND GRASSES		
EA	EDONOMOUS ALATUS	BURNING BUSH
TSP	TAXUS SP.	YEW SPECIES
HSP	HEMEROCALLIS SP.	DAYLILIES
PS	PENNISETUM	FOUNTAIN GRASS
HV	HAMAMELIS VIRGINIANA	WITCH-HAZEL
CA	CLETHRA ALNIFOLIA	ALDERLEAF CLETHRA
JH	JUNIPERUS HORIZONTALIS	CREEPING JUNIPER
TO	THUJA OCCIDENTALIS	ARBORVITAE

NOTE:
1. ALL EXISTING PLANTING TO REMAIN SHOULD BE PRUNED AS NEEDED.

PLANTING LEGEND

- EXISTING LAWN TO BE REMOVED
- EXISTING WOOD LOT TO REMAIN
- EXISTING RAIN GARDEN ISLAND
- EXISTING RIP RAP SLOPE TO REMAIN
- EXISTING STONE SURFACING
- EXISTING TREES AND SHRUBS TO BE REMOVED

SITE PLAN REVIEW SET

NOT FOR CONSTRUCTION

RODE

535 Albany Street | 405
Boston, MA 02118
617.422.0090 | T
rodearchitects.com

Design Team

CIVIL

R.J. O'Connell & Associates
80 Montvale Ave #201
Stoneham, MA 02180
781.279.0180 | T

LANDSCAPE

Michael D'Angelo Landscape Architecture
LLC
840 Summer Street, Suite 201A
Boston, MA 02127
203.592.4788 | T

MDLA

MICHAEL D'ANGELO landscape architecture

MASSACHUSETTS
MICHAEL D'ANGELO
REGISTERED LANDSCAPE ARCHITECT
NO. 4096

20 SEYON

10 - 30 MANLEY WAY
WATERTOWN, MA 02472

THE SEYON GROUP

535 Boylston St. 11th FL
Boston, MA 02116

PROJECT: 2301

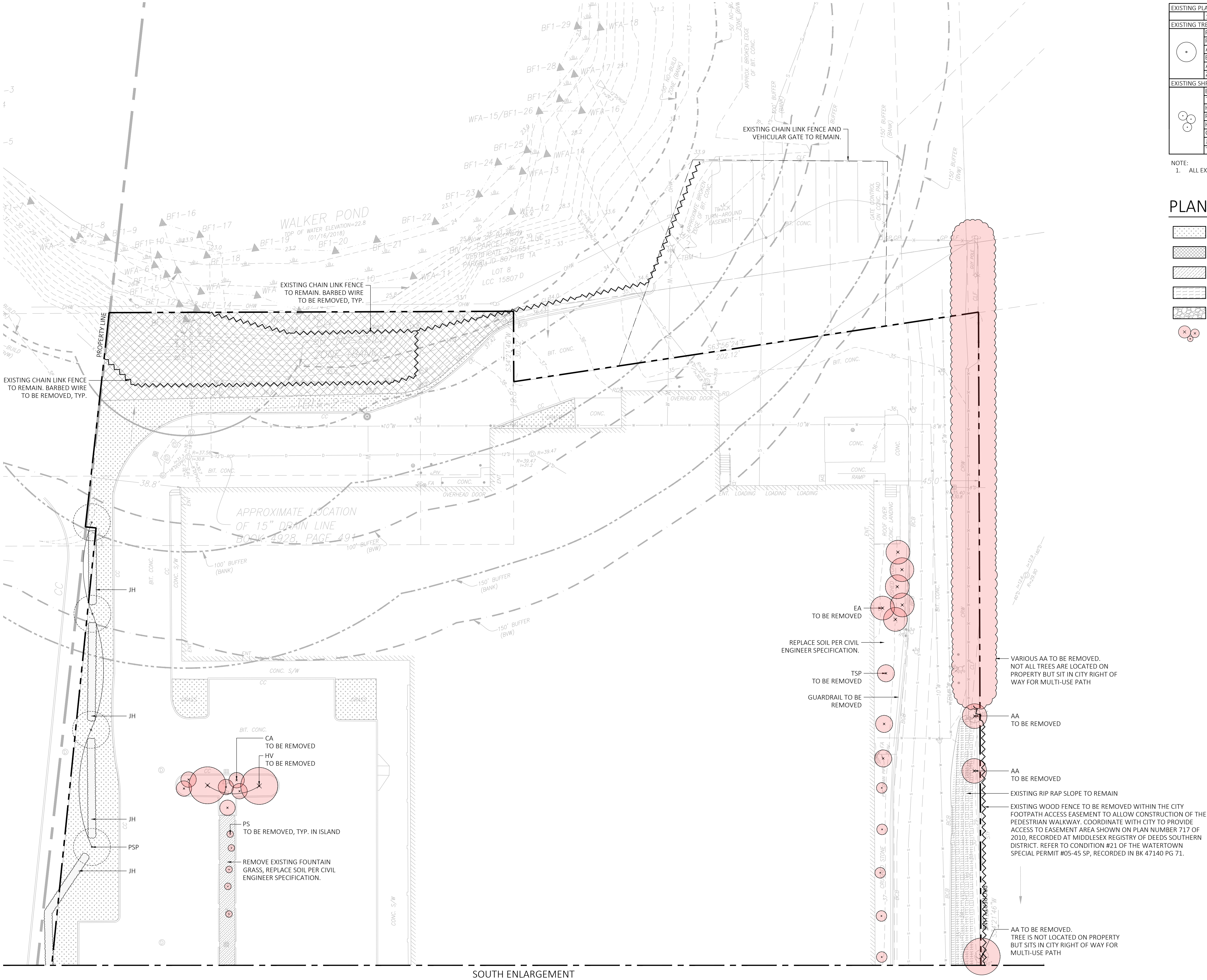
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DATE: 06.30.2023

SCALE: AS NOTED

SITE PREPARATION PLAN
SOUTH ENLARGEMENT

L-1



EXISTING PLANT SCHEDULE		
	SYMBOL	LATIN NAME
EXISTING TREES		
	PSP	PRUNUS SP.
	PT	PINUS STROBUS
	AA	AILANTHUS ALTISSIMA
	BP	BETULA PENDULA
	AL	ALBIZIA LEBBECK
	ZV	ZELKOVA SP.
EXISTING SHRUBS, PERENNIALS, AND GRASSES		
	EA	EUONYMUS ALATUS
	TSP	TAXUS SP.
	HSP	HEMEROCALLIS SP.
	PS	PENNISETUM
	HV	HAMAMELIS VIRGINIANA
	CA	CLETHRA ALNIFOLIA
	JH	JUNIPERUS HORIZONTALIS
	TO	THUJA OCCIDENTALIS
		ARBORVITAE

NOTE:
1. ALL EXISTING PLANTING TO REMAIN SHOULD BE PRUNED AS NEEDED.

PLANTING LEGEND

- EXISTING LAWN TO BE REMOVED
- EXISTING WOOD LOT TO REMAIN
- EXISTING RAIN GARDEN ISLAND
- EXISTING RIP RAP SLOPE TO REMAIN
- EXISTING STONE SURFACING
- EXISTING TREES AND SHRUBS TO BE REMOVED

SITE PLAN REVIEW SET

NOT FOR
CONSTRUCTION

RODE

535 Albany Street | 405
Boston, MA 02118
617.422.0090 | T
rodearchitects.com

Design Team

CIVIL
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LANDSCAPE
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20 SEYON

10 - 30 MANLEY WAY
WATERTOWN, MA 02472

THE SEYON GROUP

535 Boylston St. 11th FL
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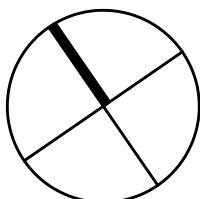
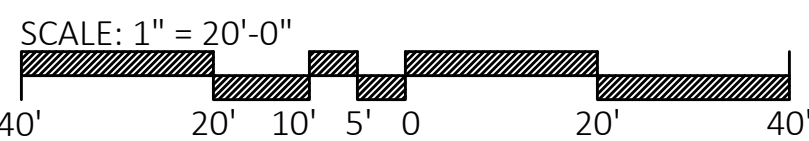
SCALE: AS NOTED

SITE PREPARATION PLAN
NORTH ENLARGEMENT

L-2

1 SITE PREPARATION PLAN - NORTH ENLARGEMENT

SCALE: 1" = 20'-0"



PLANT SCHEDULE				
SYMBOL	QTY.	LATIN NAME	COMMON NAME	SIZE
TREES				
AR	13	ACER RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE	3-3.5" CAL.
AA	5	AMELANCHIER X 'AUTUMN BRILLIANCE'	SERVICEBERRY	7-8" HT.
CC	3	CERCIS CANADENSIS	EASTERN RED BUD	7-8" HT.
GT	5	GLADITSEA TRICANTHOS 'SKYLINE'	SKYLINE HONEYLOCUST	3.5"-4" CAL.
PG	15	PICEA GLAUCA	WHITE SPRUCE	7-8" HT.
PS	1	PRUNUS SERRULATA 'KWANZAN'	KWANZAN FLOWERING CHERRY	8'-10" HT.
TO	8	THUJA OCCIDENTALIS 'EMERALD GREEN'	EMERALD GREEN ARBORVITAE	7-8" HT.
TP	0	THUJA PLICATA 'GREEN GIANT'	GREEN GIANT ARBORVITAE	7-8" HT.
SHRUBS AND GROUNDCOVER				
CA	20	CORNUS S. 'ARCTIC FIRE'	ARCTIC FIRE DOGWOOD	5 GAL
CL	6	CLETHRA ALNIFOLIA	SUMMERSWEET	5 GAL
IG	94	ILEX GLABRA 'SHAMROCK'	SHAMROCK INKBERRY	3" TALL
IG-1	39	ILEX GLABRA 'SHAMROCK'	SHAMROCK INKBERRY	4" TALL
IV	17	ILEX VERTICILLATA	WINTERBERRY HOLLY	5 GAL
MP	65	MYRICA PENSYLVANICA	NORTHERN BAYBERRY	5 GAL
RA	78	RHUS AROMATICA 'GROW LOW'	GROW LOW SUMAC	3 GAL
VD	22	VIBURNUM DENTATUM	ARROWWOOD VIBURNUM	5 GAL
PERENNIALS AND ORNAMENTAL GRASSES				
CK	75	CALAMAGROSIS X ARTIFLORA 'KARL FOERSTER'	FEATHER REED GRASS	1 GAL
CP	60	CAREX PENSYLVANICA	PENNSYLVANIA SEDGE	1 GAL
EP	98	ECHEMACIA PURPUREA	PURPLE CONEFLOWER	1 GAL
NW	26	NEPETA X FAASSENI 'WALKERS LOW'	WALKERS LOW CATMINT	1 GAL
PA	32	PEROVSKIA A. 'LITTLE SPIRE'	LITTLE SPIRE RUSSIAN SAGE	1 GAL
PH	47	PENNISETUM A. 'HAMELN'	HAMELN FOUNTAIN GRASS	1 GAL
PV	158	PANICUM VIRGATUM 'SHENANDOAH'	SHENANDOAH SWITCH GRASS	1 GAL
RF	196	RUDBECKIA FULGIDA 'GOLDSTURM'	BLACK EYE SUSAN	1 GAL
SEED MIX				
		NEW ENGLAND WETLAND PLANTS 413-548-8000	NEW ENGLAND CONSERVATION/WILDLIFE MIX	25 LB/ACRE
				APPLY COVER CROP OF GRAIN RYE; SEE SPEC SHEET

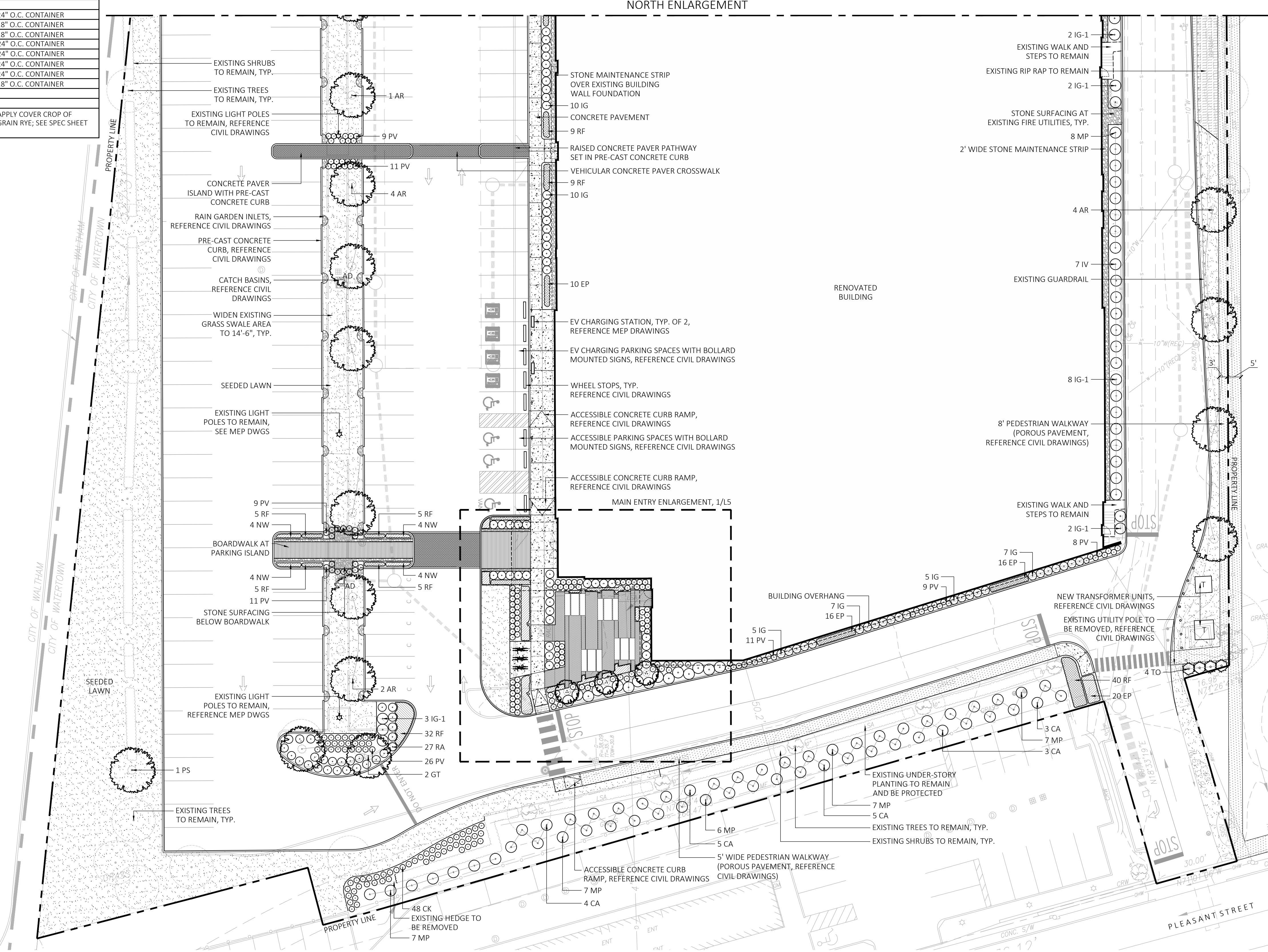
PLANTING NOTES:

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- PROVIDE A SUBSURFACE ROOTBALL ANCHOR BY PLATIPUS EARTH ANCHORS, SIZE FOR CALIPER

PLANTING LEGEND

- EXISTING TREES
- EXISTING SHRUBS
- PROPOSED TREES
- PROPOSED SHRUB
- EXISTING TREE LINE
- LAWN
- PERMEABLE ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- STONE SURFACING
- STABILIZED STONE DUST SURFACING
- LIGHT BOLLARD (LB)

1 LANDSCAPE PLANTING PLAN - SOUTH ENLARGEMENT
SCALE: 1" = 20'-0"



SCALE: 1" = 20'-0"
40' 20' 10' 5' 0 20' 40'

SITE PLAN REVIEW SET

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LANDSCAPE PLANTING
PLAN - S. ENLARGEMENT

L-3

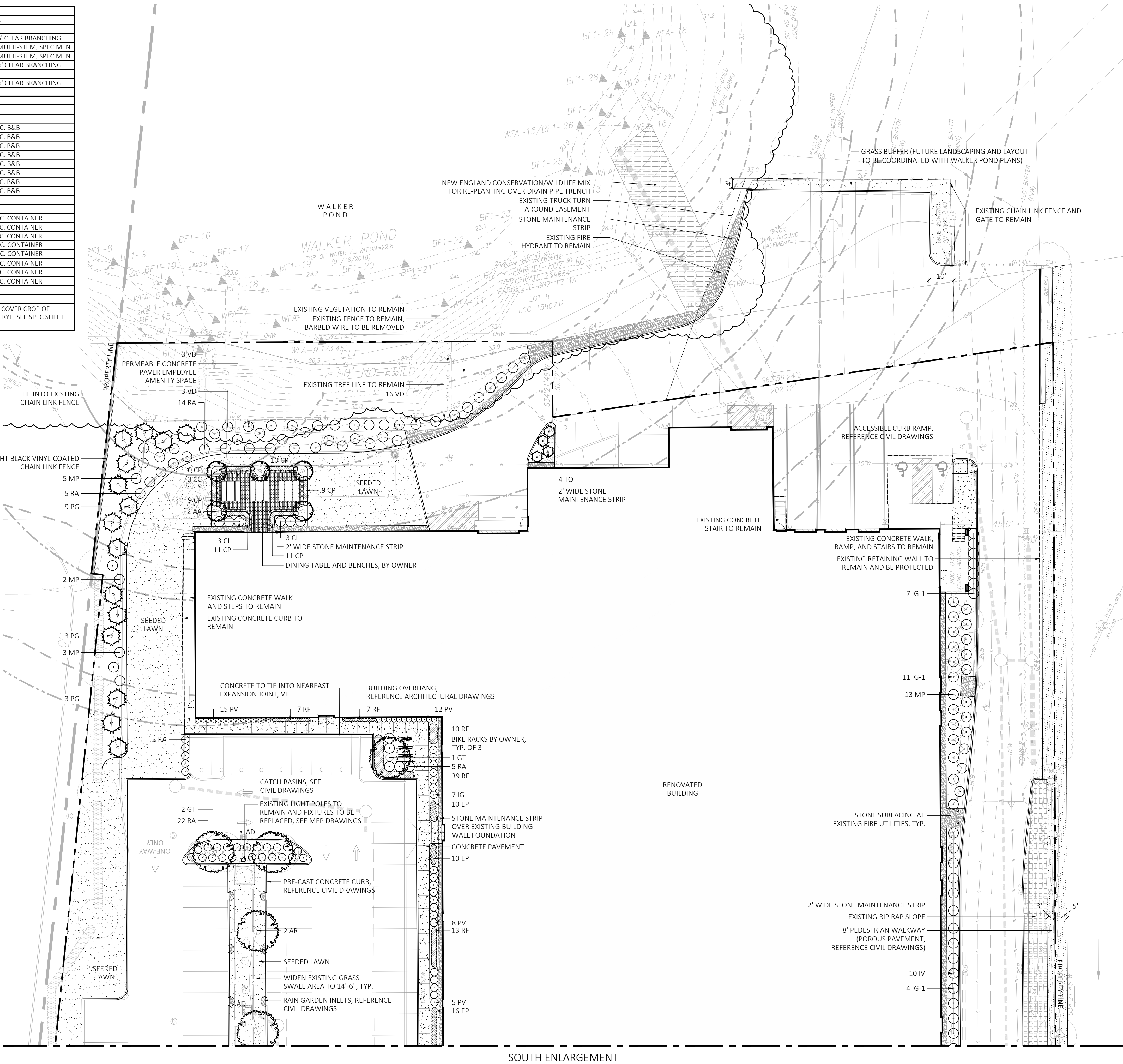
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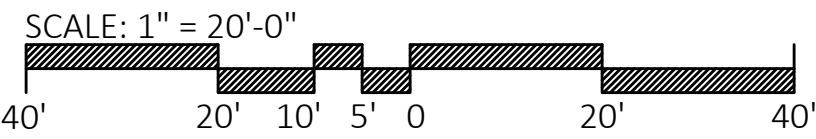
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-  STABILIZED STONE DUST SURFACING
-  LIGHT BOLLARD (LB)
-  BIKE RACK



1 LANDSCAPE PLANTING PLAN - NORTH ENLARGEMENT
SCALE: 1" = 20'-0"



SITE PLAN REVIEW SET

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CONSTRUCTION

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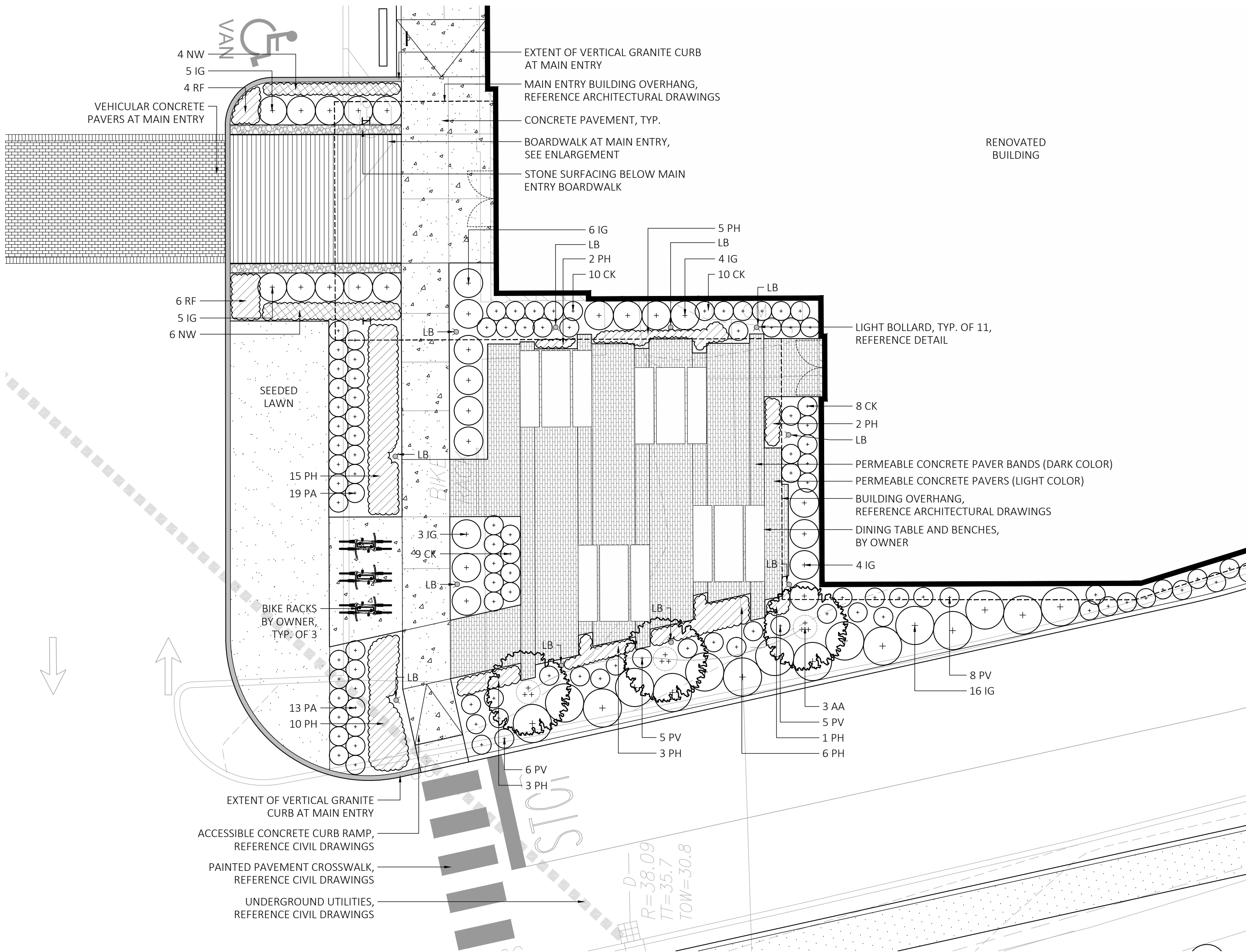
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LANDSCAPE PLANTING
PLAN - N. ENLARGEMENT

L-4



PLANT SCHEDULE				
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TREES				
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- EXISTING SHRUBS
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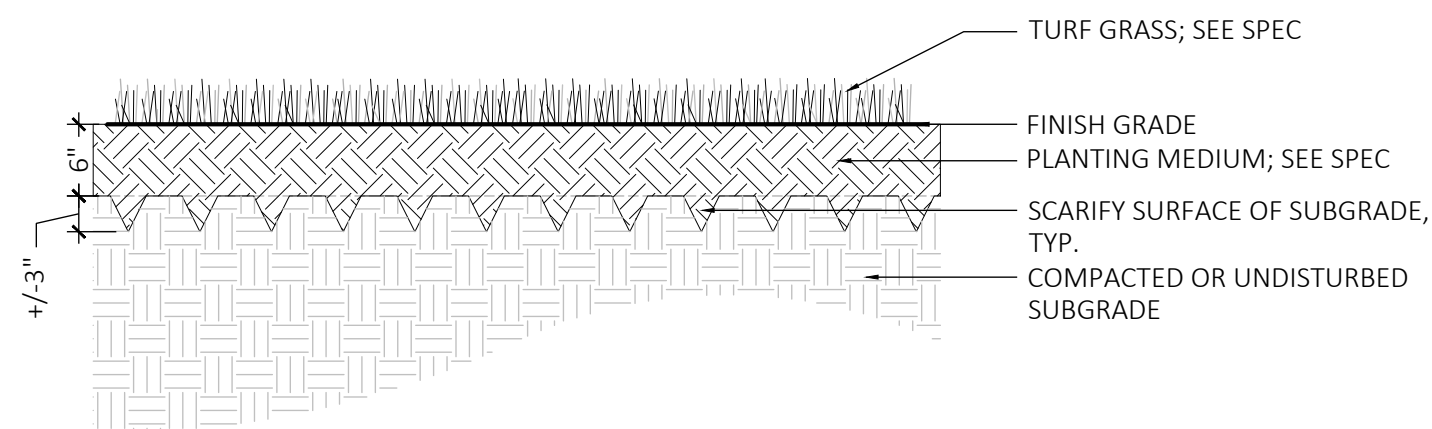
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LANDSCAPE PLANTING
PLAN - MAIN ENTRY
ENLARGEMENT

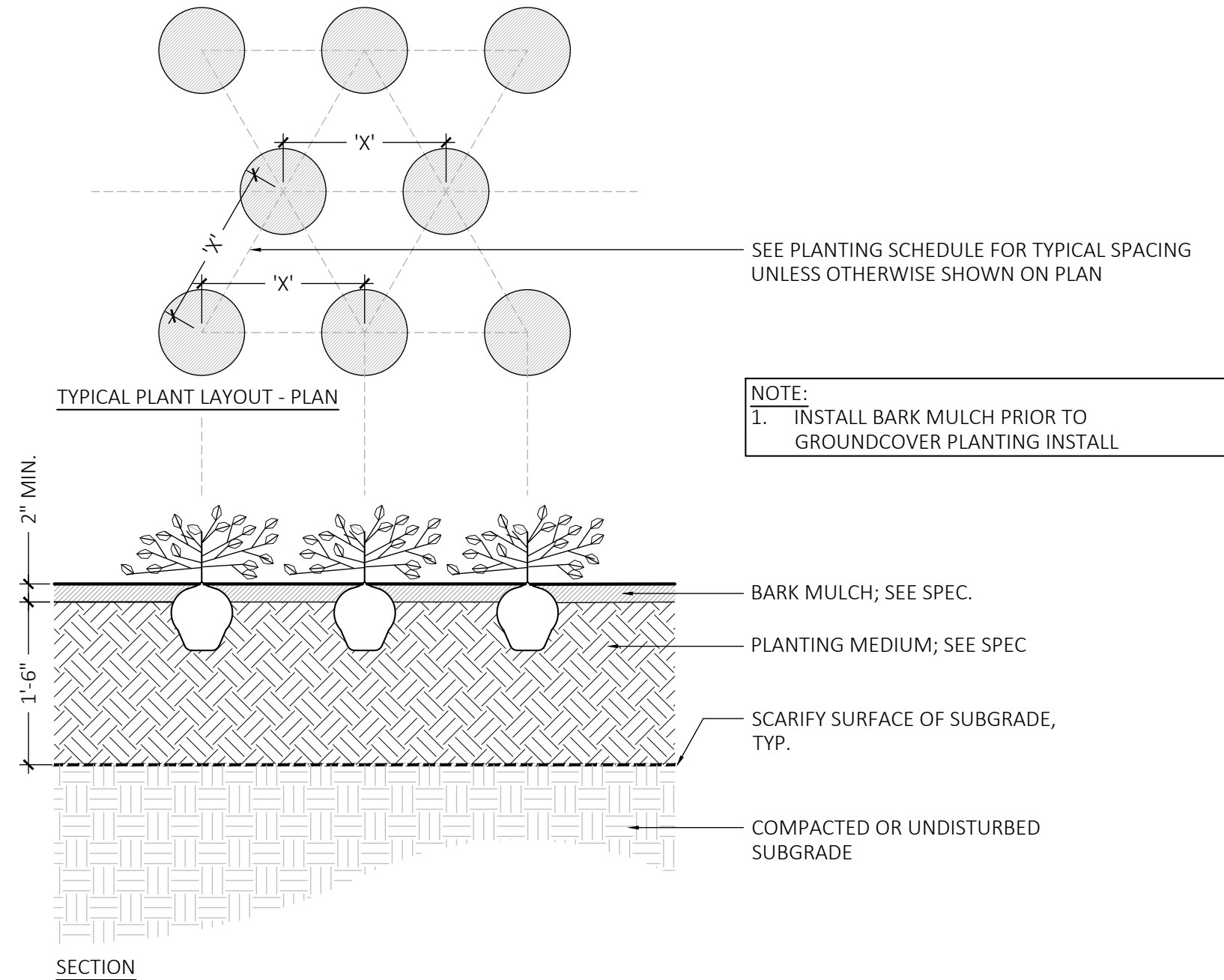
L-5



SECTION

1 LAWN PLANTING

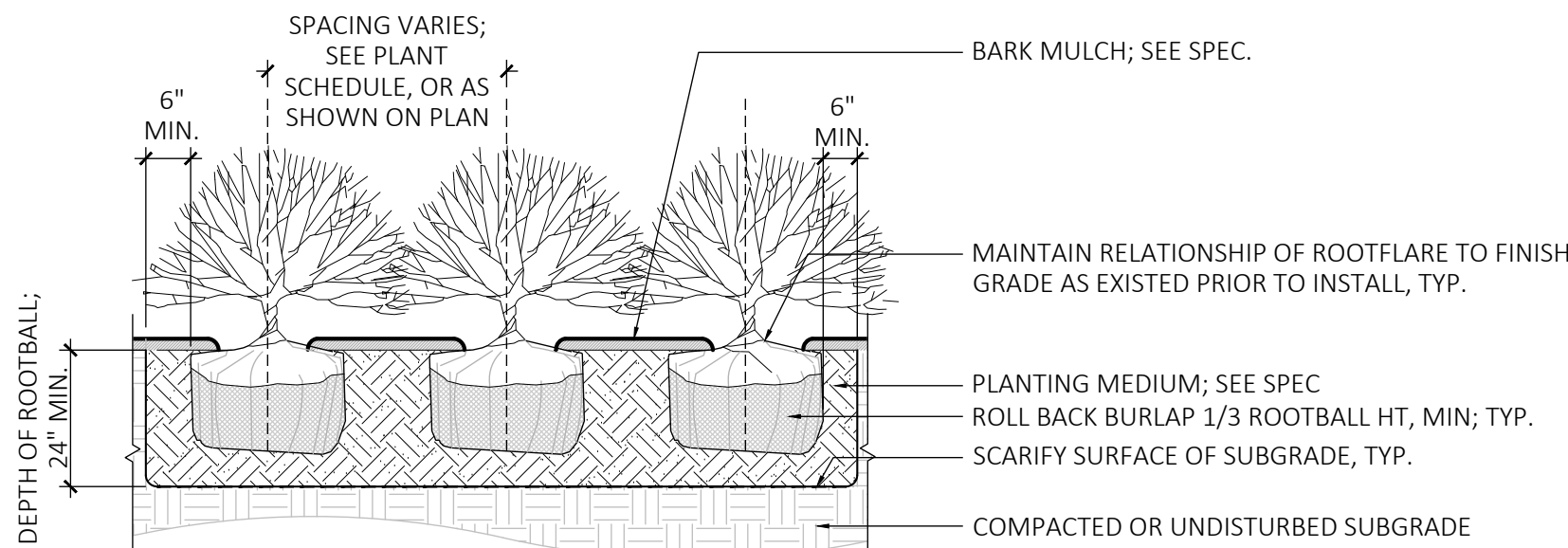
SCALE: $\frac{3}{4}" = 1'-0"$



SECTION

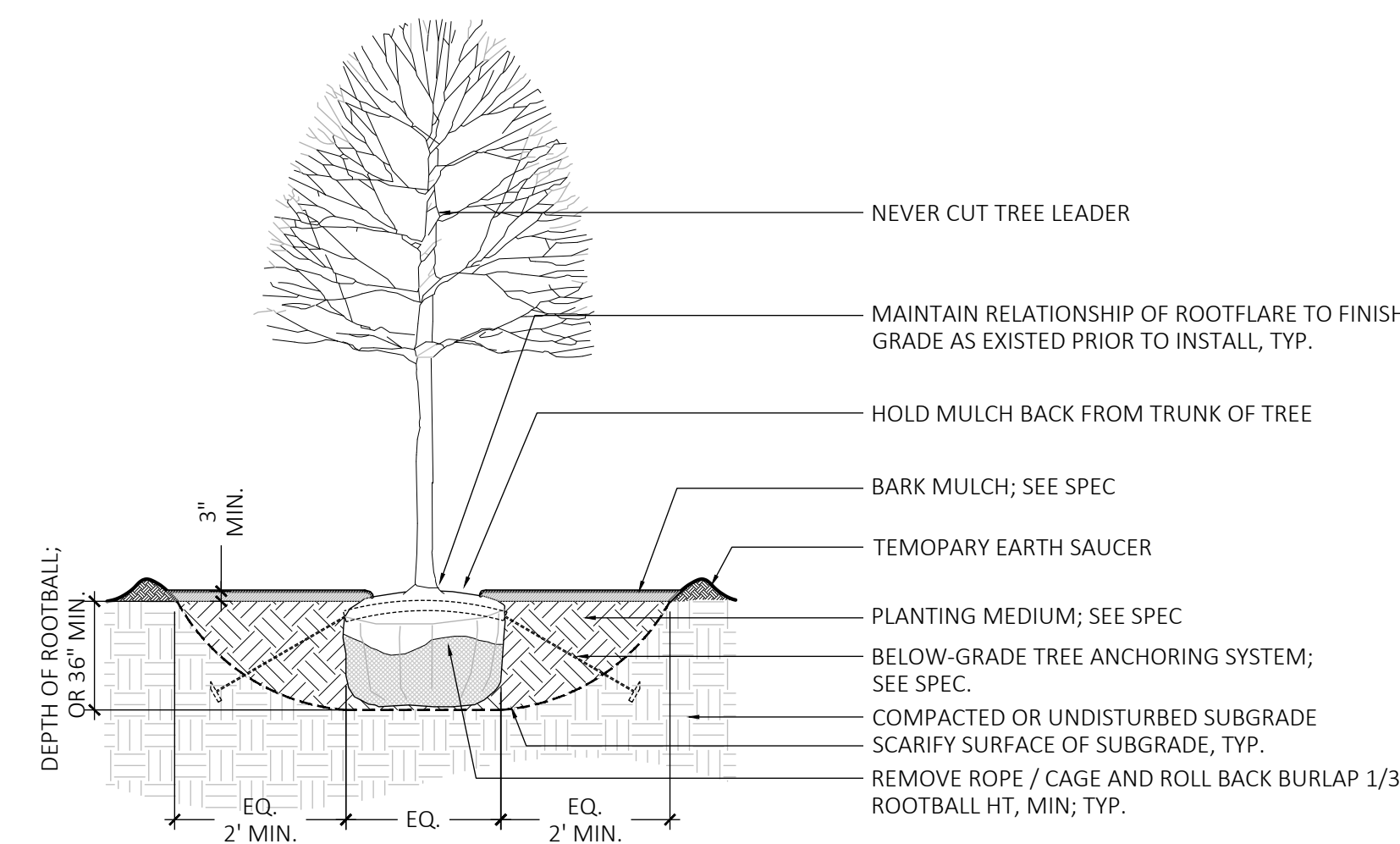
2 GROUND COVER PLANTING

SCALE: $\frac{3}{8}" = 1'-0"$



3 SHRUB PLANTING

SCALE: $\frac{3}{8}" = 1'-0"$

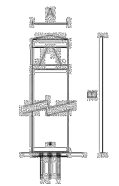


4 DECIDUOUS TREE PLANTING

SCALE: $\frac{3}{8}" = 1'-0"$

KLOU180 large

Arcluce Code
Code Ref. S-KL0203US-12S
0871001D-830-12US



TECHNICAL INFORMATION

Light source:	LED, 3000K, 19W, 2600lm, CRI>80
Light efficiency:	78lm/W
Power luminaire:	20W, 1550lm
LED life time:	> 50000h ~ L80 - B20 (Ta 25°C)
High colour consistency:	< 3 SDCM
Wiring:	120-277V 60Hz 0-10V
Optic:	radial
Color:	Black - 12
Weight:	24.03 lb
Size:	A: Ø 7" 1/4 B: 39" 3/8

Appliance

- Die-cast aluminium body (EN 47100).
- Extruded aluminium pole.
- Double layer polyester powder paint resistant to corrosion and salt spray fog.
- Silicone rubber gaskets.
- AISI 316 stainless steel external screws.
- Driver protected against voltage surges up to 4kV.
- Reflector made of 99.85 anodized aluminium with non-iridescent specular finishing.
- UV rays stabilized, V2 self-extinguishing transparent polycarbonate diffuser.
- Die-cast aluminium base (EN 47100).

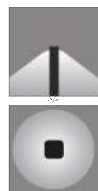
Installation

- Double M20 cable gland for through wiring.
- Galvanized and painted steel base plate with galvanized steel stud bolts.

Note

- 2700K on request

Arcluce



IP66

IK09

2.15 ft

2.15 ft

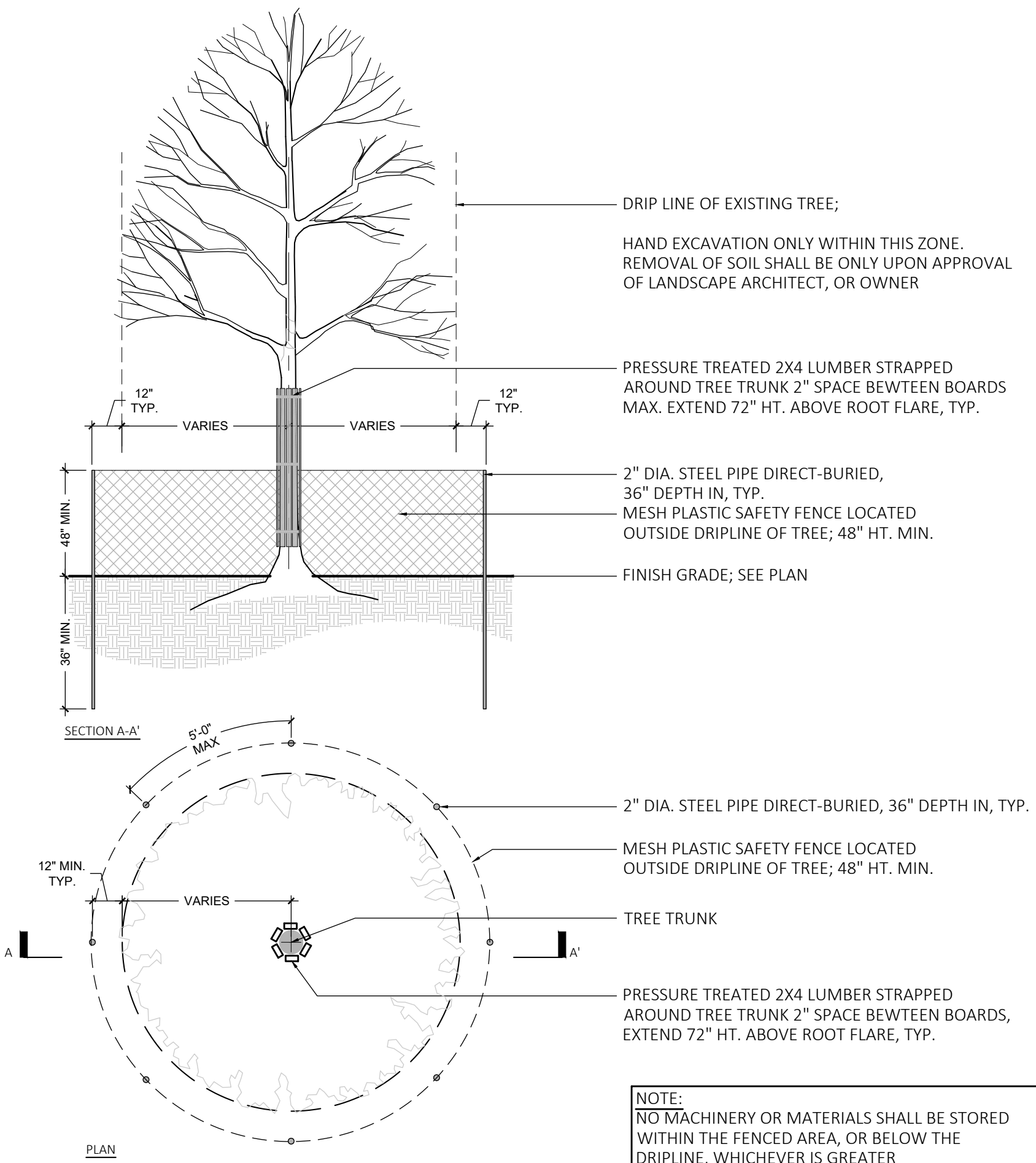
2.15 ft

2.15 ft

2.15 ft

5 LIGHT BOLLARD

SCALE: $\frac{3}{8}" = 1'-0"$



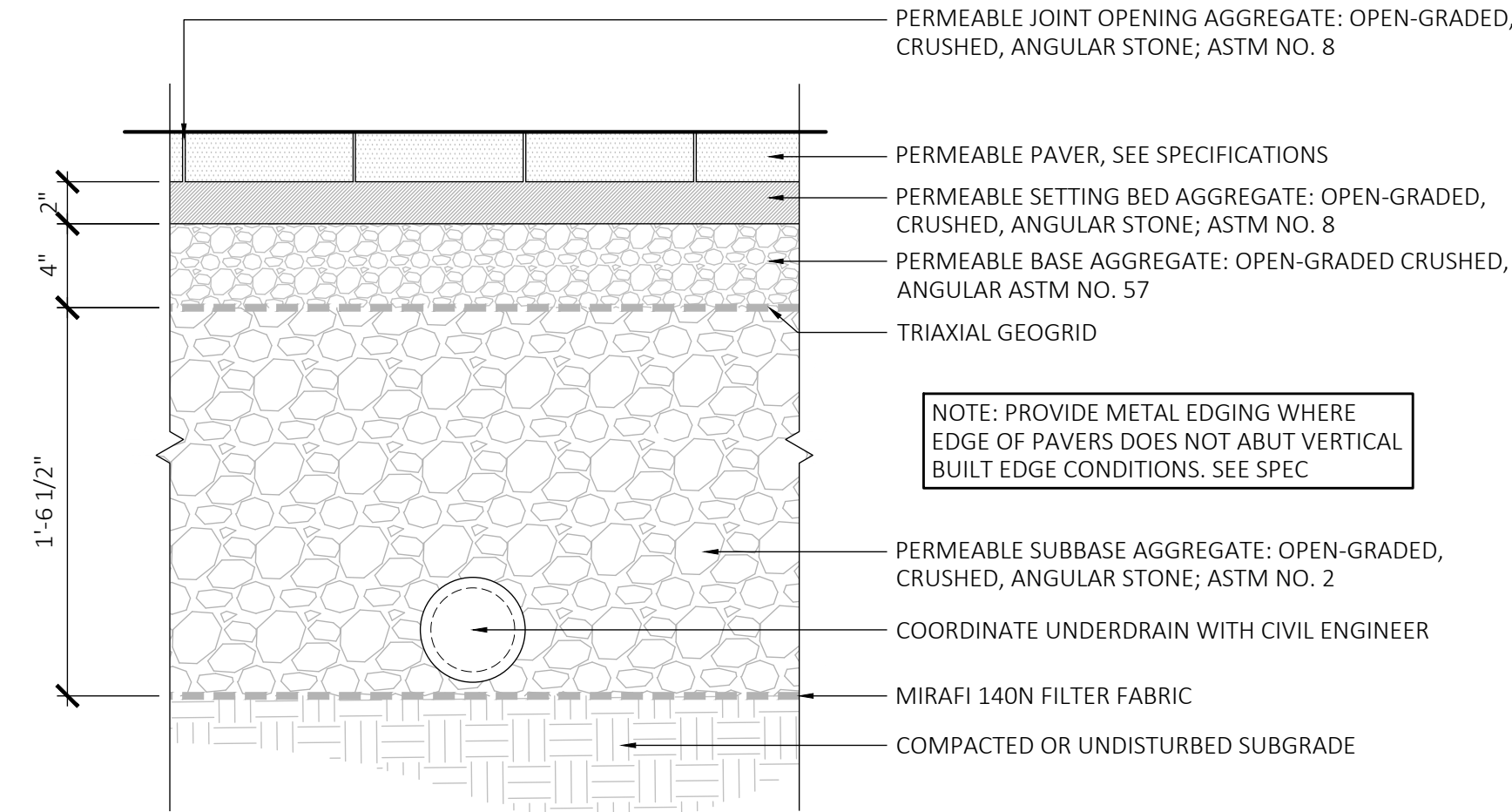
6 TREE PROTECTION FENCING

SCALE: $\frac{3}{8}" = 1'-0"$



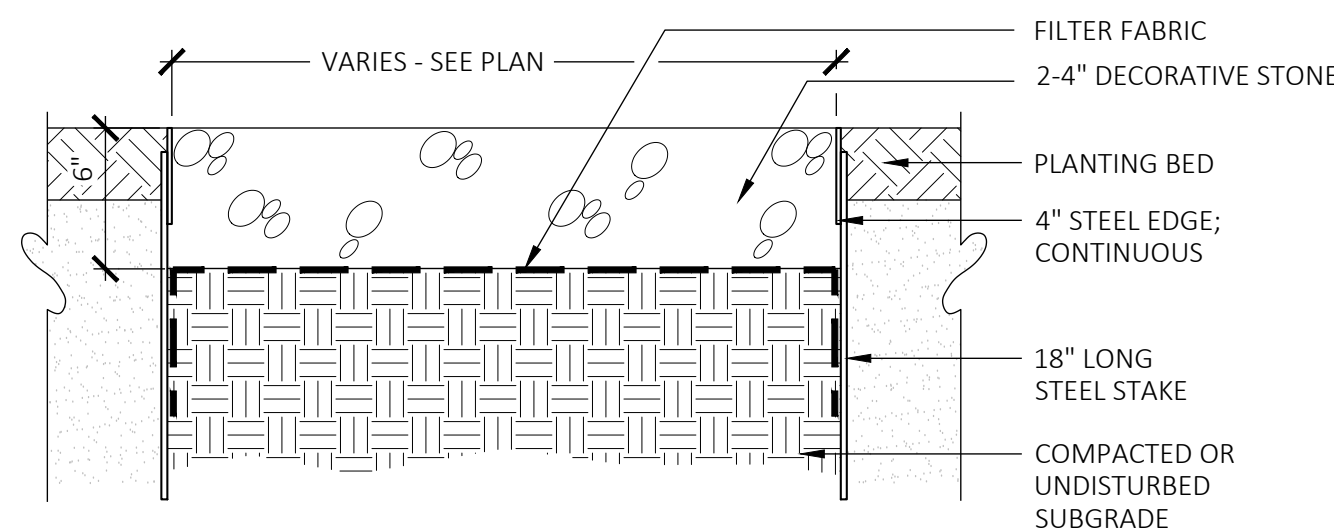
7 BLACK VINYL-COATED CHAIN LINK FENCE

SCALE: NTS



8 PERMEABLE PAVING

SCALE: 1-1/2" = 1'-0"



9 STONE MAINTENANCE SURFACING

SCALE: 1-1/2" = 1'-0"

SITE PLAN REVIEW SET

NOT FOR
CONSTRUCTION

RODE

535 Albany Street | 405
Boston, MA 02118
617.422.0090 | T
rodearchitects.com

Design Team

CIVIL
R.J. O'Connell & Associates
80 Montvale Ave #201
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LANDSCAPE

Michael D'Angelo Landscape Architecture
LLC
840 Summer Street, Suite 201A
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MDLA

MICHAEL D'ANGELO landscape architecture

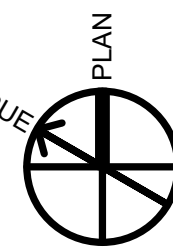


20 SEYON

10 - 30 MANLEY WAY
WATERTOWN, MA 02472

THE SEYON GROUP

535 Boylston St. 11th FL
Boston, MA 02116



PROJECT: 2301

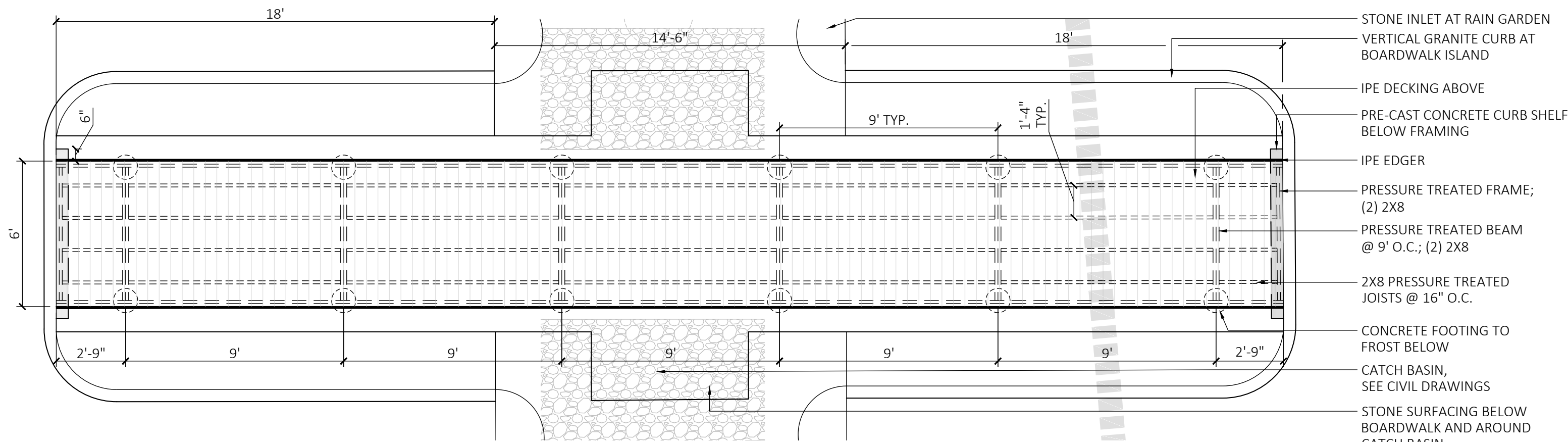
No.	Description	Date
1	Revised per City Comment	04/23/2024
2	Notice of Intent Submission	05/13/2024

DATE: 06.30.2023

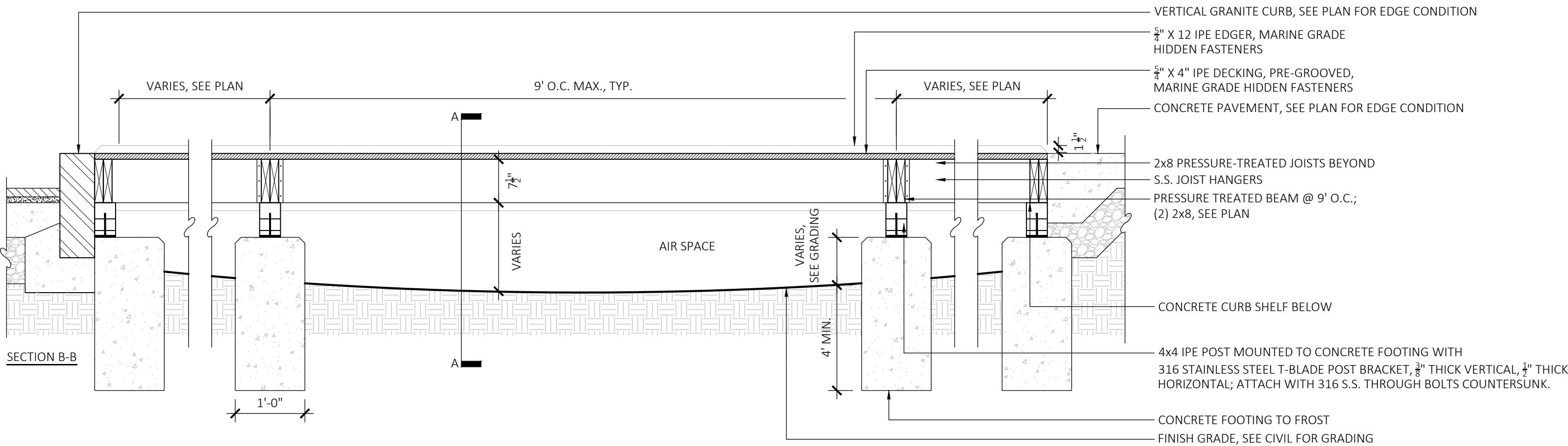
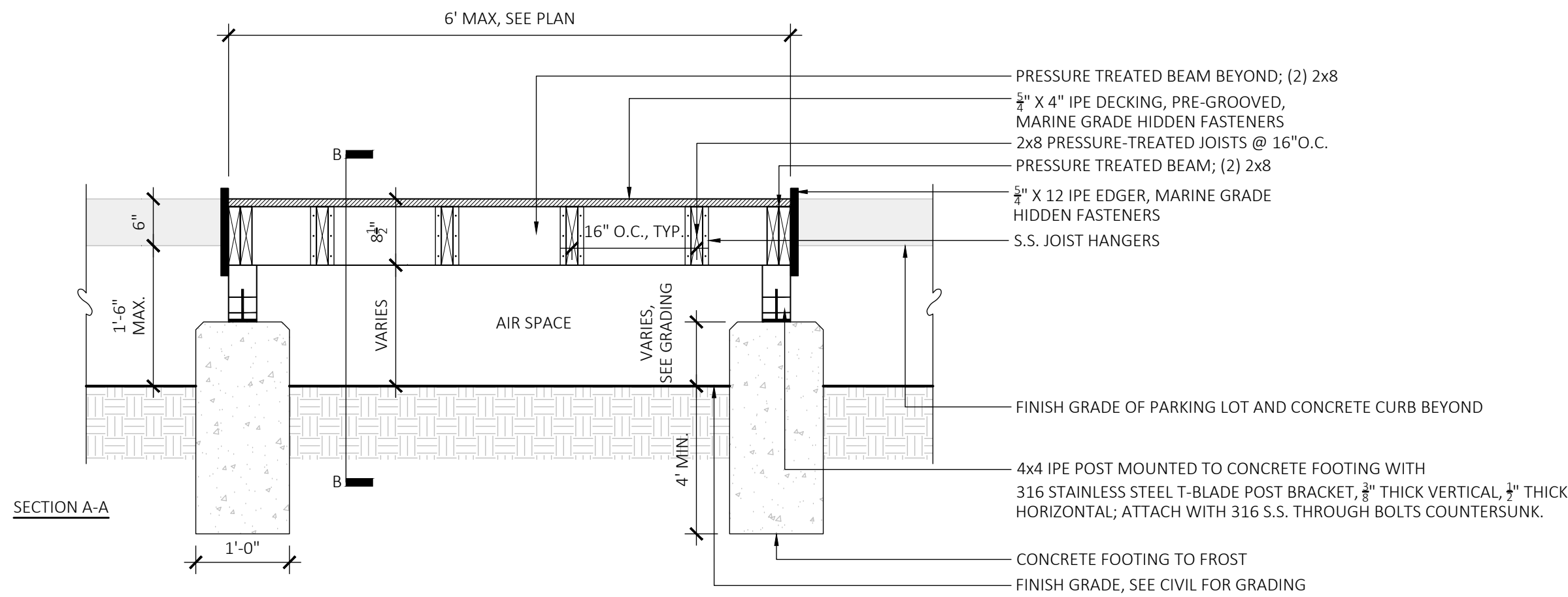
SCALE: AS NOTED

LANDSCAPE DETAILS

L-6



1 BOARDWALK - FRAMING PLAN
SCALE: 1" = 4'-0"



2 BOARDWALK SECTIONS
SCALE: 3/4" = 1'-0"

SITE PLAN REVIEW SET

NOT FOR
CONSTRUCTION

RODE

535 Albany Street | 405
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20 SEYON

10 - 30 MANLEY WAY
WATERTOWN, MA 02472

THE SEYON GROUP

535 Boylston St. 11th FL
Boston, MA 02116



PROJECT: 2301

No.	Description	Date
1	Revised per City Comment	04/23/2024
2	Notice of Intent Submission	05/13/2024

DATE: 06.30.2023

SCALE: AS NOTED

LANDSCAPE DETAILS

L-7

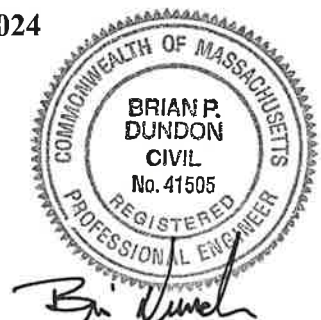
Stormwater Report

10-30 Manley Way Watertown, Massachusetts

Prepared for:
PPF Industrial 20 Seyon LLC
c/o Seyon
535 Boylston Street
11th Floor
Boston, MA 02116

Prepared by:
R.J. O'Connell & Associates, Inc.
80 Montvale Ave, Suite 201
Stoneham, MA 02180

Date: June 30, 2023
Revised: March 19, 2024



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I. STORMWATER REPORT NARRATIVE

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1.0 Introduction

RJ O'Connell & Associates, Inc. (RJOC) has prepared this stormwater report on behalf of PPF Industrial 20 Seyon LLC for proposed pavement and stormwater management improvements at 10-30 Manley Way in Watertown, Massachusetts. The report presents proposed stormwater management measures that will increase groundwater recharge, reduce peak rates of runoff to the designated design points and significantly improve the water quality of runoff discharged from the site.

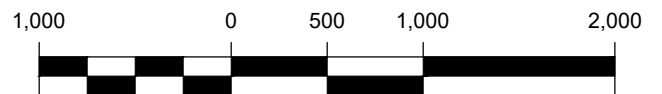
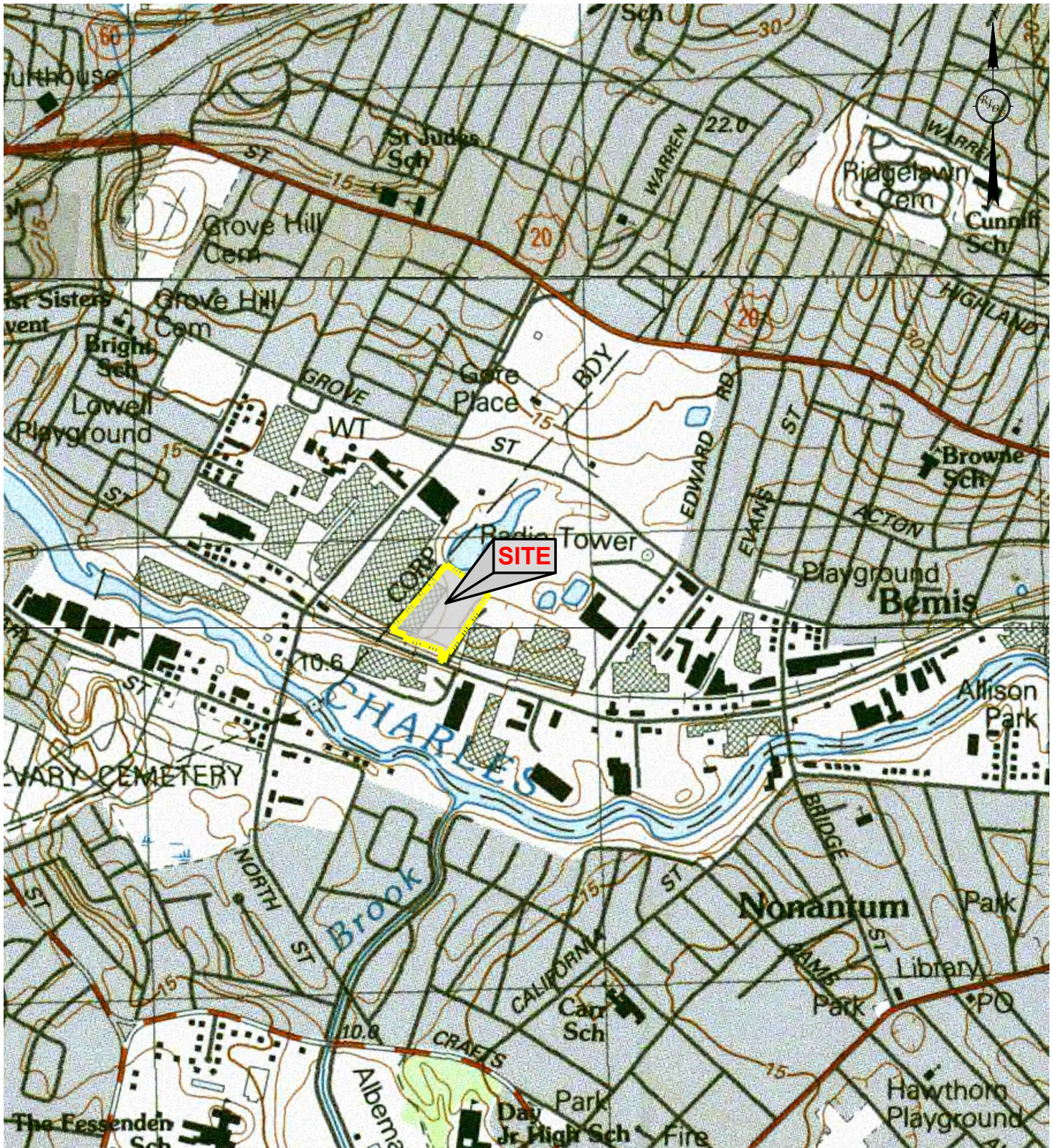
2.0 Site Location and Description

10-30 Manley Way is a 5.26 acre site located off Pleasant Street in Watertown, Massachusetts at the Waltham -Watertown city line (see Figure 1 USGS Map). It is bordered by BJ's Wholesale Club on the west, Walker Pond and Bell Watertown Apartments on the north, Repton Place Condominiums to the east and Watertown Ford and Pleasant Street on the south. Presently a 95,000 sf, one-story building, unoccupied except for Boston Rhythmic, a gymnastics school, is located on the site.

The site includes approximately 80% impervious cover, consisting of the building, paved parking, paved truck loading dock area, paved access driveways and vehicle circulation. In addition, the site has easement rights over abutting properties to provide the space needed for access and circulation at the loading docks and for drainage outfalls and utility services.

Currently, stormwater runoff from existing site discharges to two ultimate design points (DP), one being an existing 72" culvert traveling under Pleasant Street and the other being the abutting property, to the southwest, owned by Watertown Ford. Runoff from the paved parking area drains to a grassed swale and is conveyed through a drainage pipe network along with runoff from the building's roof to Walker Pond. There are three existing drainage outfalls from the site into Walker Pond. Water retained within Walker Pond is then conveyed via an existing outlet control structure to the city's 72" culvert (DP-1). Most of the stormwater runoff from the existing paved driveway on the east side of the building sheet flows off the driveway, down the slope and into the grass swale located on the adjacent Repton Place property. The grass swale conveys stormwater to a catch basin on the city's 72-inch culvert (DP-1). There is also a single catch basin in the easterly driveway with a pipe that appears to connect to the 72-inch culvert (DP-1). Additionally, the driveway entrance, adjacent to Pleasant Street, and a portion of the grassed area to the south of the existing building direct stormwater via overland flow to the abutting property owned by Watertown Ford (DP-2).

As documented in the Downgradient Property Status Opinion (DPSO) filed with MassDEP for Release Tracking Number (RTN) 3-25832, chlorinated volatile organic compounds (CVOC's) originating from an upgradient, off-site source property, have been detected in groundwater at the Site.



GRAPHIC SCALE IN FEET

DESIGNED BY: DRAWN BY: REVIEWED BY: SCALE: DATE:	BJM/JJS MCR BJM 1" = 1,000' 03/19/2024	PREPARED BY: RJOC RJOC'CONNELL & ASSOCIATES, INC. CIVIL ENGINEERS, SURVEYORS & LAND PLANNERS 80 MONTVALE AVENUE, SUITE 201 STONEHAM, MA 02180 PHONE: 781.279.0180 RJOC'CONNELL.COM	PROJECT NAME: 10-30 MANLEY WAY WATERTOWN, MA	DRAWING NAME: USGS MAP	DRAWING NO: FIG-1
PROJECT NUMBER:	21049				

3.0 Proposed Project

The proponent has proposed the renovation and repositioning of the existing building for occupancy by a tenant or tenants whose use will be light industry, non-nuisance manufacturing, laboratories, or warehousing. There will be no expansion of the building or parking areas. Impervious area will be reduced with the removal of the emergency access drive around the northwest corner of the building and the widening of the grassed swale in the parking area.

The proposed project will incorporate the following stormwater management measures:

1. Reduction in impervious area by approximately 8,000 sf.
2. Remove the emergency access drive around the northwest corner of the building and replace it with grass.
3. Increase the size of the grassed swale in the parking area.
4. Installation of proprietary treatment devices to improve water quality.
5. Installation of subsurface stormwater infiltration systems to provide the required Total Suspended Solids (TSS) and Total Phosphorus (TP) removal.
6. Updated Stormwater Operation and Maintenance Plan and Long-Term Pollution Prevention Plan.

The proposed project includes reclamation of the asphalt pavement in the access drive (Manley Way) that runs along the east side of the building to the loading dock area in the rear (north side) of the building, the pavement in the loading dock area and the pavement in the parking lot.

In the parking area the existing grassed swale extends down the middle of the parking lot collects runoff from the lot and discharges it into a water quality unit (Vortechs Model 1000) before out-letting into Walker Pond. The grassed swale will be widened from 7 ft to 14.5 ft. with new catch basins with deep sumps and hoods installed to collect runoff from the parking lot. The catch basins will drain to a CDS water quality unit before discharging to a subsurface infiltration basin for removal of Total Phosphorous (TP) and Total Suspended Solids (TSS). The subsurface infiltration system in the parking area consists of perforated high-density polyethylene (HDPE) pipes encased in crushed stone and is sized to hold and infiltrate the volume of stormwater runoff equivalent to the 100-year storm event over the paved area minus the volume of water retained and infiltrated in the Manley Way infiltration systems.

The sidewalk along the west side of the building will be reduced in width and new curbing within the parking lot installed in order to maintain the required amount of parking and to accommodate a revised traffic pattern within the lot due to the widened grassed swale. Curbing in the access drive along the south side of the building will also be adjusted to provide additional landscaping in front of the building. In addition, the asphalt pavement in the access drive around the northwest corner of the building will be

removed and replaced with grass. Converting asphalt pavement to grass, widening the grassed swale, and increasing landscaping in front of the building will increase the amount of pervious area on-site resulting in increased recharge to groundwater, and decreased peak rates of stormwater runoff from the site to the designed design points.

In Manley Way and the loading dock area, the asphalt pavement will be pulverized and removed, and the existing base course fine graded with minor elevation adjustments to promote more positive drainage. Existing catch basins will be removed and new cubing will direct storm runoff to hydrodynamic oil/particle separators (CDS units) equipped with grates installed at low points to collect storm runoff that is currently sheet flowing overland and untreated off-site onto the adjacent Repton Place property. The CDS units will pretreat collected runoff before discharging into subsurface infiltration systems for treatment of phosphorous and additional removal of Total Suspended Solids (TSS). The subsurface infiltration systems in Manley Way consist of perforated high-density polyethylene (HDPE) pipes encased in crushed stone and due to site constraints are only sized to hold and infiltrate the first inch of runoff which provides all the required water quality treatment.

As the infiltration systems in Manley Way are designed to retain 1-inch of stormwater runoff, a portion of the existing building roof will be directed into the subsurface infiltration system in the parking area. This roof area will provide the additional volume of stormwater required to meet the retention volume for the 100-year storm on Manley Way.

The proposed redevelopment project will result in significant improvement of runoff control and water quality that will be accomplished by implementing the following Best Management Practices (BMPs):

- Implement a Stormwater Pollution Prevention Plan (SWPPP) to control erosion and sedimentation during construction.
- Collect storm runoff in off-line, hydrodynamic oil/particle separators with grates and/or catch basins with deep sumps and hoods directed to oil/particle separators in the areas of pavement reclamation to remove a minimum of 50% TSS from the first 1-inch of runoff prior to infiltration.
- Construct subsurface infiltration systems to detain and infiltrate the first 1-inch of runoff from the areas of pavement reclamation on site, thereby removing 100% of the annual load of total phosphorous and 100% of TSS from these areas and increasing groundwater recharge on site.
- Construct a subsurface infiltration system in the parking area to retain and infiltrate the volume of stormwater runoff needed for the 100-year storm event over the on-site paved areas.

- Widen the existing grassed swale in the parking lot and replace the asphalt pavement in the emergency access drive around the northwest corner of the site with grass thereby increasing the amount of pervious area on site resulting in an increase in groundwater recharge and a reduction in peak rates of storm runoff from the site.
- Implement an updated Operations and Maintenance (O&M) Plan for the proposed stormwater management system that describes the various components of the system, identifies inspection and maintenance tasks, and provides a schedule to follow to insure the proper, long-term performance of the system.

As documented in the Downgradient Property Status Opinion (DPSO) filed with MassDEP for Release Tracking Number (RTN) 3-25832, chlorinated volatile organic compounds (CVOC's) originating from an upgradient, off-site source property, have been detected in groundwater throughout the Site. However, through consultation with the project environmental engineers it was determined that stormwater infiltration can be provided in the new stormwater management system for the retention and infiltration of all stormwater, from the on-site paved areas, for storms up to the 100-year storm event. Due to existing utilities and area constraints within Manley Way it is not feasible to accommodate the size of systems required to fully retain and infiltrate the stormwater runoff for a 100-year storm event on the impervious areas within Manley Way. Therefore, Subsurface Infiltration System (SIS)-1 through SIS-5 are sized to only infiltrate the first inch of runoff to provide the required TSS and TP removal rates. To make up for the difference in retention of the 100-year storm on Manley Way, a 36,520 s.f. portion of the existing roof will be connected to SIS-6 in the parking area on the other side of the building. This will provide an overall infiltration volume equivalent to the volume of runoff from the 100-year storm event over the on-site paved areas.

The proposed stormwater management measures described above result in no adverse impacts to adjacent properties. Because existing pervious area on-site is increased and on-site retention of the 100-year storm event is provided, peak rates of runoff and volumes discharged from the site will decrease significantly and the water quality of storm runoff from the site will be greatly improved, thereby significantly improving existing conditions and providing an overall benefit to the surrounding area. Calculations that demonstrate the removal percentages of the proposed average annual load of Total Phosphorus and TSS removal from the parking area, the loading dock area and Manley Way as a result of the pretreatment and treatment measures proposed in these areas are provided Section II.

4.0 Compliance with MassDEP Stormwater Standards

This redevelopment project consists of rehabilitating deteriorated areas of pavement and improving the existing drainage system on site. As such, it is required to meet the following Stormwater Management Standards only to the maximum extent practicable;

Standards 2 and 3 and the pretreatment and structural stormwater best management practice requirements of Standards 4, 5 and 6. Best Management Practices (BMPs) have been incorporated into the design to comply with Stormwater Management Standards as described below:

Standard 1: No new stormwater conveyances may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.

No new stormwater conveyances discharging untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth are proposed.

Standard 2: Stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates.

As a result of the proposed widening of the existing grassed swale in the parking area, removal of the paved access drive and replacement with grass at the northwest corner of the building and installation of subsurface infiltration basins around the site for treatment of Total Phosphorous and TSS there is a decrease in post-redevelopment peak discharge rates of runoff from the site.

Standard 3: Loss of annual recharge to groundwater shall be eliminated or minimized through the use of infiltration measures including environmentally sensitive site design, low impact development techniques, stormwater best management practices, and good operation and maintenance. At a minimum, the annual recharge from the post-development site shall approximate the annual recharge from pre-development conditions based on soil type. This standard is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook.

Widening the existing grass swale in the parking area and converting the paved access drive around the northwest corner of the building to grass in addition to the proposed subsurface infiltration systems to be located in Manley Way, the loading dock area and the parking lot, will result in a significant increase in the annual recharge to groundwater under redeveloped conditions compared to existing conditions.

Standard 4: Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS).

The proposed stormwater management system has been designed to remove 100% of TSS from the areas of pavement; Manley Way, the loading dock area and the parking lot (see TSS removal calculations in Section II).

Standard 5: For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable.

The project is not classified as a land use with higher pollutant loads however, a detailed source control and pollution prevention plan that includes measures to eliminate or minimize any discharges that have the potential to generate high concentrations of pollutants has been developed and is included in the updated Operations and Maintenance (O&M) Plan developed for the site.

Standard 6: Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply, and stormwater discharges near or to any other critical area, require the use of the specific source control and pollution prevention measures and the specific structural stormwater best management practices determined by the Department to be suitable for managing discharges to such areas, as provided in the Massachusetts Stormwater Handbook.

The site is not located within a Zone II or wellhead protection area.

Standard 7: A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pre-treatment and structural best management practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A development project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.

This project qualifies as a redevelopment project and will comply with the Stormwater Management Standards to the maximum extent practicable as indicated herein. The proposed stormwater management measures to be implemented will significantly improve existing conditions.

Standard 8: A plan to control construction-related impacts including erosion, sedimentation and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentations, and pollution prevention plan) shall be developed and implemented.

A Stormwater Pollution Prevention Plan (SWPPP) to control erosion, sedimentation, and other pollutant sources, and prevent erosion and sediment from moving off-site during construction and land disturbance activities will be prepared and filed prior to construction. Erosion and Sediment Control Plans are included in the site plan set.

Standard 9: A long-term operation and maintenance plan shall be developed and implemented to ensure that stormwater management systems function as designed.

An updated Operation and Maintenance Plan (O&M) to ensure the long term, post-construction operation of the stormwater management system is attached.

Standard 10: All illicit discharges to the stormwater management system are prohibited.

An illicit discharge compliance statement is included in the Operation and Maintenance Plan.

5.0 Compliance with Watertown Stormwater Performance Standards

The site discharges into the Town of Watertown's storm drain system and is regulated by the *Town of Watertown's Rules and Regulations for Stormwater Management and Erosion Control*.

Redevelopment projects shall comply with the performance standards of the Massachusetts Stormwater Management Standards, except as hereafter amended in these rules and regulations, Redevelopment shall meet the performance standards in Section 8.1 and Section 8.3.

Section 8.1 Stormwater Quality Standards

- *All projects shall implement low impact development (LID) planning and design strategies unless such practices are infeasible. LID practices shall include but not limited to, soil decompaction and amendments, grading to direct runoff toward pervious surfaces, and minimizing impervious surfaces. Additional guidelines on LID practice are provided in the Massachusetts Stormwater Handbook.*

This redevelopment project will reduce impervious area and increase landscaping as well as stormwater quality treatment area

- *All projects shall provide removal of 90% proposed average annual load of TSS and 60% of the proposed average annual load of TP generated from total proposed impervious surfaces.*

The proposed stormwater management improvements will provide 90% TSS and 60% phosphorus removal.

- *In no instance shall there be an increase in the estimated annual average load of TP from existing to proposed condition.*

There will not be an increase in the average load of TP.

- *To support compliance with the Charles River Watershed, phosphorus TMDL and the Towns MS4 permit, all BMPs shall be optimized for the removal of phosphorus. Guidelines of BMP phosphorus removal performance are found in MS4 permit.*

The proposed BMP's have been optimized for the removal of phosphorus.

Section 8.2 Retention Standard for Redevelopment Projects

For all redevelopment projects, stormwater management systems shall be designed to provide, to the maximum extent practicable, retention of stormwater runoff for all storm events up to and including the 100-year storm. Retention may be achieved by infiltrating stormwater runoff into underlying soils or by storing rainwater for use. For

redevelopment projects with conditions that preclude infiltration, the storage volume for filtration practices may count toward meeting the retention standard. If the retention standard cannot be fully met, the applicant shall meet the maximum extent practicable standards specified in Section 8.3.1 and provide offsite compliance as specified in Section 8.3.2.

The following calculations illustrate the proposed site improvements comply with Section 8.2:

- o Total impervious areas within proposed disturbed areas = 95,912 SF
- o 100-yr Storm runoff volume in proposed disturbed areas = 72,155 CF
- o Total infiltration volume provided within SIS-1 through SIS-6 = 73,374 CF

(Provided infiltration volume exceeds the total runoff volume for the 100-year Storm from the impervious areas proposed within the disturbed areas.)

6.0 Stormwater Quality

This project includes suitable BMPs to pretreat runoff from the areas to be repaved prior to discharging to subsurface infiltration systems for treatment and removal of over 90% of the average annual post construction load of TSS and over 60% of the estimated annual average load of Total Phosphorous (see TSS and Phosphorous removal calculations in Section II).

- Catch Basins

Stormwater runoff from pavement areas will be directed via curbing and site grading to catch basins with deep sumps and hooded outlets. Catch basins trap and remove sediments and larger particles from stormwater runoff and improve the performance of subsequent BMPs. The catch basin sumps will be a minimum of 4 feet in depth and a regular inspection and cleaning schedule will be followed to ensure optimal effectiveness. When properly constructed and maintained, catch basins with deep sumps and hooded outlets are effective in reducing the sediment and pollutant load in runoff.

- Hydrodynamic Oil/Particle Separators

Hydrodynamic oil/particle separators (CDS units as manufactured by *Contech Construction Products, Inc.*) are precast concrete structures equipped with grates and are designed to remove settleable solids and floating contaminants from stormwater runoff. The proposed oil/particle separators achieve at least 50% TSS removal rates per the NJCAT (NJDEP) Field Test Certifications and this rate was used in the TSS removal calculation. Low storm flows are directed into a treatment chamber where floatables and buoyant debris are trapped and settleable solids sink to the sump of the structure. Larger flows are controlled by an internal diversion weir, which directs high intensity storm events around the treatment chamber, so the drainage system does not backwater. Runoff from the first 1-inch of runoff from the repaved surface areas will be routed through oil/particle separators for pre-treatment prior to discharging into subsurface infiltration systems for treatment. Regular inspection and cleaning schedules will be followed to ensure optimal effectiveness.

- **Subsurface Infiltration Systems**

Stormwater runoff from repaved areas of the site will be directed into subsurface infiltration systems consisting of perforated high-density polyethylene (HDPE) pipes encased in crushed stone after proper pretreatment by hydrodynamic oil/particle separators and/or catch basins. The subsurface infiltration systems are sized to hold and infiltrate the volume of runoff from a 100-year storm event over the repaved areas.

7.0 Soil Data

Soil data has been compiled using the Natural Resources Conservation Services (NRCS) Web Soil Survey tool. The soil survey identified soils on the site as Urban Land, with no HSG designation. Refer to Figure 4, NRCS Web Soil Survey Map in Appendix A. Based on subsurface soil explorations as described below, sand classification was used for design, a HSG-A rating was assigned to the area classified as Urban Land.

Test pits were performed by RJ O’Connell & Associates on February 8, 2023. Test pits were located at or near the proposed locations for the subsurface infiltration systems and the existing bioretention area (see Figure 3, Test Pit Location Map in Appendix A). Soils encountered were generally fine to medium sand and gravel with no groundwater observed to the bottom of the holes, as depicted in the soil logs attached in the Appendix A.

A subsurface infiltration Rawls rate of 8.27 in/hr. was used in the design of all subsurface infiltration systems. The systems have also been designed to provide a minimum of two (2) feet of separation from the bottom of the test hole. No groundwater was observed in any of the test pits.

8.0 Hydrologic Methodology

Pre- and post-development drainage analyses were performed for the 1-inch, 2, 10, 25 and 100-year storm events. Rainfall events have been compiled by NOAA Atlas 14 values for extreme precipitation for the region as noted below:

County	1-inch	2-year	10-year	25-year	100-year
Middlesex	1.0 in.	3.2 in.	4.9 in.	6.2 in.	8.9 in.

The NRCS method uses several parameters based on watershed characteristics and configuration to generate a curvilinear unit hydrograph and produce a runoff hydrograph for the watershed. Basic input data required to generate a hydrograph are the watershed area, storm frequency, time of concentration, 24-hour rainfall, and the watershed’s runoff curve number.

Sizing of the subsurface infiltration systems (SIS-1 through SIS-5) to hold and infiltrate the 1-inch water quality volume was performed using HydroCAD version 10.00, which is based on the National Resources Conservation Service (NRCS) Technical Release 20

(TR-20) methodology for computing peak discharges from rainfall runoff for urban and rural watersheds.

The NRCS method uses several parameters based on watershed characteristics and confirmation to generate a curvilinear unit hydrograph and produce a runoff hydrograph for the watershed. Basic input data required to generate a hydrograph are the watershed's area, time of concentration (6 minute minimum), precipitation amount (1-inch), and the watershed's runoff curve number.

NRCS Technical Release 55 (TR-55) methodology was utilized to determine weighted runoff curve number (CN) for the watershed areas. Inputs for obtaining the weighted CN was determined based on ground cover type and the Hydrological Soil Group (HSG), as described in the Soil Data section above. Time of concentration (Tc) was determined based on the most hydrologically distant point (timewise) within the watershed.

Watershed boundaries were established based on existing and proposed grading and storm drainage layouts. (See Figures for Subcatchment Plans)

8.2 Post-development Hydrological Conditions

Under proposed redeveloped conditions, deep-sump catch basins with hooded outlets, water quality units and subsurface infiltration systems will treat and infiltrate stormwater runoff. During larger storm events, stormwater runoff from the surface and subsurface infiltration systems will overflow and discharge to the aforementioned design points (DP). Below is a comparison summary table of the pre- and post-development peak rates of runoff at the Design Points. The peak rates of stormwater discharged from the site for the storm events analyzed will be reduced under proposed conditions as compared to existing conditions.

Pre- and Post-Development Peak Rates of Runoff in Cubic Feet per Second (cfs)

Design Point #1 (72" Culvert)

Storm Frequency	Existing Flow Rate (cfs)	Proposed Flow Rate (cfs)	Existing Volume (cf)	Proposed Volume (cf)
2-Year	12.30	5.36	38,235	12,421
10-Year	21.90	10.34	69,174	25,781
25-Year	29.29	14.11	93,731	37,012
100-Year	44.54	21.98	145,841	67,871

Design Point #2 (Watertown Ford)

Storm Frequency	Existing Flow Rate (cfs)	Proposed Flow Rate (cfs)	Existing Volume (cf)	Proposed Volume (cf)
2-Year	0.29	0.00	845	0
10-Year	0.64	0.00	2,003	82
25-Year	0.97	0.03	3,026	230
100-Year	1.73	0.17	5,356	710

9.0 Hydraulic Analysis

A hydraulic analysis of the proposed storm drainage pipe system was performed for the proposed redevelopment using a spread sheet based on the rational method for estimating peak rates of runoff and the Continuity Equation and Manning's Equation for sizing pipes.

Pipes were sized to accommodate the calculated storm runoff from a regional 25-year frequency storm using a minimum time of concentration of 6 minutes. Pipe sizing calculations are provided in Section II, Calculations and Computations.

10.0 Summary

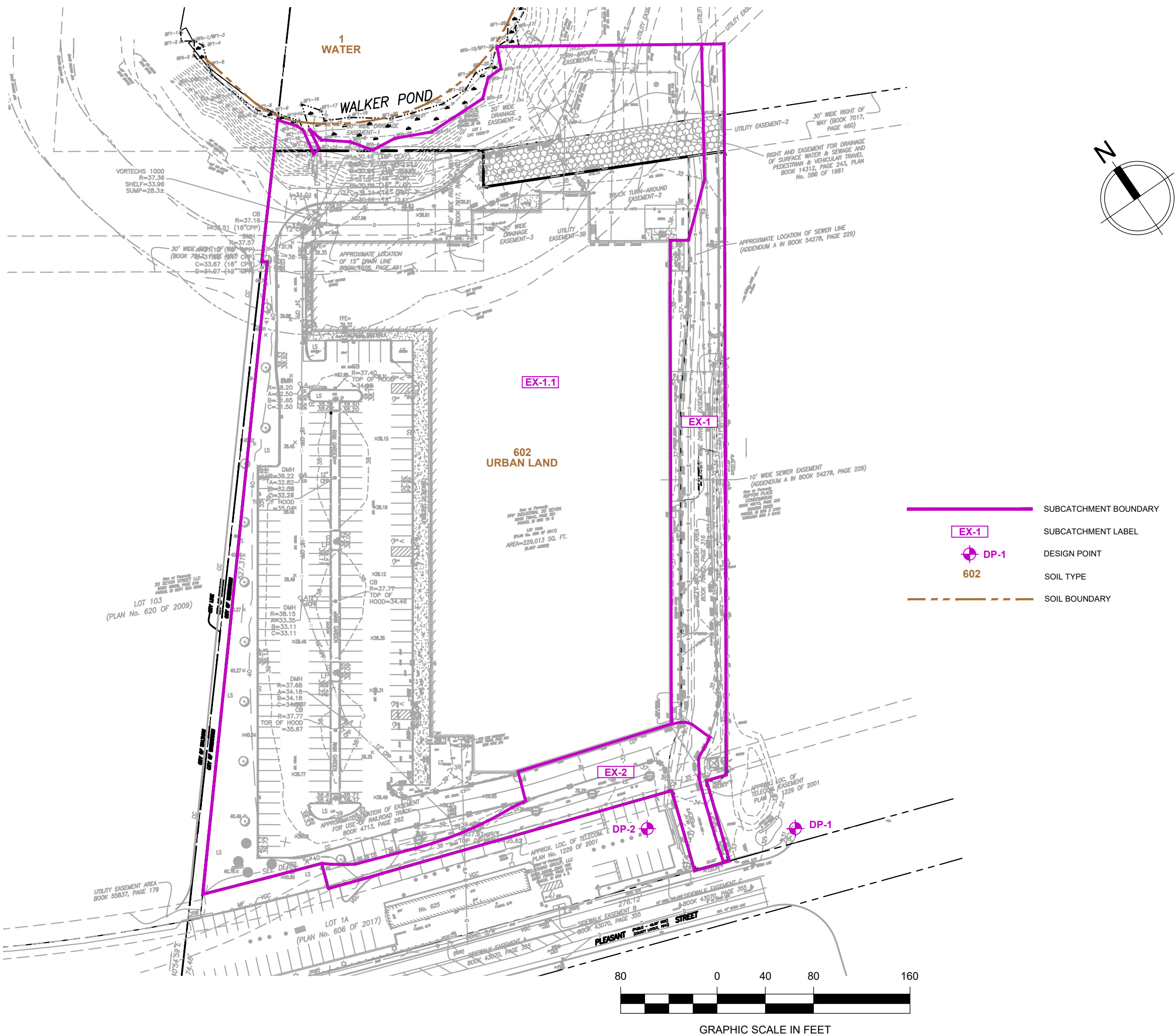
The stormwater management system for this proposed redevelopment includes measures for controlling, collecting, and treating stormwater runoff from the site. The improvements proposed herein will reduce peak flows and volumes of stormwater runoff leaving the site, increase groundwater recharge and significantly improve the water quality of runoff. The proposed measures comply with the Stormwater Management Standards of the Massachusetts Stormwater Policy and the Town of Watertown's Rules and Regulations for Stormwater Management and Erosion Control to the maximum extent practicable and represent a significant improvement over existing conditions. Implementing the inspection and maintenance program outlined in the Operations and Maintenance Plan will ensure the long-term performance of the drainage and treatment systems.

II. CALCULATIONS and COMPUTATIONS

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PRE-CONSTRUCTION HYDROLOGIC CALCULATIONS

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- SUBCATCHMENT BOUNDARY
- SUBCATCHMENT LABEL
- DESIGN POINT
- SOIL TYPE
- SOIL BOUNDARY

NOTE:
LOCATIONS AND TYPES OF SOIL DESIGNATIONS SHOWN HEREON HAVE BEEN DELINEATED BY USDA NATURAL RESOURCES CONSERVATION SERVICE (NRCS) AND COMPILED BY MA GIS

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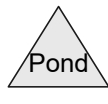
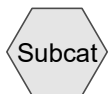
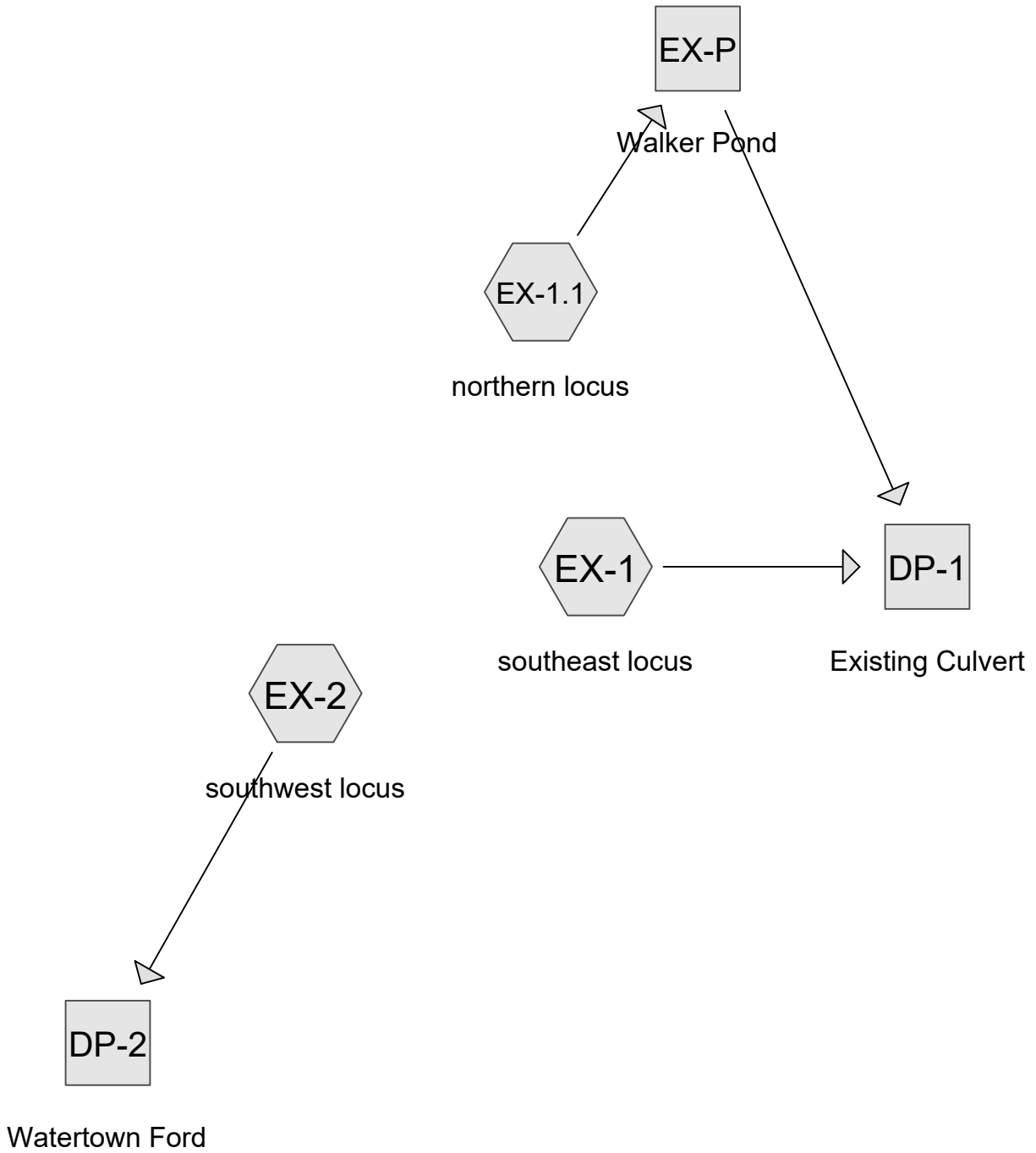
DATE: 03/19/2024

SCALE: 1"=80'

FIGURE 2

EXISTING WATERSHED PLAN

WATERTOWN, MA



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Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
31,848	39	>75% Grass cover, Good, HSG A (EX-1, EX-1.1, EX-2)
3,245	39	Crushed Stone (EX-1)
94,936	98	Existing Roof Area (EX-1.1)
108,148	98	Paved parking, HSG A (EX-1, EX-1.1, EX-2)
13,668	30	Woods, Good, HSG A (EX-1.1)
251,845	86	TOTAL AREA

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Type III 24-hr 2-Yr 24 Hr Rainfall=3.20"

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Summary for Subcatchment EX-1: southeast locus

Runoff = 0.68 cfs @ 12.09 hrs, Volume= 2,169 cf, Depth> 1.15"
 Routed to Reach DP-1 : Existing Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-Yr 24 Hr Rainfall=3.20"

	Area (sf)	CN	Description
*	3,245	39	Crushed Stone
	5,269	39	>75% Grass cover, Good, HSG A
	14,112	98	Paved parking, HSG A
	22,626	76	Weighted Average
	8,514		37.63% Pervious Area
	14,112		62.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Min. Engineering Practice

Summary for Subcatchment EX-1.1: northern locus

Runoff = 11.62 cfs @ 12.09 hrs, Volume= 36,066 cf, Depth> 1.99"
 Routed to Reach EX-P : Walker Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-Yr 24 Hr Rainfall=3.20"

	Area (sf)	CN	Description
*	94,936	98	Existing Roof Area
	13,668	30	Woods, Good, HSG A
	20,679	39	>75% Grass cover, Good, HSG A
	87,674	98	Paved parking, HSG A
	216,957	88	Weighted Average
	34,347		15.83% Pervious Area
	182,610		84.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	42	0.2200	0.17		Sheet Flow,
					Woods: Light underbrush n= 0.400 P2= 3.32"
2.0					Direct Entry, Min. Engineering Practice
6.0	42	Total			

Summary for Subcatchment EX-2: southwest locus

Runoff = 0.24 cfs @ 12.10 hrs, Volume= 845 cf, Depth> 0.83"
 Routed to Reach DP-2 : Watertown Ford

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-Yr 24 Hr Rainfall=3.20"

Area (sf)	CN	Description
5,900	39	>75% Grass cover, Good, HSG A
6,362	98	Paved parking, HSG A
12,262	70	Weighted Average
5,900		48.12% Pervious Area
6,362		51.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Min. Engineering Practice

Summary for Reach DP-1: Existing Culvert

Inflow Area = 239,583 sf, 82.11% Impervious, Inflow Depth > 1.92" for 2-Yr 24 Hr event
 Inflow = 12.30 cfs @ 12.09 hrs, Volume= 38,235 cf
 Outflow = 12.30 cfs @ 12.09 hrs, Volume= 38,235 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach DP-2: Watertown Ford

Inflow Area = 12,262 sf, 51.88% Impervious, Inflow Depth > 0.83" for 2-Yr 24 Hr event
 Inflow = 0.24 cfs @ 12.10 hrs, Volume= 845 cf
 Outflow = 0.24 cfs @ 12.10 hrs, Volume= 845 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach EX-P: Walker Pond

Inflow Area = 216,957 sf, 84.17% Impervious, Inflow Depth > 1.99" for 2-Yr 24 Hr event
 Inflow = 11.62 cfs @ 12.09 hrs, Volume= 36,066 cf
 Outflow = 11.62 cfs @ 12.09 hrs, Volume= 36,066 cf, Atten= 0%, Lag= 0.0 min
 Routed to Reach DP-1 : Existing Culvert

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

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Type III 24-hr 10-Yr 24 Hr Rainfall=4.90"

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Summary for Subcatchment EX-1: southeast locus

Runoff = 1.49 cfs @ 12.09 hrs, Volume= 4,620 cf, Depth> 2.45"
 Routed to Reach DP-1 : Existing Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-Yr 24 Hr Rainfall=4.90"

	Area (sf)	CN	Description
*	3,245	39	Crushed Stone
	5,269	39	>75% Grass cover, Good, HSG A
	14,112	98	Paved parking, HSG A
	22,626	76	Weighted Average
	8,514		37.63% Pervious Area
	14,112		62.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Min. Engineering Practice

Summary for Subcatchment EX-1.1: northern locus

Runoff = 20.41 cfs @ 12.09 hrs, Volume= 64,554 cf, Depth> 3.57"
 Routed to Reach EX-P : Walker Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-Yr 24 Hr Rainfall=4.90"

	Area (sf)	CN	Description
*	94,936	98	Existing Roof Area
	13,668	30	Woods, Good, HSG A
	20,679	39	>75% Grass cover, Good, HSG A
	87,674	98	Paved parking, HSG A
	216,957	88	Weighted Average
	34,347		15.83% Pervious Area
	182,610		84.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	42	0.2200	0.17		Sheet Flow,
					Woods: Light underbrush n= 0.400 P2= 3.32"
2.0					Direct Entry, Min. Engineering Practice
6.0	42	Total			

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Type III 24-hr 10-Yr 24 Hr Rainfall=4.90"

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Summary for Subcatchment EX-2: southwest locus

Runoff = 0.64 cfs @ 12.09 hrs, Volume= 2,003 cf, Depth> 1.96"
 Routed to Reach DP-2 : Watertown Ford

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-Yr 24 Hr Rainfall=4.90"

Area (sf)	CN	Description
5,900	39	>75% Grass cover, Good, HSG A
6,362	98	Paved parking, HSG A
12,262	70	Weighted Average
5,900		48.12% Pervious Area
6,362		51.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Min. Engineering Practice

Summary for Reach DP-1: Existing Culvert

Inflow Area = 239,583 sf, 82.11% Impervious, Inflow Depth > 3.46" for 10-Yr 24 Hr event
 Inflow = 21.90 cfs @ 12.09 hrs, Volume= 69,174 cf
 Outflow = 21.90 cfs @ 12.09 hrs, Volume= 69,174 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach DP-2: Watertown Ford

Inflow Area = 12,262 sf, 51.88% Impervious, Inflow Depth > 1.96" for 10-Yr 24 Hr event
 Inflow = 0.64 cfs @ 12.09 hrs, Volume= 2,003 cf
 Outflow = 0.64 cfs @ 12.09 hrs, Volume= 2,003 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach EX-P: Walker Pond

Inflow Area = 216,957 sf, 84.17% Impervious, Inflow Depth > 3.57" for 10-Yr 24 Hr event
 Inflow = 20.41 cfs @ 12.09 hrs, Volume= 64,554 cf
 Outflow = 20.41 cfs @ 12.09 hrs, Volume= 64,554 cf, Atten= 0%, Lag= 0.0 min
 Routed to Reach DP-1 : Existing Culvert

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

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Type III 24-hr 25-Yr 24 Hr Rainfall=6.20"

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Summary for Subcatchment EX-1: southeast locus

Runoff = 2.16 cfs @ 12.09 hrs, Volume= 6,692 cf, Depth> 3.55"
 Routed to Reach DP-1 : Existing Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-Yr 24 Hr Rainfall=6.20"

	Area (sf)	CN	Description
*	3,245	39	Crushed Stone
	5,269	39	>75% Grass cover, Good, HSG A
	14,112	98	Paved parking, HSG A
	22,626	76	Weighted Average
	8,514		37.63% Pervious Area
	14,112		62.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Min. Engineering Practice

Summary for Subcatchment EX-1.1: northern locus

Runoff = 27.13 cfs @ 12.09 hrs, Volume= 87,039 cf, Depth> 4.81"
 Routed to Reach EX-P : Walker Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-Yr 24 Hr Rainfall=6.20"

	Area (sf)	CN	Description
*	94,936	98	Existing Roof Area
	13,668	30	Woods, Good, HSG A
	20,679	39	>75% Grass cover, Good, HSG A
	87,674	98	Paved parking, HSG A
	216,957	88	Weighted Average
	34,347		15.83% Pervious Area
	182,610		84.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	42	0.2200	0.17		Sheet Flow,
					Woods: Light underbrush n= 0.400 P2= 3.32"
2.0					Direct Entry, Min. Engineering Practice
6.0	42	Total			

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Type III 24-hr 25-Yr 24 Hr Rainfall=6.20"

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Summary for Subcatchment EX-2: southwest locus

Runoff = 0.97 cfs @ 12.09 hrs, Volume= 3,026 cf, Depth> 2.96"
 Routed to Reach DP-2 : Watertown Ford

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-Yr 24 Hr Rainfall=6.20"

Area (sf)	CN	Description
5,900	39	>75% Grass cover, Good, HSG A
6,362	98	Paved parking, HSG A
12,262	70	Weighted Average
5,900		48.12% Pervious Area
6,362		51.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Min. Engineering Practice

Summary for Reach DP-1: Existing Culvert

Inflow Area = 239,583 sf, 82.11% Impervious, Inflow Depth > 4.69" for 25-Yr 24 Hr event
 Inflow = 29.29 cfs @ 12.09 hrs, Volume= 93,731 cf
 Outflow = 29.29 cfs @ 12.09 hrs, Volume= 93,731 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach DP-2: Watertown Ford

Inflow Area = 12,262 sf, 51.88% Impervious, Inflow Depth > 2.96" for 25-Yr 24 Hr event
 Inflow = 0.97 cfs @ 12.09 hrs, Volume= 3,026 cf
 Outflow = 0.97 cfs @ 12.09 hrs, Volume= 3,026 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach EX-P: Walker Pond

Inflow Area = 216,957 sf, 84.17% Impervious, Inflow Depth > 4.81" for 25-Yr 24 Hr event
 Inflow = 27.13 cfs @ 12.09 hrs, Volume= 87,039 cf
 Outflow = 27.13 cfs @ 12.09 hrs, Volume= 87,039 cf, Atten= 0%, Lag= 0.0 min
 Routed to Reach DP-1 : Existing Culvert

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

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Type III 24-hr 100-Yr 24 Hr Rainfall=8.90"

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Summary for Subcatchment EX-1: southeast locus

Runoff = 3.61 cfs @ 12.09 hrs, Volume= 11,270 cf, Depth> 5.98"
 Routed to Reach DP-1 : Existing Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100-Yr 24 Hr Rainfall=8.90"

	Area (sf)	CN	Description
*	3,245	39	Crushed Stone
	5,269	39	>75% Grass cover, Good, HSG A
	14,112	98	Paved parking, HSG A
	22,626	76	Weighted Average
	8,514		37.63% Pervious Area
	14,112		62.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Min. Engineering Practice

Summary for Subcatchment EX-1.1: northern locus

Runoff = 40.94 cfs @ 12.08 hrs, Volume= 134,571 cf, Depth> 7.44"
 Routed to Reach EX-P : Walker Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100-Yr 24 Hr Rainfall=8.90"

	Area (sf)	CN	Description
*	94,936	98	Existing Roof Area
	13,668	30	Woods, Good, HSG A
	20,679	39	>75% Grass cover, Good, HSG A
	87,674	98	Paved parking, HSG A
	216,957	88	Weighted Average
	34,347		15.83% Pervious Area
	182,610		84.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	42	0.2200	0.17		Sheet Flow,
					Woods: Light underbrush n= 0.400 P2= 3.32"
2.0					Direct Entry, Min. Engineering Practice
6.0	42	Total			

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Type III 24-hr 100-Yr 24 Hr Rainfall=8.90"

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Summary for Subcatchment EX-2: southwest locus

Runoff = 1.73 cfs @ 12.09 hrs, Volume= 5,356 cf, Depth> 5.24"
 Routed to Reach DP-2 : Watertown Ford

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100-Yr 24 Hr Rainfall=8.90"

Area (sf)	CN	Description
5,900	39	>75% Grass cover, Good, HSG A
6,362	98	Paved parking, HSG A
12,262	70	Weighted Average
5,900		48.12% Pervious Area
6,362		51.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Min. Engineering Practice

Summary for Reach DP-1: Existing Culvert

Inflow Area = 239,583 sf, 82.11% Impervious, Inflow Depth > 7.30" for 100-Yr 24 Hr event
 Inflow = 44.54 cfs @ 12.08 hrs, Volume= 145,841 cf
 Outflow = 44.54 cfs @ 12.08 hrs, Volume= 145,841 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach DP-2: Watertown Ford

Inflow Area = 12,262 sf, 51.88% Impervious, Inflow Depth > 5.24" for 100-Yr 24 Hr event
 Inflow = 1.73 cfs @ 12.09 hrs, Volume= 5,356 cf
 Outflow = 1.73 cfs @ 12.09 hrs, Volume= 5,356 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

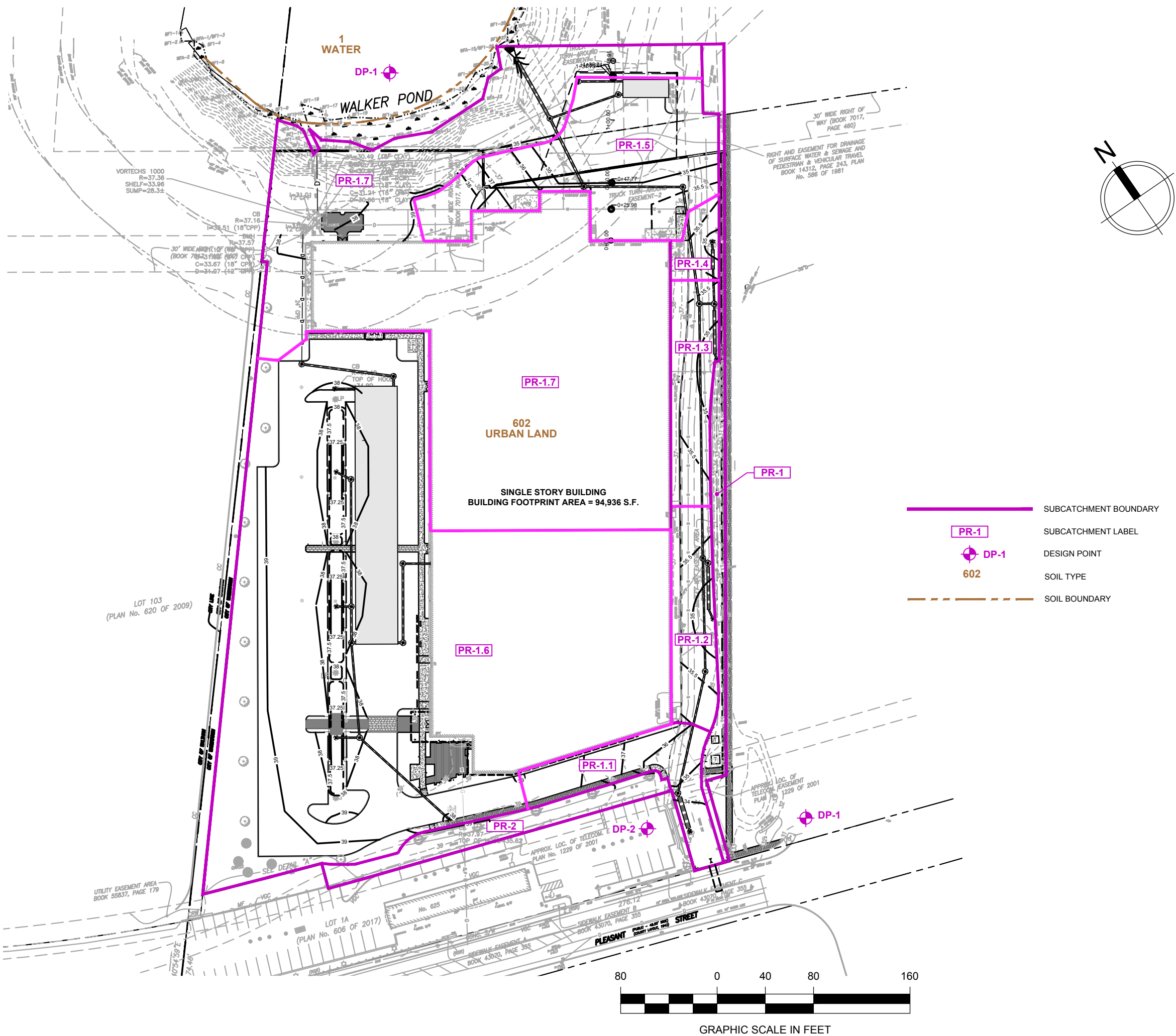
Summary for Reach EX-P: Walker Pond

Inflow Area = 216,957 sf, 84.17% Impervious, Inflow Depth > 7.44" for 100-Yr 24 Hr event
 Inflow = 40.94 cfs @ 12.08 hrs, Volume= 134,571 cf
 Outflow = 40.94 cfs @ 12.08 hrs, Volume= 134,571 cf, Atten= 0%, Lag= 0.0 min
 Routed to Reach DP-1 : Existing Culvert

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

POST-CONSTRUCTION HYDROLOGIC CALCULATIONS

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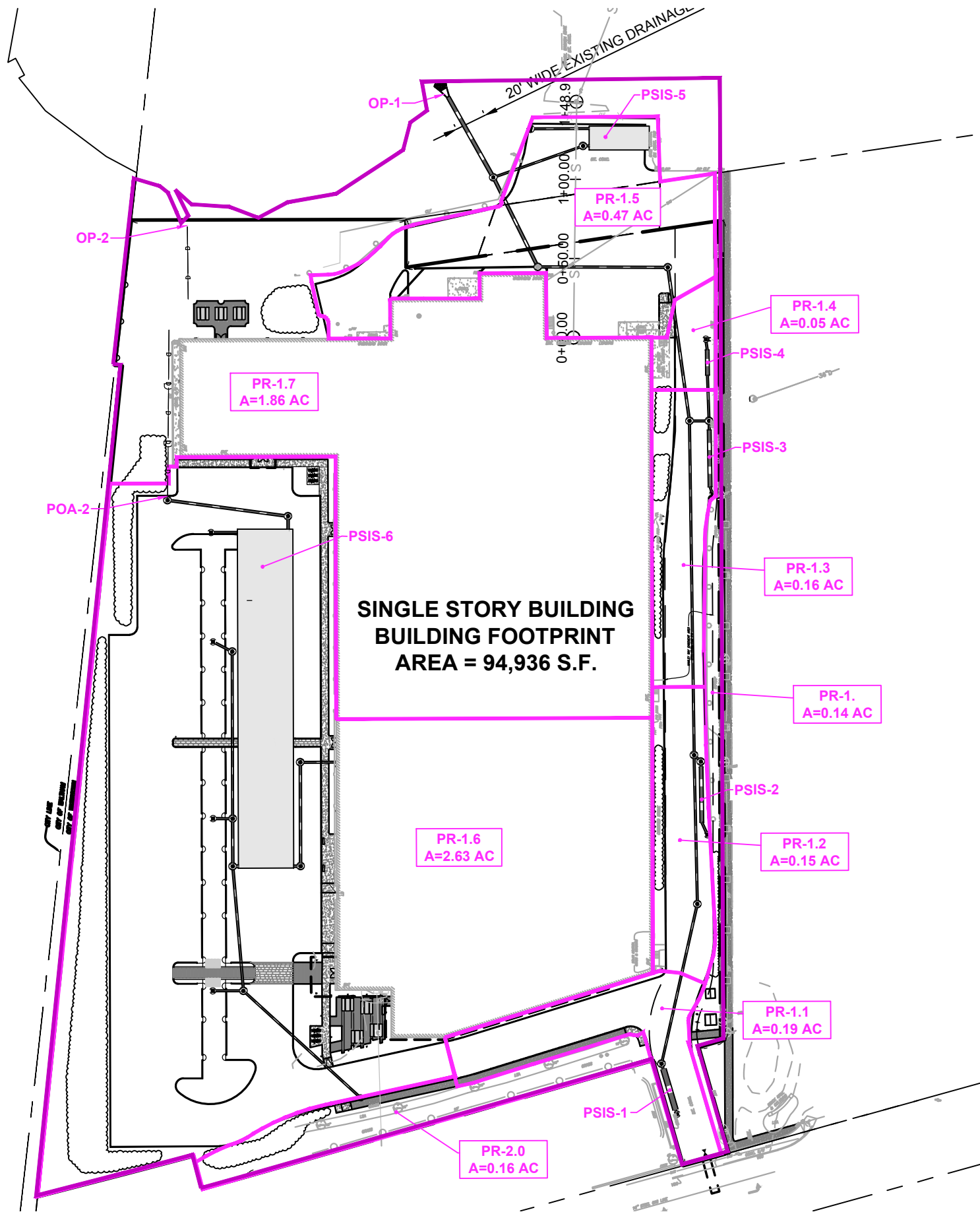
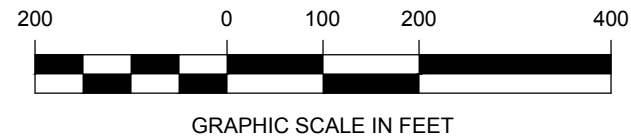
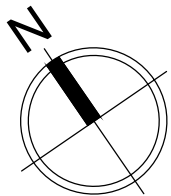


NOTE:

LOCATIONS AND TYPES OF SOIL DESIGNATIONS SHOWN HEREON HAVE BEEN DELINEATED BY USDA NATURAL RESOURCES CONSERVATION SERVICE (NRCS) AND COMPILED BY MA GIS

RJO'CONNELL & ASSOCIATES, INC.
CIVIL ENGINEERS, SURVEYORS & LAND PLANNERS
DATE: 03/19/2024 SCALE: 1"=80'
FIGURE 3
PROPOSED WATERSHED PLAN

WATERTOWN, MA

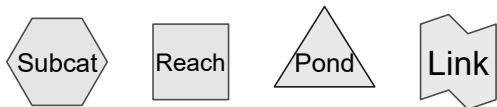
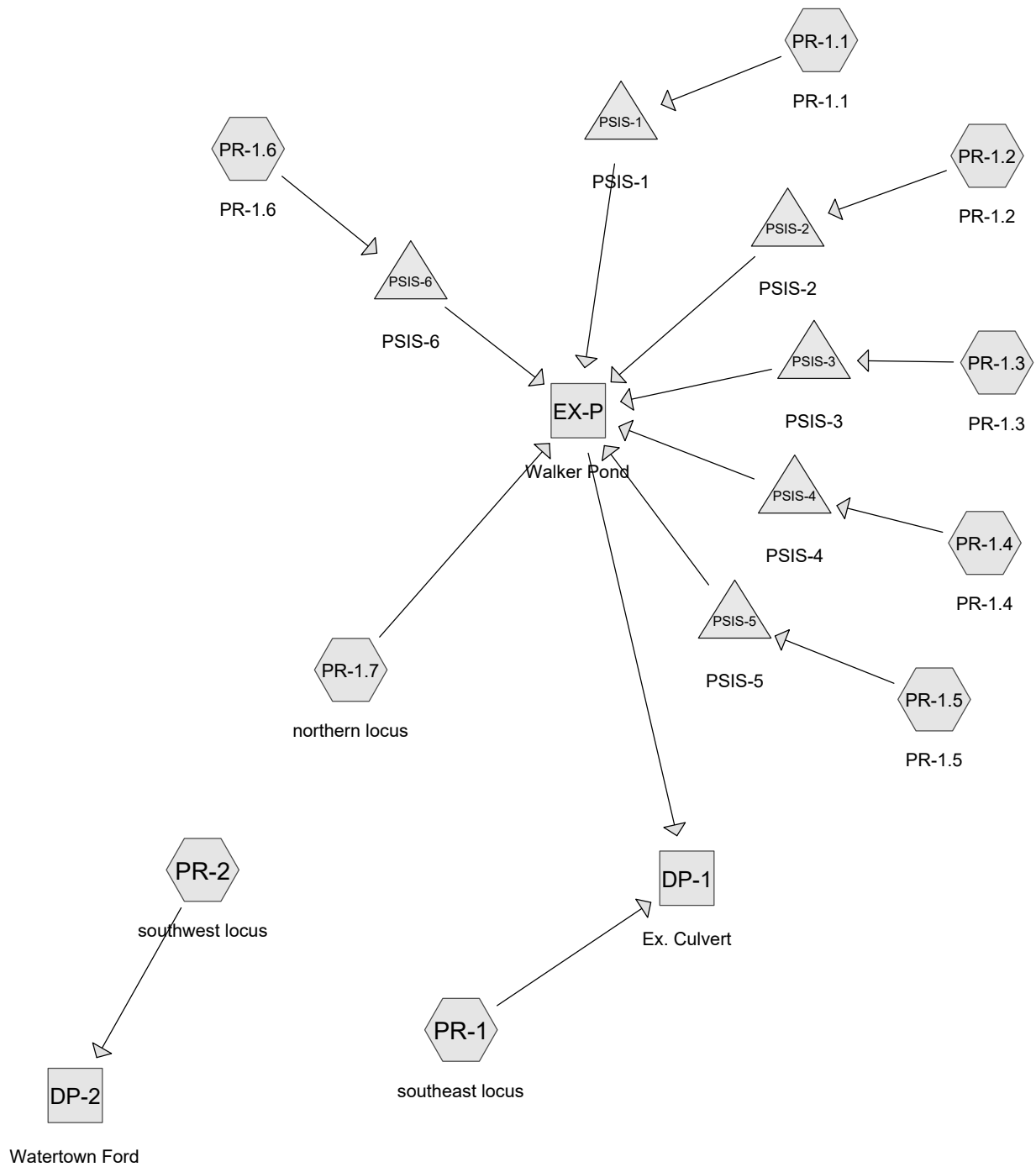


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CIVIL ENGINEERS, SURVEYORS & LAND PLANNERS
DATE: 03/19/2024 SCALE: 1"=200'

**FIGURE 4
DRAINAGE SUBCATCHMENT PLAN**

20 SEYON STREET
WATERTOWN, MA 02472

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Routing Diagram for 21049-POST-2
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Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
42,196	39	>75% Grass cover, Good, HSG A (PR-1, PR-1.6, PR-1.7, PR-2)
3,245	39	Crushed Stone (PR-1.2, PR-1.3, PR-1.4)
58,416	98	Existing Roof Area (PR-1.7)
95,912	98	Paved parking, HSG A (PR-1, PR-1.1, PR-1.2, PR-1.3, PR-1.4, PR-1.5, PR-1.6)
3,988	39	Porous Pavement/Pavers (PR-1, PR-1.6, PR-1.7)
36,520	98	Roof Area (PR-1.6)
11,568	30	Woods, Good, HSG A (PR-1.7)
251,845	83	TOTAL AREA

21049-POST-2

Type III 24-hr 2-Yr 24 Hr Rainfall=3.20"

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Summary for Subcatchment PR-1: southeast locus

Runoff = 0.00 cfs @ 13.66 hrs, Volume= 56 cf, Depth> 0.11"
 Routed to Reach DP-1 : Ex. Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-Yr 24 Hr Rainfall=3.20"

Area (sf)	CN	Description
3,625	39	>75% Grass cover, Good, HSG A
1,051	98	Paved parking, HSG A
* 1,516	39	Porous Pavement/Pavers
6,192	49	Weighted Average
5,141		83.03% Pervious Area
1,051		16.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Min. Engineering Practice

Summary for Subcatchment PR-1.1: PR-1.1

Runoff = 0.60 cfs @ 12.08 hrs, Volume= 2,090 cf, Depth> 2.97"
 Routed to Pond PSIS-1 : PSIS-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-Yr 24 Hr Rainfall=3.20"

Area (sf)	CN	Description
8,459	98	Paved parking, HSG A
8,459		100.00% Impervious Area

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

Summary for Subcatchment PR-1.2: PR-1.2

Runoff = 0.32 cfs @ 12.09 hrs, Volume= 1,004 cf, Depth> 1.83"
 Routed to Pond PSIS-2 : PSIS-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-Yr 24 Hr Rainfall=3.20"

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Type III 24-hr 2-Yr 24 Hr Rainfall=3.20"

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	Area (sf)	CN	Description
	5,278	98	Paved parking, HSG A
*	1,298	39	Crushed Stone
	6,576	86	Weighted Average
	1,298		19.74% Pervious Area
	5,278		80.26% Impervious Area

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

Summary for Subcatchment PR-1.3: PR-1.3

Runoff = 0.35 cfs @ 12.09 hrs, Volume= 1,078 cf, Depth> 1.91"
 Routed to Pond PSIS-3 : PSIS-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-Yr 24 Hr Rainfall=3.20"

	Area (sf)	CN	Description
	5,465	98	Paved parking, HSG A
*	1,298	39	Crushed Stone
	6,763	87	Weighted Average
	1,298		19.19% Pervious Area
	5,465		80.81% Impervious Area

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

Summary for Subcatchment PR-1.4: PR-1.4

Runoff = 0.09 cfs @ 12.09 hrs, Volume= 270 cf, Depth> 1.47"
 Routed to Pond PSIS-4 : PSIS-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-Yr 24 Hr Rainfall=3.20"

	Area (sf)	CN	Description
	1,562	98	Paved parking, HSG A
*	649	39	Crushed Stone
	2,211	81	Weighted Average
	649		29.35% Pervious Area
	1,562		70.65% Impervious Area

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Type III 24-hr 2-Yr 24 Hr Rainfall=3.20"

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

Summary for Subcatchment PR-1.5: PR-1.5

Runoff = 1.46 cfs @ 12.08 hrs, Volume= 5,049 cf, Depth> 2.97"
 Routed to Pond PSIS-5 : PSIS-5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-Yr 24 Hr Rainfall=3.20"

Area (sf)	CN	Description
20,433	98	Paved parking, HSG A
20,433		100.00% Impervious Area

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

Summary for Subcatchment PR-1.6: PR-1.6

Runoff = 5.42 cfs @ 12.09 hrs, Volume= 16,755 cf, Depth> 1.76"
 Routed to Pond PSIS-6 : PSIS-6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-Yr 24 Hr Rainfall=3.20"

Area (sf)	CN	Description
53,664	98	Paved parking, HSG A
22,468	39	>75% Grass cover, Good, HSG A
* 1,872	39	Porous Pavement/Pavers
* 36,520	98	Roof Area
114,524	85	Weighted Average
24,340		21.25% Pervious Area
90,184		78.75% Impervious Area

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

Summary for Subcatchment PR-1.7: northern locus

Runoff = 3.03 cfs @ 12.09 hrs, Volume= 9,474 cf, Depth> 1.40"
 Routed to Reach EX-P : Walker Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-Yr 24 Hr Rainfall=3.20"

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Type III 24-hr 2-Yr 24 Hr Rainfall=3.20"

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	Area (sf)	CN	Description
*	58,416	98	Existing Roof Area
	11,568	30	Woods, Good, HSG A
	10,614	39	>75% Grass cover, Good, HSG A
*	600	39	Porous Pavement/Pavers
	81,198	80	Weighted Average
	22,782		28.06% Pervious Area
	58,416		71.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Min. Engineering Practice

Summary for Subcatchment PR-2: southwest locus

Runoff = 0.00 cfs @ 24.00 hrs, Volume= 0 cf, Depth> 0.00"
 Routed to Reach DP-2 : Watertown Ford

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-Yr 24 Hr Rainfall=3.20"

Area (sf)	CN	Description
5,489	39	>75% Grass cover, Good, HSG A
5,489		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Min. Engineering Practice

Summary for Reach DP-1: Ex. Culvert

Inflow Area = 246,356 sf, 77.47% Impervious, Inflow Depth > 0.61" for 2-Yr 24 Hr event
 Inflow = 5.36 cfs @ 12.10 hrs, Volume= 12,476 cf
 Outflow = 5.36 cfs @ 12.10 hrs, Volume= 12,476 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach DP-2: Watertown Ford

Inflow Area = 5,489 sf, 0.00% Impervious, Inflow Depth > 0.00" for 2-Yr 24 Hr event
 Inflow = 0.00 cfs @ 24.00 hrs, Volume= 0 cf
 Outflow = 0.00 cfs @ 24.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

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Type III 24-hr 2-Yr 24 Hr Rainfall=3.20"

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Summary for Reach EX-P: Walker Pond

Inflow Area = 240,164 sf, 79.03% Impervious, Inflow Depth > 0.62" for 2-Yr 24 Hr event
 Inflow = 5.36 cfs @ 12.10 hrs, Volume= 12,421 cf
 Outflow = 5.36 cfs @ 12.10 hrs, Volume= 12,421 cf, Atten= 0%, Lag= 0.0 min
 Routed to Reach DP-1 : Ex. Culvert

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Pond PSIS-1: PSIS-1

Inflow Area = 8,459 sf, 100.00% Impervious, Inflow Depth > 2.97" for 2-Yr 24 Hr event
 Inflow = 0.60 cfs @ 12.08 hrs, Volume= 2,090 cf
 Outflow = 0.60 cfs @ 12.09 hrs, Volume= 2,090 cf, Atten= 1%, Lag= 0.5 min
 Discarded = 0.02 cfs @ 9.12 hrs, Volume= 1,170 cf
 Primary = 0.58 cfs @ 12.09 hrs, Volume= 920 cf
 Routed to Reach EX-P : Walker Pond

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Peak Elev= 28.88' @ 12.09 hrs Surf.Area= 110 sf Storage= 222 cf

Plug-Flow detention time= 42.6 min calculated for 2,090 cf (100% of inflow)

Center-of-Mass det. time= 42.4 min (798.3 - 755.8)

Volume	Invert	Avail.Storage	Storage Description
#1	26.50'	187 cf	36.0" Round Pipe Storage Inside #2 L= 26.5'
#2	26.00'	101 cf	4.00'W x 27.50'L x 4.00'H Prismatic 440 cf Overall - 187 cf Embedded = 253 cf x 40.0% Voids
			288 cf Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	26.00'	8.270 in/hr Exfiltration over Surface area
#2	Primary	28.50'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.02 cfs @ 9.12 hrs HW=26.04' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.02 cfs)**Primary OutFlow** Max=0.58 cfs @ 12.09 hrs HW=28.88' (Free Discharge)↑**2=Orifice/Grate** (Orifice Controls 0.58 cfs @ 2.10 fps)**Summary for Pond PSIS-2: PSIS-2**

Inflow Area = 6,576 sf, 80.26% Impervious, Inflow Depth > 1.83" for 2-Yr 24 Hr event
 Inflow = 0.32 cfs @ 12.09 hrs, Volume= 1,004 cf
 Outflow = 0.32 cfs @ 12.11 hrs, Volume= 1,004 cf, Atten= 3%, Lag= 1.2 min
 Discarded = 0.03 cfs @ 11.57 hrs, Volume= 721 cf
 Primary = 0.29 cfs @ 12.11 hrs, Volume= 283 cf
 Routed to Reach EX-P : Walker Pond

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Type III 24-hr 2-Yr 24 Hr Rainfall=3.20"

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Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 30.26' @ 12.11 hrs Surf.Area= 140 sf Storage= 140 cf

Plug-Flow detention time= 24.5 min calculated for 1,004 cf (100% of inflow)
 Center-of-Mass det. time= 24.3 min (846.2 - 821.8)

Volume	Invert	Avail.Storage	Storage Description
#1	29.00'	104 cf	24.0" Round Pipe Storage Inside #2 L= 33.0'
#2	28.50'	127 cf	4.00'W x 35.00'L x 3.00'H Prismaoid 420 cf Overall - 104 cf Embedded = 316 cf x 40.0% Voids
		230 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	28.50'	8.270 in/hr Exfiltration over Surface area
#2	Primary	30.00'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 11.57 hrs HW=28.53' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.29 cfs @ 12.11 hrs HW=30.26' (Free Discharge)

↑**2=Orifice/Grate** (Orifice Controls 0.29 cfs @ 1.75 fps)

Summary for Pond PSIS-3: PSIS-3

Inflow Area = 6,763 sf, 80.81% Impervious, Inflow Depth > 1.91" for 2-Yr 24 Hr event
 Inflow = 0.35 cfs @ 12.09 hrs, Volume= 1,078 cf
 Outflow = 0.34 cfs @ 12.10 hrs, Volume= 1,078 cf, Atten= 2%, Lag= 0.9 min
 Discarded = 0.03 cfs @ 11.46 hrs, Volume= 747 cf
 Primary = 0.32 cfs @ 12.10 hrs, Volume= 331 cf
 Routed to Reach EX-P : Walker Pond

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 30.28' @ 12.10 hrs Surf.Area= 135 sf Storage= 143 cf

Plug-Flow detention time= 25.4 min calculated for 1,077 cf (100% of inflow)
 Center-of-Mass det. time= 25.2 min (843.4 - 818.2)

Volume	Invert	Avail.Storage	Storage Description
#1	29.00'	116 cf	24.0" Round Pipe Storage Inside #2 L= 37.0'
#2	28.50'	142 cf	3.50'W x 38.50'L x 3.50'H Prismaoid 472 cf Overall - 116 cf Embedded = 355 cf x 40.0% Voids
		258 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	28.50'	8.270 in/hr Exfiltration over Surface area
#2	Primary	30.00'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

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Discarded OutFlow Max=0.03 cfs @ 11.46 hrs HW=28.54' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.03 cfs)**Primary OutFlow** Max=0.31 cfs @ 12.10 hrs HW=30.28' (Free Discharge)↑**2=Orifice/Grate** (Orifice Controls 0.31 cfs @ 1.79 fps)**Summary for Pond PSIS-4: PSIS-4**

Inflow Area = 2,211 sf, 70.65% Impervious, Inflow Depth > 1.47" for 2-Yr 24 Hr event

Inflow = 0.09 cfs @ 12.09 hrs, Volume= 270 cf

Outflow = 0.06 cfs @ 12.17 hrs, Volume= 270 cf, Atten= 27%, Lag= 4.7 min

Discarded = 0.01 cfs @ 11.68 hrs, Volume= 222 cf

Primary = 0.05 cfs @ 12.17 hrs, Volume= 48 cf

Routed to Reach EX-P : Walker Pond

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Peak Elev= 30.11' @ 12.17 hrs Surf.Area= 51 sf Storage= 50 cf

Plug-Flow detention time= 29.2 min calculated for 270 cf (100% of inflow)

Center-of-Mass det. time= 29.0 min (867.8 - 838.7)

Volume	Invert	Avail.Storage	Storage Description
#1	29.00'	50 cf	24.0" Round Pipe Storage Inside #2 L= 16.0'
#2	28.50'	41 cf	3.00'W x 17.00'L x 3.00'H Prismatic 153 cf Overall - 50 cf Embedded = 103 cf x 40.0% Voids
		91 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	28.50'	8.270 in/hr Exfiltration over Surface area
#2	Primary	30.00'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.01 cfs @ 11.68 hrs HW=28.53' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)**Primary OutFlow** Max=0.05 cfs @ 12.17 hrs HW=30.11' (Free Discharge)↑**2=Orifice/Grate** (Orifice Controls 0.05 cfs @ 1.13 fps)**Summary for Pond PSIS-5: PSIS-5**

Inflow Area = 20,433 sf, 100.00% Impervious, Inflow Depth > 2.97" for 2-Yr 24 Hr event

Inflow = 1.46 cfs @ 12.08 hrs, Volume= 5,049 cf

Outflow = 1.32 cfs @ 12.12 hrs, Volume= 5,048 cf, Atten= 9%, Lag= 2.3 min

Discarded = 0.11 cfs @ 11.13 hrs, Volume= 3,682 cf

Primary = 1.21 cfs @ 12.12 hrs, Volume= 1,366 cf

Routed to Reach EX-P : Walker Pond

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

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Peak Elev= 30.08' @ 12.12 hrs Surf.Area= 570 sf Storage= 768 cf

Plug-Flow detention time= 23.3 min calculated for 5,046 cf (100% of inflow)

Center-of-Mass det. time= 23.2 min (779.1 - 755.8)

Volume	Invert	Avail.Storage	Storage Description
#1	28.50'	581 cf	24.0" Round Pipe Storage x 5 Inside #2 L= 37.0'
#2	28.00'	452 cf	15.00'W x 38.00'L x 3.00'H Prismaoid 1,710 cf Overall - 581 cf Embedded = 1,129 cf x 40.0% Voids
		1,033 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	28.00'	8.270 in/hr Exfiltration over Surface area
#2	Primary	29.50'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.11 cfs @ 11.13 hrs HW=28.03' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.11 cfs)**Primary OutFlow** Max=1.21 cfs @ 12.12 hrs HW=30.08' (Free Discharge)↑**2=Orifice/Grate** (Orifice Controls 1.21 cfs @ 2.58 fps)**Summary for Pond PSIS-6: PSIS-6**

Inflow Area = 114,524 sf, 78.75% Impervious, Inflow Depth > 1.76" for 2-Yr 24 Hr event
 Inflow = 5.42 cfs @ 12.09 hrs, Volume= 16,755 cf
 Outflow = 1.43 cfs @ 11.86 hrs, Volume= 16,748 cf, Atten= 74%, Lag= 0.0 min
 Discarded = 1.43 cfs @ 11.86 hrs, Volume= 16,748 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Routed to Reach EX-P : Walker Pond

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Peak Elev= 31.45' @ 12.47 hrs Surf.Area= 7,490 sf Storage= 3,434 cf

Plug-Flow detention time= 13.2 min calculated for 16,748 cf (100% of inflow)

Center-of-Mass det. time= 13.0 min (838.3 - 825.4)

Volume	Invert	Avail.Storage	Storage Description
#1	31.00'	15,984 cf	48.0" Round Pipe Storage x 6 Inside #2 L= 212.0'
#2	30.50'	8,586 cf	35.00'W x 214.00'L x 5.00'H Prismaoid 37,450 cf Overall - 15,984 cf Embedded = 21,466 cf x 40.0% Voids
		24,571 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	30.50'	8.270 in/hr Exfiltration over Surface area
#2	Device 3	34.50'	6.0" Vert. Orifice/Grate X 3.00 C= 0.600 Limited to weir flow at low heads
#3	Primary	34.50'	15.0" Round Culvert L= 8.0' CPP, projecting, no headwall, Ke= 0.900

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Inlet / Outlet Invert= 34.50' / 34.30' S= 0.0250 '/' Cc= 0.900
n= 0.010 PVC, smooth interior, Flow Area= 1.23 sf

Discarded OutFlow Max=1.43 cfs @ 11.86 hrs HW=30.55' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 1.43 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=30.50' (Free Discharge)

↑ **3=Culvert** (Controls 0.00 cfs)

↑ **2=Orifice/Grate** (Controls 0.00 cfs)

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Type III 24-hr 10-Yr 24 Hr Rainfall=4.90"

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Summary for Subcatchment PR-1: southeast locus

Runoff = 0.05 cfs @ 12.13 hrs, Volume= 309 cf, Depth> 0.60"
 Routed to Reach DP-1 : Ex. Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-Yr 24 Hr Rainfall=4.90"

Area (sf)	CN	Description
3,625	39	>75% Grass cover, Good, HSG A
1,051	98	Paved parking, HSG A
* 1,516	39	Porous Pavement/Pavers
6,192	49	Weighted Average
5,141		83.03% Pervious Area
1,051		16.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Min. Engineering Practice

Summary for Subcatchment PR-1.1: PR-1.1

Runoff = 0.93 cfs @ 12.08 hrs, Volume= 3,285 cf, Depth> 4.66"
 Routed to Pond PSIS-1 : PSIS-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-Yr 24 Hr Rainfall=4.90"

Area (sf)	CN	Description
8,459	98	Paved parking, HSG A
8,459		100.00% Impervious Area

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

Summary for Subcatchment PR-1.2: PR-1.2

Runoff = 0.59 cfs @ 12.09 hrs, Volume= 1,847 cf, Depth> 3.37"
 Routed to Pond PSIS-2 : PSIS-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-Yr 24 Hr Rainfall=4.90"

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Type III 24-hr 10-Yr 24 Hr Rainfall=4.90"

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	Area (sf)	CN	Description
	5,278	98	Paved parking, HSG A
*	1,298	39	Crushed Stone
	6,576	86	Weighted Average
	1,298		19.74% Pervious Area
	5,278		80.26% Impervious Area

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

Summary for Subcatchment PR-1.3: PR-1.3

Runoff = 0.62 cfs @ 12.09 hrs, Volume= 1,955 cf, Depth> 3.47"
 Routed to Pond PSIS-3 : PSIS-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-Yr 24 Hr Rainfall=4.90"

	Area (sf)	CN	Description
	5,465	98	Paved parking, HSG A
*	1,298	39	Crushed Stone
	6,763	87	Weighted Average
	1,298		19.19% Pervious Area
	5,465		80.81% Impervious Area

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

Summary for Subcatchment PR-1.4: PR-1.4

Runoff = 0.17 cfs @ 12.09 hrs, Volume= 533 cf, Depth> 2.89"
 Routed to Pond PSIS-4 : PSIS-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-Yr 24 Hr Rainfall=4.90"

	Area (sf)	CN	Description
	1,562	98	Paved parking, HSG A
*	649	39	Crushed Stone
	2,211	81	Weighted Average
	649		29.35% Pervious Area
	1,562		70.65% Impervious Area

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Type III 24-hr 10-Yr 24 Hr Rainfall=4.90"

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

Summary for Subcatchment PR-1.5: PR-1.5

Runoff = 2.25 cfs @ 12.08 hrs, Volume= 7,934 cf, Depth> 4.66"
 Routed to Pond PSIS-5 : PSIS-5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-Yr 24 Hr Rainfall=4.90"

Area (sf)	CN	Description
20,433	98	Paved parking, HSG A
20,433		100.00% Impervious Area

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

Summary for Subcatchment PR-1.6: PR-1.6

Runoff = 10.00 cfs @ 12.09 hrs, Volume= 31,230 cf, Depth> 3.27"
 Routed to Pond PSIS-6 : PSIS-6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-Yr 24 Hr Rainfall=4.90"

Area (sf)	CN	Description
53,664	98	Paved parking, HSG A
22,468	39	>75% Grass cover, Good, HSG A
* 1,872	39	Porous Pavement/Pavers
* 36,520	98	Roof Area
114,524	85	Weighted Average
24,340		21.25% Pervious Area
90,184		78.75% Impervious Area

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

Summary for Subcatchment PR-1.7: northern locus

Runoff = 6.13 cfs @ 12.09 hrs, Volume= 18,964 cf, Depth> 2.80"
 Routed to Reach EX-P : Walker Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-Yr 24 Hr Rainfall=4.90"

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Type III 24-hr 10-Yr 24 Hr Rainfall=4.90"

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	Area (sf)	CN	Description
*	58,416	98	Existing Roof Area
	11,568	30	Woods, Good, HSG A
	10,614	39	>75% Grass cover, Good, HSG A
*	600	39	Porous Pavement/Pavers
	81,198	80	Weighted Average
	22,782		28.06% Pervious Area
	58,416		71.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Min. Engineering Practice

Summary for Subcatchment PR-2: southwest locus

Runoff = 0.00 cfs @ 12.50 hrs, Volume= 82 cf, Depth> 0.18"
 Routed to Reach DP-2 : Watertown Ford

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-Yr 24 Hr Rainfall=4.90"

Area (sf)	CN	Description
5,489	39	>75% Grass cover, Good, HSG A
5,489		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Min. Engineering Practice

Summary for Reach DP-1: Ex. Culvert

Inflow Area = 246,356 sf, 77.47% Impervious, Inflow Depth > 1.27" for 10-Yr 24 Hr event
 Inflow = 10.39 cfs @ 12.09 hrs, Volume= 26,090 cf
 Outflow = 10.39 cfs @ 12.09 hrs, Volume= 26,090 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach DP-2: Watertown Ford

Inflow Area = 5,489 sf, 0.00% Impervious, Inflow Depth > 0.18" for 10-Yr 24 Hr event
 Inflow = 0.00 cfs @ 12.50 hrs, Volume= 82 cf
 Outflow = 0.00 cfs @ 12.50 hrs, Volume= 82 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

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Type III 24-hr 10-Yr 24 Hr Rainfall=4.90"

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Summary for Reach EX-P: Walker Pond

Inflow Area = 240,164 sf, 79.03% Impervious, Inflow Depth > 1.29" for 10-Yr 24 Hr event
 Inflow = 10.34 cfs @ 12.09 hrs, Volume= 25,781 cf
 Outflow = 10.34 cfs @ 12.09 hrs, Volume= 25,781 cf, Atten= 0%, Lag= 0.0 min
 Routed to Reach DP-1 : Ex. Culvert

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Pond PSIS-1: PSIS-1

Inflow Area = 8,459 sf, 100.00% Impervious, Inflow Depth > 4.66" for 10-Yr 24 Hr event
 Inflow = 0.93 cfs @ 12.08 hrs, Volume= 3,285 cf
 Outflow = 0.93 cfs @ 12.09 hrs, Volume= 3,284 cf, Atten= 0%, Lag= 0.4 min
 Discarded = 0.02 cfs @ 7.75 hrs, Volume= 1,440 cf
 Primary = 0.91 cfs @ 12.09 hrs, Volume= 1,844 cf
 Routed to Reach EX-P : Walker Pond

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Peak Elev= 28.99' @ 12.09 hrs Surf.Area= 110 sf Storage= 231 cf

Plug-Flow detention time= 39.1 min calculated for 3,283 cf (100% of inflow)

Center-of-Mass det. time= 39.0 min (786.8 - 747.8)

Volume	Invert	Avail.Storage	Storage Description
#1	26.50'	187 cf	36.0" Round Pipe Storage Inside #2 L= 26.5'
#2	26.00'	101 cf	4.00'W x 27.50'L x 4.00'H Prismatic 440 cf Overall - 187 cf Embedded = 253 cf x 40.0% Voids
			288 cf Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	26.00'	8.270 in/hr Exfiltration over Surface area
#2	Primary	28.50'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.02 cfs @ 7.75 hrs HW=26.04' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.91 cfs @ 12.09 hrs HW=28.99' (Free Discharge)

↑**2=Orifice/Grate** (Orifice Controls 0.91 cfs @ 2.38 fps)

Summary for Pond PSIS-2: PSIS-2

Inflow Area = 6,576 sf, 80.26% Impervious, Inflow Depth > 3.37" for 10-Yr 24 Hr event
 Inflow = 0.59 cfs @ 12.09 hrs, Volume= 1,847 cf
 Outflow = 0.59 cfs @ 12.10 hrs, Volume= 1,847 cf, Atten= 1%, Lag= 0.6 min
 Discarded = 0.03 cfs @ 10.80 hrs, Volume= 1,031 cf
 Primary = 0.56 cfs @ 12.10 hrs, Volume= 816 cf
 Routed to Reach EX-P : Walker Pond

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Type III 24-hr 10-Yr 24 Hr Rainfall=4.90"

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Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 30.37' @ 12.10 hrs Surf.Area= 140 sf Storage= 151 cf

Plug-Flow detention time= 21.3 min calculated for 1,846 cf (100% of inflow)
 Center-of-Mass det. time= 21.2 min (825.7 - 804.6)

Volume	Invert	Avail.Storage	Storage Description
#1	29.00'	104 cf	24.0" Round Pipe Storage Inside #2 L= 33.0'
#2	28.50'	127 cf	4.00'W x 35.00'L x 3.00'H Prismaoid 420 cf Overall - 104 cf Embedded = 316 cf x 40.0% Voids
		230 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	28.50'	8.270 in/hr Exfiltration over Surface area
#2	Primary	30.00'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 10.80 hrs HW=28.53' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.56 cfs @ 12.10 hrs HW=30.37' (Free Discharge)

↑**2=Orifice/Grate** (Orifice Controls 0.56 cfs @ 2.08 fps)

Summary for Pond PSIS-3: PSIS-3

Inflow Area = 6,763 sf, 80.81% Impervious, Inflow Depth > 3.47" for 10-Yr 24 Hr event
 Inflow = 0.62 cfs @ 12.09 hrs, Volume= 1,955 cf
 Outflow = 0.62 cfs @ 12.10 hrs, Volume= 1,955 cf, Atten= 1%, Lag= 0.6 min
 Discarded = 0.03 cfs @ 10.59 hrs, Volume= 1,050 cf
 Primary = 0.59 cfs @ 12.10 hrs, Volume= 905 cf
 Routed to Reach EX-P : Walker Pond

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 30.39' @ 12.10 hrs Surf.Area= 135 sf Storage= 153 cf

Plug-Flow detention time= 21.8 min calculated for 1,954 cf (100% of inflow)
 Center-of-Mass det. time= 21.7 min (823.0 - 801.3)

Volume	Invert	Avail.Storage	Storage Description
#1	29.00'	116 cf	24.0" Round Pipe Storage Inside #2 L= 37.0'
#2	28.50'	142 cf	3.50'W x 38.50'L x 3.50'H Prismaoid 472 cf Overall - 116 cf Embedded = 355 cf x 40.0% Voids
		258 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	28.50'	8.270 in/hr Exfiltration over Surface area
#2	Primary	30.00'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

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Type III 24-hr 10-Yr 24 Hr Rainfall=4.90"

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Discarded OutFlow Max=0.03 cfs @ 10.59 hrs HW=28.54' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.03 cfs)**Primary OutFlow** Max=0.59 cfs @ 12.10 hrs HW=30.39' (Free Discharge)↑**2=Orifice/Grate** (Orifice Controls 0.59 cfs @ 2.11 fps)**Summary for Pond PSIS-4: PSIS-4**

Inflow Area = 2,211 sf, 70.65% Impervious, Inflow Depth > 2.89" for 10-Yr 24 Hr event

Inflow = 0.17 cfs @ 12.09 hrs, Volume= 533 cf

Outflow = 0.17 cfs @ 12.09 hrs, Volume= 533 cf, Atten= 0%, Lag= 0.4 min

Discarded = 0.01 cfs @ 11.26 hrs, Volume= 330 cf

Primary = 0.16 cfs @ 12.09 hrs, Volume= 203 cf

Routed to Reach EX-P : Walker Pond

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Peak Elev= 30.19' @ 12.09 hrs Surf.Area= 51 sf Storage= 53 cf

Plug-Flow detention time= 25.5 min calculated for 533 cf (100% of inflow)

Center-of-Mass det. time= 25.3 min (844.5 - 819.2)

Volume	Invert	Avail.Storage	Storage Description
#1	29.00'	50 cf	24.0" Round Pipe Storage Inside #2 L= 16.0'
#2	28.50'	41 cf	3.00'W x 17.00'L x 3.00'H Prismatic 153 cf Overall - 50 cf Embedded = 103 cf x 40.0% Voids
		91 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	28.50'	8.270 in/hr Exfiltration over Surface area
#2	Primary	30.00'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.01 cfs @ 11.26 hrs HW=28.53' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)**Primary OutFlow** Max=0.16 cfs @ 12.09 hrs HW=30.19' (Free Discharge)↑**2=Orifice/Grate** (Orifice Controls 0.16 cfs @ 1.50 fps)**Summary for Pond PSIS-5: PSIS-5**

Inflow Area = 20,433 sf, 100.00% Impervious, Inflow Depth > 4.66" for 10-Yr 24 Hr event

Inflow = 2.25 cfs @ 12.08 hrs, Volume= 7,934 cf

Outflow = 2.14 cfs @ 12.11 hrs, Volume= 7,933 cf, Atten= 5%, Lag= 1.5 min

Discarded = 0.11 cfs @ 10.09 hrs, Volume= 4,884 cf

Primary = 2.03 cfs @ 12.11 hrs, Volume= 3,049 cf

Routed to Reach EX-P : Walker Pond

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

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Type III 24-hr 10-Yr 24 Hr Rainfall=4.90"

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Peak Elev= 30.30' @ 12.11 hrs Surf.Area= 570 sf Storage= 853 cf

Plug-Flow detention time= 22.6 min calculated for 7,930 cf (100% of inflow)

Center-of-Mass det. time= 22.5 min (770.3 - 747.8)

Volume	Invert	Avail.Storage	Storage Description
#1	28.50'	581 cf	24.0" Round Pipe Storage x 5 Inside #2 L= 37.0'
#2	28.00'	452 cf	15.00'W x 38.00'L x 3.00'H Prismaoid 1,710 cf Overall - 581 cf Embedded = 1,129 cf x 40.0% Voids
		1,033 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	28.00'	8.270 in/hr Exfiltration over Surface area
#2	Primary	29.50'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.11 cfs @ 10.09 hrs HW=28.03' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.11 cfs)**Primary OutFlow** Max=2.03 cfs @ 12.11 hrs HW=30.30' (Free Discharge)↑**2=Orifice/Grate** (Orifice Controls 2.03 cfs @ 3.04 fps)**Summary for Pond PSIS-6: PSIS-6**

Inflow Area = 114,524 sf, 78.75% Impervious, Inflow Depth > 3.27" for 10-Yr 24 Hr event
 Inflow = 10.00 cfs @ 12.09 hrs, Volume= 31,230 cf
 Outflow = 1.43 cfs @ 11.68 hrs, Volume= 31,219 cf, Atten= 86%, Lag= 0.0 min
 Discarded = 1.43 cfs @ 11.68 hrs, Volume= 31,219 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Routed to Reach EX-P : Walker Pond

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Peak Elev= 32.56' @ 12.61 hrs Surf.Area= 7,490 sf Storage= 9,661 cf

Plug-Flow detention time= 45.3 min calculated for 31,219 cf (100% of inflow)

Center-of-Mass det. time= 45.0 min (852.7 - 807.7)

Volume	Invert	Avail.Storage	Storage Description
#1	31.00'	15,984 cf	48.0" Round Pipe Storage x 6 Inside #2 L= 212.0'
#2	30.50'	8,586 cf	35.00'W x 214.00'L x 5.00'H Prismaoid 37,450 cf Overall - 15,984 cf Embedded = 21,466 cf x 40.0% Voids
		24,571 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	30.50'	8.270 in/hr Exfiltration over Surface area
#2	Device 3	34.50'	6.0" Vert. Orifice/Grate X 3.00 C= 0.600 Limited to weir flow at low heads
#3	Primary	34.50'	15.0" Round Culvert L= 8.0' CPP, projecting, no headwall, Ke= 0.900

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Inlet / Outlet Invert= 34.50' / 34.30' S= 0.0250 '/' Cc= 0.900
n= 0.010 PVC, smooth interior, Flow Area= 1.23 sf

Discarded OutFlow Max=1.43 cfs @ 11.68 hrs HW=30.55' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 1.43 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=30.50' (Free Discharge)

↑ **3=Culvert** (Controls 0.00 cfs)

↑ **2=Orifice/Grate** (Controls 0.00 cfs)

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Type III 24-hr 25-Yr 24 Hr Rainfall=6.20"

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Summary for Subcatchment PR-1: southeast locus

Runoff = 0.15 cfs @ 12.11 hrs, Volume= 601 cf, Depth> 1.17"
 Routed to Reach DP-1 : Ex. Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-Yr 24 Hr Rainfall=6.20"

Area (sf)	CN	Description
3,625	39	>75% Grass cover, Good, HSG A
1,051	98	Paved parking, HSG A
* 1,516	39	Porous Pavement/Pavers
6,192	49	Weighted Average
5,141		83.03% Pervious Area
1,051		16.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Min. Engineering Practice

Summary for Subcatchment PR-1.1: PR-1.1

Runoff = 1.18 cfs @ 12.08 hrs, Volume= 4,199 cf, Depth> 5.96"
 Routed to Pond PSIS-1 : PSIS-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-Yr 24 Hr Rainfall=6.20"

Area (sf)	CN	Description
8,459	98	Paved parking, HSG A
8,459		100.00% Impervious Area

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

Summary for Subcatchment PR-1.2: PR-1.2

Runoff = 0.79 cfs @ 12.09 hrs, Volume= 2,518 cf, Depth> 4.60"
 Routed to Pond PSIS-2 : PSIS-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-Yr 24 Hr Rainfall=6.20"

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Type III 24-hr 25-Yr 24 Hr Rainfall=6.20"

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	Area (sf)	CN	Description
	5,278	98	Paved parking, HSG A
*	1,298	39	Crushed Stone
	6,576	86	Weighted Average
	1,298		19.74% Pervious Area
	5,278		80.26% Impervious Area

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

Summary for Subcatchment PR-1.3: PR-1.3

Runoff = 0.83 cfs @ 12.09 hrs, Volume= 2,651 cf, Depth> 4.70"
 Routed to Pond PSIS-3 : PSIS-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-Yr 24 Hr Rainfall=6.20"

	Area (sf)	CN	Description
	5,465	98	Paved parking, HSG A
*	1,298	39	Crushed Stone
	6,763	87	Weighted Average
	1,298		19.19% Pervious Area
	5,465		80.81% Impervious Area

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

Summary for Subcatchment PR-1.4: PR-1.4

Runoff = 0.24 cfs @ 12.09 hrs, Volume= 748 cf, Depth> 4.06"
 Routed to Pond PSIS-4 : PSIS-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-Yr 24 Hr Rainfall=6.20"

	Area (sf)	CN	Description
	1,562	98	Paved parking, HSG A
*	649	39	Crushed Stone
	2,211	81	Weighted Average
	649		29.35% Pervious Area
	1,562		70.65% Impervious Area

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Type III 24-hr 25-Yr 24 Hr Rainfall=6.20"

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

Summary for Subcatchment PR-1.5: PR-1.5

Runoff = 2.85 cfs @ 12.08 hrs, Volume= 10,143 cf, Depth> 5.96"
 Routed to Pond PSIS-5 : PSIS-5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-Yr 24 Hr Rainfall=6.20"

Area (sf)	CN	Description
20,433	98	Paved parking, HSG A
20,433		100.00% Impervious Area

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

Summary for Subcatchment PR-1.6: PR-1.6

Runoff = 13.56 cfs @ 12.09 hrs, Volume= 42,823 cf, Depth> 4.49"
 Routed to Pond PSIS-6 : PSIS-6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-Yr 24 Hr Rainfall=6.20"

Area (sf)	CN	Description
53,664	98	Paved parking, HSG A
22,468	39	>75% Grass cover, Good, HSG A
* 1,872	39	Porous Pavement/Pavers
* 36,520	98	Roof Area
114,524	85	Weighted Average
24,340		21.25% Pervious Area
90,184		78.75% Impervious Area

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

Summary for Subcatchment PR-1.7: northern locus

Runoff = 8.62 cfs @ 12.09 hrs, Volume= 26,782 cf, Depth> 3.96"
 Routed to Reach EX-P : Walker Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-Yr 24 Hr Rainfall=6.20"

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Type III 24-hr 25-Yr 24 Hr Rainfall=6.20"

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	Area (sf)	CN	Description
*	58,416	98	Existing Roof Area
	11,568	30	Woods, Good, HSG A
	10,614	39	>75% Grass cover, Good, HSG A
*	600	39	Porous Pavement/Pavers
	81,198	80	Weighted Average
	22,782		28.06% Pervious Area
	58,416		71.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Min. Engineering Practice

Summary for Subcatchment PR-2: southwest locus

Runoff = 0.03 cfs @ 12.33 hrs, Volume= 230 cf, Depth> 0.50"
 Routed to Reach DP-2 : Watertown Ford

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-Yr 24 Hr Rainfall=6.20"

Area (sf)	CN	Description
5,489	39	>75% Grass cover, Good, HSG A
5,489		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Min. Engineering Practice

Summary for Reach DP-1: Ex. Culvert

Inflow Area = 246,356 sf, 77.47% Impervious, Inflow Depth > 1.83" for 25-Yr 24 Hr event
 Inflow = 14.26 cfs @ 12.09 hrs, Volume= 37,613 cf
 Outflow = 14.26 cfs @ 12.09 hrs, Volume= 37,613 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach DP-2: Watertown Ford

Inflow Area = 5,489 sf, 0.00% Impervious, Inflow Depth > 0.50" for 25-Yr 24 Hr event
 Inflow = 0.03 cfs @ 12.33 hrs, Volume= 230 cf
 Outflow = 0.03 cfs @ 12.33 hrs, Volume= 230 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

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Type III 24-hr 25-Yr 24 Hr Rainfall=6.20"

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Summary for Reach EX-P: Walker Pond

Inflow Area = 240,164 sf, 79.03% Impervious, Inflow Depth > 1.85" for 25-Yr 24 Hr event
 Inflow = 14.11 cfs @ 12.09 hrs, Volume= 37,012 cf
 Outflow = 14.11 cfs @ 12.09 hrs, Volume= 37,012 cf, Atten= 0%, Lag= 0.0 min
 Routed to Reach DP-1 : Ex. Culvert

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Pond PSIS-1: PSIS-1

Inflow Area = 8,459 sf, 100.00% Impervious, Inflow Depth > 5.96" for 25-Yr 24 Hr event
 Inflow = 1.18 cfs @ 12.08 hrs, Volume= 4,199 cf
 Outflow = 1.18 cfs @ 12.09 hrs, Volume= 4,147 cf, Atten= 0%, Lag= 0.4 min
 Discarded = 0.02 cfs @ 6.74 hrs, Volume= 1,542 cf
 Primary = 1.16 cfs @ 12.09 hrs, Volume= 2,605 cf
 Routed to Reach EX-P : Walker Pond

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Peak Elev= 29.06' @ 12.09 hrs Surf.Area= 110 sf Storage= 237 cf

Plug-Flow detention time= 37.0 min calculated for 4,145 cf (99% of inflow)

Center-of-Mass det. time= 28.8 min (772.9 - 744.1)

Volume	Invert	Avail.Storage	Storage Description
#1	26.50'	187 cf	36.0" Round Pipe Storage Inside #2 L= 26.5'
#2	26.00'	101 cf	4.00'W x 27.50'L x 4.00'H Prismatic 440 cf Overall - 187 cf Embedded = 253 cf x 40.0% Voids
		288 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	26.00'	8.270 in/hr Exfiltration over Surface area
#2	Primary	28.50'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.02 cfs @ 6.74 hrs HW=26.04' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=1.15 cfs @ 12.09 hrs HW=29.06' (Free Discharge)

↑**2=Orifice/Grate** (Orifice Controls 1.15 cfs @ 2.55 fps)

Summary for Pond PSIS-2: PSIS-2

Inflow Area = 6,576 sf, 80.26% Impervious, Inflow Depth > 4.60" for 25-Yr 24 Hr event
 Inflow = 0.79 cfs @ 12.09 hrs, Volume= 2,518 cf
 Outflow = 0.79 cfs @ 12.09 hrs, Volume= 2,518 cf, Atten= 1%, Lag= 0.5 min
 Discarded = 0.03 cfs @ 10.14 hrs, Volume= 1,214 cf
 Primary = 0.76 cfs @ 12.09 hrs, Volume= 1,304 cf
 Routed to Reach EX-P : Walker Pond

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Type III 24-hr 25-Yr 24 Hr Rainfall=6.20"

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Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 30.44' @ 12.09 hrs Surf.Area= 140 sf Storage= 157 cf

Plug-Flow detention time= 19.6 min calculated for 2,517 cf (100% of inflow)
 Center-of-Mass det. time= 19.5 min (815.4 - 795.9)

Volume	Invert	Avail.Storage	Storage Description
#1	29.00'	104 cf	24.0" Round Pipe Storage Inside #2 L= 33.0'
#2	28.50'	127 cf	4.00'W x 35.00'L x 3.00'H Prismaoid 420 cf Overall - 104 cf Embedded = 316 cf x 40.0% Voids
		230 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	28.50'	8.270 in/hr Exfiltration over Surface area
#2	Primary	30.00'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 10.14 hrs HW=28.53' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.76 cfs @ 12.09 hrs HW=30.44' (Free Discharge)

↑**2=Orifice/Grate** (Orifice Controls 0.76 cfs @ 2.27 fps)

Summary for Pond PSIS-3: PSIS-3

Inflow Area = 6,763 sf, 80.81% Impervious, Inflow Depth > 4.70" for 25-Yr 24 Hr event
 Inflow = 0.83 cfs @ 12.09 hrs, Volume= 2,651 cf
 Outflow = 0.83 cfs @ 12.09 hrs, Volume= 2,651 cf, Atten= 1%, Lag= 0.5 min
 Discarded = 0.03 cfs @ 9.87 hrs, Volume= 1,229 cf
 Primary = 0.80 cfs @ 12.09 hrs, Volume= 1,422 cf
 Routed to Reach EX-P : Walker Pond

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 30.46' @ 12.09 hrs Surf.Area= 135 sf Storage= 160 cf

Plug-Flow detention time= 20.2 min calculated for 2,650 cf (100% of inflow)
 Center-of-Mass det. time= 20.0 min (812.9 - 792.9)

Volume	Invert	Avail.Storage	Storage Description
#1	29.00'	116 cf	24.0" Round Pipe Storage Inside #2 L= 37.0'
#2	28.50'	142 cf	3.50'W x 38.50'L x 3.50'H Prismaoid 472 cf Overall - 116 cf Embedded = 355 cf x 40.0% Voids
		258 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	28.50'	8.270 in/hr Exfiltration over Surface area
#2	Primary	30.00'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

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Discarded OutFlow Max=0.03 cfs @ 9.87 hrs HW=28.54' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.03 cfs)**Primary OutFlow** Max=0.80 cfs @ 12.09 hrs HW=30.46' (Free Discharge)↑**2=Orifice/Grate** (Orifice Controls 0.80 cfs @ 2.30 fps)**Summary for Pond PSIS-4: PSIS-4**

Inflow Area = 2,211 sf, 70.65% Impervious, Inflow Depth > 4.06" for 25-Yr 24 Hr event

Inflow = 0.24 cfs @ 12.09 hrs, Volume= 748 cf

Outflow = 0.24 cfs @ 12.09 hrs, Volume= 748 cf, Atten= 0%, Lag= 0.4 min

Discarded = 0.01 cfs @ 10.73 hrs, Volume= 396 cf

Primary = 0.23 cfs @ 12.09 hrs, Volume= 352 cf

Routed to Reach EX-P : Walker Pond

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Peak Elev= 30.23' @ 12.09 hrs Surf.Area= 51 sf Storage= 55 cf

Plug-Flow detention time= 22.7 min calculated for 748 cf (100% of inflow)

Center-of-Mass det. time= 22.6 min (832.2 - 809.6)

Volume	Invert	Avail.Storage	Storage Description
#1	29.00'	50 cf	24.0" Round Pipe Storage Inside #2 L= 16.0'
#2	28.50'	41 cf	3.00'W x 17.00'L x 3.00'H Prismatic 153 cf Overall - 50 cf Embedded = 103 cf x 40.0% Voids
		91 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	28.50'	8.270 in/hr Exfiltration over Surface area
#2	Primary	30.00'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.01 cfs @ 10.73 hrs HW=28.53' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)**Primary OutFlow** Max=0.23 cfs @ 12.09 hrs HW=30.23' (Free Discharge)↑**2=Orifice/Grate** (Orifice Controls 0.23 cfs @ 1.64 fps)**Summary for Pond PSIS-5: PSIS-5**

Inflow Area = 20,433 sf, 100.00% Impervious, Inflow Depth > 5.96" for 25-Yr 24 Hr event

Inflow = 2.85 cfs @ 12.08 hrs, Volume= 10,143 cf

Outflow = 2.72 cfs @ 12.11 hrs, Volume= 10,142 cf, Atten= 5%, Lag= 1.5 min

Discarded = 0.11 cfs @ 9.21 hrs, Volume= 5,594 cf

Primary = 2.61 cfs @ 12.11 hrs, Volume= 4,547 cf

Routed to Reach EX-P : Walker Pond

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

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Peak Elev= 30.47' @ 12.11 hrs Surf.Area= 570 sf Storage= 911 cf

Plug-Flow detention time= 22.4 min calculated for 10,142 cf (100% of inflow)

Center-of-Mass det. time= 22.2 min (766.4 - 744.1)

Volume	Invert	Avail.Storage	Storage Description
#1	28.50'	581 cf	24.0" Round Pipe Storage x 5 Inside #2 L= 37.0'
#2	28.00'	452 cf	15.00'W x 38.00'L x 3.00'H Prismaoid 1,710 cf Overall - 581 cf Embedded = 1,129 cf x 40.0% Voids
		1,033 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	28.00'	8.270 in/hr Exfiltration over Surface area
#2	Primary	29.50'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.11 cfs @ 9.21 hrs HW=28.03' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.11 cfs)**Primary OutFlow** Max=2.61 cfs @ 12.11 hrs HW=30.47' (Free Discharge)↑**2=Orifice/Grate** (Orifice Controls 2.61 cfs @ 3.35 fps)**Summary for Pond PSIS-6: PSIS-6**

Inflow Area = 114,524 sf, 78.75% Impervious, Inflow Depth > 4.49" for 25-Yr 24 Hr event
 Inflow = 13.56 cfs @ 12.09 hrs, Volume= 42,823 cf
 Outflow = 1.43 cfs @ 11.60 hrs, Volume= 42,808 cf, Atten= 89%, Lag= 0.0 min
 Discarded = 1.43 cfs @ 11.60 hrs, Volume= 42,808 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Routed to Reach EX-P : Walker Pond

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Peak Elev= 33.46' @ 12.85 hrs Surf.Area= 7,490 sf Storage= 15,070 cf

Plug-Flow detention time= 78.1 min calculated for 42,791 cf (100% of inflow)

Center-of-Mass det. time= 77.8 min (876.6 - 798.8)

Volume	Invert	Avail.Storage	Storage Description
#1	31.00'	15,984 cf	48.0" Round Pipe Storage x 6 Inside #2 L= 212.0'
#2	30.50'	8,586 cf	35.00'W x 214.00'L x 5.00'H Prismaoid 37,450 cf Overall - 15,984 cf Embedded = 21,466 cf x 40.0% Voids
		24,571 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	30.50'	8.270 in/hr Exfiltration over Surface area
#2	Device 3	34.50'	6.0" Vert. Orifice/Grate X 3.00 C= 0.600 Limited to weir flow at low heads
#3	Primary	34.50'	15.0" Round Culvert L= 8.0' CPP, projecting, no headwall, Ke= 0.900

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Inlet / Outlet Invert= 34.50' / 34.30' S= 0.0250 '/' Cc= 0.900
n= 0.010 PVC, smooth interior, Flow Area= 1.23 sf

Discarded OutFlow Max=1.43 cfs @ 11.60 hrs HW=30.55' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 1.43 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=30.50' (Free Discharge)

↑ **3=Culvert** (Controls 0.00 cfs)

↑ **2=Orifice/Grate** (Controls 0.00 cfs)

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Type III 24-hr 100-Yr 24 Hr Rainfall=8.90"

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Summary for Subcatchment PR-1: southeast locus

Runoff = 0.42 cfs @ 12.10 hrs, Volume= 1,390 cf, Depth> 2.69"
 Routed to Reach DP-1 : Ex. Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100-Yr 24 Hr Rainfall=8.90"

Area (sf)	CN	Description
3,625	39	>75% Grass cover, Good, HSG A
1,051	98	Paved parking, HSG A
* 1,516	39	Porous Pavement/Pavers
6,192	49	Weighted Average
5,141		83.03% Pervious Area
1,051		16.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Min. Engineering Practice

Summary for Subcatchment PR-1.1: PR-1.1

Runoff = 1.70 cfs @ 12.08 hrs, Volume= 6,100 cf, Depth> 8.65"
 Routed to Pond PSIS-1 : PSIS-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100-Yr 24 Hr Rainfall=8.90"

Area (sf)	CN	Description
8,459	98	Paved parking, HSG A
8,459		100.00% Impervious Area

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

Summary for Subcatchment PR-1.2: PR-1.2

Runoff = 1.21 cfs @ 12.08 hrs, Volume= 3,945 cf, Depth> 7.20"
 Routed to Pond PSIS-2 : PSIS-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100-Yr 24 Hr Rainfall=8.90"

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Type III 24-hr 100-Yr 24 Hr Rainfall=8.90"

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	Area (sf)	CN	Description
	5,278	98	Paved parking, HSG A
*	1,298	39	Crushed Stone
	6,576	86	Weighted Average
	1,298		19.74% Pervious Area
	5,278		80.26% Impervious Area

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

Summary for Subcatchment PR-1.3: PR-1.3

Runoff = 1.26 cfs @ 12.08 hrs, Volume= 4,126 cf, Depth> 7.32"
 Routed to Pond PSIS-3 : PSIS-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100-Yr 24 Hr Rainfall=8.90"

	Area (sf)	CN	Description
	5,465	98	Paved parking, HSG A
*	1,298	39	Crushed Stone
	6,763	87	Weighted Average
	1,298		19.19% Pervious Area
	5,465		80.81% Impervious Area

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

Summary for Subcatchment PR-1.4: PR-1.4

Runoff = 0.38 cfs @ 12.09 hrs, Volume= 1,214 cf, Depth> 6.59"
 Routed to Pond PSIS-4 : PSIS-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100-Yr 24 Hr Rainfall=8.90"

	Area (sf)	CN	Description
	1,562	98	Paved parking, HSG A
*	649	39	Crushed Stone
	2,211	81	Weighted Average
	649		29.35% Pervious Area
	1,562		70.65% Impervious Area

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Type III 24-hr 100-Yr 24 Hr Rainfall=8.90"

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

Summary for Subcatchment PR-1.5: PR-1.5

Runoff = 4.10 cfs @ 12.08 hrs, Volume= 14,734 cf, Depth> 8.65"
 Routed to Pond PSIS-5 : PSIS-5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100-Yr 24 Hr Rainfall=8.90"

Area (sf)	CN	Description
20,433	98	Paved parking, HSG A
20,433		100.00% Impervious Area

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

Summary for Subcatchment PR-1.6: PR-1.6

Runoff = 20.91 cfs @ 12.08 hrs, Volume= 67,549 cf, Depth> 7.08"
 Routed to Pond PSIS-6 : PSIS-6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100-Yr 24 Hr Rainfall=8.90"

Area (sf)	CN	Description
53,664	98	Paved parking, HSG A
22,468	39	>75% Grass cover, Good, HSG A
* 1,872	39	Porous Pavement/Pavers
* 36,520	98	Roof Area
114,524	85	Weighted Average
24,340		21.25% Pervious Area
90,184		78.75% Impervious Area

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

Summary for Subcatchment PR-1.7: northern locus

Runoff = 13.84 cfs @ 12.09 hrs, Volume= 43,759 cf, Depth> 6.47"
 Routed to Reach EX-P : Walker Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100-Yr 24 Hr Rainfall=8.90"

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Type III 24-hr 100-Yr 24 Hr Rainfall=8.90"

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	Area (sf)	CN	Description
*	58,416	98	Existing Roof Area
	11,568	30	Woods, Good, HSG A
	10,614	39	>75% Grass cover, Good, HSG A
*	600	39	Porous Pavement/Pavers
	81,198	80	Weighted Average
	22,782		28.06% Pervious Area
	58,416		71.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Min. Engineering Practice

Summary for Subcatchment PR-2: southwest locus

Runoff = 0.17 cfs @ 12.11 hrs, Volume= 710 cf, Depth> 1.55"
 Routed to Reach DP-2 : Watertown Ford

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100-Yr 24 Hr Rainfall=8.90"

Area (sf)	CN	Description
5,489	39	>75% Grass cover, Good, HSG A
5,489		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Min. Engineering Practice

Summary for Reach DP-1: Ex. Culvert

Inflow Area = 246,356 sf, 77.47% Impervious, Inflow Depth > 3.37" for 100-Yr 24 Hr event
 Inflow = 22.40 cfs @ 12.09 hrs, Volume= 69,261 cf
 Outflow = 22.40 cfs @ 12.09 hrs, Volume= 69,261 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach DP-2: Watertown Ford

Inflow Area = 5,489 sf, 0.00% Impervious, Inflow Depth > 1.55" for 100-Yr 24 Hr event
 Inflow = 0.17 cfs @ 12.11 hrs, Volume= 710 cf
 Outflow = 0.17 cfs @ 12.11 hrs, Volume= 710 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

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Summary for Reach EX-P: Walker Pond

Inflow Area = 240,164 sf, 79.03% Impervious, Inflow Depth > 3.39" for 100-Yr 24 Hr event
 Inflow = 21.98 cfs @ 12.09 hrs, Volume= 67,871 cf
 Outflow = 21.98 cfs @ 12.09 hrs, Volume= 67,871 cf, Atten= 0%, Lag= 0.0 min
 Routed to Reach DP-1 : Ex. Culvert

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Pond PSIS-1: PSIS-1

Inflow Area = 8,459 sf, 100.00% Impervious, Inflow Depth > 8.65" for 100-Yr 24 Hr event
 Inflow = 1.70 cfs @ 12.08 hrs, Volume= 6,100 cf
 Outflow = 1.69 cfs @ 12.09 hrs, Volume= 5,944 cf, Atten= 0%, Lag= 0.3 min
 Discarded = 0.02 cfs @ 4.57 hrs, Volume= 1,657 cf
 Primary = 1.67 cfs @ 12.09 hrs, Volume= 4,286 cf
 Routed to Reach EX-P : Walker Pond

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Peak Elev= 29.20' @ 12.09 hrs Surf.Area= 110 sf Storage= 247 cf

Plug-Flow detention time= 30.2 min calculated for 5,941 cf (97% of inflow)

Center-of-Mass det. time= 13.9 min (753.3 - 739.4)

Volume	Invert	Avail.Storage	Storage Description
#1	26.50'	187 cf	36.0" Round Pipe Storage Inside #2 L= 26.5'
#2	26.00'	101 cf	4.00'W x 27.50'L x 4.00'H Prismatic 440 cf Overall - 187 cf Embedded = 253 cf x 40.0% Voids
			288 cf Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	26.00'	8.270 in/hr Exfiltration over Surface area
#2	Primary	28.50'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.02 cfs @ 4.57 hrs HW=26.04' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=1.67 cfs @ 12.09 hrs HW=29.20' (Free Discharge)

↑**2=Orifice/Grate** (Orifice Controls 1.67 cfs @ 2.85 fps)

Summary for Pond PSIS-2: PSIS-2

Inflow Area = 6,576 sf, 80.26% Impervious, Inflow Depth > 7.20" for 100-Yr 24 Hr event
 Inflow = 1.21 cfs @ 12.08 hrs, Volume= 3,945 cf
 Outflow = 1.21 cfs @ 12.09 hrs, Volume= 3,945 cf, Atten= 0%, Lag= 0.4 min
 Discarded = 0.03 cfs @ 8.83 hrs, Volume= 1,507 cf
 Primary = 1.18 cfs @ 12.09 hrs, Volume= 2,437 cf
 Routed to Reach EX-P : Walker Pond

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Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Peak Elev= 30.57' @ 12.09 hrs Surf.Area= 140 sf Storage= 168 cf

Plug-Flow detention time= 18.1 min calculated for 3,945 cf (100% of inflow)

Center-of-Mass det. time= 18.0 min (801.7 - 783.7)

Volume	Invert	Avail.Storage	Storage Description
#1	29.00'	104 cf	24.0" Round Pipe Storage Inside #2 L= 33.0'
#2	28.50'	127 cf	4.00'W x 35.00'L x 3.00'H Prismaoid 420 cf Overall - 104 cf Embedded = 316 cf x 40.0% Voids
		230 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	28.50'	8.270 in/hr Exfiltration over Surface area
#2	Primary	30.00'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 8.83 hrs HW=28.53' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.03 cfs)**Primary OutFlow** Max=1.18 cfs @ 12.09 hrs HW=30.57' (Free Discharge)↑**2=Orifice/Grate** (Orifice Controls 1.18 cfs @ 2.57 fps)**Summary for Pond PSIS-3: PSIS-3**

Inflow Area = 6,763 sf, 80.81% Impervious, Inflow Depth > 7.32" for 100-Yr 24 Hr event

Inflow = 1.26 cfs @ 12.08 hrs, Volume= 4,126 cf

Outflow = 1.26 cfs @ 12.09 hrs, Volume= 4,125 cf, Atten= 0%, Lag= 0.4 min

Discarded = 0.03 cfs @ 8.59 hrs, Volume= 1,512 cf

Primary = 1.23 cfs @ 12.09 hrs, Volume= 2,613 cf

Routed to Reach EX-P : Walker Pond

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Peak Elev= 30.58' @ 12.09 hrs Surf.Area= 135 sf Storage= 171 cf

Plug-Flow detention time= 18.8 min calculated for 4,125 cf (100% of inflow)

Center-of-Mass det. time= 18.6 min (799.7 - 781.0)

Volume	Invert	Avail.Storage	Storage Description
#1	29.00'	116 cf	24.0" Round Pipe Storage Inside #2 L= 37.0'
#2	28.50'	142 cf	3.50'W x 38.50'L x 3.50'H Prismaoid 472 cf Overall - 116 cf Embedded = 355 cf x 40.0% Voids
		258 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	28.50'	8.270 in/hr Exfiltration over Surface area
#2	Primary	30.00'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

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Type III 24-hr 100-Yr 24 Hr Rainfall=8.90"

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Discarded OutFlow Max=0.03 cfs @ 8.59 hrs HW=28.54' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.03 cfs)**Primary OutFlow** Max=1.23 cfs @ 12.09 hrs HW=30.58' (Free Discharge)↑**2=Orifice/Grate** (Orifice Controls 1.23 cfs @ 2.60 fps)**Summary for Pond PSIS-4: PSIS-4**

Inflow Area = 2,211 sf, 70.65% Impervious, Inflow Depth > 6.59" for 100-Yr 24 Hr event

Inflow = 0.38 cfs @ 12.09 hrs, Volume= 1,214 cf

Outflow = 0.38 cfs @ 12.09 hrs, Volume= 1,214 cf, Atten= 0%, Lag= 0.3 min

Discarded = 0.01 cfs @ 9.55 hrs, Volume= 503 cf

Primary = 0.37 cfs @ 12.09 hrs, Volume= 710 cf

Routed to Reach EX-P : Walker Pond

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Peak Elev= 30.30' @ 12.09 hrs Surf.Area= 51 sf Storage= 58 cf

Plug-Flow detention time= 20.1 min calculated for 1,213 cf (100% of inflow)

Center-of-Mass det. time= 19.9 min (816.0 - 796.0)

Volume	Invert	Avail.Storage	Storage Description
#1	29.00'	50 cf	24.0" Round Pipe Storage Inside #2 L= 16.0'
#2	28.50'	41 cf	3.00'W x 17.00'L x 3.00'H Prismatic 153 cf Overall - 50 cf Embedded = 103 cf x 40.0% Voids
		91 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	28.50'	8.270 in/hr Exfiltration over Surface area
#2	Primary	30.00'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.01 cfs @ 9.55 hrs HW=28.53' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)**Primary OutFlow** Max=0.37 cfs @ 12.09 hrs HW=30.30' (Free Discharge)↑**2=Orifice/Grate** (Orifice Controls 0.37 cfs @ 1.87 fps)**Summary for Pond PSIS-5: PSIS-5**

Inflow Area = 20,433 sf, 100.00% Impervious, Inflow Depth > 8.65" for 100-Yr 24 Hr event

Inflow = 4.10 cfs @ 12.08 hrs, Volume= 14,734 cf

Outflow = 3.89 cfs @ 12.11 hrs, Volume= 14,732 cf, Atten= 5%, Lag= 1.6 min

Discarded = 0.11 cfs @ 8.17 hrs, Volume= 6,749 cf

Primary = 3.78 cfs @ 12.11 hrs, Volume= 7,983 cf

Routed to Reach EX-P : Walker Pond

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

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Type III 24-hr 100-Yr 24 Hr Rainfall=8.90"

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Peak Elev= 31.00' @ 12.11 hrs Surf.Area= 570 sf Storage= 1,033 cf

Plug-Flow detention time= 21.7 min calculated for 14,726 cf (100% of inflow)

Center-of-Mass det. time= 21.6 min (761.0 - 739.4)

Volume	Invert	Avail.Storage	Storage Description
#1	28.50'	581 cf	24.0" Round Pipe Storage x 5 Inside #2 L= 37.0'
#2	28.00'	452 cf	15.00'W x 38.00'L x 3.00'H Prismaoid 1,710 cf Overall - 581 cf Embedded = 1,129 cf x 40.0% Voids
		1,033 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	28.00'	8.270 in/hr Exfiltration over Surface area
#2	Primary	29.50'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.11 cfs @ 8.17 hrs HW=28.03' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.11 cfs)**Primary OutFlow** Max=3.78 cfs @ 12.11 hrs HW=31.00' (Free Discharge)↑**2=Orifice/Grate** (Orifice Controls 3.78 cfs @ 4.81 fps)**Summary for Pond PSIS-6: PSIS-6**

Inflow Area = 114,524 sf, 78.75% Impervious, Inflow Depth > 7.08" for 100-Yr 24 Hr event
 Inflow = 20.91 cfs @ 12.08 hrs, Volume= 67,549 cf
 Outflow = 3.89 cfs @ 12.53 hrs, Volume= 67,527 cf, Atten= 81%, Lag= 26.7 min
 Discarded = 1.43 cfs @ 11.19 hrs, Volume= 61,446 cf
 Primary = 2.45 cfs @ 12.53 hrs, Volume= 6,081 cf
 Routed to Reach EX-P : Walker Pond

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
 Peak Elev= 35.50' @ 12.53 hrs Surf.Area= 7,490 sf Storage= 24,564 cf

Plug-Flow detention time= 114.6 min calculated for 67,527 cf (100% of inflow)

Center-of-Mass det. time= 114.4 min (900.7 - 786.3)

Volume	Invert	Avail.Storage	Storage Description
#1	31.00'	15,984 cf	48.0" Round Pipe Storage x 6 Inside #2 L= 212.0'
#2	30.50'	8,586 cf	35.00'W x 214.00'L x 5.00'H Prismaoid 37,450 cf Overall - 15,984 cf Embedded = 21,466 cf x 40.0% Voids
		24,571 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	30.50'	8.270 in/hr Exfiltration over Surface area
#2	Device 3	34.50'	6.0" Vert. Orifice/Grate X 3.00 C= 0.600 Limited to weir flow at low heads
#3	Primary	34.50'	15.0" Round Culvert L= 8.0' CPP, projecting, no headwall, Ke= 0.900

21049-POST-2*Type III 24-hr 100-Yr 24 Hr Rainfall=8.90"*

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Inlet / Outlet Invert= 34.50' / 34.30' S= 0.0250 '/' Cc= 0.900
n= 0.010 PVC, smooth interior, Flow Area= 1.23 sf

Discarded OutFlow Max=1.43 cfs @ 11.19 hrs HW=30.55' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 1.43 cfs)

Primary OutFlow Max=2.45 cfs @ 12.53 hrs HW=35.50' (Free Discharge)

↑**3=Culvert** (Passes 2.45 cfs of 2.82 cfs potential flow)

↑**2=Orifice/Grate** (Orifice Controls 2.45 cfs @ 4.16 fps)

PIPE SIZING CALCULATIONS

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80 Montvale Ave
Stoneham MA 02180
P 781.279.0173

Storm Drainage Computations

Name: 10-30 Manley Way
Watertown, MA
Client: The Seyon Group

Proj. No.:
Date:
Computed by:
Checked by:

21049
3/19/2024
MAC
BJM

Design Parameters:
25 Year Storm
 $k_e = 0.5$

DESCRIPTION	LOCATION		AREA (AC.)	Cn	Cn x A	SUM Cn x A	TIME OF CONCENTRATION	INTENSITY IDF CURVE	DESIGN					CAPACITY	
	FROM	TO							Q cfs	V fps	n	PIPE SIZE	SLOPE	Q full ft ³ /s	V full ft/s
To FES-1	CDS-1	SIS-1	0.19	0.90	0.17	0.17	6.0	6.3	1.08	5.56	0.011	12	0.032	7.53	9.59
	SIS-1	DMH-1	-	-	-	-	6.0	6.3	1.20	6.73	0.011	12	0.054	9.78	12.46
	DMH-1	DMH-2	-	-	-	-	6.0	6.3	1.20	2.78	0.011	12	0.004	2.66	3.39
	DMH-2	DMH-4	-	-	-	-	6.0	6.3	1.20	2.78	0.011	12	0.004	2.66	3.39
	CDS-2	SIS-2	0.15	0.90	0.14	0.14	6.0	6.3	0.85	4.55	0.011	12	0.023	6.39	8.13
	SIS-2	DMH-3	-	-	-	-	6.0	6.3	0.76	4.66	0.011	12	0.029	7.17	9.13
	DMH-3	DMH-4	-	-	-	-	6.0	6.3	0.76	3.91	0.011	12	0.017	5.49	6.99
	DMH-4	DMH-6	-	-	-	-	6.0	6.3	1.96	3.45	0.011	12	0.005	2.98	3.79
	CDS-3	SIS-3	0.16	0.90	0.14	0.14	6.0	6.3	0.91	5.47	0.011	12	0.040	8.42	10.72
	SIS-3	DMH-5	-	-	-	-	6.0	6.3	0.80	5.12	0.011	12	0.035	7.88	10.03
	CDS-4	SIS-4	0.05	0.90	0.05	0.05	6.0	6.3	0.28	3.06	0.011	12	0.030	7.29	9.29
	SIS-4	DMH-5	-	-	-	-	6.0	6.3	0.23	1.93	0.011	12	0.007	3.52	4.49
	DMH-5	DMH-6	-	-	-	-	6.0	6.3	1.03	4.62	0.011	12	0.020	5.95	7.58
	DMH-6	DMH-7	-	-	-	-	6.0	6.3	2.99	3.83	0.011	15	0.005	5.40	4.40
	DMH-7	DMH-8	-	-	-	-	6.0	6.3	2.99	3.83	0.011	15	0.005	5.40	4.40
	DMH-8	DMH-10	-	-	-	-	6.0	6.3	2.99	3.83	0.011	18	0.005	8.78	4.97
	CDS-5	SIS-5	0.47	0.90	0.42	0.42	6.0	6.3	2.66	5.32	0.011	12	0.013	4.80	6.11
	SIS-5	DMH-9	-	-	-	-	6.0	6.3	2.61	6.74	0.011	12	0.026	6.79	8.64
	DMH-9	DMH-10	-	-	-	-	6.0	6.3	2.61	7.93	0.011	12	0.040	8.42	10.72



80 Montvale Ave
Stoneham MA 02180
P 781.279.0173

Storm Drainage Computations

Name: 10-30 Manley Way
Watertown, MA
Client: The Seyon Group

Proj. No.:
Date:
Computed by:
Checked by:

21049
3/19/2024
MAC
BJM

Design Parameters:
25 Year Storm
 $k_e = 0.5$

DESCRIPTION	LOCATION		AREA (AC.)	Cn	Cn x A	SUM Cn x A	TIME OF CONCENTRATION	INTENSITY IDF CURVE	DESIGN					CAPACITY	
	FROM	TO							Q cfs	V fps	n	PIPE SIZE	SLOPE	Q full ft ³ /s	V full ft/s
	DMH-10	FES-1	-	-	-	-	6.0	6.3	5.60	4.39	0.011	24	0.005	18.90	6.02
To EX-DMH	CB-4	DMH-11	0.11	0.90	0.10	0.10	6.0	6.3	0.62	3.55	0.011	12	0.015	5.16	6.57
	CB-1	DMH-11	0.62	0.90	0.56	0.56	6.0	6.3	3.52	6.76	0.011	12	0.021	6.10	7.77
	DMH-11	CDS-6	-	-	-	0.66	6.0	6.3	4.14	6.43	0.011	12	0.015	5.16	6.57
	CB-3	DMH-13	0.43	0.90	0.39	0.39	6.0	6.3	2.44	4.17	0.011	12	0.007	3.52	4.49
	DMH-13	DMH-12	-	-	-	0.39	6.0	6.3	2.44	4.17	0.011	12	0.007	3.52	4.49
	CB-2	DMH-12	0.53	0.90	0.48	0.48	6.0	6.3	3.01	7.58	0.011	12	0.032	7.53	9.59
	DMH-12	CDS-6	-	-	-	0.86	6.0	6.3	5.44	5.21	0.011	15	0.007	6.39	5.21
	CDS-6	SIS-6	-	-	-	1.52	6.0	6.3	9.58	7.56	0.011	18	0.014	14.69	8.31
	CDS-7	SIS-6	0.10	0.90	0.09	0.09	6.0	6.3	0.57	4.89	0.011	12	0.045	8.93	11.37
	RD-1	DMH-17	0.84	0.90	0.76	0.76	6.0	6.3	4.76	6.36	0.011	12	0.013	4.80	6.11
	DMH-17	DMH-16	-	-	-	0.76	6.0	6.3	4.76	5.74	0.011	15	0.011	8.01	6.52
	DMH-16	SIS-6	-	-	-	0.76	6.0	6.3	4.76	5.93	0.011	15	0.012	8.36	6.81
	SIS-6	DMH-14	-	-	-	-	6.0	6.3	0.00	0.00	0.011	15	0.025	12.07	9.84
	DMH-14	DMH-15	-	-	-	-	6.0	6.3	0.00	0.00	0.011	15	0.036	14.49	11.80
	DMH-15	EX-DMH	-	-	-	-	6.0	6.3	0.00	0.00	0.011	24	0.003	14.64	4.66

72-HOUR DRAWDOWN CALCULATIONS

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The Stormwater Handbook also requires recharge facilities be installed in soils capable of absorbing the recharge volume with the ability to drain within 72 hours. The formula for drawdown is as follows:

General Formula:

$$T_{DR} = \frac{\text{required storage volume}^*}{(\text{Rawls Rate})(\text{Bottom Surface Area of System})}$$

(*Required storage volume for this design is equal to the volume within subsurface infiltration system for the 1-yr design storm)

PSIS-1:

Volume to Treat = 190 cf

$$T_{DR} = \frac{190cf}{\left(\frac{8.27in/hr}{12in/ft}\right)(110sf)} = 2.5 \text{ hrs}$$

2.5 hrs < 72hrs

PSIS-2:

Volume to Treat = 115 cf

$$T_{DR} = \frac{115cf}{\left(\frac{8.27in/hr}{12in/ft}\right)(140sf)} = 1.2 \text{ hrs}$$

1.2 hrs < 72hrs

PSIS-3:

Volume to Treat = 116 cf

$$T_{DR} = \frac{116cf}{\left(\frac{8.27in/hr}{12in/ft}\right)(135sf)} = 1.2 \text{ hrs}$$

1.2 hrs < 72hrs

PSIS-4:

Volume to Treat = 46 cf

$$T_{DR} = \frac{46cf}{\left(\frac{8.27in/hr}{12in/ft}\right)(51sf)} = 1.3 \text{ hrs}$$

1.3 hrs < 72hrs

PSIS-5:

Volume to Treat = 516 *cf*

$$T_{DR} = \frac{516 \text{ cf}}{\left(\frac{8.27 \text{ in/hr}}{12 \text{ in/ft}}\right)(570 \text{ sf})} = 1.3 \text{ hrs}$$

1.3 *hrs* < 72*hrs*

PSIS-6:

Volume to Treat = 20,883 *cf*

$$T_{DR} = \frac{20,883 \text{ cf}}{\left(\frac{8.27 \text{ in/hr}}{12 \text{ in/ft}}\right)(7,490 \text{ sf})} = 4.0 \text{ hrs}$$

4.0 *hrs* < 72*hrs*

PHOSPHOROUS LOAD REDUCTION MANLEY WAY and LOADING DOCK

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PHOSPHOROUS LOAD CALCULATION - MANLEY WAY
AND LOADING DOCK AREAS

LAND USE	AREA (ACRE)	PHOSPHOROUS LAND EXPORT RATE (lbs/ACRE/YR) (1)	PHOSPHOROUS LOAD (lbs/YR.)
COMMERCIAL/ INDUSTRIAL	0.94	1.78	1.67

(1) SEE TABLE 2-4

NON-STRUCTURAL BMPs PHOSPHOROUS REMOVAL

CDS CATCH BASIN CLEANING

$$CREDIT_{CB} = IA_{CB} \times PLER \times PRF_{CB}$$

WHERE:

$CREDIT_{CB}$ = AMOUNT OF PHOSPHOROUS REMOVED BY CB CLEANING (lb/YR.)

IA_{CB} = IMPERVIOUS AREA TO CB = 0.94 ACRE

$PLER$ = PHOSPHOROUS LOAD EXPORT RATE = 1.78 (lbs/ACRE/YR.)

PRF_{CB} = PHOSPHOROUS REDUCTION FOR CB CLEANING = 0.01 (SEE TABLE 2-4)

$$CREDIT_{CB} = 0.94 \times 1.78 \times 0.01 = \underline{0.02 \text{ lb/YR.}}$$

STRUCTURAL BMPs PHOSPHOROUS REMOVAL

SUBSURFACE INFILTRATION SYSTEMS

$$CREDIT_{INFIL} = IA \times PLER \times PRF_{INFIL}$$

WHERE:

PRF = 1.0 (100%) FOR INFILTRATING FIRST 1-INCH OF RUNOFF (SEE TABLE 3-17)

$$CREDIT_{INFIL} = 0.94 \times 1.78 \times 1.00 = \underline{1.67 \text{ lbs/YR}}$$

TOTAL PHOSPHOROUS REMOVED = 1.67 lbs/yr.

WEIGHTED TOTAL PHOSPHOROUS REMOVAL PERCENT = $\frac{\text{PHOSPHOROUS REMOVED}}{\text{PHOSPHOROUS LOAD}}$

$$1.67/1.67 = \underline{\underline{100\%}}$$

PHOSPHOROUS LOAD REDUCTION PARKING LOT

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PHOSPHOROUS LOAD CALCULATION - PARKING LOT

<u>LAND USE</u>	<u>AREA (ACRE)</u>	<u>PHOSPHOROUS LAND EXPORT RATE (lbs/ACRE/YR) (1)</u>	<u>PHOSPHOROUS LOAD (lbs/YR.)</u>
COMMERCIAL/IND.	1.23	1.78	2.19

(1) SEE TABLE 2-1

NON-STRUCTURAL BMPs PHOSPHOROUS REMOVAL

CATCH BASIN/OIL/GRITSEPARATOR CLEANING

$$CREDIT_{CB} = I_{ACB} \times P_{LER} \times P_{RCB}$$

WHERE:

$CREDIT_{CB}$ = AMOUNT OF PHOSPHOROUS REMOVED BY CB CLEANING (lb/YR)

I_{ACB} = IMPERVIOUS AREA TO CB = 1.23 (ACRES)

P_{LER} = PHOSPHOROUS LOAD EXPORT RATE = 1.78 lbs/ACRE/YR

P_{RCB} = PHOSPHOROUS REDUCTION FOR CB CLEANING = 0.01 (SEE TABLE 2-4)

$$CREDIT_{CB} = 1.23 \times 1.78 \times 0.01 = \underline{0.02 \text{ lb/YR.}}$$

STRUCTURAL BMPs PHOSPHOROUS REMOVAL

SUBSURFACE INFILTRATION SYSTEMS

$$CREDIT_{INFIL} = I_A \times P_{LER} \times P_{RINFIL}$$

WHERE: $P_{RF} = 1.0$ (100%) FOR INFILTRATING FIRST 1-INCH OF RUNOFF
 (SEE TABLE 3-17)

$$CREDIT_{INFIL} = 1.23 \times 1.78 \times 1.00 = \underline{2.19 \text{ lbs/YR.}}$$

TOTAL PHOSPHOROUS REMOVED = 2.19 lbs/YR.

$$\begin{aligned} \text{WEIGHTED TOTAL PHOSPHOROUS REMOVAL PERCENT} &= \frac{\text{PHOSPHOROUS REMOVED}}{\text{PHOSPHOROUS LOAD}} \\ &= 2.19/2.19 = \underline{\underline{100\%}} \end{aligned}$$

Table 2-1: Proposed average annual distinct P Load export rates for use in estimating P Load reduction credits in the MA MS4 Permit

Phosphorus Source Category by Land Use	Land Surface Cover	P Load Export Rate, lbs/acre/year	P Load Export Rate, kg/ha/yr
Commercial (Com) and Industrial (Ind)	Directly connected impervious	1.78	2.0
	Pervious	See* DevPERV	See* DevPERV
Multi-Family (MFR) and High-Density Residential (HDR)	Directly connected impervious	2.32	2.6
	Pervious	See* DevPERV	See* DevPERV
Medium -Density Residential (MDR)	Directly connected impervious	1.96	2.2
	Pervious	See* DevPERV	See* DevPERV
Low Density Residential (LDR) - "Rural"	Directly connected impervious	1.52	1.7
	Pervious	See* DevPERV	See* DevPERV
Highway (HWY)	Directly connected impervious	1.34	1.5
	Pervious	See* DevPERV	See* DevPERV
Forest (For)	Directly connected impervious	1.52	1.7
	Pervious	0.13	0.13
Open Land (Open)	Directly connected impervious	1.52	1.7
	Pervious	See* DevPERV	See* DevPERV
Agriculture (Ag)	Directly connected impervious	1.52	1.7
	Pervious	0.45	0.5
*Developed Land Pervious (DevPERV) – HSG A	Pervious	0.03	0.03
*Developed Land Pervious (DevPERV) – HSG B	Pervious	0.12	0.13
*Developed Land Pervious (DevPERV) – HSG C	Pervious	0.21	0.24
*Developed Land Pervious (DevPERV) – HSG C/D	Pervious	0.29	0.33
*Developed Land Pervious (DevPERV) – HSG D	Pervious	0.37	0.41

Notes:

- For pervious areas, if the hydrologic soil group (HSG) is known, use the appropriate value from this table. If the HSG is not known, assume HSG C conditions for the phosphorus load export rate.
- Agriculture includes row crops. Actively managed hay fields and pasture lands. Institutional land uses such as government properties, hospitals and schools are to be included in the commercial and industrial land use grouping for the purpose of calculating phosphorus loading.

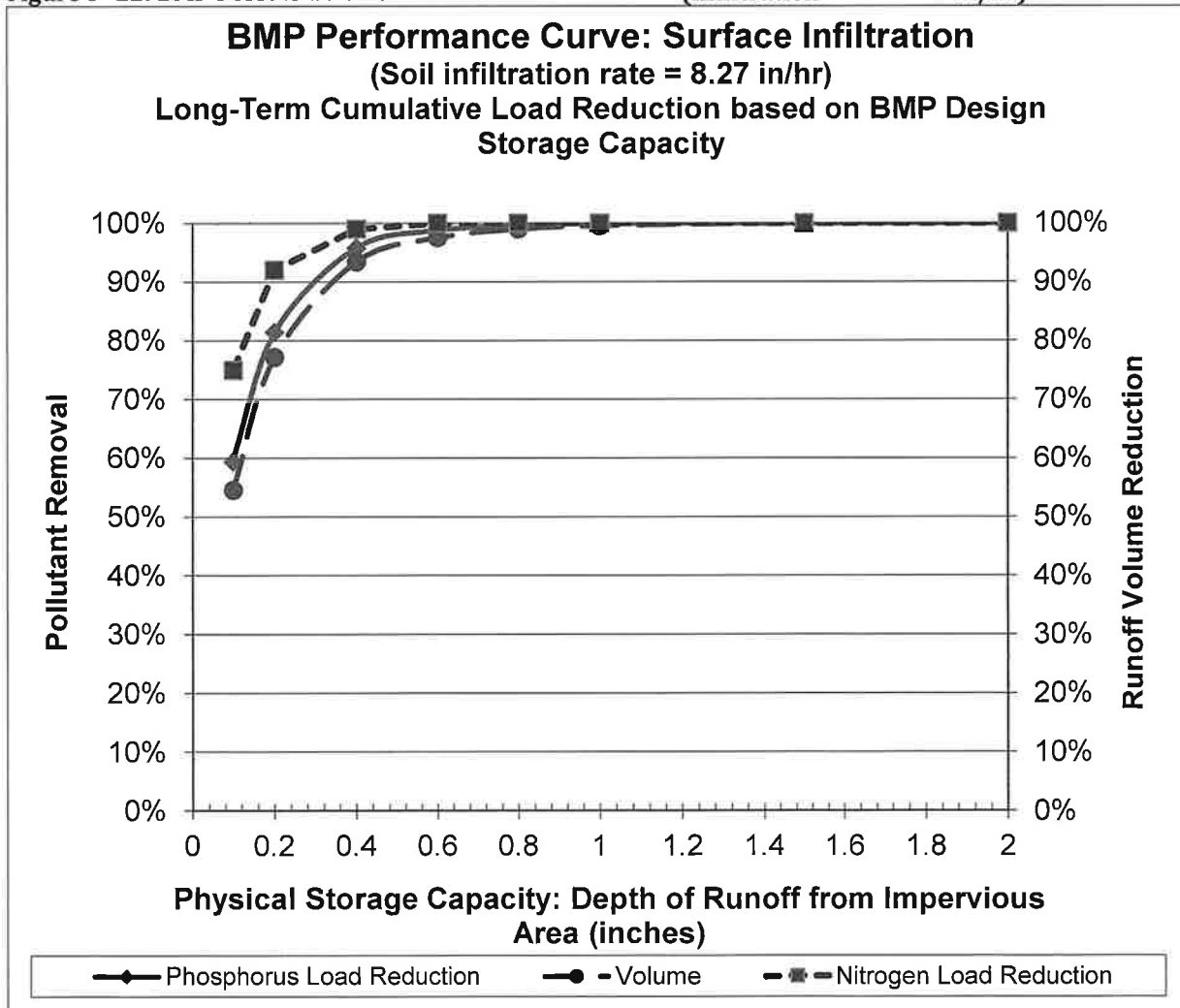
**Table 2-4: Nutrient reduction efficiency factors
 for sweeping impervious areas**

Frequency¹	Sweeper Technology	PRF_{sweeping}	NFR_{sweeping}
2/year (spring and fall) ²	Mechanical Broom	0.01	0.01
2/year (spring and fall) ²	Vacuum Assisted	0.02	0.02
2/year (spring and fall) ²	High-Efficiency Regenerative Air-Vacuum	0.02	0.02
Monthly	Mechanical Broom	0.03	0.03
Monthly	Vacuum Assisted	0.04	0.04
Monthly	High Efficiency Regenerative Air-Vacuum	0.08	0.08
Weekly	Mechanical Broom	0.05	0.06
Weekly	Vacuum Assisted	0.08	0.07
Weekly	High Efficiency Regenerative Air-Vacuum	0.10	0.10

Table 3- 17: Surface Infiltration (8.27 in/hr) BMP Performance Table

Surface Infiltration (8.27 in/hr) BMP Performance Table: Long-Term Phosphorus Load Reduction								
BMP Capacity: Depth of Runoff from Impervious Area (inches)	0.1	0.2	0.4	0.6	0.8	1.0	1.5	2.0
Runoff Volume Reduction	54.6%	77.2%	93.4%	97.5%	99.0%	99.6%	100.0%	100.0%
Cumulative Phosphorus Load Reduction	59%	81%	96%	99%	100%	100%	100%	100%
Cumulative Nitrogen Load Reduction	75%	92%	99%	100%	100%	100%	100%	100%

Figure 3- 12: BMP Performance Curve: Surface Infiltration (infiltration rate = 8.27 in/hr)



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PHOSPHOROUS LOAD REDUCTION POROUS PAVEMENT

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PHOSPHOROUS LOAD CALCULATION - PARKING LOT

<u>LAND USE</u>	<u>AREA (ACRE)</u>	<u>PHOSPHOROUS LAND EXPORT RATE (lbs/ACRE/YR) (1)</u>	<u>PHOSPHOROUS LOAD (lbs/YR.)</u>
COMMERCIAL/IND.	1.23	1.78	2.19

(1) SEE TABLE 2-1

NON-STRUCTURAL BMPs PHOSPHOROUS REMOVAL

CATCH BASIN/OIL/GRITSEPARATOR CLEANING

$$CREDIT_{CB} = I_{ACB} \times PLE \times PRF_{CB}$$

WHERE:

$CREDIT_{CB}$ = AMOUNT OF PHOSPHOROUS REMOVED BY CB CLEANING (lb/YR)

I_{ACB} = IMPERVIOUS AREA TO CB = 1.23 (ACRES)

PLE = PHOSPHOROUS LOAD EXPORT RATE = 1.78 lbs/ACRE/YR

PRF_{CB} = PHOSPHOROUS REDUCTION FOR CB CLEANING = 0.01 (SEE TABLE 2-4)

$$CREDIT_{CB} = 1.23 \times 1.78 \times 0.01 = \underline{0.02 \text{ lb/YR.}}$$

STRUCTURAL BMPs PHOSPHOROUS REMOVAL

SUBSURFACE INFILTRATION SYSTEMS

$$CREDIT_{INFIL} = I_A \times PLE \times PRF_{INFIL}$$

WHERE: $PRF = 1.0$ (100%) FOR INFILTRATING FIRST 1-INCH OF RUNOFF
(SEE TABLE 3-17)

$$CREDIT_{INFIL} = 1.23 \times 1.78 \times 1.00 = \underline{2.19 \text{ lbs/YR.}}$$

TOTAL PHOSPHOROUS REMOVED = 2.19 lbs/YR.

$$\begin{aligned} \text{WEIGHTED TOTAL PHOSPHOROUS REMOVAL PERCENT} &= \frac{\text{PHOSPHOROUS REMOVED}}{\text{PHOSPHOROUS LOAD}} \\ &= 2.19/2.19 = \underline{\underline{100\%}} \end{aligned}$$

Table 2-1: Proposed average annual distinct P Load export rates for use in estimating P Load reduction credits in the MA MS4 Permit

Phosphorus Source Category by Land Use	Land Surface Cover	P Load Export Rate, lbs/acre/year	P Load Export Rate, kg/ha/yr
Commercial (Com) and Industrial (Ind)	Directly connected impervious	1.78	2.0
	Pervious	See* DevPERV	See* DevPERV
Multi-Family (MFR) and High-Density Residential (HDR)	Directly connected impervious	2.32	2.6
	Pervious	See* DevPERV	See* DevPERV
Medium -Density Residential (MDR)	Directly connected impervious	1.96	2.2
	Pervious	See* DevPERV	See* DevPERV
Low Density Residential (LDR) - "Rural"	Directly connected impervious	1.52	1.7
	Pervious	See* DevPERV	See* DevPERV
Highway (HWY)	Directly connected impervious	1.34	1.5
	Pervious	See* DevPERV	See* DevPERV
Forest (For)	Directly connected impervious	1.52	1.7
	Pervious	0.13	0.13
Open Land (Open)	Directly connected impervious	1.52	1.7
	Pervious	See* DevPERV	See* DevPERV
Agriculture (Ag)	Directly connected impervious	1.52	1.7
	Pervious	0.45	0.5
*Developed Land Pervious (DevPERV) – HSG A	Pervious	0.03	0.03
*Developed Land Pervious (DevPERV) – HSG B	Pervious	0.12	0.13
*Developed Land Pervious (DevPERV) – HSG C	Pervious	0.21	0.24
*Developed Land Pervious (DevPERV) – HSG C/D	Pervious	0.29	0.33
*Developed Land Pervious (DevPERV) – HSG D	Pervious	0.37	0.41

Notes:

- For pervious areas, if the hydrologic soil group (HSG) is known, use the appropriate value from this table. If the HSG is not known, assume HSG C conditions for the phosphorus load export rate.
- Agriculture includes row crops. Actively managed hay fields and pasture lands. Institutional land uses such as government properties, hospitals and schools are to be included in the commercial and industrial land use grouping for the purpose of calculating phosphorus loading.

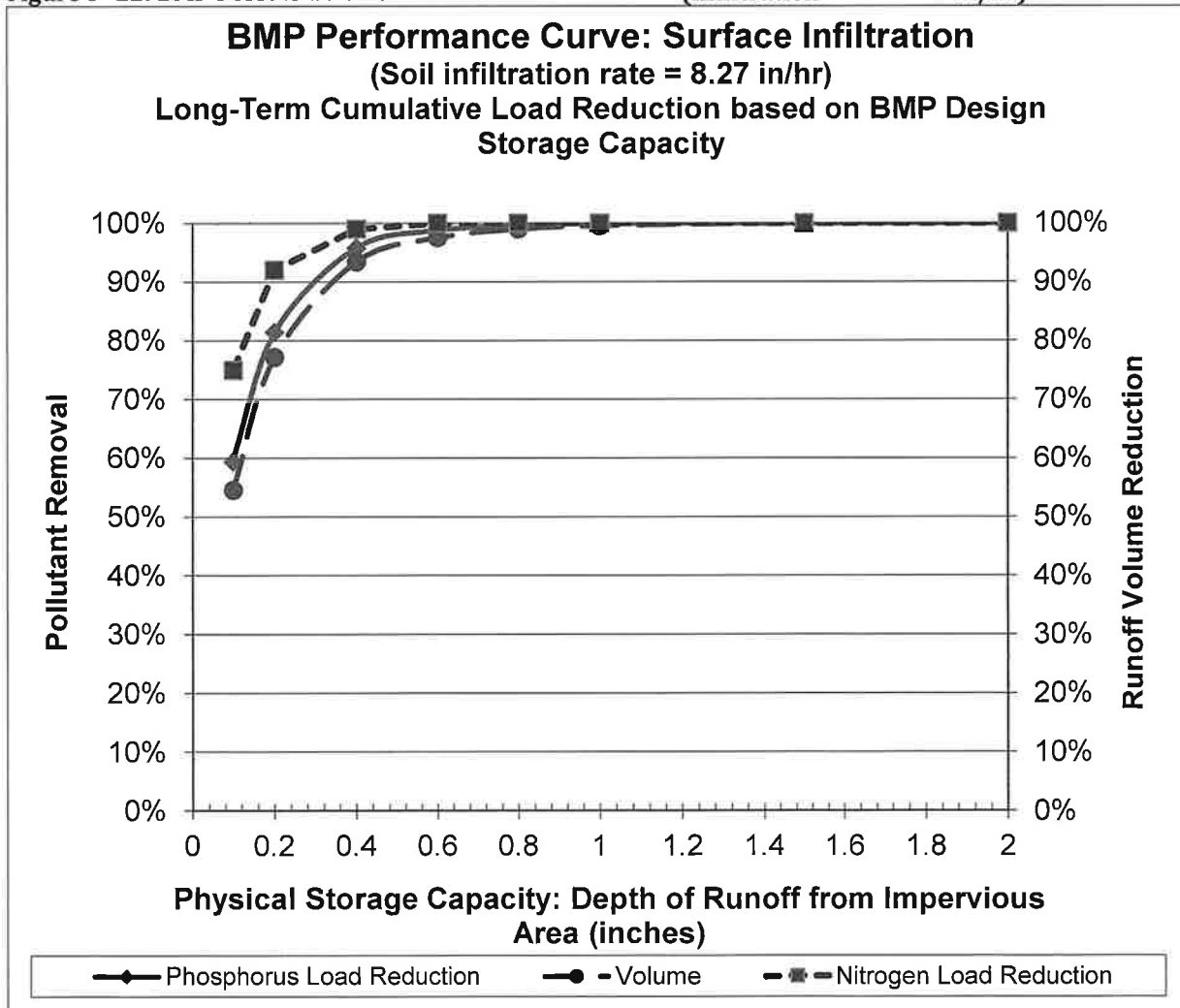
**Table 2-4: Nutrient reduction efficiency factors
 for sweeping impervious areas**

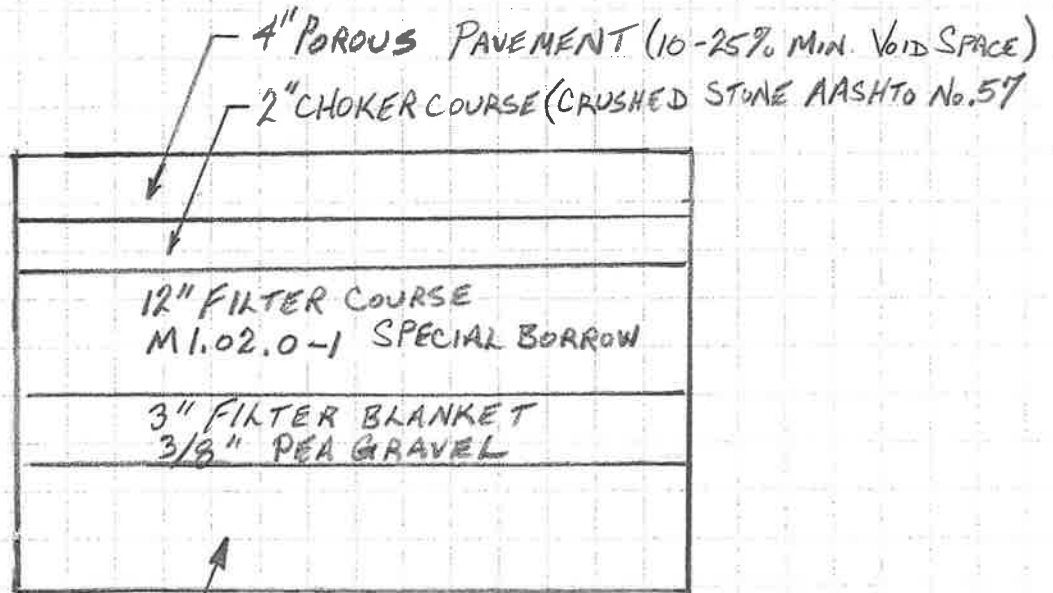
Frequency ¹	Sweeper Technology	PRF _{sweeping}	NFR _{sweeping}
2/year (spring and fall) ²	Mechanical Broom	0.01	0.01
2/year (spring and fall) ²	Vacuum Assisted	0.02	0.02
2/year (spring and fall) ²	High-Efficiency Regenerative Air-Vacuum	0.02	0.02
Monthly	Mechanical Broom	0.03	0.03
Monthly	Vacuum Assisted	0.04	0.04
Monthly	High Efficiency Regenerative Air-Vacuum	0.08	0.08
Weekly	Mechanical Broom	0.05	0.06
Weekly	Vacuum Assisted	0.08	0.07
Weekly	High Efficiency Regenerative Air-Vacuum	0.10	0.10

Table 3- 17: Surface Infiltration (8.27 in/hr) BMP Performance Table

Surface Infiltration (8.27 in/hr) BMP Performance Table: Long-Term Phosphorus Load Reduction								
BMP Capacity: Depth of Runoff from Impervious Area (inches)	0.1	0.2	0.4	0.6	0.8	1.0	1.5	2.0
Runoff Volume Reduction	54.6%	77.2%	93.4%	97.5%	99.0%	99.6%	100.0%	100.0%
Cumulative Phosphorus Load Reduction	59%	81%	96%	99%	100%	100%	100%	100%
Cumulative Nitrogen Load Reduction	75%	92%	99%	100%	100%	100%	100%	100%

Figure 3- 12: BMP Performance Curve: Surface Infiltration (infiltration rate = 8.27 in/hr)





12" MIN. RESERVOIR COURSE
 LAID FLAT. THICKNESS
 VARIES W/SLOPE OF
 DRIVE. AASHTO No. 5
 GRADATION, 40% MIN.
 VOID SPACE.

POROUS PAVEMENT SECTION

62% TP REMOVAL W/12" FILTER COURSE *

* SEE BMP PERFORMANCE TABLE FOR
 POROUS PAVEMENT (P.2/2)

BMP Performance Curve: Porous Pavement**BMP Performance Table****BMP Name:** Porous Pavement

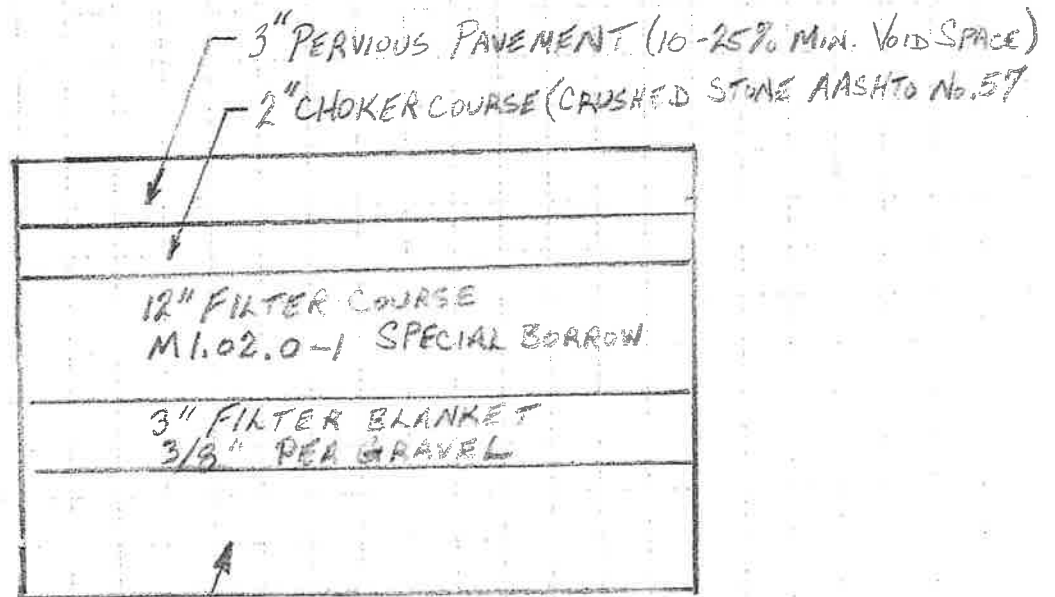
Land Use	Pollutant	Depth of Filter Course Layer (inches)			
		12	18	24	32
Commercial	TSS	92%	94%	96%	97%
	TP	62%	69%	74%	78%
	Zn	85%	97%	97%	98%
Industrial	TSS	92%	94%	96%	98%
	TP	62%	70%	75%	79%
	Zn	90%	94%	95%	95%
High-Density Residential	TSS	92%	94%	96%	98%
	TP	62%	70%	74%	78%
	Zn	88%	95%	96%	96%
Medium-Density Residential	TSS	95%	97%	98%	99%
	TP	61%	68%	73%	77%
	Zn	70%	71%	75%	79%
Low-Density Residential	TSS	92%	94%	96%	97%
	TP	60%	67%	71%	75%
	Zn	63%	64%	69%	74%

Annual Pollutant Loading Rates

Land use	Pollutant load (lbs/acre-year)		
	TSS	TP	Zn
Commercial	1117.77	1.66	2.33
Industrial	745.22	1.43	0.45
High-Density Residential	465.08	1.10	0.79
Medium-Density Residential	274.63	0.55	0.11
Low-Density Residential	72.11	0.042	0.043

TSS REMOVAL CALCULATIONS

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12" MIN. RESERVOIR COURSE
 LAID FLAT. THICKNESS
 VARIES W/SLOPE OF
 DRIVE. AASHTO No. 5
 GRADATION, 40% MIN.
 VOID SPACE.

POROUS PAVEMENT SECTION

92% SS REMOVAL W/12" FILTER COURSE *

* SEE BMP PERFORMANCE TABLE FOR
 POROUS PAVEMENT (p. 2/2)

BMP Performance Curve: Porous Pavement**BMP Performance Table****BMP Name:** Porous Pavement

Land Use	Pollutant	Depth of Filter Course Layer (inches)			
		12	18	24	32
Commercial	TSS	92%	94%	96%	97%
	TP	62%	69%	74%	78%
	Zn	85%	97%	97%	98%
Industrial	TSS	92%	94%	96%	98%
	TP	62%	70%	75%	79%
	Zn	90%	94%	95%	95%
High-Density Residential	TSS	92%	94%	96%	98%
	TP	62%	70%	74%	78%
	Zn	88%	95%	96%	96%
Medium-Density Residential	TSS	95%	97%	98%	99%
	TP	61%	68%	73%	77%
	Zn	70%	71%	75%	79%
Low-Density Residential	TSS	92%	94%	96%	97%
	TP	60%	67%	71%	75%
	Zn	63%	64%	69%	74%

Annual Pollutant Loading Rates

Land use	Pollutant load (lbs/acre-year)		
	TSS	TP	Zn
Commercial	1117.77	1.66	2.33
Industrial	745.22	1.43	0.45
High-Density Residential	465.08	1.10	0.79
Medium-Density Residential	274.63	0.55	0.11
Low-Density Residential	72.11	0.042	0.043

TSS Removal
Calculation WorksheetLocation: MANLEY WAY AND LOADING DOCK AREA

A BMP	B TSS Removal Rate	C Starting TSS Load*	D Amount Removed (BxC)	E Remaining Load (C-D)
CDS UNIT W/GRATE	0.50	1.00*	0.50	0.50
SUBSURFACE INFILTRAION	1.00	0.50	0.50	0.0

Total TSS Removal =

1.00 (100%)

Project: 10-30 MANLEY WAY, WATERTOWNPrepared By: RJO'Connell & AssociatesDate: 2-16-23* Equals remaining load from previous BMP (E)
which enters the BMP

Location: PARKING LOT

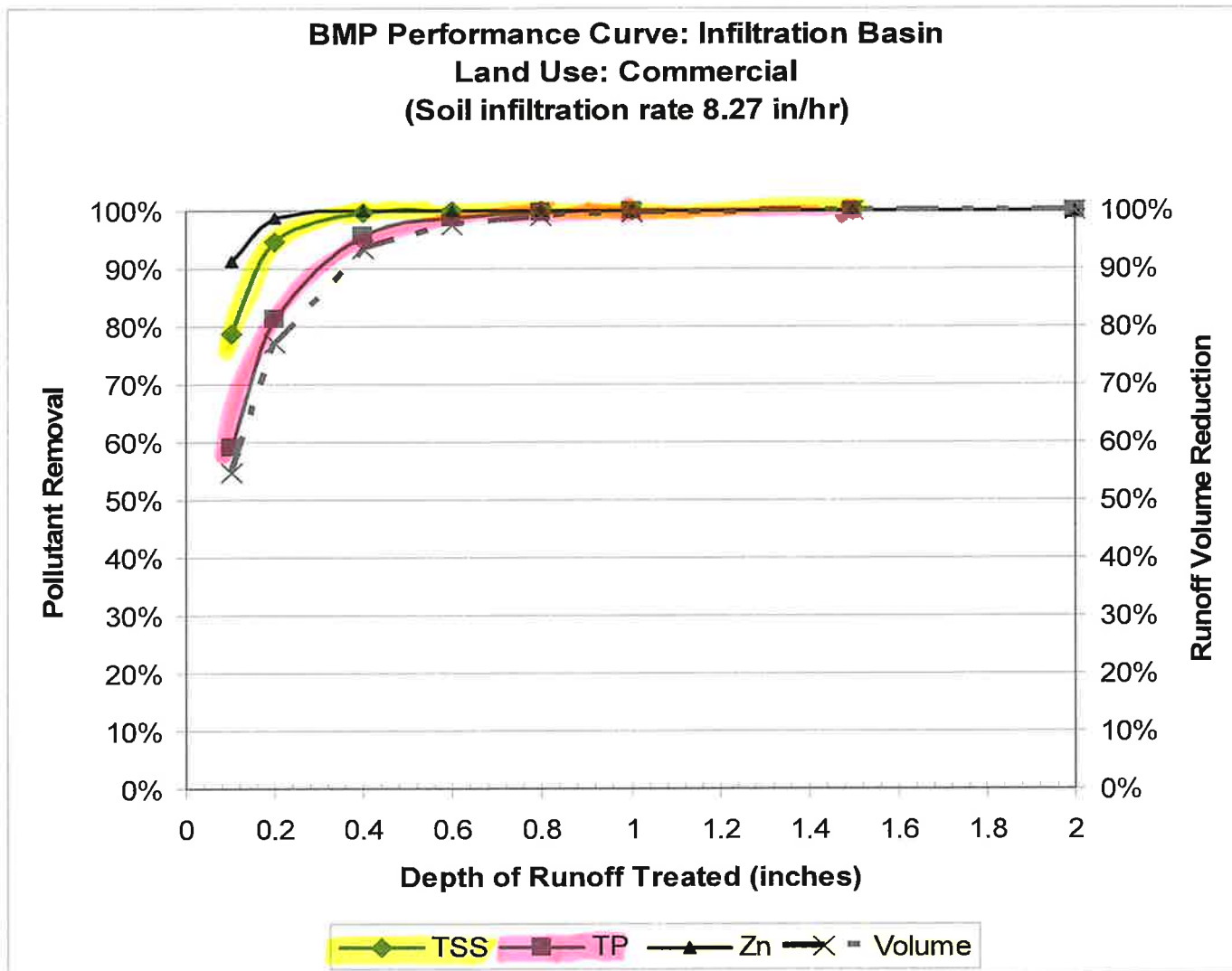
A BMP	B TSS Removal Rate	C Starting TSS Load*	D Amount Removed (BxC)	E Remaining Load (C-D)
DEEPSUMP CB W/HOODS	0.25	1.00*	0.25	0.75
WATER QUALITY UNIT (CDS)	0.50	0.75	0.38	0.37
SUBSURFACE INFILTRATION	1.00	0.37	0.37	0.00

Total TSS Removal = 1.00 (100%)

Project: 10-30 MANLEY WAY, WATERTOWN
 Prepared By: RJO'Connell & Associates
 Date: 3-27-23

* Equals remaining load from previous BMP (E)
 which enters the BMP

FIGURE - 4



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III. STORMWATER CHECKLIST

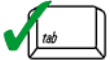
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Checklist for Stormwater Report

A. Introduction

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the [Massachusetts Stormwater Handbook](#). The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.¹ This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8²
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

¹ The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

² For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.



Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

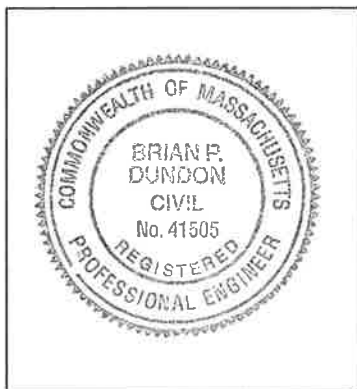
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature



Brian Dundon 3-19-2024
Signature and Date

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

- ☐ New development
- ☒ Redevelopment
- ☐ Mix of New Development and Redevelopment



Checklist for Stormwater Report

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- ☒ No disturbance to any Wetland Resource Areas
- ☐ Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- ☒ Reduced Impervious Area (Redevelopment Only)
- ☐ Minimizing disturbance to existing trees and shrubs
- ☐ LID Site Design Credit Requested:
 - ☐ Credit 1
 - ☐ Credit 2
 - ☐ Credit 3
- ☐ Use of "country drainage" versus curb and gutter conveyance and pipe
- ☐ Bioretention Cells (includes Rain Gardens)
- ☐ Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- ☐ Treebox Filter
- ☐ Water Quality Swale
- ☐ Grass Channel
- ☐ Green Roof
- ☐ Other (describe): _____

Standard 1: No New Untreated Discharges

- ☒ No new untreated discharges
- ☒ Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- ☐ Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.



Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

- ☐ Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.
- ☐ Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.
- ☐ Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

- ☒ Soil Analysis provided.
- ☐ Required Recharge Volume calculation provided.
- ☐ Required Recharge volume reduced through use of the LID site Design Credits.
- ☒ Sizing the infiltration, BMPs is based on the following method: Check the method used.
 - ☐ Static
 - ☒ Simple Dynamic
 - ☐ Dynamic Field¹
- ☐ Runoff from all impervious areas at the site discharging to the infiltration BMP.
- ☒ Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.
- ☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume.
- ☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:
 - ☐ Site is comprised solely of C and D soils and/or bedrock at the land surface
 - ☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
 - ☐ Solid Waste Landfill pursuant to 310 CMR 19.000
 - ☐ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.
- ☐ Calculations showing that the infiltration BMPs will drain in 72 hours are provided.
- ☐ Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

¹ 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.



Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

- ☐ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.
- ☐ Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
 - Provisions for storing materials and waste products inside or under cover;
 - Vehicle washing controls;
 - Requirements for routine inspections and maintenance of stormwater BMPs;
 - Spill prevention and response plans;
 - Provisions for maintenance of lawns, gardens, and other landscaped areas;
 - Requirements for storage and use of fertilizers, herbicides, and pesticides;
 - Pet waste management provisions;
 - Provisions for operation and management of septic systems;
 - Provisions for solid waste management;
 - Snow disposal and plowing plans relative to Wetland Resource Areas;
 - Winter Road Salt and/or Sand Use and Storage restrictions;
 - Street sweeping schedules;
 - Provisions for prevention of illicit discharges to the stormwater management system;
 - Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
 - Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
 - List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.
- ☒ A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.
- ☐ Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:
- ☐ is within the Zone II or Interim Wellhead Protection Area
 - ☐ is near or to other critical areas
 - ☐ is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
 - ☐ involves runoff from land uses with higher potential pollutant loads.
- ☐ The Required Water Quality Volume is reduced through use of the LID site Design Credits.
- ☒ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.



Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

- ☒ The BMP is sized (and calculations provided) based on:
 - ☒ The ½" or 1" Water Quality Volume or
 - ☐ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.
- ☐ The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.
- ☒ A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

- ☐ The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.
- ☐ The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted **prior to** the discharge of stormwater to the post-construction stormwater BMPs.
- ☒ The NPDES Multi-Sector General Permit does **not** cover the land use.
- ☐ LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.
- ☐ All exposure has been eliminated.
- ☒ All exposure has **not** been eliminated and all BMPs selected are on MassDEP LUHPPL list.
- ☐ The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

- ☐ The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.
- ☐ Critical areas and BMPs are identified in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

- ☒ The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:
 - ☐ Limited Project
 - ☐ Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
 - ☐ Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
 - ☐ Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
 - ☐ Bike Path and/or Foot Path
- ☒ Redevelopment Project
- ☐ Redevelopment portion of mix of new and redevelopment.
- ☐ Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.
- ☒ The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
 - Construction Period Operation and Maintenance Plan;
 - Names of Persons or Entity Responsible for Plan Compliance;
 - Construction Period Pollution Prevention Measures;
 - Erosion and Sedimentation Control Plan Drawings;
 - Detail drawings and specifications for erosion control BMPs, including sizing calculations;
 - Vegetation Planning;
 - Site Development Plan;
 - Construction Sequencing Plan;
 - Sequencing of Erosion and Sedimentation Controls;
 - Operation and Maintenance of Erosion and Sedimentation Controls;
 - Inspection Schedule;
 - Maintenance Schedule;
 - Inspection and Maintenance Log Form.
- ☐ A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

- ☐ The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has **not** been included in the Stormwater Report but will be submitted **before** land disturbance begins.
- ☐ The project is **not** covered by a NPDES Construction General Permit.
- ☐ The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.
- ☒ The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

- ☒ The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:
 - ☒ Name of the stormwater management system owners;
 - ☒ Party responsible for operation and maintenance;
 - ☒ Schedule for implementation of routine and non-routine maintenance tasks;
 - ☒ Plan showing the location of all stormwater BMPs maintenance access areas;
 - ☒ Description and delineation of public safety features;
 - ☐ Estimated operation and maintenance budget; and
 - ☒ Operation and Maintenance Log Form.
- ☐ The responsible party is **not** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:
 - ☐ A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
 - ☐ A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

- ☒ The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;
- ☒ An Illicit Discharge Compliance Statement is attached;
- ☐ NO Illicit Discharge Compliance Statement is attached but will be submitted **prior to** the discharge of any stormwater to post-construction BMPs.

IV. OPERATONS AND MAINTENANCE PLAN

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Operation and Maintenance Plan

10-30 Manley Way Watertown, Massachusetts

**Prepared for:
PPF Industrial Seyon 20 LLC
c/o Seyon
535 Boylston Street
11th Floor
Boston, MA 02116**

**Prepared by:
R.J. O'Connell & Associates, Inc.
80 Montvale Ave, Suite 201
Stoneham, MA 02180**

**Date: June 29, 2023
Revised: March 19, 2024**

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INTRODUCTION

This Operation and Maintenance Plan has been prepared to ensure that the stormwater management system implemented at 10-30 Manley Way in Watertown, MA functions as designed, and to develop and carry out suitable practices for source control and pollution prevention. It describes the various components of the stormwater management system, identifies the inspection and maintenance tasks to be undertaken after construction is complete, and establishes a schedule for implementing these tasks to insure the proper, long-term operation of the system.

SECTION 1 - STORMWATER MANAGEMENT SYSTEM - OPERATION AND MAINTENANCE

The objectives of the stormwater management system are to effectively control and treat stormwater runoff from the site in accordance with the Massachusetts Stormwater Management Standards. To accomplish this objective, the following Best Management Practices (BMP's) are included in the stormwater management system:

Pre-Treatment BMPs

- Catch basins with deep sumps and hooded outlets to reduce the discharge of trash, debris and coarse sediment from storm runoff and provide temporary containment of oil and grease.
- Hydrodynamic particle separators for removal of oil, grease and suspended solids.
- Oil/particle separator tank for removal of heavy particulates, floating debris and hydrocarbons from stormwater runoff.

Treatment BMPs

- Subsurface infiltration systems for removal of Total Suspended Solids (TSS), pollutants and Total Phosphorous (TP) from stormwater runoff.

To ensure the ongoing and proper functioning of the on-site stormwater management BMPs, this Operation and Maintenance Plan has been developed.

In consideration of the foregoing, it is the ongoing responsibility of the landowner, their successors and assignees to adequately maintain the on-site stormwater management BMPs. Adequate maintenance is herein defined as good working condition so that these BMPs are performing their design functions.

Based on this, the landowner, their successors and assignees are required to create a Pollution Prevention Team (PPT) that will be responsible for implementing this Operation and Maintenance Plan.

Upon transfer of ownership of the property, the landowner is required to notify the new owner of the presence of the stormwater management system and the requirements of this Operation and Maintenance Plan.

Property Information

Address: 10-30 Manley Way
Watertown, MA 02472

Landowner and Pollution Prevention Team Leader

Owners Name: PPF Industrial Seyon 20 LLC c/o Seyon

Owner's Representative: Joe DiRienzo
Title: Senior Project Manager
Office Phone: (508) 414-6462
Email: jdirienzo@seyonmanagement.com

Pollution Prevention Team Leader: TBD
Title:
Office Phone:
Email:

Responsibilities: Coordinate all aspects of the Operation and Maintenance Plan, coordinate and hire the other Pollution Prevention team members in order to conduct inspections, keep all records, and coordinate with contractors for maintenance and repairs of the stormwater management system.

Spill Prevention & Control Contractor

The following contacts shall be notified only in those instances identified within 310 CMR 40.00: Massachusetts Contingency Plan-Subpart C (see the Long-Term Pollution Prevention Plan, Appendix B).

Primary Contact: TBD
Office Phone:

Emergency Contact: TBD
Company Name: The Seyon Group
Title:
Emergency Phone:

Consultant Contact:
Company Name:
Contact Name:
Phone:

Department of Environmental Protection (DEP)
Hazardous Waste Incident Response Group

Contact Name:
Phone: (617) 792-7653

Municipal Contacts

Watertown Fire Department
Contact Name: Ryan Nicholson, Fire Chief
Phone: (617) 972-6512

Watertown Department of Public Works
Contact Name: Greg St. Louis, PE, Superintendent of Public Works
Phone: (617) 972-6420

Engineering
Contact Name: Tyler Glode, PE, Town Engineer
Phone: (617) 972-6420

Watertown Health Department
Contact Name: Abbey Myers, Director
Phone: (617) 972-6446

Other Pollution Prevention Team Members

Member: Qualified Engineering and/or Environmental Consulting Firm(s).

Responsibilities: Conduct scheduled inspections, maintain records, advise the Team Leader of maintenance needs, ensure inspection maintenance and repairs are completed and keep and maintain all records and inspection reports.

Company Name(s): TBD
Address:
Office Phone:

Team Member Training

The Pollution Prevention Team Leader will coordinate an annual in-house training session with the qualified Engineering and/or Environmental Consulting Firm to discuss the Operation and Maintenance Plan, ongoing inspection and maintenance and preventative maintenance procedures.

Annual training session will generally include the following:

- Discuss the Operation and Maintenance Plan
 - What it is- identify potential sources of stormwater pollution and methods of reducing or eliminating that pollution
 - What it contains- emphasize good housekeeping measures and location of potential pollution sources.
 - Pollution Prevention Team- introduce the team and explain their responsibilities, explain the operations and continuous monitoring of the stormwater management system and encourage input and assistance from all.
- Review and explain the storm drainage system, how it works and its components, note the receiving resource area in which the storm drainage system discharges into and the role each component plays.
- Emphasize the importance of maintaining current and up-to-date inspection reports and maintenance records of BMPs. Documentation shall include any changes to the O&M Plan's procedures to accommodate changes and revisions to BMPs.

Inspections and Maintenance Requirements

The components of the stormwater management system must be inspected, monitored and maintained in accordance with the following in order to ensure that the on-site stormwater management BMPs are functioning as designed. Routine inspection and proper maintenance of these individual components is essential to providing the long-term enhancement of both the quality and quantity of the runoff from the properties.

Deep Sump Catch Basins:

Stormwater runoff from pavement areas is directed to catch basins via site grading and curbing. Catch basins are equipped with a deep (4ft) sump and a hood. The sumps are designed to capture sediment and coarse particles and the hoods prevent hydrocarbons and other floatable debris from entering the drainage system. To ensure proper functioning of catch basins, each will be inspected and maintained as follows:

Inspection: Beginning of March, June, September and December. Structural damage and other malfunctions are to be noted and reported. Basins shall also be inspected after every major rain event (3.2 inches or greater in 24 hours) to ensure the grates are not clogged and are functioning properly.

Maintenance: Catch basins to be pumped and cleaned when sump is half full of sediment. Cleaning shall be performed by a licensed contractor. Sediment and hydrocarbons will be properly handled and legally disposed of off-site in accordance with local, state, and federal guidelines and regulations. Any structural damage to catch basins and/or castings will be repaired upon discovery.

Oil/Particle Separator Tank

Particle separator tank is a precast concrete tank designed to treat incoming stormwater runoff by removing suspended solids, thereby preventing the transfer of pollutants downstream. The

particle separator on the site is equipped and designed to treat stormwater runoff prior to discharging to the Walker Pond. The particle separator is to be inspected and maintained as follows:

Inspection: Inspect twice a year (March and September) see Appendix A of this report.

Maintenance: Jet vacuumed, and power washed by a licensed contractor when depth of sediment is greater than ½ the depth of the tank. Accumulated sediment and hydrocarbons will be disposed of in accordance with applicable local, state and federal guidelines and regulations.

Hydrodynamic Oil/Particle Separator

The hydrodynamic oil/particle separators are precast concrete structures designed to treat incoming stormwater runoff by removing suspended solids thereby preventing the transfer of pollutants downstream. The particle separators on site are designed to treat stormwater runoff prior to discharging into a subsurface infiltration systems. The hydrodynamic particle separators are to be inspected and maintained as follows:

Inspection: Inspect in accordance with the manufacturer's recommendations and requirements (see Appendix D). At a minimum, hydrodynamic separators are to be inspected in March and September.

Maintenance: Vacuum and power wash the separator by a licensed contractor at least once per year or as recommended by the manufacturer (see Appendix D). Accumulated sediment and hydrocarbons to be disposed of in accordance with applicable local, state and federal guidelines and regulations. Particle separators are also to be cleaned when the level of sediment depth is within 12 inches of the invert of the outlet invert.

Subsurface Infiltration Systems

The subsurface infiltration systems consist of perforated high density polyethylene (HDPE) pipe encased in crushed stone. The systems are designed to temporarily retain stormwater runoff and infiltrate into the underlying soil. In so doing, a minimum of 90% Total Suspended Solids (TSS) and 60% of Total Phosphorous load is removed from the runoff. The subsurface infiltration systems are to be inspected and maintained as follows:

Inspection: Inspect inlets for accumulation of sediment and debris annually.

Maintenance: If there is a visible build-up of sediment, it should be vacuumed out by an approved contractor and disposed of in accordance with applicable local, state and federal guidelines and regulations. If the system does not drain within 24-hours following a major rainfall event, then a qualified professional should assess the condition of the system to determine the required measures to restore infiltration functionality.

Please refer to Appendix A for the Inspection Forms, which are to be used by the Pollution Prevention Team member responsible for conducting the scheduled inspections.

SECTION 2 - LONG TERM POLLUTION PREVENTION PLAN (LTPPP)

A. MATERIALS COVERED

The following materials or substances are expected to be present onsite after construction:

Cleaning solvents	Petroleum based products
Detergents	Pesticides/Insecticides
Paints/Solvents	Fertilizers/Herbicides
Acids	Contaminated Soil
Solid Waste	

B. MATERIALS MANAGEMENT PRACTICES

The following are the material management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances to stormwater runoff. The Pollution Prevention Team Leader will be responsible for ensuring that these procedures are followed:

Good Housekeeping

The following good housekeeping practices will be followed onsite after construction:

- a) An effort will be made to store only enough products required to do the job.
- b) All materials stored onsite will be stored in a neat, orderly manner and, if possible, under a roof or in a containment area. At a minimum, all containers will be stored with their lids on when not in use. Drip pans shall be provided under all dispensers.
- c) Products will be kept in their original containers with the original manufacturer's label in legible condition.
- d) Substances will not be mixed with one another unless recommended by the manufacturer.
- e) Whenever possible, all of a product will be used up before disposing of the container.
- f) Manufacturer's recommendations for proper use and disposal will be followed.
- g) A Pollution Prevention Team Member will be responsible for daily inspections to ensure proper use and disposal of materials.
- h) The storage of all deicing materials on the site shall be covered and not be exposed to precipitation.

1. Hazardous Substances

These practices will be used to reduce the risks associated with hazardous substances. Material Safety Data Sheets (MSDS's) for each product with hazardous characteristics that is used on the property will be obtained and used for the proper management of potential wastes that may result from these products. An MSDS will be posted in the immediate area where such product is stored and/or used and another copy of each MSDS will be maintained on-site, in the management office. Each employee who must handle a hazardous substance will be instructed on the use of MSDS sheets and the specific information in the applicable MSDS for the product he/she is using, particularly regarding spill control techniques.

- a) Products will be kept in original containers with the original labels in legible condition.
- b) Original labels and MSDS's will be procured and used for each product.
- c) If surplus product must be disposed of, the manufacturer's and local/state/federal required methods for proper disposal must be followed.

2. Hazardous Waste

It is imperative that all hazardous waste be properly identified and handled in accordance with all applicable hazardous waste standards, including the storage, transport and disposal of the hazardous wastes. There are significant penalties for the improper handling of hazardous wastes. It is important that the Pollution Prevention Team Leader seeks appropriate assistance in making the determination of whether a substance or material is a hazardous waste. For example, hazardous waste may include certain hazardous substances, as well as pesticides, paints, paint solvents, cleaning solvents, contaminated soils, and other materials, substances or chemicals that have been discarded (or are to be discarded) as being out-of-date, contaminated, or otherwise unusable. The Pollution Prevention Team Leader is responsible for ensuring that all Pollution Prevention Team Members are instructed as to these hazardous waste requirements and also that the requirements for handling and disposal are being followed.

3. Product Specific Practices

The following product specific practices will be followed on the job site:

a) Petroleum Products

Petroleum products will be stored in tightly sealed containers which are clearly labeled. Petroleum storage tanks shall be located a minimum of 100 linear feet from wetland resource areas, drainage ways, inlets and surface waters unless stored within a building. Any petroleum storage tanks stored onsite will be located within a containment area that is designed with an impervious surface between the tank and the ground. The secondary containment must be designed to provide a

containment volume that is equal to 110% of the volume of the largest tank. Drip pans shall be provided for all dispensers. Any asphalt substances used onsite will be applied according to the manufacturer's recommendations. The location of any fuel tanks and/or equipment storage areas must be identified on the Erosion Control Plan by the Contractor once the locations have been determined.

b) Fertilizers, Herbicides, Pesticides, and Insecticides

Fertilizers, herbicides, pesticides, and insecticides will be applied only in the minimum amounts recommended by the manufacturer. Once applied, they will be worked so as to limit exposure to storm water. Storage will be in a covered shed. The contents of any partially used bags or containers will be transferred to a sealable plastic bin to avoid spills.

Fertilizers shall not be applied within wetland buffer zones or other resource areas. Refer to Drawing C-2, Grading and Drainage Plan, for location of resource areas and buffer zones.

c) Paints, Paint Solvents, and Cleaning Solvents

All containers will be tightly sealed and stored when not in use. Excess paint and solvents will not be discharged to the storm sewer system but will be properly disposed of according to manufacturer's instructions or state and federal regulations.

4. Solid Waste

All waste materials will be collected and stored in an appropriately covered container and/or securely contained metal dumpster rented from a local waste management company which must be a licensed solid waste management company. The dumpster will comply with all local and state solid waste management regulations.

All trash and debris from the site will be deposited in dumpsters. The dumpsters will be emptied a minimum of once per week or more often if necessary. All personnel will be instructed regarding the correct procedures for waste disposal.

All waste dumpsters and roll-off containers will be located in an area where the likelihood of the containers contributing to storm water discharges is negligible.

5. Contaminated Soils

Any contaminated soils (resulting from spills of hazardous substances or oil) will be contained and cleaned up immediately in accordance with the procedures given in the Materials Management Plan and in accordance with applicable state and federal regulations. If there is a release, it should be reported as a spill, if it otherwise meets the requirements for a reportable spill.

C. SPILL PREVENTION AND RESPONSE PROCEDURES

The Pollution Prevention Team Leader will train all personnel in the proper handling and cleanup of spilled hazardous substances or oil. No spilled hazardous substances or oil will be allowed to come in contact with storm water discharges. If such contact occurs, the storm water discharge will be contained on site until appropriate measures in compliance with state and federal regulations are taken to dispose of such contaminated storm water. It shall be the responsibility of the Pollution Prevention Team Leader to be properly trained, and to train all personnel in spill prevention and clean up procedures.

1. In order to prevent or minimize the potential for a spill of hazardous substances or oil to come into contact with storm water, the following steps will be implemented:
 - a) All hazardous substances or oil (such as pesticides, petroleum products, fertilizers, detergents, acids, paints, paint solvents, cleaning solvents, etc.) will be stored in a secure location, with their lids on, preferably under cover, when not in use.
 - b) The minimum practical quantity of all such materials will be kept on site.
 - c) A spill control and containment kit (containing, for example, absorbent materials, acid neutralizing powder, brooms, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc.) will be provided on site.
 - d) Manufacturer's recommended methods for spill cleanup will be clearly posted and site personnel will be trained regarding these procedures and the location of the information and cleanup supplies.
 - e) It is the Pollution Prevention Team Leader's responsibility to ensure that all hazardous waste on site is disposed of properly by a licensed hazardous material disposal company. The Pollution Prevention Team Leader is responsible for not exceeding hazardous waste storage requirements mandated by the EPA or state and local authority.
2. In the event of a spill of hazardous substances or oil, the following procedures must be followed:
 - a) All measures must be taken to contain and abate the spill and to prevent the discharge of the hazardous substance or oil to storm water or off-site. (The spill area must be kept well ventilated and personnel must wear appropriate protective clothing to prevent injury from contact with the hazardous substances.)
 - b) For spills of less than five (5) gallons of material, proceed with source control and containment, clean-up with absorbent materials or other applicable means unless an imminent hazard or other circumstances dictate that the spill should be treated by a professional emergency response contractor.
 - c) For spills greater than five (5) gallons of material immediately contact the MA DEP Emergency Response at (888) 304-1133, and an approved emergency response contractor. Provide information on the type of material spilled, the location of the spill, the quantity spilled, and the time of the spill to the emergency response contractor or coordinator, and proceed with prevention, containment and/or clean-up if so desired.

- d) If there is a Reportable Quantity (RQ) release, then the National Response Center will be notified immediately at (800) 424-8802; within 14 days a report will be submitted to the EPA regional office describing the release, the date and circumstances of the release and the steps taken to prevent another release. This Pollution Prevention Plan must be updated to reflect any such steps or actions taken and measures to prevent the same from reoccurring.
3. The Pollution Prevention Team Leader will be the spill prevention and response coordinator. He/she will designate the individuals who will receive spill prevention and response training. These individuals will each become responsible for a particular phase of prevention and response. The names of these personnel will be posted in the material storage area and in the management office.

SECTION 3 - ILLICIT DISCHARGE STATEMENT

Certain types of discharges are allowable under the U.S. Environmental Protection Agency Construction General Permit, and it is the intent of this LTPPP to allow such discharges. These types of discharges will be allowed under the conditions that no pollutants will be allowed to come in contact with the water prior to, or after its discharge. The control measures which have been outlined previously in this LTPPP will be strictly followed to ensure that no contamination of these non-storm water discharges takes place. Illicit discharges, if they exist currently, will be contained and eliminated in the manner specified by local, state and federal regulations, and will be prohibited in the proposed development.

SECTION 4 – SNOW MANAGEMENT

Snow management will be overseen by the Property Manager who will implement this plan and be authorized to utilize additional resources should unusual events occur. The Snow Management Contractor (SMC) shall be responsible for maintaining all roads, driveways, parking lots, sidewalks and pedestrian access areas for clear and safe travel. The SMC shall report directly to the Property Manager and maintain communication via cell phones 24 hours per day, 7 days per week. All roads, drives, entrances and exits are the first priority. During extreme events, the first priority will be to clear and maintain proper access for residents and public safety vehicles. The next priority is parking areas, sidewalks, fire hydrants, and delivery areas. Snow will be piled in designated areas as depicted on the snow management plan. (See R.J. O’Connell Figure SMP-1, Snow Management Plan). Snow stored in designated areas shall have a maximum height limitation of seven (7’) feet. When snow designated areas reach their capacity, surplus snow will be disposed offsite as identified in the snow management contract. Prior to November 1 of each year, the SMC shall notify in writing the Property Manager the location that snow will be hauled to.

The anti-icing operations typically precede snow plowing and will be provided when conditions warrant. Within 12 months of concrete walks, pads, or other features being poured, no salt shall be placed on those surfaces. After the materials have cured for 12 months, a combination of salt (Halite or Rock Salt) and sand (“washed”, fine to medium grade) shall be utilized. Parking areas shall receive spot treatment only when and where needed in a similar manner.

Snow removal shall commence upon accumulation of two inches (“2”) or more. The SMC shall keep existing catch basins open for drainage or water resulting from melting.

Once the storm is over, the SMC shall monitor all areas on-site for icy spots and snowdrifts. If needed, an application of sand and salt or calcium chloride will be applied to all streets and roads so that the riding surface remains drivable. When the ambient temperature drops below 15 degrees F, all major areas will receive an application of calcium chloride to maintain melting action and an ice-free surface for as long as possible. Salt loses its effectiveness at temperatures below 15 degrees F.

Deicing chemicals will be kept in original containers with the original product label in legible condition. When not in use, deicing materials will be stored in a neat, orderly manner under cover with their container lids on.

SECTION 5 – PUBLIC SAFETY FEATURES

The following measures have been incorporated into the stormwater management system to ensure the safety of the public:

- Storm drain manholes and catch basins provided with heavy duty covers and/or grates designed to withstand H2O loading.
- Control and collection of stormwater runoff through positive drainage and curbing directing it toward drainage inlet structures.
- Treatment of stormwater runoff from repaved surfaces to remove 90% of the average annual post-construction load of Total suspended Solids (TSS) and at least 60% the cumulative phosphorous load reduction.
- Reduction of peak rates of runoff and volumes from the site under redeveloped conditions as compared to pre-redeveloped conditions.
- Development and implementation of an Operation and Maintenance Plan (O&M) to ensure the proper functioning of the stormwater management system and a Long-Term Pollution Prevention Plan (LTPPP) identifying potential pollution sources and suitable practices to control and prevent them from impacting the environment and/or the public's health and safety.

Appendix A

Maintenance and Inspection Forms

10-30 Manley Way - Watertown Operation and Maintenance Plan Task Guide

The table below is a list of the minimum inspection and maintenance activities the Pollution Prevention Team needs to conduct for the Stormwater Operations and Management Plan and who is responsible for the activity. The task Guide is provided to assist the Pollution Prevention Team Leader and ensure that the activities are being conducted as scheduled.

Timing	Task	Responsible Party
Weekly	Inspect lot/land. Pick up and dispose of litter. Check for leaking liquid at dumpsters.	PPT PPT PPT
Monthly	Inspect soil, repair eroded areas in bioretention area and re-mulch as needed. Remove litter and debris	
Quarterly (March, June, September, December)	Inspect catch basins for sediment, trash and oil. Remove sediment when depth of deposits is greater than ½ the depth of the sump.	PPT/Contractor
Semi-Annually	Inspect oil/particle separator tank. Remove sediment when depth of deposits is greater than or equal to ½ the depth of the tank. Inspect hydrodynamic oil/particle separators. Remove sediment and clean when level of sediment is within 12 inches of outlet invert. Remove and replace dead vegetation from vegetated drainage channel (spring and fall)	PPT/Contractor PPT Contractor PPT/Contractor Contractor
Annually	Inspect subsurface infiltration systems for accumulation of sediment at inlets and remove as necessary. Conduct Pollution Prevention Team training as required. Prepare Comprehensive Annual Stormwater Evaluation and Inspection Report.	PPT Team Leader
April	Spring clean-up	Contractor
Between November 14 and December 15	Fall clean-up	Contractor

10-30 Manley Way Walnut Street - Watertown Operation and Maintenance Plan Comprehensive Annual Evaluation and Inspection Report

Once a year, the Pollution Prevention Team Leader must inspect and evaluate all aspects and provisions of the Operations and Maintenance Plan, complete the following report and keep a copy on file at the site.

Inspector/Reviewers:_____

Date of Inspection/Review: _____

Note any changes to the Plan in the space below and in the appropriate section of the Plan.

- | | | | |
|--|--------------|-----|----|
| 1. Review the Pollution Prevention Team list and update if necessary. Does the Pollution Prevention Team list need updating? | (circle one) | Yes | No |
| 2. Review the Operations and Maintenance Plan (O&M Plan). Are there sections of the O&M Plan that need updating? | (circle one) | Yes | No |
| 3. Review Monthly and Weekly Checklists. Update these as necessary | | | |
| - Are there any updates needed to Spill and Leak History and/or the checklists? | (circle one) | Yes | No |
| 4. Review site drawings and update if necessary | | | |
| - Are there updates needed to any of the drawings? | (circle one) | Yes | No |
| - | | | |

Requested Changes (attach revisions)

**10-30 Manley Way - Watertown
Operation and Maintenance Plan
Annual Training Sign-off Sheet**

For each Operations and Maintenance Plan training session, the Team Leader should keep records of all attending Team Members using the signoff sheet below, as well as the training agenda, notes, etc.

Training Date: _____	Topic:
Trainer: _____	
Team Member Name	Team Member Signature

**10-30 Manley Way - Watertown
Operation and Maintenance Plan
Weekly Task Checklist**

The site will be checked each week for trash and debris by a member of the Pollution Prevention Team. If any trash or debris is observed in the specified area, write "yes" in the 2nd column and note the problem and corrective measures taken in the appropriate space. Make a new copy of this checklist each week.

Date: _____ **Checklist completed by:** _____

GROUNDS AREA TO CHECK	TASK	DESCRIPTION OF PROBLEM	CORRECTIVE MEASURES TAKEN
Parking Lot & Roadways	Pickup and Dispose of Litter		
Landscaped Areas	Pickup and Dispose of Litter		
Compactor/Dumpster Areas	Check for Leaking Liquid Pickup and Dispose of Litter		
Perimeter of Property	Pick up and Dispose of Litter		

10-30 Manley Way Walnut Street - Watertown
Operation and Maintenance Plan
Quarterly Task Checklist (March, June, September, December)

The following will be checked each month for sources of pollutants by a member of the Pollution Prevention Team. If the condition in the “check for” column is observed, note the problem and corrective measures taken in the appropriate space. Make a new copy of the checklist each month.

Date: _____ **Checklist completed by:** _____

BMP	TASK	DESCRIPTION OF PROBLEM (IF PRESENT)	CORRECTIVE MEASURES TAKEN
Catch Basins	Inspect for Sediment, Trash, and Oil. Remove sediment when depth of deposits is greater than ½ the depth of the sump.		

**10-30 Manley Way - Watertown
Operation and Maintenance Plan
Semi-Annual Task Checklist**

The site will be checked semi-annually for four sources of pollutants by a member of the Pollution Prevention Team. If the condition in the “check for” column is observed, note the problem and corrective measures taken in the appropriate space. Make a new copy of the checklist each month.

Date: _____ **Checklist completed by:** _____

BMP	TASK	DESCRIPTION OF PROBLEM (IF PRESENT)	CORRECTIVE MEASURES TAKEN
Oil/Particle Separator Tank	Inspect for sediment, trash, and oil. Remove sediment when depth of deposits is greater than ½ the depth of the sump.		
Vegetated Drainage Channel	Remove and replace dead vegetation from channel in the spring and fall.		
Hydrodynamic Particle Separators	Inspect and remove sediment when level of sediment is within 12 inches of outlet invert.		
Spring and Fall site clean-up	Overall clean-up of site.		

**101 Walnut Street - Watertown
Operation and Maintenance Plan
Annual Task Checklist**

The following will be checked each year for sources of pollutant by a member of the Pollution Prevention Team. If a problem is observed, note the problem and corrective measures taken in the appropriate space. Make a new copy of the checklist each year.

Date: _____ **Checklist completed by:** _____

BMP	TASK	DESCRIPTION OF PROBLEM (IF PRESENT)	CORRECTIVE MEASURES TAKEN
Subsurface Infiltration Systems	Inspect for sediment accumulation at inlets and remove as necessary.		
Pollution Prevention Team Training.	Pollution Prevention Team training. Prepare comprehensive Annual Stormwater Evaluation and Inspection Report.		

Appendix B

BMP-1 BMP Location Plan-1

BMP-2 BMP Location Plan-2

PPF INDUSTRIAL
20 SEYON LLC
c/o SEYON
35 BOYLSTON STREET, 11TH FLOOR
BOSTON, MA 02116
PHONE: 617.982.6592

AL:

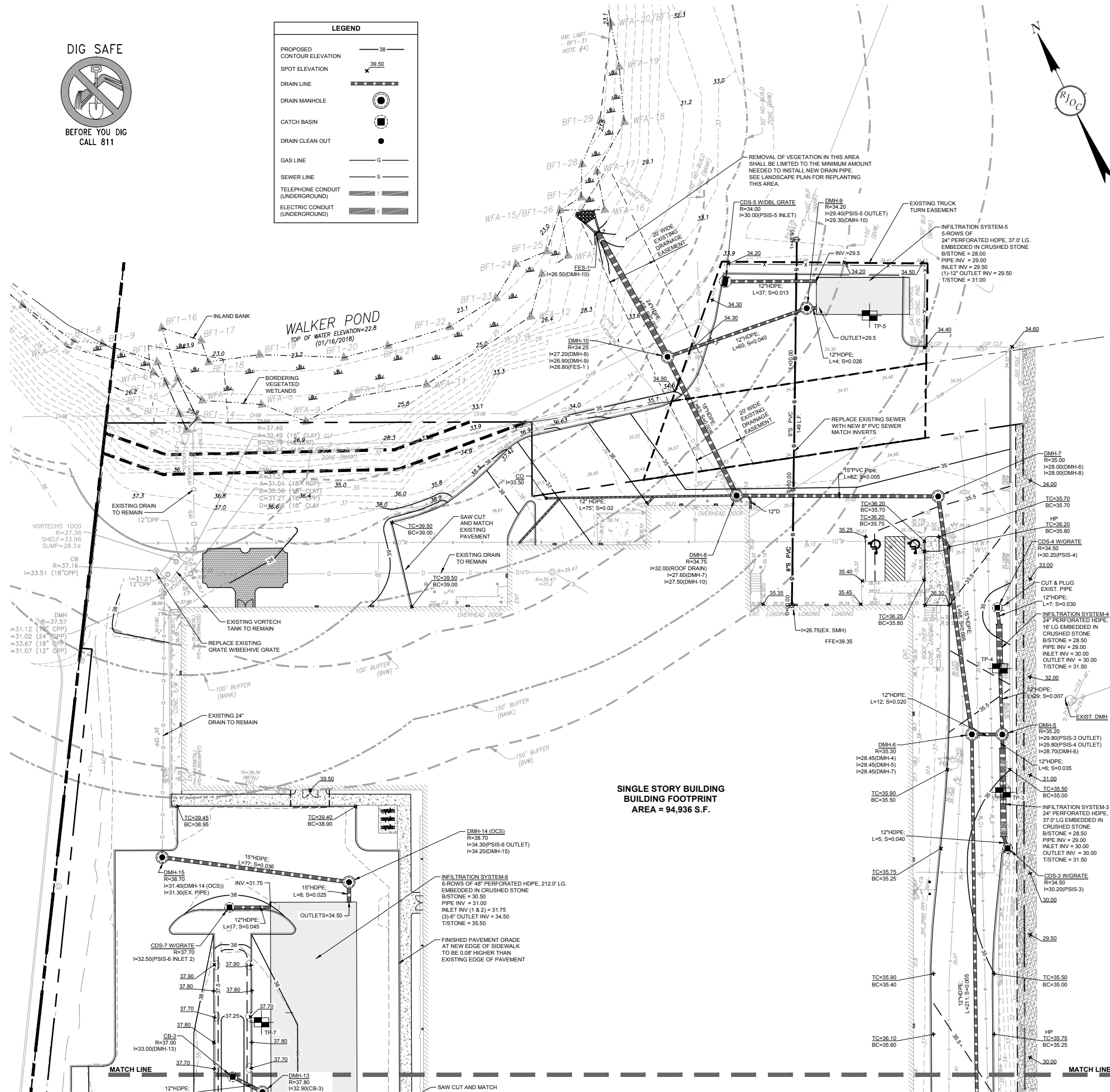
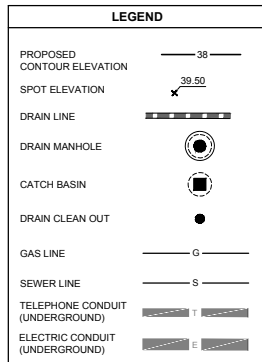
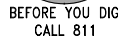
SIGNED BY:	BJM/MAC
DRAWN BY:	WJH/MCR
VIEWED BY:	BJM
SCALE:	1" = 20'
DATE:	05/04/2023
DRAWING NAME:	

PROJECT NUMBER: **BMP-1**

PROJECT NUMBER:

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1. SITE GRADING ACTIVITIES SHALL NOT PROCEED UNTIL APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES HAVE BEEN INSTALLED AND APPROVED BY THE OWNER'S REPRESENTATIVE AND/OR ENGINEER.
2. THE EXISTING UTILITIES SHOWN HEREON SHALL BE CONSIDERED APPROXIMATE. CONTRACTOR SHALL VERIFY VIA TEST PIT EXCAVATION THE LOCATION AND ELEVATION PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER AND ENGINEER OF DISCREPANCIES ENCOUNTERED IN THE FIELD.
3. ALL PROPOSED STORM DRAINAGE PIPES SHALL BE HIGH DENSITY POLYETHYLENE PIPE (HDPE) AND STRUCTURES SHALL BE PRECAST CONCRETE UNLESS NOTED OTHERWISE. HIGH DENSITY POLYETHYLENE PIPE (HDPE) SHALL CONFORM TO AASHTO DESIGNATIONS M24 AND M32, AND SHALL BE N-12 PIPE AS MANUFACTURED BY ADVANCED DRAINAGE SYSTEMS (ADS) OR APPROVED EQUAL. PIPE JOINTS SHALL BE INTEGRAL BELL AND SPIGOT, SOIL TIGHT (ST) WITH FACTORY INSTALLED, O-RING RUBBER GASKETS CONFORMING TO ASTM F477.
4. ALL CATCH BASINS AND OTHER DRAINAGE STRUCTURES TO BE INSTALLED SHALL CONFORM TO CURRENT MASSACHUSETTS HIGHWAY DEPARTMENT STANDARDS AS PUBLISHED BY MassDOT. ALL NEW CATCH BASINS SHALL BE EQUIPPED WITH APPROPRIATELY SIZED "TEE" OR HOODS AND A FOUR (4) FOOT SUMP.
5. ALL MANHOLES, CATCH BASINS AND PARTICLE SEPARATORS SHALL BE PUMPED "DRY" AND CLEANED AT THE END OF CONSTRUCTION. SEDIMENT AND OTHER POLLUTANTS SHALL BE REMOVED OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL REQUIREMENTS.
6. EXISTING PIPES AND/OR CULVERTS THAT ARE TO REMAIN WITHIN THE LIMIT OF WORK AREA SHALL BE CLEANED OF ANY DEBRIS AND/OR SEDIMENTATION. SEDIMENTATION AND OTHER POLLUTANTS SHALL BE REMOVED OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL REQUIREMENTS.
7. ALL PROPOSED DRAINAGE STRUCTURES AND PIPES SHALL MEET HEAVY-DUTY TRAFFIC (H20) LOADING AND BE INSTALLED IN ACCORDANCE WITH MassDOT AND/or DPW SPECIFICATIONS.
8. ALL EROSION AND SEDIMENT CONTROLS SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY EARTH MOVING ACTIVITIES.
9. THE CONTRACTOR SHALL KEEP ON-SITE, AT ALL TIMES, ADDITIONAL SILTATION FENCING AND FILTER FABRIC FOR INSTALLATION AS DIRECTED BY THE TOWN TO MITIGATE ANY EMERGENCY CONDITIONS.
10. THE ENGINEER-OF-RECORD SHALL WITNESS INSTALLATION OF ANY SUB-SURFACE INFILTRATION SYSTEM. IF SUB-SURFACE SOIL CONDITIONS DIFFER FROM THAT SHOWN ON THE PLAN, THE DESIGN SHALL BE MODIFIED AND RESUBMITTED TO THE CITY FOR APPROVAL PRIOR TO CONTINUING INSTALLATION.
11. BOTTOM OF BED INSPECTIONS ARE REQUIRED FOR ALL STORMWATER MANAGEMENT INFILTRATION BEST MANAGEMENT PRACTICES (BMPs). BED INSPECTIONS SHALL BE PERFORMED ONCE THE EXCAVATION HAS BEEN PERFORMED AND THE FIT IS AT DESIGN GRADE. NO STONE SHALL BE INSTALLED PRIOR TO BED INSPECTIONS. CONTACT DPW FOR A BED INSPECTION AT LEAST 24 HOURS PRIOR TO ANTICIPATED EXCAVATION.
12. PIPE CONNECTION INSPECTIONS ARE REQUIRED FOR ALL PIPE CONNECTIONS TO INFILTRATIVE BMPs. SYSTEMS SHALL NOT BE BACKFILLED UNTIL A PIPE CONNECTION INSPECTION HAS OCCURRED. PLEASE CONTACT DPW AT LEAST 24 HOURS PRIOR TO THE ANTICIPATED PIPE CONNECTION INSPECTION.

A. GENERAL NOTES

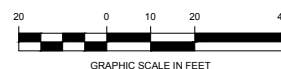
1. THE CONTRACTOR IS SPECIFICALLY ADVISED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES ESPECIALLY WHERE UTILITIES CONNECT TO OR CROSS EXISTING, SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DIG SAFE" (1-888-344-7233 OR 811) AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF UTILITIES AND THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR IS HEREBY NOTIFIED THAT SOME PUBLIC AND PRIVATE UTILITY COMPANIES ARE NOT PART OF DIGSAFE AND MAY HAVE ADDITIONAL NOTIFICATION REQUIREMENTS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
2. ANY WORK AND MATERIAL TO BE PLACED WITHIN THE CITY RIGHT-OF-WAY, SHALL CONFORM TO THE CITY OF WATERTOWN'S DEPARTMENT OF PUBLIC WORKS REQUIREMENTS. THE CONTRACTOR SHALL OBTAIN A STREET OPENING PERMIT PRIOR TO ANY CONSTRUCTION WITHIN THE TOWN RIGHT-OF-WAY.
3. ANY DAMAGE INCURRED WITHIN THE CITY RIGHT-OF-WAY, AS A DIRECT OR INDIRECT RESULT OF CONTRACTOR'S OPERATIONS, SHALL BE REPAIRED BY THE CONTRACTOR AT NO EXPENSE TO THE CITY OF WATERTOWN.
4. PRIOR TO THE START OF ANY AUTHORIZED ACTIVITY THE SITE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FROM THE CITY OF WATERTOWN. THE CONTRACTOR SHALL OBTAIN FINAL CERTIFICATIONS AND/OR SIGN OFFS UPON MUNICIPALITY AND/OR UTILITY PROVIDER ACCEPTANCE OF WORK WITH COPIES OF FINAL ACCEPTANCE DOCUMENTATION PROVIDED TO THE OWNER.
5. THE SITE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND PAYING FOR ALL PERMITS AND/OR CONNECTION FEES REQUIRED FOR THE INSTALLATION OF ALL SITE UTILITIES.
6. ALL UTILITIES, PIPE MATERIALS, STRUCTURES, AND INSTALLATION METHODS, SHALL CONFORM TO THE WATERTOWN DP/ENGINEERING DEPARTMENT STANDARDS AND REQUIREMENTS, UNLESS OTHERWISE NOTED OR DETAILLED.
7. UTILITY CONTRACTOR MUST BE LICENSED TO PERFORM WORK IN THE MUNICIPALITY.
8. ALL REQUIRED UTILITY CROSSING ENCASEMENTS (CONCRETE) SHALL EXTEND TEN FEET (10') FROM EITHER SIDE OF THE CROSSING.
9. EXISTING STRUCTURES, LIGHT POLE BASES, CONDUIT AND FIXTURES TO BE REMOVED ARE TO BE DISPOSED OF OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS.
10. EXISTING UTILITY CASTINGS INDICATED TO REMAIN SHALL BE RESET TO FINISHED GRADE AS REQUIRED AND SHOWN ON GRADING AND DRAINAGE PLAN.
11. DETECTABLE WARNING TAPE SHALL BE INSTALLED A MINIMUM ONE (1') FOOT ABOVE THE UTILITY IN ACCORDANCE WITH THE APPROPRIATE UTILITY COMPANY'S REQUIREMENTS.
12. FLOWABLE FILL REQUIRED AS BACKFILL IN THE PUBLIC WAY.
13. UPON COMPLETION OF THE WORK, AS-BUILT DRAWINGS SHALL BE SUBMITTED IN BOTH PAPER AND ELECTRONIC FORMAT. THE DRAWINGS SHALL BE BASED UPON A FIELD SURVEY AND ACTUAL AS-BUILT LOCATIONS, AND SHALL BE STAMPED BY A PROFESSIONAL LAND SURVEYOR REGISTERED IN THE COMMONWEALTH OF MASSACHUSETTS. THE AS-BUILT DRAWING SHALL DEPICT ALL BUILDINGS, PAVED SURFACES, TOPOGRAPHY, AND MAJOR LANDSCAPE FEATURES. WATER, SEWER, AND DRAINAGE FEATURES, AS WELL AS OTHER UNDERGROUND UTILITIES INSTALLED BY OTHERS, SHALL BE LOCATED ON THE PLAN, INCLUDING SIZE AND MATERIAL. ALL STORMWATER MANAGEMENT CONTROLS, BOTH STRUCTURAL AND NON-STRUCTURAL, DESIGNED TO MANAGE THE STORMWATER ASSOCIATED WITH THE COMPLETED SITE SHALL ALSO BE INCLUDED.
14. USE OF FIRE HYDRANTS FOR DEMOLITION OR CONSTRUCTION IS NOT PERMITTED UNLESS APPROVED BEFOREHAND BY THE DEPARTMENT OF PUBLIC WORKS.

B. SEWER NOTES

1. ALL GRAVITY SEWER PIPE SHALL BE POLYVINYL CHLORIDE PIPE (P.V.C.), S.D.R. 35 AND SHALL CONFORM WITH ASTM-D3034 UNLESS NOTED OTHERWISE.
2. ALL SEWER MAIN APPURTENANCES, MATERIALS, METHODS OF INSTALLATION AND TESTING REQUIREMENTS SHALL MEET OR EXCEED THE MUNICIPALITY'S SEWER DEPARTMENT'S STANDARDS.
3. DETECTABLE WARNING TAPE TO BE INSTALLED A MINIMUM ONE (1') FOOT ABOVE SEWER MAIN AND IN ACCORDANCE WITH THE MUNICIPALITY'S SEWER DEPARTMENT'S REQUIREMENTS.
4. ALL NEW SEWER MAINS AND ASSOCIATED MANHOLES SHALL BE TESTED FOR WATER TIGHTNESS IN THE PRESENCE OF THE AUTHORITY HAVING JURISDICTION.

C. GAS NOTES

1. CONTRACTOR IS RESPONSIBLE FOR THE LAYOUT, EXCAVATION AND BACKFILLING OF GAS MAIN TRENCH. EXCAVATION AND BACKFILLING REQUIREMENTS SHALL BE PERFORMED IN ACCORDANCE WITH THE GAS COMPANY REQUIREMENTS.
2. THE GAS TRENCH SHALL BE LAID OUT SO AS TO PROVIDE A MINIMUM OFFSET OF THIRTY-SIX (36) INCHES FROM OTHER UTILITIES. NO TRENCHING SHALL BE STARTED UNTIL AN ON-SITE MEETING HAS BEEN HELD BETWEEN THE EXCAVATING CONTRACTOR AND NATIONAL GRID PERSONNEL. PRIOR TO THE MEETING, THE EXCAVATING CONTRACTOR MUST NOTIFY DIG SAFE OF THE PROPOSED WORK. THE FOLLOWING SHALL BE CONFIRMED AT THE MEETING:
 - A. THE EXCAVATING CONTRACTOR MUST PAD THE TRENCH BOTTOM WITH SIX (6) INCHES OF SAND AND MUST PROVIDE SAND SUFFICIENT TO PROVIDE A MINIMUM OF (6) INCHES OF COVER ABOVE THE GAS PIPE.
 - B. THE ROUTE OF THE TRENCH.
 - C. MINIMUM FOOTAGE OF THE TRENCH TO BE OPENED BEFORE NATIONAL GRID MOBILIZES CREWS TO START INSTALLING THE GAS PIPE.
 - D. MINIMUM TWO (2) WEEK NOTICE REQUIRED FOR NATIONAL GRID TO START INSTALLING PIPE.
3. ASPHALT PATCHES SHALL HAVE A MINIMUM DEPTH OF 5-INCHES, OR MATCH EXISTING ROAD DEPTH.



RJOC			
NO.	NO.	REVISION	DATE
4.		REVISED PER ENGINEERING COMMENTS	03/19/2024
3.		ISSUED FOR SITE PLAN REVIEW	06/02/2023
2.		REVISED PER DPW COMMENTS	06/14/2023
1.		ISSUED FOR SPECIAL PERMIT/SITE PLAN REVIEW	06/04/2023

PREPARED BY:

**RJO'CONNELL
& ASSOCIATES, INC.**

CIVIL ENGINEERS, SURVEYORS & LAND PLANNERS

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PHONE: 781.279.0180 RJOCONNELL.COM

PPF INDUSTRIAL
20 SEYON LLC
c/o SEYON
535 BOYLSTON STREET, 11TH FLOOR
BOSTON, MA 02116
PHONE: 617.982.6592

PROJECT NAME:

10-30 MANLEY WAY
WATERTOWN, MA

SEAL

DESIGNED BY:	BJM/MAC
DRAWN BY:	WJH/MCR
REVIEWED BY:	BJM
SCALE:	1" = 20'
DATE:	05/04/2023
DRAWING NAME:	

BMP LOCATION
PLAN-1

DRAWING NUMBER:
BMP-2

PROJECT NUMBER: 21049

Appendix C

CDS Treatment Unit Operation and Inspection Maintenance Guidelines

OPERATIONS AND MAINTENANCE GUIDELINES

CDS Stormwater Treatment Unit

INTRODUCTION

The CDS unit is an important and effective component of your storm water management program and proper operation and maintenance of the unit are essential to demonstrate your compliance with local, state and federal water pollution control requirements.

The CDS technology features a patented non-blocking, indirect screening technique developed in Australia to treat water runoff. The unit is highly effective in the capture of suspended solids, fine sands and larger particles. Because of its non-blocking screening capacity, the CDS unit is unmatched in its ability to capture and retain gross pollutants such as trash and debris. In short, CDS units capture a very wide range of organic and in-organic solids and pollutants that typically result in tons of captured solids each year such as: Total suspended solids (TSS) and other sedimentitious materials, oil and greases, trash, and other debris (including floatables, neutrally buoyant, and negatively buoyant debris). These pollutants will be captured even under very high flow rate conditions.

CDS units are equipped with conventional oil baffles to capture and retain oil and grease. Laboratory evaluations show that the CDS units are capable of capturing up to 70% of the free oil and grease from storm water. CDS units can also accommodate the addition of oil sorbents within their separation chambers. The addition of the oil sorbents can ensure the permanent removal of 80% to 90% of the free oil and grease from the storm water runoff.

OPERATIONS

The CDS unit is a non-mechanical self-operating system and will function any time there is flow in the storm drainage system. The unit will continue to effectively capture pollutants in flows up to the design capacity even during extreme rainfall events when the design capacity may be exceeded. Pollutants captured in the CDS unit's separation chamber and sump will be retained even when the units design capacity is exceeded.

CDS UNIT INSPECTION

Access to the CDS unit is typically achieved through two manhole access covers – one allows inspection (and clean out) of the separation chamber (screen/cylinder) & sump and another allows inspection (and cleanout) of sediment captured and retained behind the screen.

The unit should be periodically inspected to determine the amount of accumulated pollutants and to ensure that the cleanout frequency is adequate to handle the predicted pollutant load being processed by the CDS unit. The unit should be periodically inspected for indications of vector infestation, as well. The recommended cleanout of

solids within the CDS unit's sump should occur at 75% to 85% of the sump capacity. However, the sump may be completely full with no impact to the CDS unit's performance.

CONTECH Stormwater Solutions (previously CDS Technologies) recommends the following inspection guidelines: For new initial operation, check the condition of the unit after every runoff event for the first 30 days. For ongoing operations, the unit should be inspected after the first six inches of rainfall at the beginning of the rainfall season and at approximately 30-day intervals. The visual inspection should ascertain that the unit is functioning properly (no blockages or obstructions to inlet and/or separation screen), evidence of vector infestation, and to measure the amount of solid materials that have accumulated in the sump, fine sediment accumulated behind the screen, and floating trash and debris in the separation chamber. This can be done with a calibrated dipstick, tape measure or other measuring instrument so that the depth of deposition in the sump can be tracked.

CDS UNIT CLEANOUT

The frequency of cleaning the CDS unit will depend upon the generation of trash and debris and sediments in your application. Cleanout and preventive maintenance schedules will be determined based on operating experience unless precise pollutant loadings have been determined.

Access to the CDS unit is typically achieved through two manhole access covers – one allows cleanout of the separation chamber (screen/cylinder) & sump and another allows cleanout of sediment captured and retained behind the screen. For units possessing a sizable depth below grade (depth to pipe), a single manhole access point would allow both sump cleanout and access behind the screen.

CONTECH Stormwater Solutions Recommends The Following:

NEW INSTALLATIONS: Check the condition of the unit after every runoff event for the first 30 days. The visual inspection should ascertain that the unit is functioning properly (no blockages or obstructions to inlet and/or separation screen), measuring the amount of solid materials that have accumulated in the sump, the amount of fine sediment accumulated behind the screen, and determining the amount of floating trash and debris in the separation chamber. This can be done with a calibrated “dip stick” so that the depth of deposition can be tracked. Refer to the “Cleanout Schematic” (**Appendix B**) for allowable deposition depths and critical distances. Schedules for inspections and cleanout should be based on storm events and pollutant accumulation.

ONGOING OPERATION: During the rainfall season, the unit should be inspected at least once every 30 days. The floatables should be removed and the sump cleaned when the sump is 75-85% full. If floatables accumulate more rapidly than the settleable solids, the floatables should be removed using a vacuum truck or dip net before the layer thickness exceeds approximately one foot.

Cleanout of the CDS unit at the end of a rainfall season is recommended because of the nature of pollutants collected and the potential for odor generation

from the decomposition of material collected and retained. This end of season cleanout will assist in preventing the discharge of pore water from the CDS[®] unit during summer months.

USE OF SORBENTS –The addition of sorbents is **not a requirement** for CDS units to effectively control oil and grease from storm water. The conventional oil baffle within a unit assures satisfactory oil and grease removal. However, the addition of sorbents is a unique enhancement capability unique to CDS units, enabling increased oil and grease capture efficiencies beyond that obtainable by conventional oil baffle systems.

Under normal operations, CDS units will provide effluent concentrations of oil and grease that are less than 15 parts per million (ppm) for all dry weather spills where the volume is less than or equal to the spill capture volume of the CDS unit. During wet weather flows, the oil baffle system can be expected to remove between 40 and 70% of the free oil and grease from the storm water runoff.

CONTECH Stormwater Solutions only recommends the addition of sorbents to the separation chamber if there are specific land use activities in the catchment watershed that could produce exceptionally large concentrations of oil and grease in the runoff, concentration levels well above typical amounts. If site evaluations merit an increased control of free oil and grease then oil sorbents can be added to the CDS unit to thoroughly address these particular pollutants of concern.

Recommended Oil Sorbents

Rubberizer[®] Particulate 8-4 mesh or OARS[™] Particulate for Filtration, HPT4100 or equal. Rubberizer is supplied by Haz-Mat Response Technologies, Inc. 4626 Santa Fe Street, San Diego, CA 92109 (800) 542-3036. OARS is supplied by AbTech Industries, 4110 N. Scottsdale Road, Suite 235, Scottsdale, AZ 85251 (800) 545-8999.

The amount of sorbent to be added to the CDS separation chamber can be determined if sufficient information is known about the concentration of oil and grease in the runoff. Frequently the actual concentrations of oil and grease are too variable and the amount to be added and frequency of cleaning will be determined by periodic observation of the sorbent. As an initial application, CDS recommends that approximately 4 to 8 pounds of sorbent material be added to the separation chamber of the CDS units per acre of parking lot or road surface per year. Typically this amount of sorbent results in a ½ inch to one (1") inch depth of sorbent material on the liquid surface of the separation chamber. The oil and grease loading of the sorbent material should be observed after major storm events. Oil Sorbent material may also be furnished in pillow or boom configurations.

The sorbent material should be replaced when it is fully discolored by skimming the sorbent from the surface. The sorbent may require disposal as a special or hazardous waste, but will depend on local and state regulatory requirements.

CLEANOUT AND DISPOSAL

A vactor truck is recommended for cleanout of the CDS unit and can be easily accomplished in less than 30-40 minutes for most installations. Standard vactor operations should be employed in the cleanout of the CDS unit. Disposal of material from the CDS unit should be in accordance with the local municipality's requirements. Disposal of the decant material to a POTW is recommended. Field decanting to the storm drainage system is not recommended. Solids can be disposed of in a similar fashion as those materials collected from street sweeping operations and catch-basin cleanouts.

MAINTENANCE

The CDS unit should be pumped down at least once a year and a thorough inspection of the separation chamber (inlet/cylinder and separation screen) and oil baffle performed. The unit's internal components should not show any signs of damage or any loosening of the bolts used to fasten the various components to the manhole structure and to each other. Ideally, the screen should be power washed for the inspection. If any of the internal components is damaged or if any fasteners appear to be damaged or missing, please contact CONTECH at 800.338.2211 to make arrangements to have the damaged items repaired or replaced.

The screen assembly is fabricated from Type 316 stainless steel and fastened with Type 316 stainless steel fasteners that are easily removed and/or replaced with conventional hand tools. The damaged screen assembly should be replaced with the new screen assembly placed in the same orientation as the one that was removed.

CONFINED SPACE

The CDS unit is a confined space environment and only properly trained personnel possessing the necessary safety equipment should enter the unit to perform particular maintenance and/or inspection activities beyond normal procedure. Inspections of the internal components can, in most cases, be accomplished by observations from the ground surface.

VECTOR CONTROL

Most CDS units do not readily facilitate vector infestation. However, for CDS units that may experience extended periods of non-operation (stagnant flow conditions for more than approximately one week) there may be the potential for vector infestation. In the event that these conditions exist, the CDS unit may be designed to minimize potential vector habitation through the use of physical barriers (such as seals, plugs and/or netting) to seal out potential vectors. The CDS unit may also be configured to allow drain-down under favorable soil conditions where infiltration of storm water runoff is permissible. For standard CDS units that show evidence of mosquito infestation, the

application of larvicide is one control strategy that is recommended. Typical larvicide applications are as follows:

SOLID B.t.i. LARVICIDE: ½ to 1 briquet (typically treats 50-100 sq. ft.) one time per month (30-days) or as directed by manufacturer.

SOLID METHOPRENE LARVICIDE (not recommended for some locations): ½ to 1 briquet (typically treats 50-100 sq. ft.) one time per month (30-days) to once every 4-½ to 5-months (150-days) or as directed by manufacturer.

RECORDS OF OPERATION AND MAINTENANCE

CONTECH Stormwater Solutions recommends that the owner maintain annual records of the operation and maintenance of the CDS unit to document the effective maintenance of this important component of your storm water management program. The attached **Annual Record of Operations and Maintenance** form (see **Appendix A**) is suggested and should be retained for a minimum period of three years.

APPENDIX A

ANNUAL RECORDS OF

OPERATIONS & MAINTENANCE

AND INSPECTION CHECKLISTS

ANNUAL RECORD OF OPERATION AND MAINTENANCE

OWNER _____
 ADDRESS _____
 OWNER REPRESENTATIVE _____ PHONE _____

INSTALLATION:
 MODEL DESIGNATION _____ DATE _____
 SITE LOCATION _____

INSPECTIONS:

DATE/ INSPECTOR	SCREEN/INLET INTEGRITY	FLOATABLES DEPTH	DEPTH TO SEDIMENT (inches)	SEDIMENT VOLUME* (CUYDS)	SORBENT DISCOLORATION

DEPTH FROM COVER TO BOTTOM OF SUMP (SUMP INVERT) _____

DEPTH FROM COVER TO SUMP @ 75% FULL _____

VOLUME OF SUMP @ 75% FULL = _____ CUYD

VOLUME/INCH DEPTH _____ CUFT/IN OF SUMP

VOLUME/FOOT DEPTH _____ CUYD/FT OF SUMP

***Calculate Sediment Volume = (Depth to Sump Invert – Depth to Sediment)*(Volume/inch)**

OBSERVATIONS OF FUNCTION: _____

CLEANOUT:

DATE	VOLUME FLOATABLES	VOLUME SEDIMENTS	METHOD OF DISPOSAL OF FLOATABLES, SEDIMENTS, DECANT AND SORBENTS

OBSERVATIONS:

SCREEN MAINTENANCE:

DATE OF POWER WASHING, INSPECTION AND OBSERVATIONS:

CERTIFICATION: _____ TITLE: _____ DATE: _____

INSPECTION CHECKLIST

1. During the rainfall season, inspect and check condition of unit at least once every 30 days ☐
2. Ascertain that the unit is functioning properly (no blockages or obstructions to inlet and/or separation screen) ☐
3. Measure amount of solid materials that have accumulated in the sump (Unit should be cleaned when the sump is 75-85% full) ☐
4. Measure amount of fine sediment accumulated behind the screen ☐
5. Measure amount of floating trash and debris in the separation chamber ☐

MAINTENANCE CHECKLIST

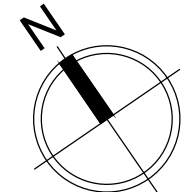
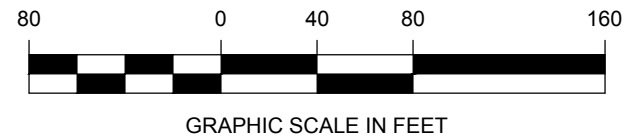
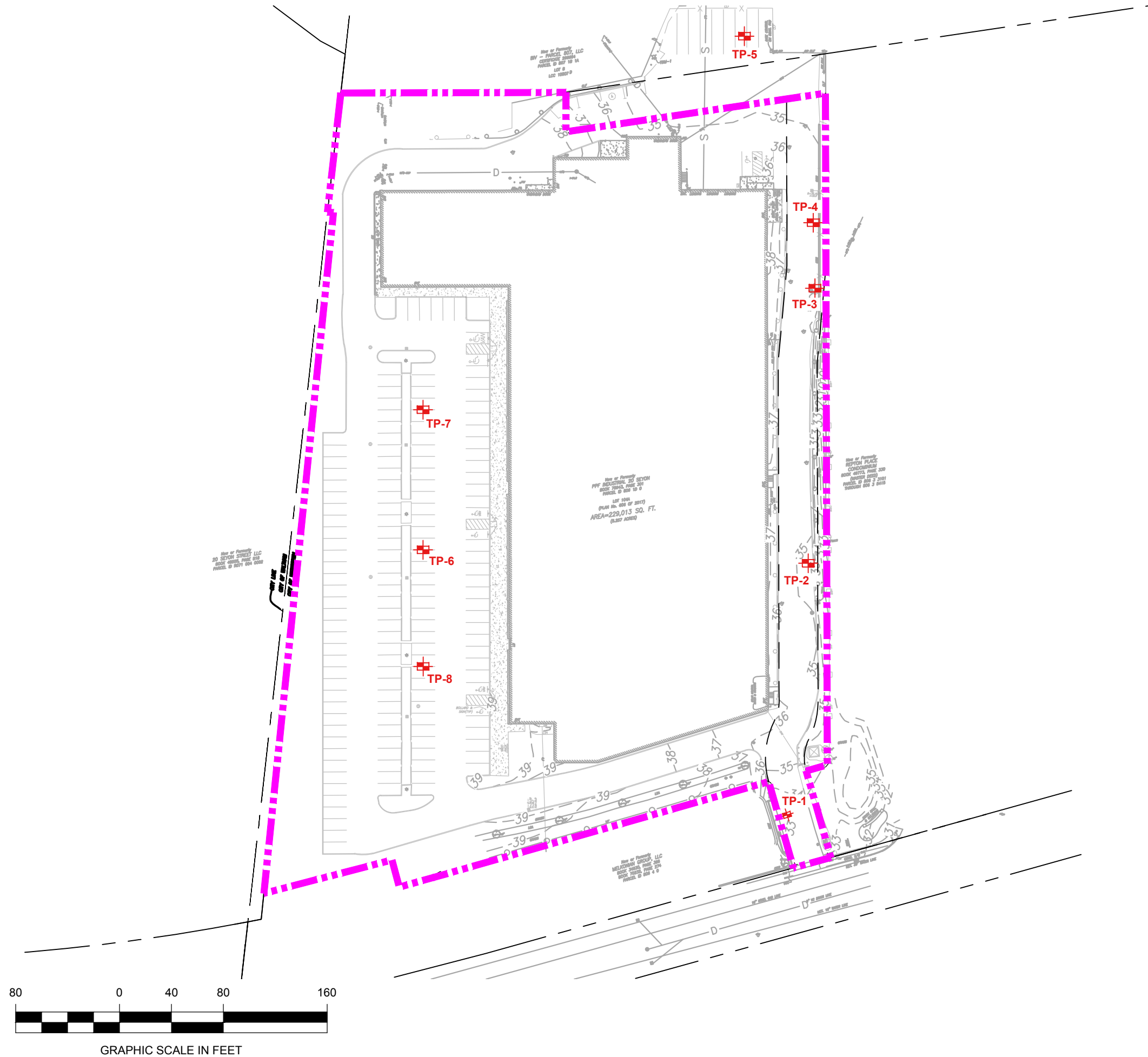
1. Cleanout unit at the end and beginning of the rainfall season ☐
2. Pump down unit (at least once a year) and thoroughly inspect separation chamber, separation screen and oil baffle ☐
3. No visible signs of damage or loosening of bolts to internal components observed * ☐

*** If there is any damage to the internal components or any fasteners are damaged or missing please contact CONTECH (800.338.1122).**

V. APPENDIX

APPENDIX A - SOILS DATA

Drawing name: G:\MA\Watertown\Seyon Group\20 Seyon Street\Reports\Stormwater Report\Figures\21049_FIG-5 Test Pit Figure.dwg
Mar 18, 2024 - 8:58am

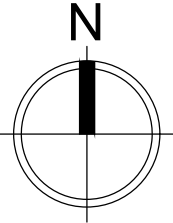
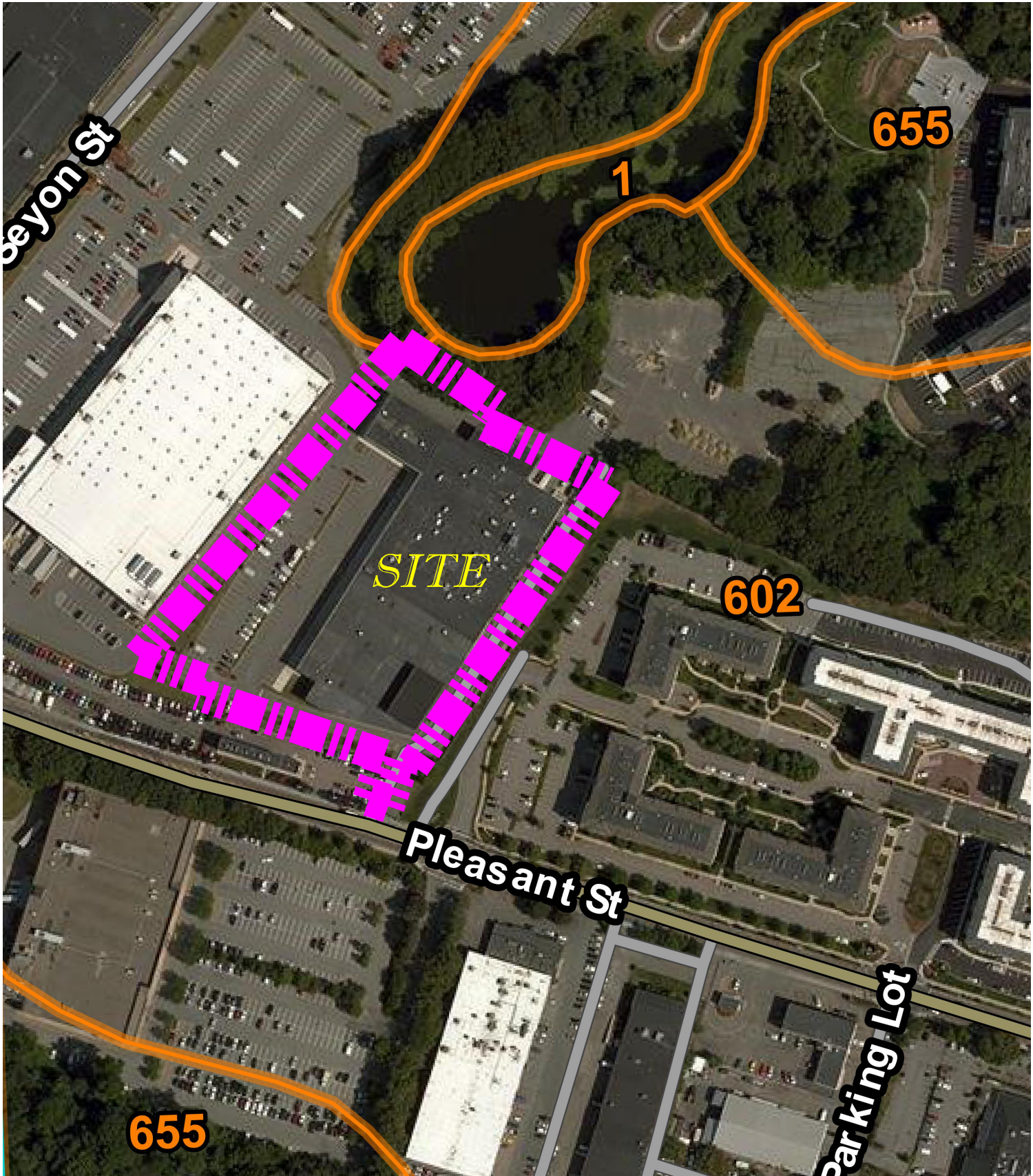
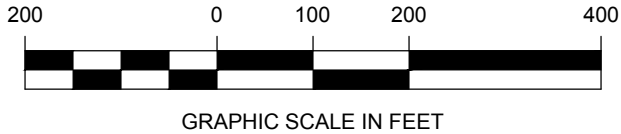


**RJO'CONNELL
& ASSOCIATES, INC.**
CIVIL ENGINEERS, SURVEYORS & LAND PLANNERS
DATE: 03/19/2024 SCALE: 1"=80'

**FIGURE 5
TEST PIT LOCATION MAP**
20 SEYON STREET
WATERTOWN, MA 02472
Copyright © 2023 by R.J. O'Connell & Associates, Inc.

Drawing name: G:\MA\Watertown\Seyon Group\20 Seyon Street\Reports\Stormwater Report\Figures\21049_FIG-6 NRCS Soil Map.dwg
Mar 18, 2024 - 8:59am

NRCS SOIL MAP LEGEND	
MAP UNIT SYMBOL	MAP UNIT NAME
1	WATER
655	UDORTHENTS, WET SUBSTRATUM
602	URBAN LAND



**RJO'CONNELL
& ASSOCIATES, INC.**
CIVIL ENGINEERS, SURVEYORS & LAND PLANNERS
DATE: 03/19/2024 SCALE: 1"=200'

FIGURE 6
NRCS WEB SOIL SURVEY MAP
20 SEYON STREET
WATERTOWN, MA 02472

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Test Pit Log

Project	10-30 Manley Way	Job Number	21049
Location	10-30 Manley Way	Date	2/8/2023
City, State	Watertown, MA	Weather	Sunny; 30 Degrees
Property Owner	The Seyon Group	Lat., Long.	

Contractor		Groundwater Observations			
Excavator	Jeff Anderson	Observed	Depth	Elevation	Notes
Logged by	Michael Capachietti (SE# 13939)	None			No Mottles or Standing Water observed
Reviewed by		Unsuitable Materials Present			
Surface Elevation	33.5+/-	Observed	Depth	Elevation	Notes
Test Pit ID	TP-01	HTM	0-66"	28+/-	Crushed stone with gravel fill

			Redoximorphic Features			Coarse Fragments % B.V.					
Depth	Soil Horizon	Soil Texture	Soil Matrix	Depth	Color	%	Gravel	Cobbles & Stones	Soil Structure	Soil Consistence	Other
0-4"		PVMT									
4-66"	A	HTM									
66"-72"	B	SL									
72"-120"	C	G. Sand	2.5Y5/6				V	20-30%	Loose		



Test Pit Log

Project	10-30 Manley Way	Job Number	21049
Location	10-30 Manley Way	Date	2/8/2023
City, State	Watertown, MA	Weather	Sunny; 30 Degrees
Property Owner	The Seyon Group	Lat., Long.	

Contractor		Groundwater Observations			
Excavator	Jeff Anderson	Observed	Depth	Elevation	Notes
Logged by	Michael Capachietti (SE# 13939)	None			No Mottles or Standing Water observed
Reviewed by		Unsuitable Materials Present			
Surface Elevation	34.8+/-	Observed	Depth	Elevation	Notes
Test Pit ID	TP-02	HTM	0-90"	27.3+/-	Urban fill with construction debris

Depth	Soil Horizon	Soil Texture	Soil Matrix	Redoximorphic Features			Coarse Fragments % B.V.		Soil Structure	Soil Consistence	Other
				Depth	Color	%	Gravel	Cobbles & Stones			
0-4"		PVMT									
4-90"	A	HTM									
90"-120"	C	G. Sand	2.5Y5/6				V	20-30%	Loose		



Test Pit Log

Project	10-30 Manley Way	Job Number	21049
Location	10-30 Manley Way	Date	2/8/2023
City, State	Watertown, MA	Weather	Sunny; 30 Degrees
Property Owner	The Seyon Group	Lat., Long.	

Contractor		Groundwater Observations			
Excavator	Jeff Anderson	Observed	Depth	Elevation	Notes
Logged by	Michael Capachietti (SE# 13939)	None			No Mottles or Standing Water observed
Reviewed by		Unsuitable Materials Present			
Surface Elevation	35.2+/-	Observed	Depth	Elevation	Notes
Test Pit ID	TP-03	HTM	0-100"	26.9+/-	Urban fill with construction debris

Depth	Soil Horizon	Soil Texture	Soil Matrix	Redoximorphic Features			Coarse Fragments % B.V.		Soil Structure	Soil Consistence	Other
				Depth	Color	%	Gravel	Cobbles & Stones			
0-4"		PVMT									
4-100"	A	HTM									
100"-120"	C	G. Sand	2.5Y5/6				V	20-30%	Loose		



Test Pit Log

Project	10-30 Manley Way	Job Number	21049
Location	10-30 Manley Way	Date	2/8/2023
City, State	Watertown, MA	Weather	Sunny; 30 Degrees
Property Owner	The Seyon Group	Lat., Long.	

Contractor		Groundwater Observations			
Excavator	Jeff Anderson	Observed	Depth	Elevation	Notes
Logged by	Michael Capachietti (SE# 13939)	None			No Mottles or Standing Water observed
Reviewed by		Unsuitable Materials Present			
Surface Elevation	35.3+/-	Observed	Depth	Elevation	Notes
Test Pit ID	TP-04	HTM	0-102"	26.8+/-	Urban fill with construction debris

			Redoximorphic Features			Coarse Fragments % B.V.					
Depth	Soil Horizon	Soil Texture	Soil Matrix	Depth	Color	%	Gravel	Cobbles & Stones	Soil Structure	Soil Consistence	Other
0-4"		PVMT									
4-102"	A	HTM									
102"-114"	C	G. Sand	2.5Y5/6				V	20-30%	Loose		



Test Pit Log

Project	10-30 Manley Way	Job Number	21049
Location	10-30 Manley Way	Date	2/8/2023
City, State	Watertown, MA	Weather	Sunny; 30 Degrees
Property Owner	The Seyon Group	Lat., Long.	

Contractor		Groundwater Observations			
Excavator	Jeff Anderson	Observed	Depth	Elevation	Notes
Logged by	Michael Capachietti (SE# 13939)	None			No Mottles or Standing Water observed
Reviewed by		Unsuitable Materials Present			
Surface Elevation	38.0+/-	Observed	Depth	Elevation	Notes
Test Pit ID	TP-07	HTM	0-24"	36.0+/-	Urban fill

				Redoximorphic Features			Coarse Fragments % B.V.				
Depth	Soil Horizon	Soil Texture	Soil Matrix	Depth	Color	%	Gravel	Cobbles & Stones	Soil Structure	Soil Consistence	Other
0-4"		PVMT									
4-24"	A	HTM									
24-49"	B	LS									
49-114"	C	Sand	2.5Y4/4				V	10-15%	Loose		

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Test Pit Log

Project	10-30 Manley Way	Job Number	21049
Location	10-30 Manley Way	Date	2/8/2023
City, State	Watertown, MA	Weather	Sunny; 30 Degrees
Property Owner	The Seyon Group	Lat., Long.	

Contractor		Groundwater Observations			
Excavator	Jeff Anderson	Observed	Depth	Elevation	Notes
Logged by	Michael Capachietti (SE# 13939)	None			No Mottles or Standing Water observed
Reviewed by		Unsuitable Materials Present			
Surface Elevation	38.0+/-	Observed	Depth	Elevation	Notes
Test Pit ID	TP-08	HTM	0-20"	36.3+/-	Urban fill

			Redoximorphic Features			Coarse Fragments % B.V.					
Depth	Soil Horizon	Soil Texture	Soil Matrix	Depth	Color	%	Gravel	Cobbles & Stones	Soil Structure	Soil Consistence	Other
0-4"		PVMT									
4-20"	A	HTM									
20-49"	B	LS									
49-108"	C	Sand	2.5Y4/4				V	10-15%	Loose		

IV. OPERATONS AND MAINTENANCE PLAN

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Operation and Maintenance Plan

10-30 Manley Way Watertown, Massachusetts

**Prepared for:
PPF Industrial Seyon 20 LLC
c/o Seyon
535 Boylston Street
11th Floor
Boston, MA 02116**

**Prepared by:
R.J. O'Connell & Associates, Inc.
80 Montvale Ave, Suite 201
Stoneham, MA 02180**

**Date: June 29, 2023
Revised: March 19, 2024**

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INTRODUCTION

This Operation and Maintenance Plan has been prepared to ensure that the stormwater management system implemented at 10-30 Manley Way in Watertown, MA functions as designed, and to develop and carry out suitable practices for source control and pollution prevention. It describes the various components of the stormwater management system, identifies the inspection and maintenance tasks to be undertaken after construction is complete, and establishes a schedule for implementing these tasks to insure the proper, long-term operation of the system.

SECTION 1 - STORMWATER MANAGEMENT SYSTEM - OPERATION AND MAINTENANCE

The objectives of the stormwater management system are to effectively control and treat stormwater runoff from the site in accordance with the Massachusetts Stormwater Management Standards. To accomplish this objective, the following Best Management Practices (BMP's) are included in the stormwater management system:

Pre-Treatment BMPs

- Catch basins with deep sumps and hooded outlets to reduce the discharge of trash, debris and coarse sediment from storm runoff and provide temporary containment of oil and grease.
- Hydrodynamic particle separators for removal of oil, grease and suspended solids.
- Oil/particle separator tank for removal of heavy particulates, floating debris and hydrocarbons from stormwater runoff.

Treatment BMPs

- Subsurface infiltration systems for removal of Total Suspended Solids (TSS), pollutants and Total Phosphorous (TP) from stormwater runoff.

To ensure the ongoing and proper functioning of the on-site stormwater management BMPs, this Operation and Maintenance Plan has been developed.

In consideration of the foregoing, it is the ongoing responsibility of the landowner, their successors and assignees to adequately maintain the on-site stormwater management BMPs. Adequate maintenance is herein defined as good working condition so that these BMPs are performing their design functions.

Based on this, the landowner, their successors and assignees are required to create a Pollution Prevention Team (PPT) that will be responsible for implementing this Operation and Maintenance Plan.

Upon transfer of ownership of the property, the landowner is required to notify the new owner of the presence of the stormwater management system and the requirements of this Operation and Maintenance Plan.

Property Information

Address: 10-30 Manley Way
Watertown, MA 02472

Landowner and Pollution Prevention Team Leader

Owners Name: PPF Industrial Seyon 20 LLC c/o Seyon

Owner's Representative: Joe DiRienzo
Title: Senior Project Manager
Office Phone: (508) 414-6462
Email: jdirienzo@seyonmanagement.com

Pollution Prevention Team Leader: TBD
Title:
Office Phone:
Email:

Responsibilities: Coordinate all aspects of the Operation and Maintenance Plan, coordinate and hire the other Pollution Prevention team members in order to conduct inspections, keep all records, and coordinate with contractors for maintenance and repairs of the stormwater management system.

Spill Prevention & Control Contractor

The following contacts shall be notified only in those instances identified within 310 CMR 40.00: Massachusetts Contingency Plan-Subpart C (see the Long-Term Pollution Prevention Plan, Appendix B).

Primary Contact: TBD
Office Phone:

Emergency Contact: TBD
Company Name: The Seyon Group
Title:
Emergency Phone:

Consultant Contact:
Company Name:
Contact Name:
Phone:

Department of Environmental Protection (DEP)
Hazardous Waste Incident Response Group

Contact Name:
Phone: (617) 792-7653

Municipal Contacts

Watertown Fire Department
Contact Name: Ryan Nicholson, Fire Chief
Phone: (617) 972-6512

Watertown Department of Public Works
Contact Name: Greg St. Louis, PE, Superintendent of Public Works
Phone: (617) 972-6420

Engineering
Contact Name: Tyler Glode, PE, Town Engineer
Phone: (617) 972-6420

Watertown Health Department
Contact Name: Abbey Myers, Director
Phone: (617) 972-6446

Other Pollution Prevention Team Members

Member: Qualified Engineering and/or Environmental Consulting Firm(s).

Responsibilities: Conduct scheduled inspections, maintain records, advise the Team Leader of maintenance needs, ensure inspection maintenance and repairs are completed and keep and maintain all records and inspection reports.

Company Name(s): TBD
Address:
Office Phone:

Team Member Training

The Pollution Prevention Team Leader will coordinate an annual in-house training session with the qualified Engineering and/or Environmental Consulting Firm to discuss the Operation and Maintenance Plan, ongoing inspection and maintenance and preventative maintenance procedures.

Annual training session will generally include the following:

- Discuss the Operation and Maintenance Plan
 - What it is- identify potential sources of stormwater pollution and methods of reducing or eliminating that pollution
 - What it contains- emphasize good housekeeping measures and location of potential pollution sources.
 - Pollution Prevention Team- introduce the team and explain their responsibilities, explain the operations and continuous monitoring of the stormwater management system and encourage input and assistance from all.
- Review and explain the storm drainage system, how it works and its components, note the receiving resource area in which the storm drainage system discharges into and the role each component plays.
- Emphasize the importance of maintaining current and up-to-date inspection reports and maintenance records of BMPs. Documentation shall include any changes to the O&M Plan's procedures to accommodate changes and revisions to BMPs.

Inspections and Maintenance Requirements

The components of the stormwater management system must be inspected, monitored and maintained in accordance with the following in order to ensure that the on-site stormwater management BMPs are functioning as designed. Routine inspection and proper maintenance of these individual components is essential to providing the long-term enhancement of both the quality and quantity of the runoff from the properties.

Deep Sump Catch Basins:

Stormwater runoff from pavement areas is directed to catch basins via site grading and curbing. Catch basins are equipped with a deep (4ft) sump and a hood. The sumps are designed to capture sediment and coarse particles and the hoods prevent hydrocarbons and other floatable debris from entering the drainage system. To ensure proper functioning of catch basins, each will be inspected and maintained as follows:

Inspection: Beginning of March, June, September and December. Structural damage and other malfunctions are to be noted and reported. Basins shall also be inspected after every major rain event (3.2 inches or greater in 24 hours) to ensure the grates are not clogged and are functioning properly.

Maintenance: Catch basins to be pumped and cleaned when sump is half full of sediment. Cleaning shall be performed by a licensed contractor. Sediment and hydrocarbons will be properly handled and legally disposed of off-site in accordance with local, state, and federal guidelines and regulations. Any structural damage to catch basins and/or castings will be repaired upon discovery.

Oil/Particle Separator Tank

Particle separator tank is a precast concrete tank designed to treat incoming stormwater runoff by removing suspended solids, thereby preventing the transfer of pollutants downstream. The

particle separator on the site is equipped and designed to treat stormwater runoff prior to discharging to the Walker Pond. The particle separator is to be inspected and maintained as follows:

Inspection: Inspect twice a year (March and September) see Appendix A of this report.

Maintenance: Jet vacuumed, and power washed by a licensed contractor when depth of sediment is greater than $\frac{1}{2}$ the depth of the tank. Accumulated sediment and hydrocarbons will be disposed of in accordance with applicable local, state and federal guidelines and regulations.

Hydrodynamic Oil/Particle Separator

The hydrodynamic oil/particle separators are precast concrete structures designed to treat incoming stormwater runoff by removing suspended solids thereby preventing the transfer of pollutants downstream. The particle separators on site are designed to treat stormwater runoff prior to discharging into a subsurface infiltration systems. The hydrodynamic particle separators are to be inspected and maintained as follows:

Inspection: Inspect in accordance with the manufacturer's recommendations and requirements (see Appendix D). At a minimum, hydrodynamic separators are to be inspected in March and September.

Maintenance: Vacuum and power wash the separator by a licensed contractor at least once per year or as recommended by the manufacturer (see Appendix D). Accumulated sediment and hydrocarbons to be disposed of in accordance with applicable local, state and federal guidelines and regulations. Particle separators are also to be cleaned when the level of sediment depth is within 12 inches of the invert of the outlet invert.

Subsurface Infiltration Systems

The subsurface infiltration systems consist of perforated high density polyethylene (HDPE) pipe encased in crushed stone. The systems are designed to temporarily retain stormwater runoff and infiltrate into the underlying soil. In so doing, a minimum of 90% Total Suspended Solids (TSS) and 60% of Total Phosphorous load is removed from the runoff. The subsurface infiltration systems are to be inspected and maintained as follows:

Inspection: Inspect inlets for accumulation of sediment and debris annually.

Maintenance: If there is a visible build-up of sediment, it should be vacuumed out by an approved contractor and disposed of in accordance with applicable local, state and federal guidelines and regulations. If the system does not drain within 24-hours following a major rainfall event, then a qualified professional should assess the condition of the system to determine the required measures to restore infiltration functionality.

Please refer to Appendix A for the Inspection Forms, which are to be used by the Pollution Prevention Team member responsible for conducting the scheduled inspections.

SECTION 2 - LONG TERM POLLUTION PREVENTION PLAN (LTPPP)

A. MATERIALS COVERED

The following materials or substances are expected to be present onsite after construction:

Cleaning solvents	Petroleum based products
Detergents	Pesticides/Insecticides
Paints/Solvents	Fertilizers/Herbicides
Acids	Contaminated Soil
Solid Waste	

B. MATERIALS MANAGEMENT PRACTICES

The following are the material management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances to stormwater runoff. The Pollution Prevention Team Leader will be responsible for ensuring that these procedures are followed:

Good Housekeeping

The following good housekeeping practices will be followed onsite after construction:

- a) An effort will be made to store only enough products required to do the job.
- b) All materials stored onsite will be stored in a neat, orderly manner and, if possible, under a roof or in a containment area. At a minimum, all containers will be stored with their lids on when not in use. Drip pans shall be provided under all dispensers.
- c) Products will be kept in their original containers with the original manufacturer's label in legible condition.
- d) Substances will not be mixed with one another unless recommended by the manufacturer.
- e) Whenever possible, all of a product will be used up before disposing of the container.
- f) Manufacturer's recommendations for proper use and disposal will be followed.
- g) A Pollution Prevention Team Member will be responsible for daily inspections to ensure proper use and disposal of materials.
- h) The storage of all deicing materials on the site shall be covered and not be exposed to precipitation.

1. Hazardous Substances

These practices will be used to reduce the risks associated with hazardous substances. Material Safety Data Sheets (MSDS's) for each product with hazardous characteristics that is used on the property will be obtained and used for the proper management of potential wastes that may result from these products. An MSDS will be posted in the immediate area where such product is stored and/or used and another copy of each MSDS will be maintained on-site, in the management office. Each employee who must handle a hazardous substance will be instructed on the use of MSDS sheets and the specific information in the applicable MSDS for the product he/she is using, particularly regarding spill control techniques.

- a) Products will be kept in original containers with the original labels in legible condition.
- b) Original labels and MSDS's will be procured and used for each product.
- c) If surplus product must be disposed of, the manufacturer's and local/state/federal required methods for proper disposal must be followed.

2. Hazardous Waste

It is imperative that all hazardous waste be properly identified and handled in accordance with all applicable hazardous waste standards, including the storage, transport and disposal of the hazardous wastes. There are significant penalties for the improper handling of hazardous wastes. It is important that the Pollution Prevention Team Leader seeks appropriate assistance in making the determination of whether a substance or material is a hazardous waste. For example, hazardous waste may include certain hazardous substances, as well as pesticides, paints, paint solvents, cleaning solvents, contaminated soils, and other materials, substances or chemicals that have been discarded (or are to be discarded) as being out-of-date, contaminated, or otherwise unusable. The Pollution Prevention Team Leader is responsible for ensuring that all Pollution Prevention Team Members are instructed as to these hazardous waste requirements and also that the requirements for handling and disposal are being followed.

3. Product Specific Practices

The following product specific practices will be followed on the job site:

a) Petroleum Products

Petroleum products will be stored in tightly sealed containers which are clearly labeled. Petroleum storage tanks shall be located a minimum of 100 linear feet from wetland resource areas, drainage ways, inlets and surface waters unless stored within a building. Any petroleum storage tanks stored onsite will be located within a containment area that is designed with an impervious surface between the tank and the ground. The secondary containment must be designed to provide a

containment volume that is equal to 110% of the volume of the largest tank. Drip pans shall be provided for all dispensers. Any asphalt substances used onsite will be applied according to the manufacturer's recommendations. The location of any fuel tanks and/or equipment storage areas must be identified on the Erosion Control Plan by the Contractor once the locations have been determined.

b) Fertilizers, Herbicides, Pesticides, and Insecticides

Fertilizers, herbicides, pesticides, and insecticides will be applied only in the minimum amounts recommended by the manufacturer. Once applied, they will be worked so as to limit exposure to storm water. Storage will be in a covered shed. The contents of any partially used bags or containers will be transferred to a sealable plastic bin to avoid spills.

Fertilizers shall not be applied within wetland buffer zones or other resource areas. Refer to Drawing C-2, Grading and Drainage Plan, for location of resource areas and buffer zones.

c) Paints, Paint Solvents, and Cleaning Solvents

All containers will be tightly sealed and stored when not in use. Excess paint and solvents will not be discharged to the storm sewer system but will be properly disposed of according to manufacturer's instructions or state and federal regulations.

4. Solid Waste

All waste materials will be collected and stored in an appropriately covered container and/or securely contained metal dumpster rented from a local waste management company which must be a licensed solid waste management company. The dumpster will comply with all local and state solid waste management regulations.

All trash and debris from the site will be deposited in dumpsters. The dumpsters will be emptied a minimum of once per week or more often if necessary. All personnel will be instructed regarding the correct procedures for waste disposal.

All waste dumpsters and roll-off containers will be located in an area where the likelihood of the containers contributing to storm water discharges is negligible.

5. Contaminated Soils

Any contaminated soils (resulting from spills of hazardous substances or oil) will be contained and cleaned up immediately in accordance with the procedures given in the Materials Management Plan and in accordance with applicable state and federal regulations. If there is a release, it should be reported as a spill, if it otherwise meets the requirements for a reportable spill.

C. SPILL PREVENTION AND RESPONSE PROCEDURES

The Pollution Prevention Team Leader will train all personnel in the proper handling and cleanup of spilled hazardous substances or oil. No spilled hazardous substances or oil will be allowed to come in contact with storm water discharges. If such contact occurs, the storm water discharge will be contained on site until appropriate measures in compliance with state and federal regulations are taken to dispose of such contaminated storm water. It shall be the responsibility of the Pollution Prevention Team Leader to be properly trained, and to train all personnel in spill prevention and clean up procedures.

1. In order to prevent or minimize the potential for a spill of hazardous substances or oil to come into contact with storm water, the following steps will be implemented:
 - a) All hazardous substances or oil (such as pesticides, petroleum products, fertilizers, detergents, acids, paints, paint solvents, cleaning solvents, etc.) will be stored in a secure location, with their lids on, preferably under cover, when not in use.
 - b) The minimum practical quantity of all such materials will be kept on site.
 - c) A spill control and containment kit (containing, for example, absorbent materials, acid neutralizing powder, brooms, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc.) will be provided on site.
 - d) Manufacturer's recommended methods for spill cleanup will be clearly posted and site personnel will be trained regarding these procedures and the location of the information and cleanup supplies.
 - e) It is the Pollution Prevention Team Leader's responsibility to ensure that all hazardous waste on site is disposed of properly by a licensed hazardous material disposal company. The Pollution Prevention Team Leader is responsible for not exceeding hazardous waste storage requirements mandated by the EPA or state and local authority.
2. In the event of a spill of hazardous substances or oil, the following procedures must be followed:
 - a) All measures must be taken to contain and abate the spill and to prevent the discharge of the hazardous substance or oil to storm water or off-site. (The spill area must be kept well ventilated and personnel must wear appropriate protective clothing to prevent injury from contact with the hazardous substances.)
 - b) For spills of less than five (5) gallons of material, proceed with source control and containment, clean-up with absorbent materials or other applicable means unless an imminent hazard or other circumstances dictate that the spill should be treated by a professional emergency response contractor.
 - c) For spills greater than five (5) gallons of material immediately contact the MA DEP Emergency Response at (888) 304-1133, and an approved emergency response contractor. Provide information on the type of material spilled, the location of the spill, the quantity spilled, and the time of the spill to the emergency response contractor or coordinator, and proceed with prevention, containment and/or clean-up if so desired.

- d) If there is a Reportable Quantity (RQ) release, then the National Response Center will be notified immediately at (800) 424-8802; within 14 days a report will be submitted to the EPA regional office describing the release, the date and circumstances of the release and the steps taken to prevent another release. This Pollution Prevention Plan must be updated to reflect any such steps or actions taken and measures to prevent the same from reoccurring.
3. The Pollution Prevention Team Leader will be the spill prevention and response coordinator. He/she will designate the individuals who will receive spill prevention and response training. These individuals will each become responsible for a particular phase of prevention and response. The names of these personnel will be posted in the material storage area and in the management office.

SECTION 3 - ILLICIT DISCHARGE STATEMENT

Certain types of discharges are allowable under the U.S. Environmental Protection Agency Construction General Permit, and it is the intent of this LTPPP to allow such discharges. These types of discharges will be allowed under the conditions that no pollutants will be allowed to come in contact with the water prior to, or after its discharge. The control measures which have been outlined previously in this LTPPP will be strictly followed to ensure that no contamination of these non-storm water discharges takes place. Illicit discharges, if they exist currently, will be contained and eliminated in the manner specified by local, state and federal regulations, and will be prohibited in the proposed development.

SECTION 4 – SNOW MANAGEMENT

Snow management will be overseen by the Property Manager who will implement this plan and be authorized to utilize additional resources should unusual events occur. The Snow Management Contractor (SMC) shall be responsible for maintaining all roads, driveways, parking lots, sidewalks and pedestrian access areas for clear and safe travel. The SMC shall report directly to the Property Manager and maintain communication via cell phones 24 hours per day, 7 days per week. All roads, drives, entrances and exits are the first priority. During extreme events, the first priority will be to clear and maintain proper access for residents and public safety vehicles. The next priority is parking areas, sidewalks, fire hydrants, and delivery areas. Snow will be piled in designated areas as depicted on the snow management plan. (See R.J. O’Connell Figure SMP-1, Snow Management Plan). Snow stored in designated areas shall have a maximum height limitation of seven (7’) feet. When snow designated areas reach their capacity, surplus snow will be disposed offsite as identified in the snow management contract. Prior to November 1 of each year, the SMC shall notify in writing the Property Manager the location that snow will be hauled to.

The anti-icing operations typically precede snow plowing and will be provided when conditions warrant. Within 12 months of concrete walks, pads, or other features being poured, no salt shall be placed on those surfaces. After the materials have cured for 12 months, a combination of salt (Halite or Rock Salt) and sand (“washed”, fine to medium grade) shall be utilized. Parking areas shall receive spot treatment only when and where needed in a similar manner.

Snow removal shall commence upon accumulation of two inches (“2”) or more. The SMC shall keep existing catch basins open for drainage or water resulting from melting.

Once the storm is over, the SMC shall monitor all areas on-site for icy spots and snowdrifts. If needed, an application of sand and salt or calcium chloride will be applied to all streets and roads so that the riding surface remains drivable. When the ambient temperature drops below 15 degrees F, all major areas will receive an application of calcium chloride to maintain melting action and an ice-free surface for as long as possible. Salt loses its effectiveness at temperatures below 15 degrees F.

Deicing chemicals will be kept in original containers with the original product label in legible condition. When not in use, deicing materials will be stored in a neat, orderly manner under cover with their container lids on.

SECTION 5 – PUBLIC SAFETY FEATURES

The following measures have been incorporated into the stormwater management system to ensure the safety of the public:

- Storm drain manholes and catch basins provided with heavy duty covers and/or grates designed to withstand H2O loading.
- Control and collection of stormwater runoff through positive drainage and curbing directing it toward drainage inlet structures.
- Treatment of stormwater runoff from repaved surfaces to remove 90% of the average annual post-construction load of Total suspended Solids (TSS) and at least 60% the cumulative phosphorous load reduction.
- Reduction of peak rates of runoff and volumes from the site under redeveloped conditions as compared to pre-redeveloped conditions.
- Development and implementation of an Operation and Maintenance Plan (O&M) to ensure the proper functioning of the stormwater management system and a Long-Term Pollution Prevention Plan (LTPPP) identifying potential pollution sources and suitable practices to control and prevent them from impacting the environment and/or the public's health and safety.

Appendix A

Maintenance and Inspection Forms

10-30 Manley Way - Watertown Operation and Maintenance Plan Task Guide

The table below is a list of the minimum inspection and maintenance activities the Pollution Prevention Team needs to conduct for the Stormwater Operations and Management Plan and who is responsible for the activity. The task Guide is provided to assist the Pollution Prevention Team Leader and ensure that the activities are being conducted as scheduled.

Timing	Task	Responsible Party
Weekly	Inspect lot/land. Pick up and dispose of litter. Check for leaking liquid at dumpsters.	PPT PPT PPT
Monthly	Inspect soil, repair eroded areas in bioretention area and re-mulch as needed. Remove litter and debris	
Quarterly (March, June, September, December)	Inspect catch basins for sediment, trash and oil. Remove sediment when depth of deposits is greater than ½ the depth of the sump.	PPT/Contractor
Semi-Annually	Inspect oil/particle separator tank. Remove sediment when depth of deposits is greater than or equal to ½ the depth of the tank. Inspect hydrodynamic oil/particle separators. Remove sediment and clean when level of sediment is within 12 inches of outlet invert. Remove and replace dead vegetation from vegetated drainage channel (spring and fall)	PPT/Contractor PPT Contractor PPT/Contractor Contractor
Annually	Inspect subsurface infiltration systems for accumulation of sediment at inlets and remove as necessary. Conduct Pollution Prevention Team training as required. Prepare Comprehensive Annual Stormwater Evaluation and Inspection Report.	PPT Team Leader
April	Spring clean-up	Contractor
Between November 14 and December 15	Fall clean-up	Contractor

10-30 Manley Way Walnut Street - Watertown Operation and Maintenance Plan Comprehensive Annual Evaluation and Inspection Report

Once a year, the Pollution Prevention Team Leader must inspect and evaluate all aspects and provisions of the Operations and Maintenance Plan, complete the following report and keep a copy on file at the site.

Inspector/Reviewers: _____

Date of Inspection/Review: _____

Note any changes to the Plan in the space below and in the appropriate section of the Plan.

1. Review the Pollution Prevention Team list and update if necessary. Does the Pollution Prevention Team list need updating:
(circle one) Yes No

2. Review the Operations and Maintenance Plan (O&M Plan). Are there sections of the O&M Plan that need updating?
(circle one) Yes No

3. Review Monthly and Weekly Checklists. Update these as necessary
 - Are there any updates needed to Spill and Leak History and/or the checklists?

(circle one) Yes No

4. Review site drawings and update if necessary
 - Are there updates needed to any of the drawings?

(circle one) Yes No

Requested Changes (attach revisions)

10-30 Manley Way - Watertown
Operation and Maintenance Plan
Annual Training Sign-off Sheet

For each Operations and Maintenance Plan training session, the Team Leader should keep records of all attending Team Members using the signoff sheet below, as well as the training agenda, notes, etc.

Training Date: _____	Topic:
Trainer: _____	
Team Member Name	Team Member Signature

10-30 Manley Way - Watertown **Operation and Maintenance Plan** **Weekly Task Checklist**

The site will be checked each week for trash and debris by a member of the Pollution Prevention Team. If any trash or debris is observed in the specified area, write “yes” in the 2nd column and note the problem and corrective measures taken in the appropriate space. Make a new copy of this checklist each week.

Date: _____ **Checklist completed by:** _____

 GROUND S AREA TO CHECK 	 TASK 	 DESCRIPTION OF PROBLEM 	 CORRECTIVE MEASURES TAKEN
Parking Lot & Roadways	Pickup and Dispose of Litter		
Landscaped Areas	Pickup and Dispose of Litter		
Compactor/Dumpster Areas	Check for Leaking Liquid Pickup and Dispose of Litter		
Perimeter of Property	Pick up and Dispose of Litter		

10-30 Manley Way Walnut Street - Watertown
Operation and Maintenance Plan
Quarterly Task Checklist (March, June, September, December)

The following will be checked each month for sources of pollutants by a member of the Pollution Prevention Team. If the condition in the “check for” column is observed, note the problem and corrective measures taken in the appropriate space. Make a new copy of the checklist each month.

Date: _____ Checklist completed by: _____

BMP	TASK	DESCRIPTION OF PROBLEM (IF PRESENT)	CORRECTIVE MEASURES TAKEN
Catch Basins	Inspect for Sediment, Trash, and Oil. Remove sediment when depth of deposits is greater than 1/2 the depth of the sump.		

10-30 Manley Way - Watertown Operation and Maintenance Plan Semi-Annual Task Checklist

The site will be checked semi-annually four sources of pollutants by a member of the Pollution Prevention Team. If the condition in the “check for” column is observed, note the problem and corrective measures taken in the appropriate space. Make a new copy of the checklist each month.

Date: _____ **Checklist completed by:** _____

BMP	TASK	DESCRIPTION OF PROBLEM (IF PRESENT)	CORRECTIVE MEASURES TAKEN
Oil/Particle Separator Tank	Inspect for sediment, trash, and oil. Remove sediment when depth of deposits is greater than ½ the depth of the sump.		
Vegetated Drainage Channel	Remove and replace dead vegetation from channel in the spring and fall.		
Hydrodynamic Particle Separators	Inspect and remove sediment when level of sediment is within 12 inches of outlet invert.		
Spring and Fall site clean-up	Overall clean-up of site.		

101 Walnut Street - Watertown
Operation and Maintenance Plan
Annual Task Checklist

The following will be checked each year for sources of pollutant by a member of the Pollution Prevention Team. If a problem is observed, note the problem and corrective measures taken in the appropriate space. Make a new copy of the checklist each year.

Date: _____ Checklist completed by: _____

BMP	TASK	DESCRIPTION OF PROBLEM (IF PRESENT)	CORRECTIVE MEASURES TAKEN
Subsurface Infiltration Systems	Inspect for sediment accumulation at inlets and remove as necessary.		
Pollution Prevention Team Training.	Pollution Prevention Team training. Prepare comprehensive Annual Stormwater Evaluation and Inspection Report.		

Appendix B

BMP-1 BMP Location Plan-1

BMP-2 BMP Location Plan-2

NO.	DATE	REVISION
1	05/04/2023	ISSUED FOR SPECIAL PERMITTING PLAN REVIEW
2	06/14/2023	ISSUED FOR PERMITS PLAN REVIEW
3	06/29/2023	ISSUED FOR PERMITS PLAN REVIEW
4	07/20/2023	ISSUED WITH ENGINEERING COMMENTS

NO.	DATE	REVISION
1	05/04/2023	ISSUED FOR SPECIAL PERMITTING PLAN REVIEW
2	06/14/2023	ISSUED FOR PERMITS PLAN REVIEW
3	06/29/2023	ISSUED FOR PERMITS PLAN REVIEW
4	07/20/2023	ISSUED WITH ENGINEERING COMMENTS

DESIGNED BY:
RJO'CONNELL & ASSOCIATES, INC.
300 STATE STREET, SUITE 200, BOSTON, MA 02116
PHONE: 617.562.0552

PROJECT NAME:
**PPF INDUSTRIAL
20 SEYON LLC**
535 BOYLSTON STREET, 11TH FLOOR
BOSTON, MA 02116
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PROJECT NAME:
10-30 MANLEY WAY
WATERTOWN, MA

PROGRESS PRINT
Mar 18, 2024

DESIGNED BY:
BMMAC

REVIEWED BY:
WMAAC

SCALE:
1" = 20'

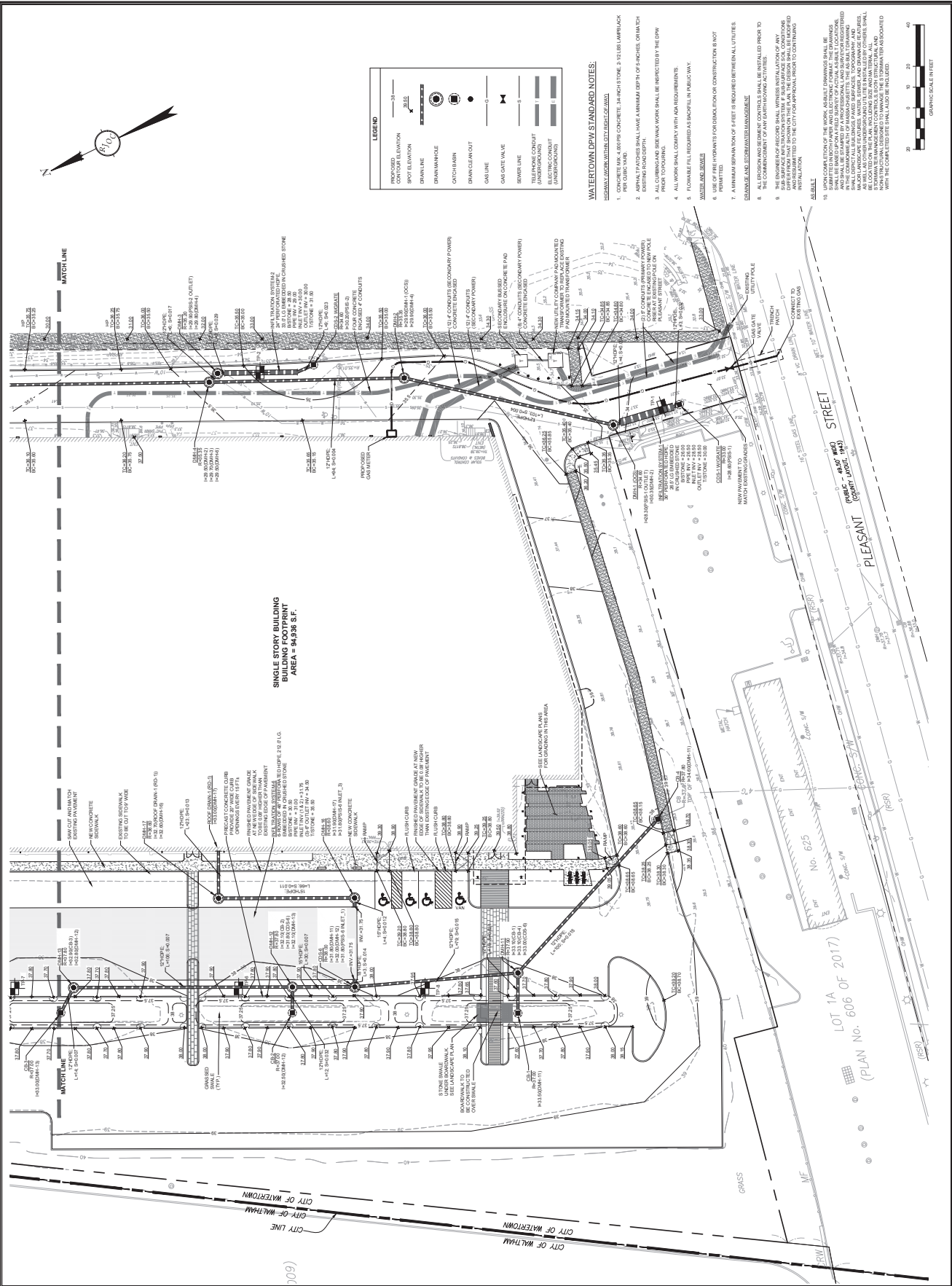
DATE:
05/04/2023

BMP LOCATION
PLAN-1

BMP-1

PROJECT NUMBER:
21049

DATE: 05/04/2023



10-30 MANLEY WAY
WATERTOWN MA

ING NUMBER: **BMP-2**

21049



Appendix C

CDS Treatment Unit Operation and Inspection Maintenance Guidelines

OPERATIONS AND MAINTENANCE GUIDELINES

CDS Stormwater Treatment Unit

INTRODUCTION

The CDS unit is an important and effective component of your storm water management program and proper operation and maintenance of the unit are essential to demonstrate your compliance with local, state and federal water pollution control requirements.

The CDS technology features a patented non-blocking, indirect screening technique developed in Australia to treat water runoff. The unit is highly effective in the capture of suspended solids, fine sands and larger particles. Because of its non-blocking screening capacity, the CDS unit is unmatched in its ability to capture and retain gross pollutants such as trash and debris. In short, CDS units capture a very wide range of organic and in-organic solids and pollutants that typically result in tons of captured solids each year such as: Total suspended solids (TSS) and other sedimentitious materials, oil and greases, trash, and other debris (including floatables, neutrally buoyant, and negatively buoyant debris). These pollutants will be captured even under very high flow rate conditions.

CDS units are equipped with conventional oil baffles to capture and retain oil and grease. Laboratory evaluations show that the CDS units are capable of capturing up to 70% of the free oil and grease from storm water. CDS units can also accommodate the addition of oil sorbents within their separation chambers. The addition of the oil sorbents can ensure the permanent removal of 80% to 90% of the free oil and grease from the storm water runoff.

OPERATIONS

The CDS unit is a non-mechanical self-operating system and will function any time there is flow in the storm drainage system. The unit will continue to effectively capture pollutants in flows up to the design capacity even during extreme rainfall events when the design capacity may be exceeded. Pollutants captured in the CDS unit's separation chamber and sump will be retained even when the units design capacity is exceeded.

CDS UNIT INSPECTION

Access to the CDS unit is typically achieved through two manhole access covers – one allows inspection (and clean out) of the separation chamber (screen/cylinder) & sump and another allows inspection (and cleanout) of sediment captured and retained behind the screen.

The unit should be periodically inspected to determine the amount of accumulated pollutants and to ensure that the cleanout frequency is adequate to handle the predicted pollutant load being processed by the CDS unit. The unit should be periodically inspected for indications of vector infestation, as well. The recommended cleanout of

solids within the CDS unit's sump should occur at 75% to 85% of the sump capacity. However, the sump may be completely full with no impact to the CDS unit's performance.

CONTECH Stormwater Solutions (previously CDS Technologies) recommends the following inspection guidelines: For new initial operation, check the condition of the unit after every runoff event for the first 30 days. For ongoing operations, the unit should be inspected after the first six inches of rainfall at the beginning of the rainfall season and at approximately 30-day intervals. The visual inspection should ascertain that the unit is functioning properly (no blockages or obstructions to inlet and/or separation screen), evidence of vector infestation, and to measure the amount of solid materials that have accumulated in the sump, fine sediment accumulated behind the screen, and floating trash and debris in the separation chamber. This can be done with a calibrated dipstick, tape measure or other measuring instrument so that the depth of deposition in the sump can be tracked.

CDS UNIT CLEANOUT

The frequency of cleaning the CDS unit will depend upon the generation of trash and debris and sediments in your application. Cleanout and preventive maintenance schedules will be determined based on operating experience unless precise pollutant loadings have been determined.

Access to the CDS unit is typically achieved through two manhole access covers – one allows cleanout of the separation chamber (screen/cylinder) & sump and another allows cleanout of sediment captured and retained behind the screen. For units possessing a sizable depth below grade (depth to pipe), a single manhole access point would allow both sump cleanout and access behind the screen.

CONTECH Stormwater Solutions Recommends The Following:

NEW INSTALLATIONS: Check the condition of the unit after every runoff event for the first 30 days. The visual inspection should ascertain that the unit is functioning properly (no blockages or obstructions to inlet and/or separation screen), measuring the amount of solid materials that have accumulated in the sump, the amount of fine sediment accumulated behind the screen, and determining the amount of floating trash and debris in the separation chamber. This can be done with a calibrated “dip stick” so that the depth of deposition can be tracked. Refer to the “Cleanout Schematic” (**Appendix B**) for allowable deposition depths and critical distances. Schedules for inspections and cleanout should be based on storm events and pollutant accumulation.

ONGOING OPERATION: During the rainfall season, the unit should be inspected at least once every 30 days. The floatables should be removed and the sump cleaned when the sump is 75-85% full. If floatables accumulate more rapidly than the settleable solids, the floatables should be removed using a vacuum truck or dip net before the layer thickness exceeds approximately one foot.

Cleanout of the CDS unit at the end of a rainfall season is recommended because of the nature of pollutants collected and the potential for odor generation

from the decomposition of material collected and retained. This end of season cleanout will assist in preventing the discharge of pore water from the CDS[®] unit during summer months.

USE OF SORBENTS –The addition of sorbents is **not a requirement** for CDS units to effectively control oil and grease from storm water. The conventional oil baffle within a unit assures satisfactory oil and grease removal. However, the addition of sorbents is a unique enhancement capability unique to CDS units, enabling increased oil and grease capture efficiencies beyond that obtainable by conventional oil baffle systems.

Under normal operations, CDS units will provide effluent concentrations of oil and grease that are less than 15 parts per million (ppm) for all dry weather spills where the volume is less than or equal to the spill capture volume of the CDS unit. During wet weather flows, the oil baffle system can be expected to remove between 40 and 70% of the free oil and grease from the storm water runoff.

CONTECH Stormwater Solutions only recommends the addition of sorbents to the separation chamber if there are specific land use activities in the catchment watershed that could produce exceptionally large concentrations of oil and grease in the runoff, concentration levels well above typical amounts. If site evaluations merit an increased control of free oil and grease then oil sorbents can be added to the CDS unit to thoroughly address these particular pollutants of concern.

Recommended Oil Sorbents

Rubberizer[®] Particulate 8-4 mesh or OARS[™] Particulate for Filtration, HPT4100 or equal. Rubberizer is supplied by Haz-Mat Response Technologies, Inc. 4626 Santa Fe Street, San Diego, CA 92109 (800) 542-3036. OARS is supplied by AbTech Industries, 4110 N. Scottsdale Road, Suite 235, Scottsdale, AZ 85251 (800) 545-8999.

The amount of sorbent to be added to the CDS separation chamber can be determined if sufficient information is known about the concentration of oil and grease in the runoff. Frequently the actual concentrations of oil and grease are too variable and the amount to be added and frequency of cleaning will be determined by periodic observation of the sorbent. As an initial application, CDS recommends that approximately 4 to 8 pounds of sorbent material be added to the separation chamber of the CDS units per acre of parking lot or road surface per year. Typically this amount of sorbent results in a ½ inch to one (1") inch depth of sorbent material on the liquid surface of the separation chamber. The oil and grease loading of the sorbent material should be observed after major storm events. Oil Sorbent material may also be furnished in pillow or boom configurations.

The sorbent material should be replaced when it is fully discolored by skimming the sorbent from the surface. The sorbent may require disposal as a special or hazardous waste, but will depend on local and state regulatory requirements.

CLEANOUT AND DISPOSAL

A vacuum truck is recommended for cleanout of the CDS unit and can be easily accomplished in less than 30-40 minutes for most installations. Standard vacuum operations should be employed in the cleanout of the CDS unit. Disposal of material from the CDS unit should be in accordance with the local municipality's requirements. Disposal of the decant material to a POTW is recommended. Field decanting to the storm drainage system is not recommended. Solids can be disposed of in a similar fashion as those materials collected from street sweeping operations and catch-basin cleanouts.

MAINTENANCE

The CDS unit should be pumped down at least once a year and a thorough inspection of the separation chamber (inlet/cylinder and separation screen) and oil baffle performed. The unit's internal components should not show any signs of damage or any loosening of the bolts used to fasten the various components to the manhole structure and to each other. Ideally, the screen should be power washed for the inspection. If any of the internal components is damaged or if any fasteners appear to be damaged or missing, please contact CONTECH at 800.338.2211 to make arrangements to have the damaged items repaired or replaced.

The screen assembly is fabricated from Type 316 stainless steel and fastened with Type 316 stainless steel fasteners that are easily removed and/or replaced with conventional hand tools. The damaged screen assembly should be replaced with the new screen assembly placed in the same orientation as the one that was removed.

CONFINED SPACE

The CDS unit is a confined space environment and only properly trained personnel possessing the necessary safety equipment should enter the unit to perform particular maintenance and/or inspection activities beyond normal procedure. Inspections of the internal components can, in most cases, be accomplished by observations from the ground surface.

VECTOR CONTROL

Most CDS units do not readily facilitate vector infestation. However, for CDS units that may experience extended periods of non-operation (stagnant flow conditions for more than approximately one week) there may be the potential for vector infestation. In the event that these conditions exist, the CDS unit may be designed to minimize potential vector habitation through the use of physical barriers (such as seals, plugs and/or netting) to seal out potential vectors. The CDS unit may also be configured to allow drain-down under favorable soil conditions where infiltration of storm water runoff is permissible. For standard CDS units that show evidence of mosquito infestation, the

application of larvicide is one control strategy that is recommended. Typical larvicide applications are as follows:

SOLID B.t.i. LARVICIDE: ½ to 1 briquet (typically treats 50-100 sq. ft.) one time per month (30-days) or as directed by manufacturer.

SOLID METHOPRENE LARVICIDE (not recommended for some locations): ½ to 1 briquet (typically treats 50-100 sq. ft.) one time per month (30-days) to once every 4-½ to 5-months (150-days) or as directed by manufacturer.

RECORDS OF OPERATION AND MAINTENANCE

CONTECH Stormwater Solutions recommends that the owner maintain annual records of the operation and maintenance of the CDS unit to document the effective maintenance of this important component of your storm water management program. The attached **Annual Record of Operations and Maintenance** form (see **Appendix A**) is suggested and should be retained for a minimum period of three years.

APPENDIX A

ANNUAL RECORDS OF

OPERATIONS & MAINTENANCE

AND INSPECTION CHECKLISTS

ANNUAL RECORD OF OPERATION AND MAINTENANCE

OWNER _____
 ADDRESS _____
 OWNER REPRESENTATIVE _____ PHONE _____

INSTALLATION:
 MODEL DESIGNATION _____ DATE _____
 SITE LOCATION _____

INSPECTIONS:

DATE/ INSPECTOR	SCREEN/INLET INTEGRITY	FLOATABLES DEPTH	DEPTH TO SEDIMENT (inches)	SEDIMENT VOLUME* (CUYDS)	SORBENT DISCOLORATION

DEPTH FROM COVER TO BOTTOM OF SUMP (SUMP INVERT) _____

DEPTH FROM COVER TO SUMP @ 75% FULL _____

VOLUME OF SUMP @ 75% FULL = _____ CUYD

VOLUME/INCH DEPTH _____ CUFT/IN OF SUMP

VOLUME/FOOT DEPTH _____ CUYD/FT OF SUMP

***Calculate Sediment Volume = (Depth to Sump Invert – Depth to Sediment)*(Volume/inch)**

OBSERVATIONS OF FUNCTION: _____

CLEANOUT:

DATE	VOLUME FLOATABLES	VOLUME SEDIMENTS	METHOD OF DISPOSAL OF FLOATABLES, SEDIMENTS, DECANT AND SORBENTS

OBSERVATIONS:

SCREEN MAINTENANCE:

DATE OF POWER WASHING, INSPECTION AND OBSERVATIONS:

CERTIFICATION: _____ TITLE: _____ DATE: _____

INSPECTION CHECKLIST

1. During the rainfall season, inspect and check condition of unit at least once every 30 days ☐
2. Ascertain that the unit is functioning properly (no blockages or obstructions to inlet and/or separation screen) ☐
3. Measure amount of solid materials that have accumulated in the sump (Unit should be cleaned when the sump is 75-85% full) ☐
4. Measure amount of fine sediment accumulated behind the screen ☐
5. Measure amount of floating trash and debris in the separation chamber ☐

MAINTENANCE CHECKLIST

1. Cleanout unit at the end and beginning of the rainfall season ☐
2. Pump down unit (at least once a year) and thoroughly inspect separation chamber, separation screen and oil baffle ☐
3. No visible signs of damage or loosening of bolts to internal components observed * ☐

*** If there is any damage to the internal components or any fasteners are damaged or missing please contact CONTECH (800.338.1122).**