# PROPOSED DUNKIN' DONUTS
# SITE RE-DEVELOPMENT PLANS

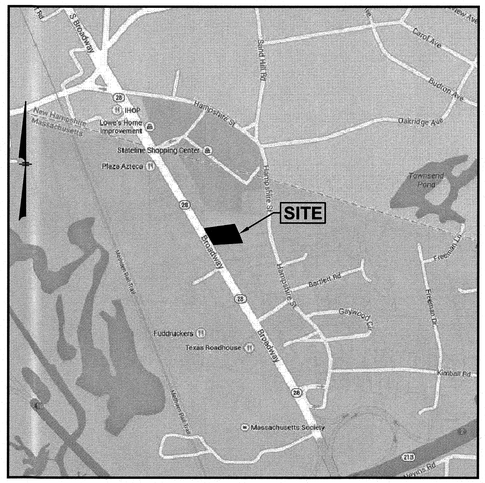
## for

## ASSESSORS MAP 610 BLOCK 58 LOTS 4 & 5
## 477 & 479 BROADWAY
## METHUEN, MASSACHUSETTS

## Prepared for:

# CAFUA MANAGEMENT COMPANY, LLC

## 280 MERRIMACK STREET
## METHUEN, MA 01844




**LOCATION MAP**
(NOT TO SCALE)

## INDEX TO DRAWINGS

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PREPARED FOR
CAFUA MANAGEMENT COMPANY, LLC
280 MERRIMACK STREET
METHUEN, MA 01844

ASSESSORS MAP 610 BLOCK 58 LOTS 4 & 5
477 & 479 BROADWAY
METHUEN, MASSACHUSETTS

COMMONWEALTH OF MASSACHUSETTS
CHRISTOPHER M. TYNIULA
CIVIL
No. 57146
REGISTERED PROFESSIONAL ENGINEER
3/6/24

| REVISIONS | | |
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MARCH 6, 2024

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TITLE SHEET

SCALE: AS NOTED

PROJECT NO. NEX-2021347

## LEGEND

- SGC — SLOPED GRANITE CURB
- VGC — VERTICAL GRANITE CURB
- SCC — SLOPED CONCRETE CURB
- VCC — VERTICAL CONCRETE CURB
- CCB — CAPE COD BERM
- DSLY — DOUBLE SOLID LINE YELLOW
- DDLY — DOUBLE DASHED LINE YELLOW
- SDLY — SINGLE DASHED LINE YELLOW
- SSLY — SINGLE SOLID LINE YELLOW
- SSLW — SINGLE SOLID LINE WHITE
- SDLW — SINGLE DASHED LINE WHITE
- G — GAS LINE
- T — UNDERGROUND TELEPHONE
- W — WATER LINE
- E — UNDERGROUND ELECTRIC
- WOOD GUARDRAIL
- METAL GUARDRAIL
- CHAIN LINK FENCE
- STOCKADE FENCE
- POST & RAIL FENCE
- WIRE FENCE
- 90 — CONTOUR ELEVATION
- TREE
- UTILITY POLE
- GUY WIRE
- OVERHEAD WIRE
- TREELINE
- PB — PULL BOX
- SIGN
- X=98.59 — SPOT ELEVATION
- DRAIN MANHOLE
- CATCH BASIN
- ROOF DRAIN
- CLEANOUT
- V — VENT
- S — SEWER MANHOLE
- T — TELEPHONE MANHOLE
- E — ELECTRIC MANHOLE
- W — WATER MANHOLE
- MH — MANHOLE
- GAS VALVE
- GAS SHUT OFF
- WV — WATER VALVE
- WATER SHUT OFF
- FIRE HYDRANT
- BOLLARD
- GM — GAS METER
- EM — ELECTRIC METER
- MONITORING WELL
- LIGHT POLE
- BORING
- WETLAND LINE
- WATER FEATURE
- U/GAT — UNDERGROUND COMM
- DITCH LINE
- EASEMENT LINE
- PROPERTY LINE
- ABUTTER PROPERTY LINE
- BUILDING SETBACK
- SOIL TYPE LINE
- ZONE LINE
- FLOOD ZONE LINE
- TBR — TO BE REMOVED
- - - - - - TO BE REMOVED
- 1 — NUMBER OF PARKING SPACES
- T.D. — TIP DOWN CURB
- PROP. BIT. CONCRETE CURB (BCC)
- PROP. VERTICAL GRANITE CURB (VGC)
- PROP. XXXX CURB (XXX)
- PROP. XXXX CURB (XXX)
- C.O. — PROP. CLEANOUT
- CB-1 — PROP. CATCH BASIN
- DMH-1 — PROP. DRAIN MANHOLE
- MEG — MEET EXISTING GRADE
- 331.25 — PROP. SPOT ELEVATION
- 300 — PROP. CONTOUR ELEVATION
- TW= — TOP OF WALL ELEV.
- BW= — BOTTOM OF WALL ELEV.
- G.B. — GRADE BREAK
- TP — TEST PIT
- PROP. GATE VALVE
- PROP. SEDIMENT CONTROL FENCE

## GENERAL NOTES:

1) ZONE: HIGHWAY BUSINESS (BH)
2) SETBACKS: FRONT: 25'
   SIDE 30'
   * REAR 30'
   * ADDITIONAL BUFFER ZONE OF 30' IS ADDED TO SETBACK AREA WHEN ADJACENT TO RESIDENTIAL.
3) LOT AREA = 43,119 SF (COMBINED LOTS 4 & 5)
4) EXISTING USE: FORMERLY TWO 2-STORY RESIDENTIAL HOMES WITH DETACHED GARAGES.
   PROPOSED USE: 2,100 SF DONUT SHOP WITH DRIVE THRU.
5) ALL BUILDINGS AND SITE CONSTRUCTION SHALL COMPLY WITH THE RULES AND REGULATIONS OF THE AMERICANS WITH DISABILITIES ACT (ADA) AS REVISED IN 2010, OR LATEST REVISION.
6) THE LOCATIONS OF EXISTING SUBSURFACE UTILITIES SHOWN ON THIS PLAN WERE COMPILED FROM AVAILABLE RECORD DRAWINGS AND ARE NOT WARRANTED TO BE CORRECT. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING SUBSURFACE UTILITIES PRIOR TO PERFORMING ANY WORK.
7) WRITTEN DIMENSIONS ON THIS PLAN TAKE PRECEDENCE OVER SCALED DIMENSIONS. THE CONTRACTOR SHALL USE CAUTION WHEN SCALING REPRODUCED PLANS. IN THE EVENT OF A CONFLICT BETWEEN THIS PLAN SET AND ANY OTHER DRAWINGS AND/OR SPECIFICATIONS, THE ENGINEER SHALL BE NOTIFIED BY THE CONTRACTOR.
8) THE CONTRACTOR SHALL CALL AND COORDINATE WITH DIGSAFE 1-888-344-7233 PRIOR TO ANY EXCAVATION.
9) ALL CONSTRUCTION SHALL CONFORM TO THE APPLICABLE REGULATIONS AND STANDARDS OF THE CITY OF METHUEN AND THE COMMONWEALTH OF MASSACHUSETTS.
10) THE SITE IS NOT WITHIN THE 100 YEAR FLOOD BOUNDARY HAZARD ZONE. (SEE SHEET 3 OF 14, NOTE 6)
11) ALL CONSTRUCTION SHALL CONFORM TO THESE PLANS AND THE STANDARD CONSTRUCTION DRAWINGS AS SUPPLIED BY THE DEVELOPER.
12) THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND FOR CONDITIONS AT THE SITE. THESE PLANS, PREPARED BY GREENMAN-PEDERSEN, INC., DO NOT EXTEND TO OR INCLUDE SYSTEMS PERTAINING TO THE SAFETY OF THE CONSTRUCTION CONTRACTOR OR THEIR EMPLOYEES, AGENTS OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK. THE SEAL OF THE SURVEYOR AND/OR ENGINEER AS INCLUDED IN THE PLAN SET DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED INTO THESE PLANS. THE CONSTRUCTION CONTRACTOR SHALL PREPARE AND/OR OBTAIN THE APPROPRIATE SAFETY SYSTEMS WHICH MAY BE REQUIRED BY THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) AND/OR LOCAL REGULATIONS.
13) ALL SNOW SHALL BE STORED IN THE AREA(S) DEPICTED ON THIS PLAN AS SNOW STORAGE AREAS. IN THE EVENT THAT THE AREA(S) APPROVED FOR SNOW STORAGE BECOME FULL, THE OWNER SHALL REASONABLY REMOVE EXCESS SNOW FROM THE SITE, AND SHALL NOT ALLOW SNOW TO BE STORED WITHIN PARKING LOTS OR TRAVEL AISLES.
14) REFER TO DETAIL SHEETS FOR ALL SITE DEVELOPMENT DETAILS AND INFORMATION.
15) A SIGN PERMIT SHALL BE OBTAINED PRIOR TO INSTALLATION.
16) EXISTING IMPERVIOUS COVERAGE = 8,655 SF (20%)
    PROPOSED IMPERVIOUS COVERAGE = 21,433 SF (50%)

## DEMOLITION:

1) A DEMOLITION PERMIT MUST BE OBTAINED FROM THE CITY OF METHUEN PRIOR TO COMMENCEMENT OF WORK. ALL EXISTING UTILITY DISCONNECTIONS MUST BE COORDINATED WITH RESPECTIVE UTILITY COMPANIES.
2) ALL DEMOLITION ACTIVITIES ARE TO BE PERFORMED IN STRICT ADHERENCE TO ALL FEDERAL, STATE AND LOCAL REGULATIONS. CONTRACTOR TO INSTALL EROSION CONTROL DEVICES IN ACCORDANCE WITH EROSION AND SEDIMENT CONTROL PLAN PRIOR TO BEGINNING DEMOLITION ACTIVITIES.
3) PROCEED WITH DEMOLITION IN A SYSTEMATIC MANNER, FROM THE TOP OF THE STRUCTURE(S) TO THE GROUND.
4) DEMOLISH CONCRETE IN ALL SECTIONS.
5) BREAK UP CONCRETE SLABS-ON-GRADE, UNLESS OTHERWISE DIRECTED BY THE CONSTRUCTION MANAGER.
6) CONDUCT ALL DEMOLITION OPERATIONS IN A MANNER THAT WILL PREVENT INJURY, DAMAGE TO STRUCTURES, ADJACENT BUILDINGS AND ALL PERSONS.
7) REFRAIN FROM USING EXPLOSIVES WITHOUT PRIOR WRITTEN CONSENT OF THE DEVELOPER AND APPLICABLE GOVERNMENTAL AUTHORITIES.
8) CONDUCT DEMOLITION SERVICES IN SUCH A MANNER TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, WALKS AND OTHER ADJACENT FACILITIES. DO NOT CLOSE OR OBSTRUCT STREETS, WALKS OR OTHER OCCUPIED FACILITIES WITHOUT PRIOR WRITTEN PERMISSION OF THE DEVELOPER AND APPLICABLE GOVERNMENTAL AUTHORITIES. PROVIDE ALTERNATIVE ROUTES AROUND CLOSED OR OBSTRUCTED TRAFFIC WAYS IF REQUIRED BY APPLICABLE GOVERNMENTAL REGULATIONS.
9) USE WATERING, TEMPORARY ENCLOSURES AND OTHER SUITABLE METHODS, AS NECESSARY TO LIMIT THE AMOUNT OF DUST AND DIRT RISING AND SCATTERING IN THE AIR. CLEAN ADJACENT STRUCTURE AND IMPROVEMENTS OF ALL DUST AND DEBRIS CAUSED BY THE DEMOLITION OPERATIONS. RETURN ALL ADJACENT AREAS TO THE CONDITIONS EXISTING PRIOR TO THE START OF WORK.
10) ACCOMPLISH AND PERFORM THE DEMOLITION IN SUCH A MANNER AS TO PREVENT THE UNAUTHORIZED ENTRY OF PERSONS AT ANY TIME.
11) COMPLETELY FILL BELOW GRADE AREAS AND VOIDS RESULTING FROM THE DEMOLITION OF STRUCTURES AND FOUNDATIONS WITH SOIL MATERIALS CONSISTING OF STONE, GRAVEL AND SAND, FREE FROM DEBRIS, TRASH, FROZEN MATERIALS, ROOTS AND OTHER ORGANIC MATTER. STONES USED WILL NOT BE LARGER THAN 6 INCHES IN DIMENSION. MATERIAL FROM DEMOLITION MAY NOT BE USED AS FILL PRIOR TO PLACEMENT OF FILL MATERIALS, UNDERTAKE ALL NECESSARY ACTION IN ORDER TO INSURE THAT AREAS TO BE FILLED ARE FREE OF STANDING WATER, FROZEN MATERIAL, TRASH, DEBRIS. PLACE FILL MATERIALS LAYERS NOT EXCEEDING 6 INCHES IN LOOSE DEPTH AND COMPACT EACH LAYER AT PLACEMENT TO 95% OPTIMUM DENSITY, GRADE SURFACE TO MEET ADJACENT CONTOURS AND TO PROVIDE SURFACE DRAINAGE.
12) REMOVE FROM THE DESIGNATED SITE, AT THE EARLIEST POSSIBLE TIME, ALL DEBRIS RUBBISH, SALVAGEABLE ITEMS, HAZARDOUS AND COMBUSTIBLE SERVICES. REMOVED MATERIALS MAY NOT BE STORED, SOLD OR BURNED ON SITE. REMOVAL OF HAZARDOUS AND COMBUSTIBLE MATERIALS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE PROCEDURES AS AUTHORIZED BY THE FIRE DEPARTMENT OR OTHER APPROPRIATE REGULATORY AGENCIES AND DEPARTMENTS.
13) DISCONNECT, SHUT OFF AND SEAL ALL UTILITIES SERVING THE STRUCTURE(S) TO BE DEMOLISHED BEFORE THE COMMENCEMENT OF THE DESIGNATED DEMOLITION. MARK FOR POSITION ALL UTILITY DRAINAGE AND SANITARY LINES AND PROTECT ALL ACTIVE LINES. CLEARLY IDENTIFY BEFORE THE COMMENCEMENT OF DEMOLITION SERVICES THE REQUIRED INTERRUPTION OF ACTIVE SYSTEMS THAT MAY AFFECT OTHER PARTIES, AND NOTIFY ALL APPLICABLE UTILITY COMPANIES TO INSURE THE CONTINUATION OF SERVICE.
14) PROTECT EXISTING DRAINAGE SYSTEM(S) AS NECESSARY TO PREVENT SEDIMENT FROM ENTERING DURING CONSTRUCTION. SEE DETAIL SHEETS FOR EROSION CONTROL DEVICES.
15) ALL WORK WITHIN ROADWAY RIGHT-OF-WAYS TO CONFORM TO CITY STANDARDS.
16) THE LIMITS OF WORK SHALL BE CLEARLY MARKED IN THE FIELD PRIOR TO THE START OF CONSTRUCTION OR SITE CLEARING.
17) IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO NOTIFY DIG SAFE (DIAL 811) 72 HOURS PRIOR TO ANY EXCAVATION ON THIS SITE. CONTRACTOR SHALL ALSO NOTIFY LOCAL WATER DEPARTMENT TO MARK OUT THEIR UTILITIES.
18) NOTES ON THIS PLAN THAT READ "TBR" REPRESENT FEATURES TO BE REMOVED. ANY FEATURES NOT LABELED "TBR" OR "TO BE REMOVED" SHALL BE CONSIDERED EXISTING TO REMAIN.
19) SEE LANDSCAPE PLAN FOR LIMITS OF CLEARING AND GRUBBING. AFTER CLEARING, STRIP AND STOCKPILE TOP SOIL PER LANDSCAPE PLAN, IF APPLICABLE.

## GRADING & DRAINAGE:

1) ALL SITE DRAINAGE PIPE SHALL BE CORRUGATED HIGH-DENSITY POLYETHYLENE PIPE WITH STANDARD JOINTS, DUAL-WALL, SMOOTH INTERIOR, AS MANUFACTURED BY ADS, INC., OR APPROVED EQUAL, UNLESS OTHERWISE NOTED ON PLAN. THE UNDERGROUND DETENTION SYSTEM SHALL HAVE SOIL TIGHT (ST) JOINTS MEETING ASTM F477 SPECIFICATIONS.
2) ALL ROOF AND CANOPY DRAIN PIPE SHALL BE 6" PVC (SDR-35), EXCEPT WITHIN 10' OF A BUILDING FOUNDATION WHERE CAST IRON PIPE SHALL BE USED. MIN. SLOPE=2%.
3) ELEVATIONS ARE BASED ON NAVD88 DATUM.
4) ALL PROPOSED ELEVATIONS AS SHOWN ARE BOTTOM OF CURB ELEVATIONS, UNLESS OTHERWISE NOTED.
5) ANY UTILITY FIELD ADJUSTMENTS SHALL BE APPROVED BY THE ENGINEER OF RECORD AND COORDINATED WITH THE APPROPRIATE LOCAL UTILITY COMPANY.
6) THE LOCATIONS OF UNDERGROUND UTILITIES ARE APPROXIMATE ONLY. THE CONTRACTOR IS TO VERIFY EXACT LOCATION PRIOR TO CONSTRUCTION. THE CONTRACTOR IS TO NOTIFY THE DESIGN ENGINEER OF ANY DISCREPANCIES. CONSTRUCTION SHALL COMMENCE BEGINNING AT THE LOWEST INVERT (POINT OF CONNECTION) AND PROGRESS UP GRADIENT. PROPOSED INTERFACE POINTS (CROSSINGS) WITH EXISTING UNDERGROUND INSTALLATIONS SHALL BE FIELD VERIFIED BY TEST PIT PRIOR TO COMMENCEMENT OF CONSTRUCTION.
7) ALL CONSTRUCTION SHALL CONFORM TO MUNICIPAL DPW AND ALL APPLICABLE STATE AND FEDERAL STANDARDS.
8) THE CONTRACTOR SHALL CALL AND COORDINATE WITH DIG-SAFE 811 PRIOR TO COMMENCING ANY EXCAVATION.
9) THIS SITE WILL NOTE REQUIRE A USEPA NPDES PERMIT FOR STORMWATER DISCHARGE FOR THE SITE CONSTRUCTION SINCE THE DISTURBANCE DOES NOT EXCEED ONE ACRE (ACTUAL DISTURBANCE = 36,500 SF±).
10) ANY UTILITIES TO BE TAKEN OUT OF SERVICE SHALL BE DISCONNECTED AS DIRECTED BY UTILITY COMPANY AND LOCAL DPW.
11) ALL TRAFFIC CONTROL AND TEMPORARY CONSTRUCTION SIGNAGE ARRANGEMENTS, ACCEPTABLE TO MASSDOT AND THE CITY DEPARTMENT OF PUBLIC WORKS, SHALL BE EMPLOYED DURING OPERATIONS WITHIN THE PUBLIC RIGHT-OF-WAY.
12) ALL ADA ACCESSIBLE WALKWAYS CANNOT EXCEED 5% RUNNING SLOPE AND 2% CROSS SLOPE, RAMPS CANNOT EXCEED 8.33% RUNNING SLOPE AND 2% CROSS SLOPE, AND ACCESSIBLE PARKING STALLS AND ACCESS AISLES CANNOT EXCEED 2% SLOPE IN ANY DIRECTION. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES.
13) SEE UTILITY PLAN FOR DETAILED UTILITY LAYOUT.
14) ALL PROPOSED CATCH BASINS SHALL HAVE 4' SUMPS AND OUTLETS EQUIPPED WITH "ELIMINATOR" OIL HOODS OR APPROVED EQUAL.
15) ALL PIPE DATA IS CALCULATED TO CENTER OF STRUCTURE, TYP.
16) CONTRACTOR TO REFER TO THE OPERATION & MAINTENANCE PLAN FOR STORMWATER MANAGEMENT SYSTEMS (O&M) FOR SITE MAINTENANCE DURING AND AFTER CONSTRUCTION.
17) CONTRACTOR TO INSTALL RISER STRUCTURES AT EACH CORNER OF UNDERGROUND DETENTION SYSTEMS AND CLEANOUTS AT EACH END OF EACH ROW TO PROVIDE ACCESS POINTS FOR CLEANING AND MAINTENANCE.
    - TOTAL RISERS PROPOSED = 4
    - TOTAL CLEANOUTS PROPOSED = 5

## UTILITIES:

1) ALL SANITARY SEWER PIPE SHALL BE PVC (SDR-35), UNLESS OTHERWISE NOTED.
2) ALL WATER PIPE SHALL BE COPPER (TYPE K), UNLESS OTHERWISE NOTED.
3) ANY UTILITY FIELD ADJUSTMENTS SHALL BE APPROVED BY THE ENGINEER OF RECORD AND COORDINATED WITH THE APPROPRIATE LOCAL UTILITY COMPANY.
4) THE LOCATIONS OF UNDERGROUND UTILITIES ARE APPROXIMATE ONLY. THE CONTRACTOR IS TO VERIFY EXACT LOCATION PRIOR TO CONSTRUCTION. THE CONTRACTOR IS TO NOTIFY THE DESIGN ENGINEER OF ANY DISCREPANCIES.
5) ALL CONSTRUCTION SHALL CONFORM TO MUNICIPAL DPW AND ALL APPLICABLE STATE AND FEDERAL STANDARDS.
6) THE CONTRACTOR SHALL CALL AND COORDINATE WITH DIGSAFE 811 PRIOR TO ANY EXCAVATION.
7) ALL WATER AND SEWER CONSTRUCTION SHALL CONFORM TO DEPARTMENT OF PUBLIC WORKS SPECIFICATIONS.
8) THIS SITE IS SERVED BY MUNICIPAL SEWER AND WATER.
9) ALL ELECTRIC, TELEPHONE AND CABLE TV LINES ARE TO BE UNDERGROUND AND INSTALLED IN CONFORMANCE WITH APPLICABLE UTILITY CO. SPECIFICATIONS.
10) ANY UTILITIES TO BE TAKEN OUT OF SERVICE SHALL BE DISCONNECTED AS DIRECTED BY UTILITY COMPANY AND LOCAL DPW.
11) ALL TRAFFIC CONTROL AND TEMPORARY CONSTRUCTION SIGNAGE ARRANGEMENTS, ACCEPTABLE TO MASSDOT AND CITY DEPARTMENT OF PUBLIC WORKS, SHALL BE EMPLOYED DURING OPERATIONS WITHIN THE PUBLIC RIGHT-OF-WAY.
12) REFER TO DETAIL SHEETS FOR ALL UTILITY DETAILS AND ADDITIONAL INFORMATION.

## TEMPORARY EROSION CONTROL MEASURES:

1) SEDIMENT TRAPS SHALL BE INSTALLED AS REQUIRED. BARRIERS AND TRAPS ARE TO BE MAINTAINED AND CLEANED UNTIL ALL SLOPES HAVE A HEALTHY STAND OF GRASS.
2) MULCH SHALL BE MOWINGS OF ACCEPTABLE HERBACEOUS GROWTH, FREE FROM NOXIOUS WEEDS OR WOODY STEMS, AND SHALL BE DRY. NO SALT HAY SHALL BE USED.
3) FILL MATERIAL SHALL BE FREE FROM STUMPS, WOOD, ROOTS, ETC.
4) STOCKPILED MATERIALS SHALL BE PLACED ONLY IN AREAS SHOWN ON THE PLANS. STOCKPILES SHALL BE PROTECTED BY SEDIMENT CONTROLATION FENCE AND SEEDED TO PREVENT EROSION. THESE MEASURES SHALL REMAIN UNTIL ALL MATERIAL HAS BEEN PLACED OR DISPOSED OFF SITE.
5) ALL DISTURBED AREAS SHALL BE LOAMED AND SEEDED. A MINIMUM OF 6 INCHES OF LOAM SHALL BE INSTALLED WITH NOT LESS THAN ONE POUND OF SEED PER 50 SQUARE YARDS OF AREA.
6) SEED MIX SHALL BE EQUAL PARTS OF RED FESCUE (CREEPING), KENTUCKY BLUEGRASS, REDTOP, PERENNIAL RYEGRASS.
7) AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED THE TEMPORARY EROSION CONTROL MEASURES ARE TO BE REMOVED.
8) PAVED ROADWAYS AND PARKING LOTS MUST BE KEPT CLEAN AT ALL TIMES. PROVIDE SWEEPING ON A DAILY BASIS OR AS DIRECTED BY THE TOWN.
9) ALL CATCH BASIN INLETS WILL BE PROTECTED WITH INLET PROTECTION - SEE DETAIL.
10) ALL DEWATERING OPERATIONS MUST DISCHARGE DIRECTLY INTO A SEDIMENT FILTER AREA.

## CONSTRUCTION SEQUENCE:

1) INSTALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES AS REQUIRED.
2) CUT AND STUMP AREAS OF PROPOSED CONSTRUCTION.
3) REMOVE AND STOCKPILE TOPSOIL. STOCKPILE SHALL BE SEEDED TO PREVENT EROSION.
4) CONSTRUCT CLOSED DRAINAGE SYSTEM. PROTECT CULVERT INLETS AND CATCH BASINS WITH SEDIMENTATION BARRIERS.
5) PERFORM SITE GRADING, PLACING SEDIMENT CONTROLATION FENCES AS REQUIRED TO CONTROL SOIL EROSION.
6) INSTALL UNDERGROUND UTILITIES.
7) BEGIN TEMPORARY AND PERMANENT SEEDING AND MULCHING. ALL CUT AND FILL SLOPES SHALL BE SEEDED OR MULCHED IMMEDIATELY AFTER THEIR CONSTRUCTION.
8) DAILY, OR AS REQUIRED, CONSTRUCT, INSPECT, AND IF NECESSARY, RECONSTRUCT TEMPORARY BERMS, DRAINS, DITCHES, SEDIMENT CONTROL FENCES AND SEDIMENT TRAPS INCLUDING MULCHING AND SEEDING. REFER TO OPERATION AND MAINTENANCE PLAN FOR ADDITIONAL REQUIREMENTS AND INFORMATION. COPIES OF ALL INSPECTION REPORTS ARE TO BE PROVIDED TO THE CONSERVATION COMMISSION DURING CONSTRUCTION AND AVAILABLE UPON REQUEST AFTER CONSTRUCTION IS COMPLETED.
9) BEGIN EXCAVATION FOR AND CONSTRUCTION OF BUILDINGS.
10) FINISH PAVING ALL DRIVES AND PARKING AREAS.
11) COMPLETE PERMANENT SEEDING AND LANDSCAPING.
12) AFTER GRASS HAS BEEN FULLY GERMINATED IN ALL SEEDED AREAS, REMOVE ALL TEMPORARY EROSION CONTROL MEASURES.

## OPERATIONS/MAINTENANCE PLAN FOR STORMWATER SYSTEM:

### CONSTRUCTION PHASE:

THE BMP'S ASSOCIATED WITH THIS PROJECT WILL BE OWNED BY CAFUA MANAGEMENT COMPANY, LLC WHO WILL BE RESPONSIBLE FOR INSPECTION, OPERATION AND MAINTENANCE.

1) THE CONTRACTOR IS TO INSTALL AND MAINTAIN DRAINAGE FACILITIES AS SHOWN ON THE SITE PLANS BY GREENMAN-PEDERSEN, INC.
2) PRIOR TO CONSTRUCTION, ALL EROSION/SEDIMENT CONTROL CONTROL DEVICES SHOWN ON ABOVE PLAN ARE TO BE INSTALLED. TO PREVENT SEDIMENT CONTROL INTRUSION INTO SURROUNDING AREAS DURING CONSTRUCTION, THE CONTRACTOR IS TO SET SEDIMENT CONTROL FENCING AT ALL SLOPES WHICH MAY ERODE IN THE DIRECTION OF ANY OPEN DRAINAGE FACILITIES OR ABUTTING PROPERTY. SUCH PREVENTIVE MEASURES ARE TO BE MAINTAINED THROUGHOUT THE CONSTRUCTION PROCESS.
3) ALL CONSTRUCTION OF DRAINAGE FACILITIES IS TO BE INSPECTED BY INSPECTORS FROM THE CITY OF METHUEN AND BY AN AUTHORIZED AGENT TO VERIFY CONFORMANCE TO THE DESIGN PLAN.
4) THE SEQUENCE OF DRAINAGE CONSTRUCTION SHALL BE AS FOLLOWS:
   A) CLEAR, GRUB, EXCAVATE AREAS FOR DETENTION SYSTEMS.
   B) INSTALL CATCH BASINS, PIPES AND MANHOLES.
5) EROSION CONTROLS ARE TO BE INSPECTED AND MAINTAINED ON A DAILY BASIS. UPON DISCOVERY OF SEDIMENT CONTROLATION BUILD-UP IN ANY CATCH BASIN SUMP OR ANY OTHER STRUCTURE, CLEANING SHALL BE PERFORMED WITHIN 24 HOURS.
6) ALL EXPOSED SOILS SHALL BE IMMEDIATELY STABILIZED WITH A LAYER OF MULCH HAY.
7) UPON INSTALLATION OF CATCH BASINS, INLET PROTECTION - AS DESCRIBED ON AFOREMENTIONED PLAN - SHALL BE INSTALLED AND MAINTAINED UNTIL READY FOR PAVING.
8) PRIOR TO CONSTRUCTION OF IMPERVIOUS AREAS, ALL DRAINAGE STRUCTURES AND PIPES SHALL BE INSTALLED AND INSPECTED FOR PROPER FUNCTION. DURING CONSTRUCTION OF OTHER SITE FEATURES, ALL DRAINAGE FACILITIES SHALL BE INSPECTED ON A DAILY BASIS AND CLEANED/REPAIRED IMMEDIATELY UPON DISCOVERY OF SEDIMENT BUILD-UP OR DAMAGE.
9) AFTER PAVING IS INSTALLED, IT SHALL BE SWEPT CLEAN ON A MONTHLY BASIS.
10) INSPECTIONS ARE TO BE PERFORMED AND INSPECTION LOGS FILLED OUT ON A WEEKLY BASIS FROM THE START OF CONSTRUCTION THROUGH FINAL STABILIZATION. THE START OF CONSTRUCTION MEANS THE INITIAL DISTURBANCE OF SOILS ASSOCIATED WITH CONSTRUCTION. FINAL STABILIZATION MEANS 70% VEGETATIVE GROWTH FOR UNPAVED AREAS.

### POST CONSTRUCTION PHASE:

THE OWNER IS TO BE RESPONSIBLE FOR CONTINUED MAINTENANCE OF ALL ONSITE DRAINAGE STRUCTURES & SYSTEMS. THE FUTURE OWNER IS EXPECTED TO BE CAFUA MANAGEMENT COMPANY, LLC WHO WILL ULTIMATELY BE RESPONSIBLE FOR COMPLIANCE WITH THE O&M PLAN.

## LANDSCAPE PLAN:

1) ALL PLANT STOCK SHALL CONFORM TO ANSI Z260.1 - NURSERY STOCK, LATEST EDITION (AMERICAN ASSOCIATION OF NURSERYMEN, INC.).
2) A 4' DIA. TREE RING WITH 3" AGED PINE BARK MULCH TO BE INSTALLED AT BASE OF ALL TREES IN LAWN AREAS.
3) 3" AGED PINE BARK MULCH SHALL BE APPLIED TO ALL SHRUB AND GROUNDCOVER BEDS.
4) LANDSCAPE STONE SHALL BE TAN RIVERBED STONE. STONE SHALL BE (1½) INCHES IN DIAMETER AND APPLIED AT A THICKNESS OF (4) INCHES DEEP. ALL FINES SHALL BE SCREENED FROM THE AGGREGATE. THE MATERIAL SHALL BE FREE OF ORGANIC AND INORGANIC DEBRIS AND TRASH. SUBMIT SAMPLE IN A 5-GALLON BUCKET TO THE DEVELOPER FOR APPROVAL.
5) A WEED BARRIER (TY-PAR FABRIC OR APPROVED EQUAL) SHALL BE APPLIED TO ALL SHRUB AND GROUNDCOVER BEDS. INSTALL WEED BARRIER AS PER MANUFACTURERS RECOMMENDATIONS.
6) THE CONTRACTOR SHALL PROVIDE TESTING OF SOILS IN PLANTING LOCATIONS. THE CONTRACTOR SHALL PROVIDE TEST RESULTS AND RECOMMENDATIONS AS NECESSARY FOR SOIL AMENDMENT TO THE ENGINEER FOR THEIR APPROVAL. BACKFILL SHALL BE A BLEND OF ONE-PART LOAM BORROW, ONE PART ORGANIC MATERIAL AND TWO-PARTS EXISTING SUBSOIL.
7) ALL LANDSCAPED AREAS NOT PLANTED WITH TREES, SHRUBS OR GROUNDCOVER SHALL BE RESTORED WITH SEED AS INDICATED ON PLANS.
8) ALL SOD, SEED, SHRUB AND TREE AREAS SHALL RECEIVE 6" PH CORRECTED TOPSOIL. AFTER TOPSOIL IS SPREAD EVENLY OVER ENTIRE AREA, ALL CLODS, LUMPS, STONES AND OTHER DELETERIOUS MATERIAL SHALL BE RAKED UP AND REMOVED.
9) APPLICATION OF GRASS SEED, FERTILIZERS AND STRAW MULCH SHALL BE ACCOMPLISHED BY BROADCAST SEEDING OR HYDROSEEDING AT THE RATES OUTLINED BELOW:

LIMESTONE: 100 LBS./1,000 SQUARE FEET.
FERTILIZER: 500 LBS/ACRE OF 10-20-20 OR 1000 LBS/ACRE OF 5-10-10.
STRAW MULCH: APPROXIMATELY 3 TONS/ACRE
NEW ENGLAND NATIVE WARM SEASON GRASS MIX: 23 LBS/ACRE

| SEED MIX (SLOPES LESS THAN 4:1) | LBS/ACRE |
|---|---|
| CREEPING RED FESCUE | 20 |
| TALL FESCUE | 15 |
| PERENNIAL RYEGRASS | 5 |
| REDTOP | 2 |
| | 42 |

| SLOPE MIX (SLOPES GREATER THAN 4:1) | LBS/ACRE |
|---|---|
| CREEPING RED FESCUE | 20 |
| TALL FESCUE | 20 |
| BIRDSFOOT TREEFOIL | 8 |
| | 48 |

10) SEE ABOVE FOR TEMPORARY EROSION CONTROL NOTES.
11) NEWLY GRADED AREAS REQUIRING SLOPE PROTECTION OUTSIDE OF NORMAL SEEDING SEASON SHALL RECEIVE STRAW MULCH AT THE APPROXIMATE RATE OF NO MORE THAN 3 TONS PER ACRE.
12) ANY CHANGES IN PLANT LOCATIONS OR TYPES SHALL BE APPROVED BY THE DEVELOPER, LANDOWNER AND CITY PRIOR TO INSTALLATION.
13) CLEAR AND GRUB (TO LIMITS REQUIRED ON GRADING PLAN) TO REMOVE VEGETATION, TREES, ROCKS, DEBRIS, ROOTS, ETC. STUMPS SHALL BE REMOVED AND DISPOSED OF OFF SITE IN ACCORDANCE WITH STATE REGULATIONS. AFTER CLEARING, STRIP AND STOCKPILE ALL ON-SITE TOPSOIL FOR REUSE TO THE MAXIMUM EXTENT POSSIBLE.
14) FOR SEED AREAS USE EXISTING TOPSOIL, IF AVAILABLE, FOR A 4" DEPTH AND TOP DRESS WITH 2" OF SCREENED TOPSOIL, UNLESS OTHERWISE NOTED ON PLAN. ALL LOAM OR TOPSOIL IMPORTED OR RE-UTILIZED FROM ON SITE SHALL BE TESTED AND AMENDED AS DIRECTED BY DEVELOPER TO MEET MINIMUM REQUIREMENTS.
15) PLANTINGS SHALL BE GUARANTEED BY THE CONTRACTOR FOR ONE YEAR AFTER WRITTEN ACCEPTANCE BY THE DEVELOPER.
16) THE CONTRACTOR SHALL DIG ROOT BALLS FOR TRANSPLANTED ITEMS TO THE DIMENSIONS OUTLINED IN THE NURSERY STOCK SPECIFICATIONS MANUAL (SEE NOTE #1).
17) THE CONTRACTOR SHALL TAKE EXTREME CAUTION TO MINIMIZE DAMAGE TO ROOT SYSTEMS DURING DIGGING AND TRANSPLANTING. ROOT BALLS OF TRANSPLANTS SHALL BE WRAPPED IN BURLAP (WHICH SHALL BE REMOVED UPON RE-PLANTING) AND KEPT MOIST.
18) EXPOSED SOILS SHALL BE SEEDED OR STRAW MULCHED WITHIN 72 HOURS OF FINAL GRADING.
19) ALL WORK SHALL BE COORDINATED WITH APPLICABLE EPA NPDES/SWPPP PERMIT WORK AS REQUIRED.
20) THE CONTRACTOR SHALL INSTALL AN IRRIGATION SYSTEM TO PROVIDE COMPLETE COVERAGE OF ALL SEED AREAS AND SHRUB BEDS WITHIN THE LEASE AREA. THE SYSTEM SHALL INCLUDE A TIMER AND SHALL BE INSTALLED IN ACCORDANCE WITH LOCAL CODES.


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PREPARED FOR
CAFUA MANAGEMENT COMPANY, LLC
280 MERRIMACK STREET
METHUEN, MA 01844

**ASSESSORS MAP 610 BLOCK 58 LOTS 4 & 5**
**477 & 479 BROADWAY**
**METHUEN, MASSACHUSETTS**

COMMONWEALTH OF MASSACHUSETTS
CHRISTOPHER M TYMULA
CIVIL
No. 57140
REGISTERED
PROFESSIONAL ENGINEER
3/4/24

| REVISIONS | | |
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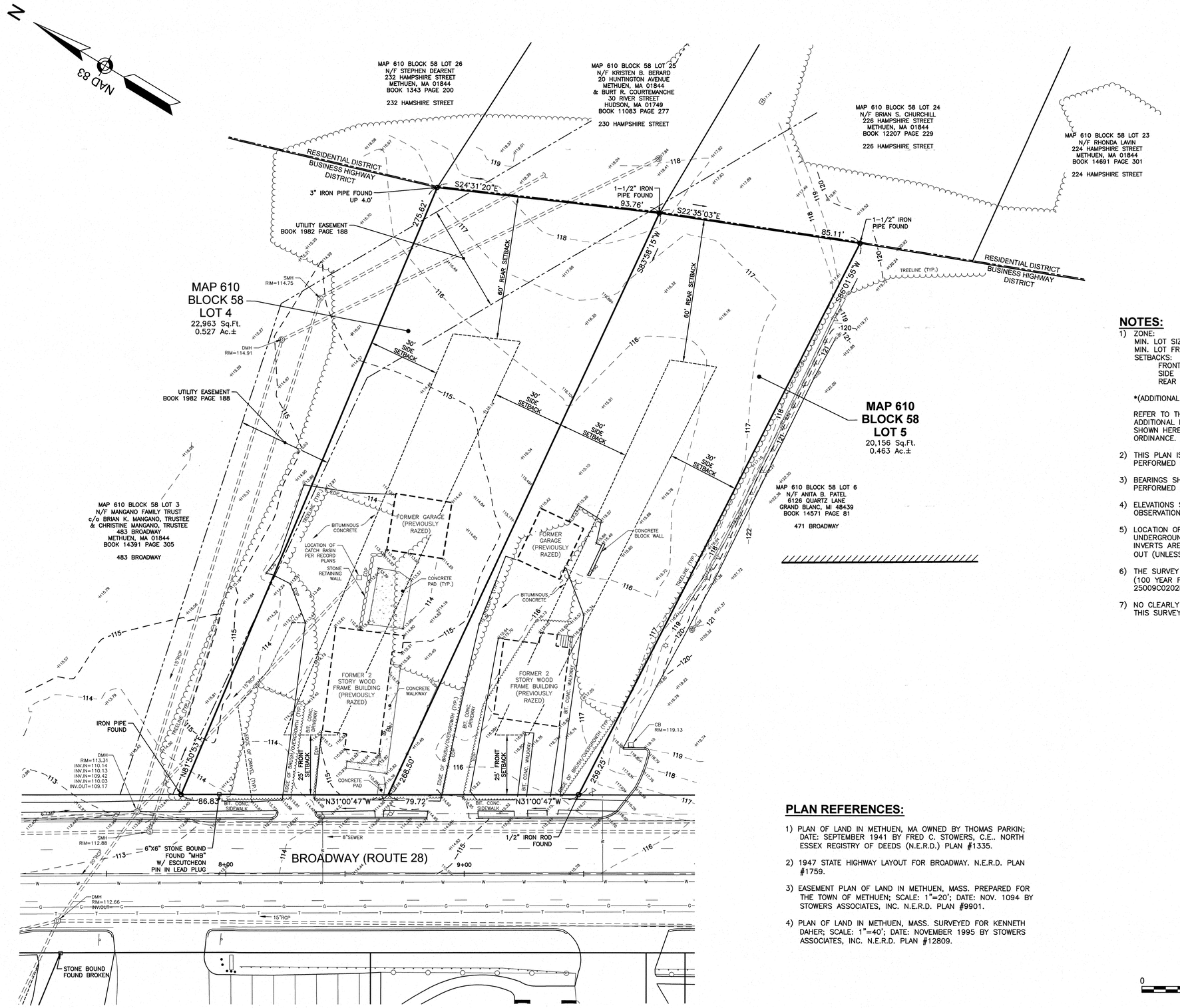
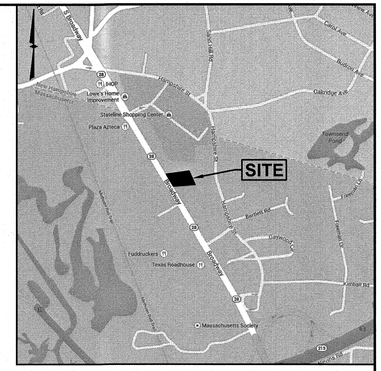
# GENERAL NOTES

SCALE: AS NOTED
PROJECT NO. NEX-2021347




**LOCATION MAP**
(NOT TO SCALE)

## NOTES:

1) ZONE: BUSINESS HIGHWAY DISTRICT (BH)
   MIN. LOT SIZE: 10,000 Sq.Ft.
   MIN. LOT FRONTAGE: 100 Ft.
   SETBACKS:
   FRONT 25 Ft.
   SIDE 30 Ft.
   REAR 60 Ft.*

   *(ADDITIONAL 30 Ft. BUFFER ADDED WHEN ADJACENT TO RESIDENTIAL ZONE)

   REFER TO THE CITY OF METHUEN ZONING ORDINANCE FOR VERIFICATION, ADDITIONAL RESTRICTIONS AND PERMITTED USES. THE ZONING INFORMATION SHOWN HEREON IS BASED ON A REVIEW OF THE METHUEN ZONING ORDINANCE.

2) THIS PLAN IS THE RESULT OF AN ON-THE-GROUND FIELD SURVEY PERFORMED BY THIS OFFICE BETWEEN MAY 2001 AND FEBRUARY 24, 2022.

3) BEARINGS SHOWN HEREON ARE BASED ON NAD83 PER GPS OBSERVATIONS PERFORMED BY THIS OFFICE ON FEBRUARY 24, 2022.

4) ELEVATIONS SHOWN HEREON ARE BASED ON NAVD88 PER GPS OBSERVATIONS PERFORMED BY THIS OFFICE ON FEBRUARY 24, 2022.

5) LOCATION OF UNDERGROUND UTILITIES IS APPROXIMATE ONLY. ADDITIONAL UNDERGROUND UTILITIES OTHER THAN THOSE SHOWN MAY BE ENCOUNTERED. INVERTS ARE LISTED IN A CLOCKWISE DIRECTION ENDING WITH THE INVERT OUT (UNLESS OTHERWISE NOTED).

6) THE SURVEY TRACT IS NOT LOCATED IN A SPECIAL FLOOD HAZARD AREA (100 YEAR FLOOD) PER FLOOD INSURANCE RATE MAP NUMBER 25009C0202F, WITH AN EFFECTIVE DATE OF JULY 3, 2012.

7) NO CLEARLY IDENTIFIABLE PARKING SPACES WERE OBSERVED IN CONDUCTING THIS SURVEY.

## PLAN REFERENCES:

1) PLAN OF LAND IN METHUEN, MA OWNED BY THOMAS PARKIN; DATE: SEPTEMBER 1941 BY FRED C. STOWERS, C.E.. NORTH ESSEX REGISTRY OF DEEDS (N.E.R.D.) PLAN #1335.

2) 1947 STATE HIGHWAY LAYOUT FOR BROADWAY. N.E.R.D. PLAN #1759.

3) EASEMENT PLAN OF LAND IN METHUEN, MASS. PREPARED FOR THE TOWN OF METHUEN; SCALE: 1"=20'; DATE: NOV. 1094 BY STOWERS ASSOCIATES, INC. N.E.R.D. PLAN #9901.

4) PLAN OF LAND IN METHUEN, MASS. SURVEYED FOR KENNETH DAHER; SCALE: 1"=40'; DATE: NOVEMBER 1995 BY STOWERS ASSOCIATES, INC. N.E.R.D. PLAN #12809.

## OWNER OF RECORD:

MAP 610 BLOCK 58 LOT 4
CAFUA REALTY TRUST XXV LLC
280 MERRIMACK STREET
METHUEN, MA 01844
BOOK 13846 PAGE 311

MAP 610 BLOCK 58 LOT 5
CAFUA REALTY TRUST XXV LLC
280 MERRIMACK STREET
METHUEN, MA 01844
BOOK 13846 PAGE 296

0 20 50 100
SCALE: 1" = 20'

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# 477 & 479 BROADWAY
# METHUEN, MASSACHUSETTS

COMMONWEALTH OF MASSACHUSETTS
DAVID R. JORDAN
NO. 38710
REGISTERED PROFESSIONAL LAND SURVEYOR
3/6/24

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## EXISTING CONDITIONS PLAN

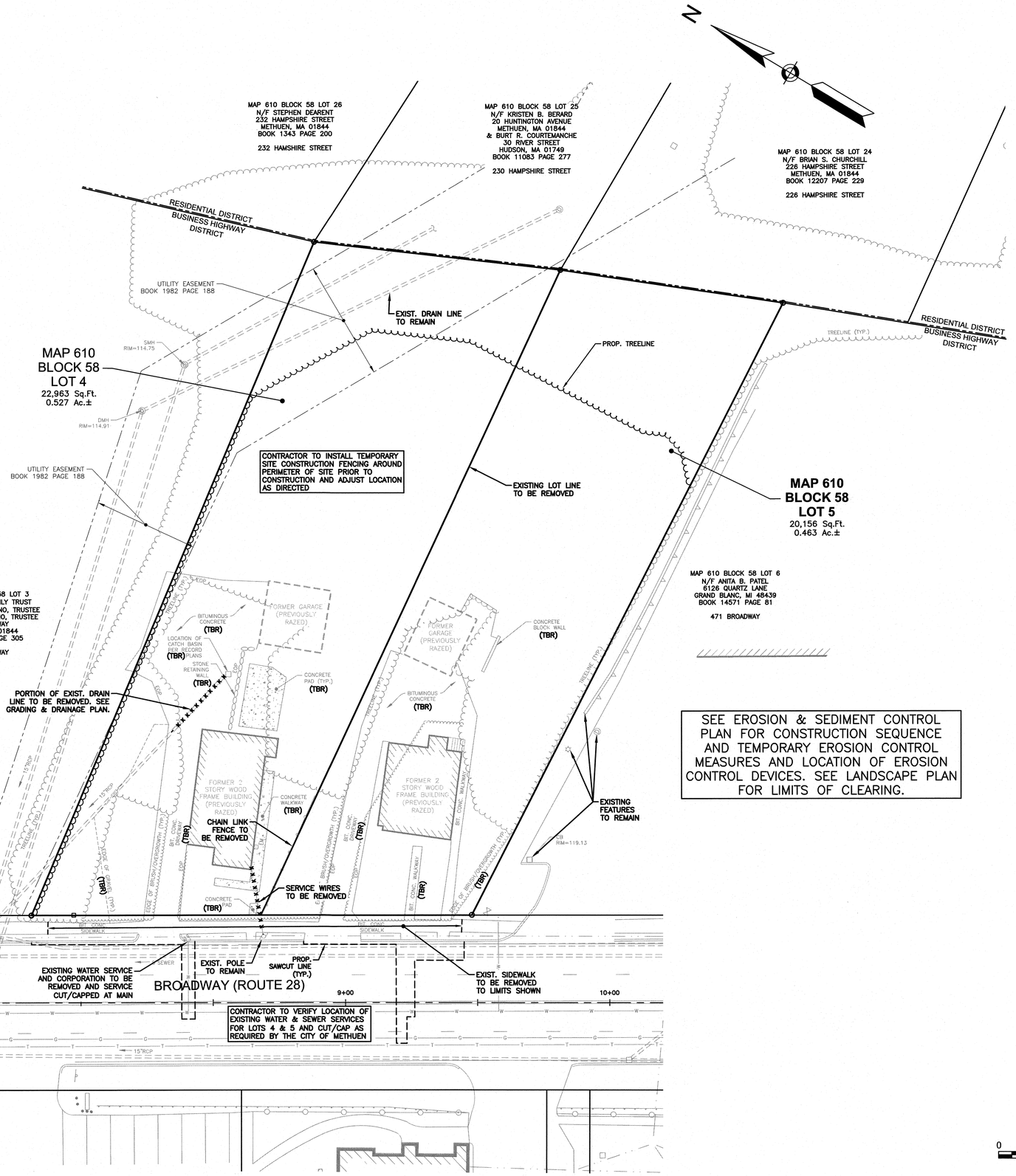
SCALE: 1"=20'

PROJECT NO. NEX-2021347

3 OF 14

## NOTES:

1) SEE SHEET 2 FOR NOTES AND LEGEND INFORMATION.

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COMMONWEALTH OF MASSACHUSETTS
CHRISTOPHER M. TYMULA
CIVIL
No. 57140
REGISTERED PROFESSIONAL ENGINEER
3/6/24

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## DEMOLITION PLAN

SCALE: 1"=20'

PROJECT NO. NEX-2021347

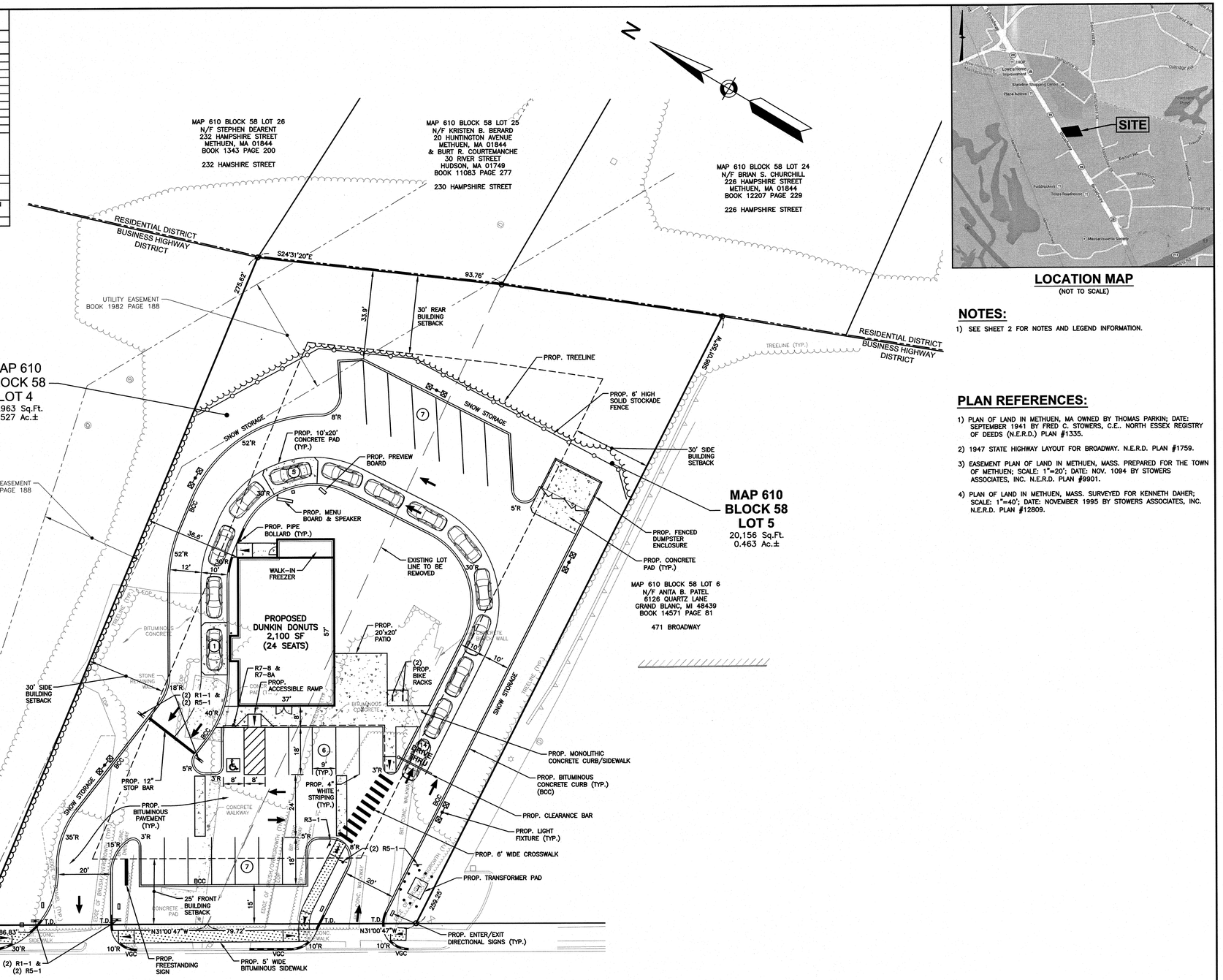
## TABLE OF ZONING REGULATIONS

ZONE: HIGHWAY BUSINESS (BH)

| DESCRIPTION | REQUIRED | PROVIDED |
|---|---|---|
| MINIMUM LOT AREA Sq. Ft. | 10,000 SF | 43,119 SF |
| MINIMUM LOT FRONTAGE | 100' | 165' |
| MINIMUM FRONT YARD BUILDING SETBACK | 25' | 83' |
| MINIMUM REAR YARD BUILDING SETBACK | 60' (ABUTTING RESIDENTIAL ZONE) | 103.3' |
| MINIMUM SIDE YARD BUILDING SETBACK | 30' | 36.6' |
| MINIMUM FRONT YARD PARKING SETBACK | 15' | 15' |
| MINIMUM REAR YARD PARKING SETBACK | 7.5' | N/A |
| MINIMUM SIDE YARD PARKING SETBACK | 7.5' (ALSO 7.5' FROM BUILDINGS) | 38.9' |
| MINIMUM BUFFER FROM RESIDENTIAL | 30' | 33.9' |
| PARKING SPACE DIMENSIONS | 9' X 18' | 9' X 18' |
| MINIMUM NUMBER PARKING SPACES | DONUT SHOP (2,100 SF, 24 SEATS)<br>1 SP/4 SEATS x 24 SEATS = 6 SPACES<br>1 SP/2 EMP. x 6 EMP. = 3 SPACES<br>TOTAL REQUIRED = 9 SPACES | 20 SPACES |
| MAXIMUM BUILDING HEIGHT | 40' (3 STORIES) | < 40' |
| MAXIMUM BUILDING COVERAGE | 35% | 2,100 SF/43,119 SF = 4.9% |
| MAXIMUM FREESTANDING SIGN AREA, HEIGHT AND SETBACK | 60 SF, 20' HEIGHT (ONE SIGN PER BUILDING) | REFER TO PROPOSED PYLON SIGN |
| MAXIMUM WALL SIGN AREA | 33% OF WALL | REFER TO EXTERIOR ELEVATIONS |

## SIGN KEY

| SIGN I.D. NUMBER | TEXT/COLOR | SIZE/REMARKS |
|---|---|---|
| R1-1 | STOP R/W | 30" x 30" NEW SIGN WITH POST |
| R7-8 | RESERVED PARKING G/B/W | 12" x 18" NEW SIGN WITH POST |
| R7-8A | VAN ACCESSIBLE G/W | 6" X 12" |
| R5-1 | DO NOT ENTER R/W | 30" x 30" NEW SIGN WITH POST |
| R3-1 | B/W/R | 24" X 24" NEW SIGN WITH POST |







## LOCATION MAP

(NOT TO SCALE)

## NOTES:

1) SEE SHEET 2 FOR NOTES AND LEGEND INFORMATION.

## PLAN REFERENCES:

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METHUEN, MA 01844
BOOK 13846 PAGE 311

MAP 610 BLOCK 58 LOT 5
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0 20 50 100

SCALE: 1" = 20'

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COMMONWEALTH OF MASSACHUSETTS
CHRISTOPHER M. TYMULA
CIVIL
No. 57140
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3/6/24

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SITE PLAN

SCALE: 1"=20'

PROJECT NO. NEX-2021347

5 OF 14

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## DRAINAGE PIPE SCHEDULE

| FROM: STRUCTURE NUMBER | PIPE SIZE (INCHES) | TYPE OF PIPE | APPROX. PIPE LENGTH (FEET) | SLOPE OF PIPE (FT./FT.) | TO: STRUCTURE NUMBER |
|---|---|---|---|---|---|
| CB-1 | 12 | HDPE | 94 | 0.007 | DMH-1 |
| CB-2(FD) | 12 | HDPE | 34 | 0.006 | DET IN2 |
| CB-3(FD) | 12 | HDPE | 38 | 0.005 | DET IN1 |
| CB-4 | 12 | HDPE | 12 | 0.034 | DMH-1 |
| DET OUT | 24 | HDPE | 24 | 0.000 | INF IN |
| DMH-1 | 12 | HDPE | 15 | 0.017 | DMH-2 |
| OCS-1 | 12 | HDPE | 21 | 0.048 | DMH-3 |

## DRAINAGE STRUCTURES

CB-1
RIM=116.10
INV.OUT=113.10

*CB-2(FD)
RIM=115.15
INV.OUT=112.20

*CB-3(FD)
RIM=115.00
INV.OUT=112.20

CB-4
RIM=116.00
INV.OUT=113.00

DMH-1
RIM=116.45
INV.IN=112.45(CB-1)
INV.IN=112.60(CB-4)
INV.OUT=112.35

DMH-2
RIM=116.75
INV.IN=112.10(DMH-1)
INV.IN=113.75(RD)
INV.OUT=112.10(12"LOW)
INV.OUT=113.04(12"MANIFOLD)

* DENOTES LOW PROFILE FRAME & GRATE

(FD) DENOTES FIRST DEFENSE FD-4HC HYDRODYNAMIC SEPARATOR BY HYDRO INTERNATIONAL OR APPROVED EQUAL

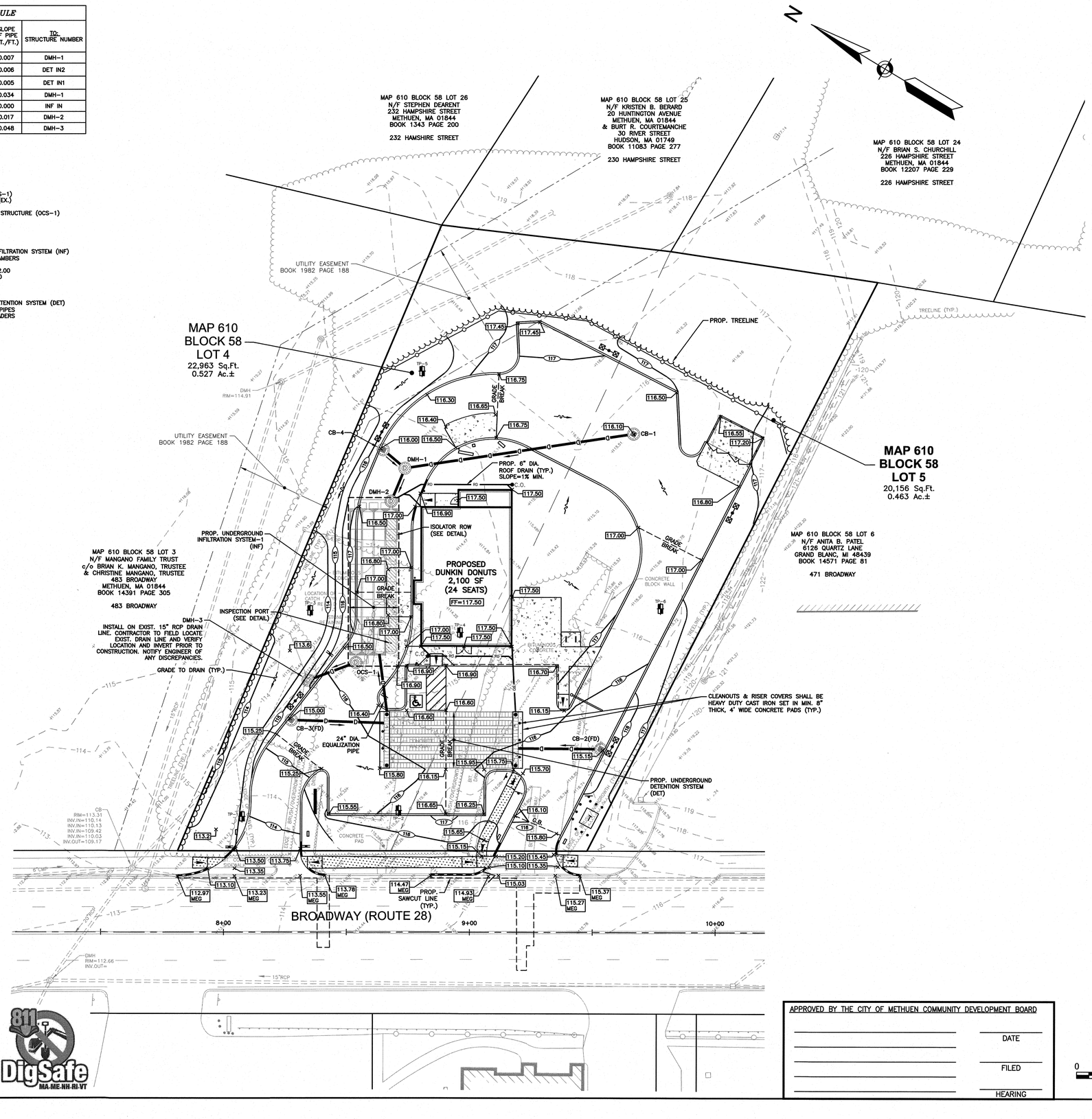
(ST) DENOTES SOILTIGHT PIPE JOINTS

DMH-3
RIM=115.60
INV.IN=112.10(OCS-1)
INV.OUT=110.65±(EX.)

OUTLET CONTROL STRUCTURE (OCS-1)
RIM=116.50
INV.IN=113.04
INV.OUT=113.10
(SEE DETAIL)

UNDERGROUND INFILTRATION SYSTEM (INF)
(32) SC-740 CHAMBERS
INV.IN=112.08
BOT.CHAMBER=112.00
BOT.STONE=111.50
MIN.FG=116.33
(SEE DETAIL)

UNDERGROUND DETENTION SYSTEM (DET)
24"ø SOLID (ST) PIPES
7 ROWS x 2 HEADERS
23.0'W x 54.7'L
S=0.000 FT/FT
INV.PIPE=112.00
INV'S.IN=112.00
INV.OUT=112.00
MIN.FG=115.66
(SEE DETAIL)




## NOTES:

1) SEE SHEET 2 FOR NOTES AND LEGEND INFORMATION.

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# ASSESSORS MAP 610 BLOCK 58 LOTS 4 & 5
# 477 & 479 BROADWAY
# METHUEN, MASSACHUSETTS

COMMONWEALTH OF MASSACHUSETTS
CHRISTOPHER M. TYMULA
CIVIL
No. 57140
REGISTERED PROFESSIONAL ENGINEER
3/6/24

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# GRADING & DRAINAGE PLAN

SCALE: 1"=20'

PROJECT NO. NEX-2021347

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## NOTES:

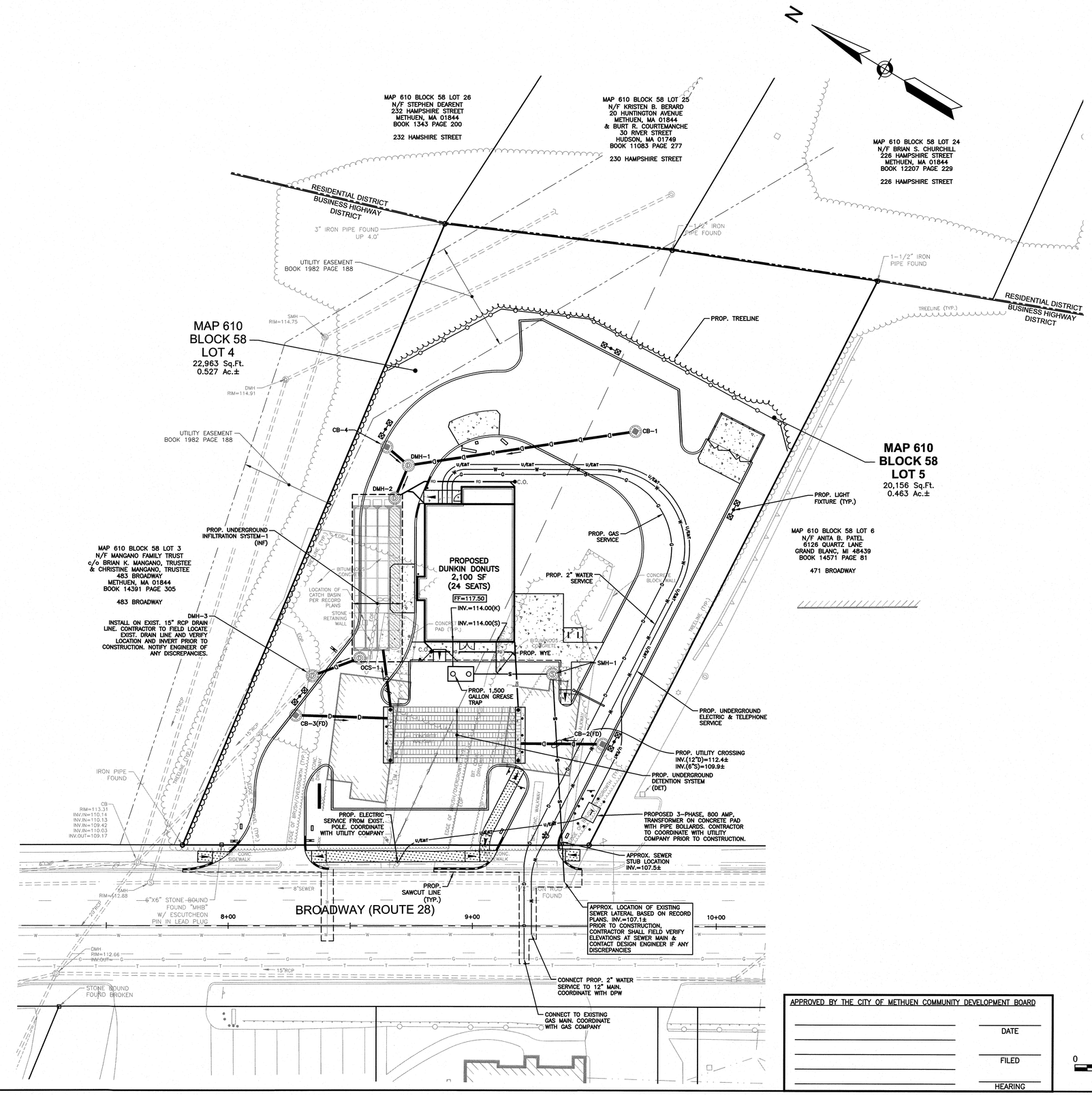
1) SEE SHEET 2 FOR NOTES AND LEGEND INFORMATION.

| SEWER PIPE SCHEDULE | | | | |
|---|---|---|---|---|
| FROM: STRUCTURE NUMBER | PIPE SIZE (inches) | TYPE OF PIPE | APPROX. PIPE LENGTH (feet) | SLOPE OF PIPE (ft./ft.) | TO: STRUCTURE NUMBER |
| BLDG. | 4 | PVC | 10 | 0.020 | GR. TRAP #1 |
| GR. TRAP #1 | 4 | PVC | 33 | 0.050 | SMH-1 |
| BLDG. | 6 | PVC | 13 | 0.073 | WYE |
| SMH-1 | 6 | PVC | 68 | 0.063 | STUB |

**SEWER STRUCTURES**

1,500 GAL. GREASE TRAP #1
RIM=116.80
INV.IN=113.80
INV.OUT=113.55

SMH-1
RIM=116.60
INV.IN=111.90
INV.OUT=111.80

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## UTILITY PLAN

SCALE: 1"=20'

PROJECT NO. NEX-2021347

7 OF 14

## NOTES:

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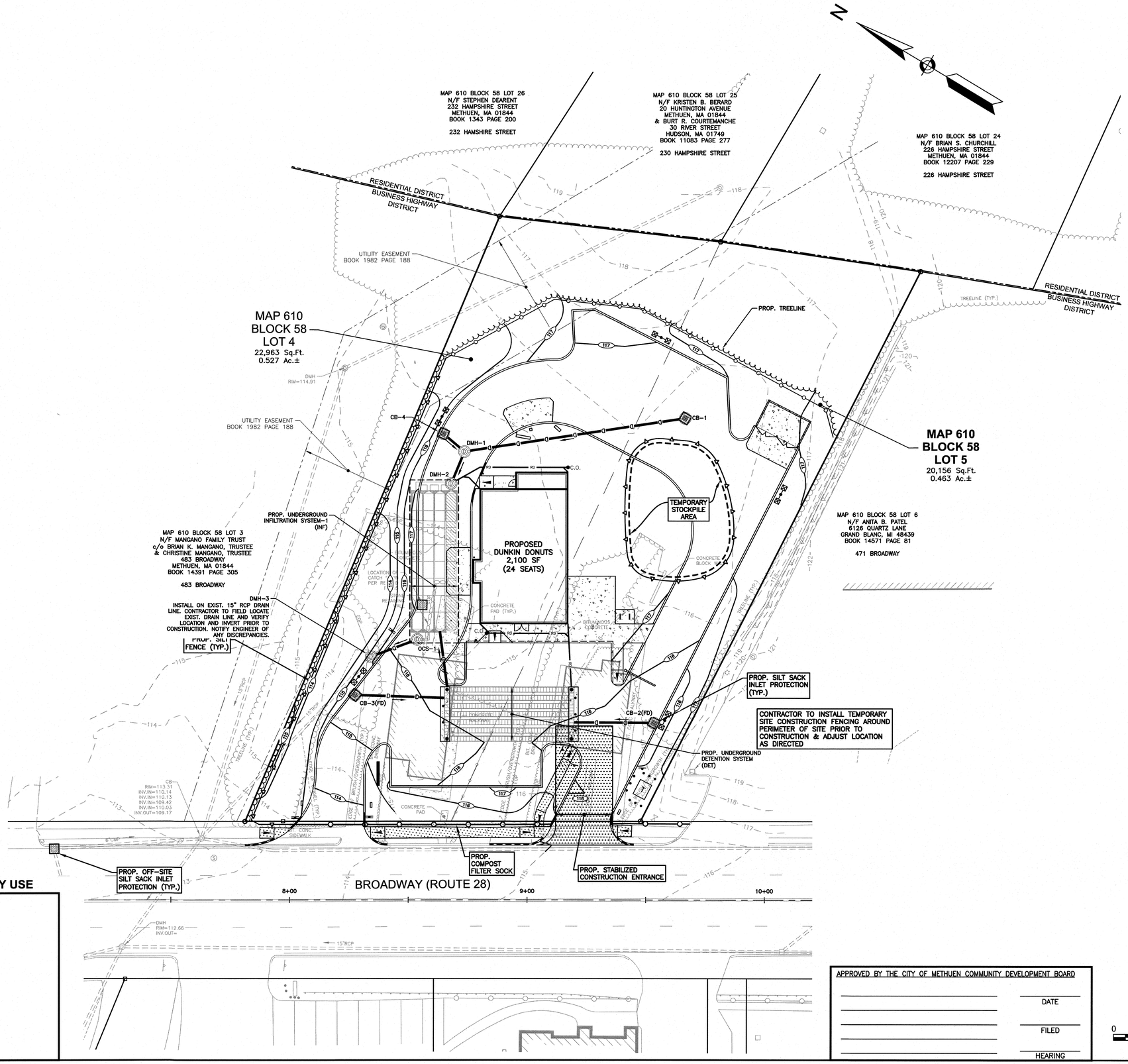


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## EROSION & SEDIMENT CONTOL PLAN

SCALE: 1"=20'

PROJECT NO. NEX-2021347

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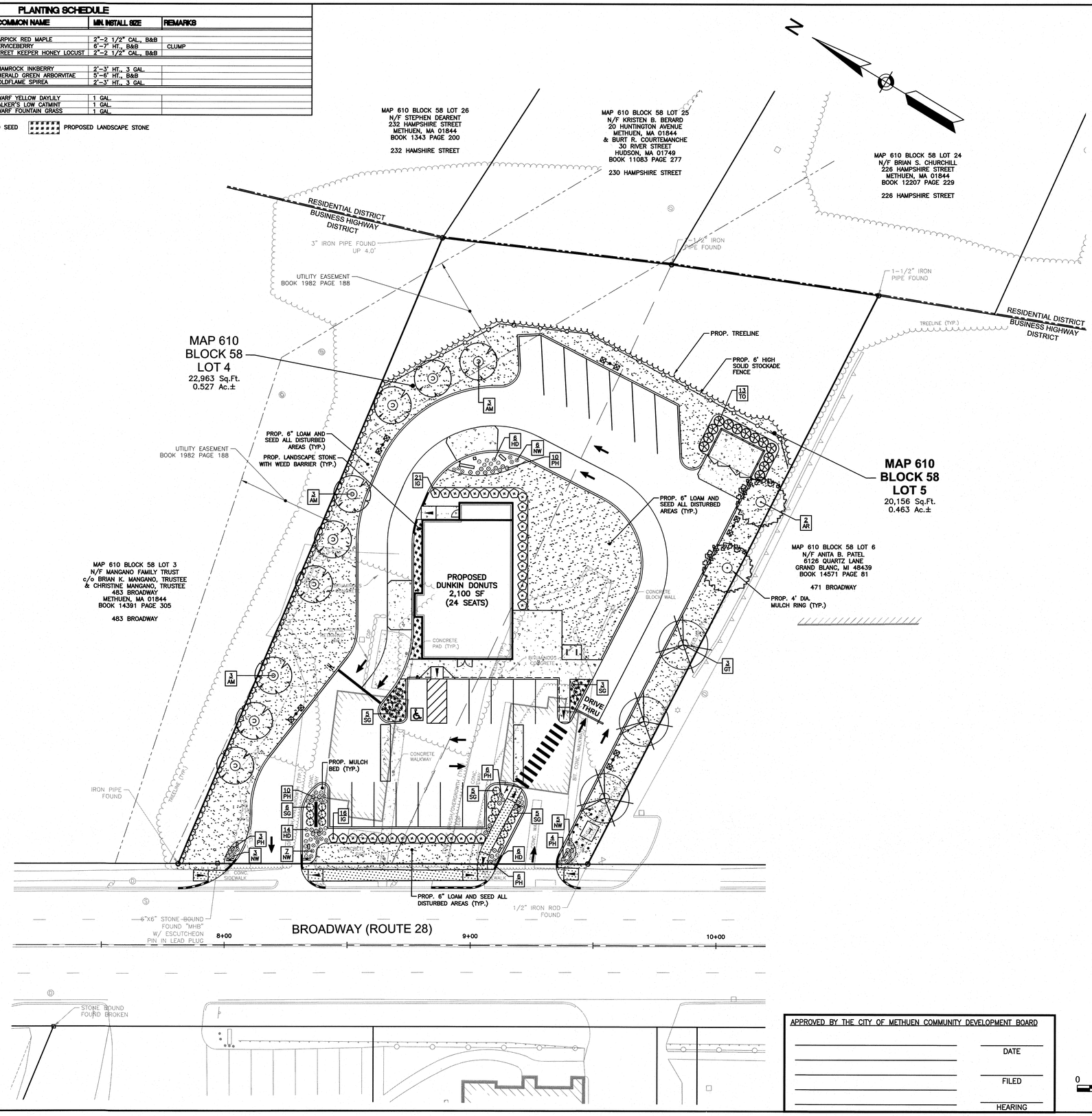
## PLANTING SCHEDULE

| PLANT | QNTY | BOTANICAL NAME | COMMON NAME | MIN. INSTALL SIZE | REMARKS |
|---|---|---|---|---|---|
| TREES | | | | | |
| AR | 2 | ACER RUBRUM 'KARPICK' | KARPICK RED MAPLE | 2"-2 1/2" CAL., B&B | |
| AM | 9 | AMELANCGIER CANADENSIS | SERVICEBERRY | 6'-7' HT., B&B | CLUMP |
| GT | 3 | GLEDITSIA TRIACANTHOS 'STREET KEEPER' | STREET KEEPER HONEY LOCUST | 2"-2 1/2" CAL., B&B | |
| SHRUBS | | | | | |
| IG | 37 | ILEX GLABRA 'SHAMROCK' | SHAMROCK INKBERRY | 2'-3' HT., 3 GAL. | |
| TO | 13 | THUJA OCCIDENTALIS 'SMARAGD' | EMERALD GREEN ARBORVITAE | 5'-6' HT., B&B | |
| SG | 24 | SPIREA BUMALDA 'GOLDFLAME' | GOLDFLAME SPIREA | 2'-3' HT., 3 GAL. | |
| PERENNIALS & GRASSES | | | | | |
| HD | 26 | HEMEROCALLIS 'STELLA DE ORO' | DWARF YELLOW DAYLILY | 1 GAL. | |
| NW | 21 | NEPETA 'WALKER'S LOW' | WALKER'S LOW CATMINT | 1 GAL. | |
| PH | 39 | PENNISETUM ALOPECUROIDES 'HAMELN' | DWARF FOUNTAIN GRASS | 1 GAL. | |

1 / XX PLANT QUANTITY / PLANT DESIGNATION — PROPOSED LOAM AND SEED — PROPOSED LANDSCAPE STONE

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Salem, NH 03079


PREPARED FOR
CAFUA MANAGEMENT COMPANY, LLC
280 MERRIMACK STREET
METHUEN, MA 01844

# ASSESSORS MAP 610 BLOCK 58 LOTS 4 & 5
# 477 & 479 BROADWAY
# METHUEN, MASSACHUSETTS

COMMONWEALTH OF MASSACHUSETTS
CHRISTOPHER M. TYMULA
CIVIL
No. 57146
REGISTERED PROFESSIONAL ENGINEER
3/6/24

| REVISIONS | | |
|---|---|---|
| NO. | REVISION | DATE |
| | | |

MARCH 6, 2024

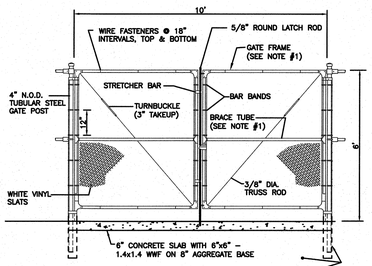
| DRAWN/DESIGN BY | CHECKED BY |
|---|---|
| SJB/CMT | CMT |

## LANDSCAPE PLAN

SCALE: 1"=20'

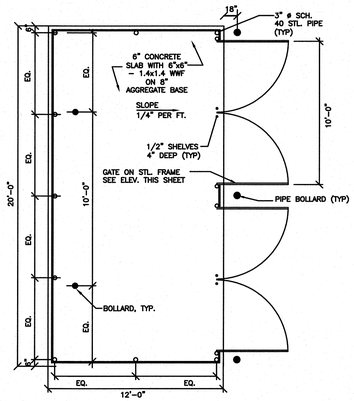
PROJECT NO. NEX-2021347

9 OF 14



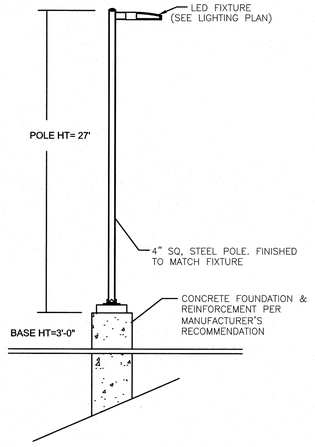

*GATE DETAIL*

NOTE:
1) NOMINAL OUTSIDE DIAMETER (N.O.D.) OF GATE FRAME AND BRACE TUBE TO BE 1.66" UP TO 6" IN WIDTH, AND 1.90" IF OVER 6' IN WIDTH.

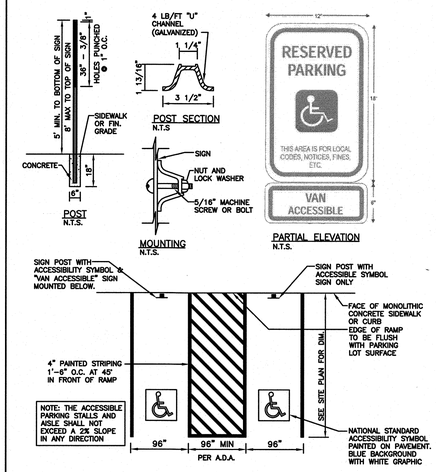



*PLAN VIEW*

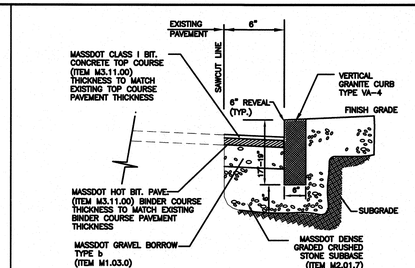
## TRASH ENCLOSURE DETAIL
NOT TO SCALE



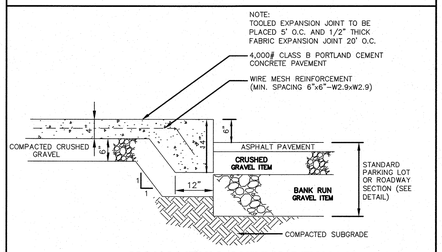

## LIGHT FIXTURE DETAIL
NOT TO SCALE



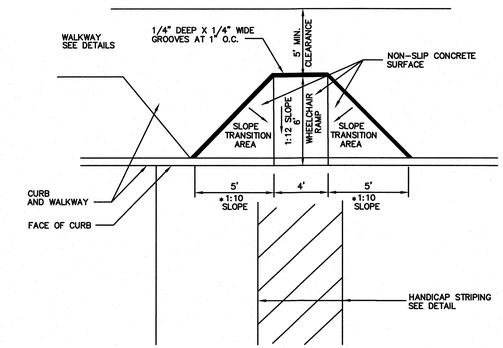

## ACCESSIBLE PARKING STALLS
NOT TO SCALE



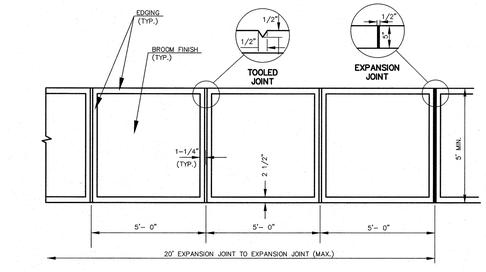

## VERTICAL GRANITE CURB IN R.O.W.
NOT TO SCALE



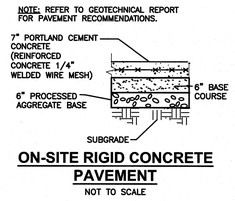

## MONOLITHIC CURB/SIDEWALK
NOT TO SCALE



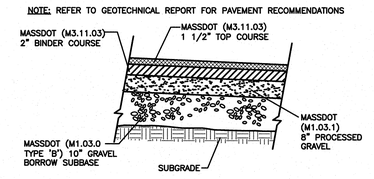

## ACCESSIBLE RAMP - FLARED
NOT TO SCALE




## CONCRETE SIDEWALK JOINTING AND EDGING
NOT TO SCALE

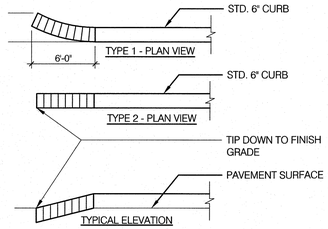



## ON-SITE RIGID CONCRETE PAVEMENT
NOT TO SCALE

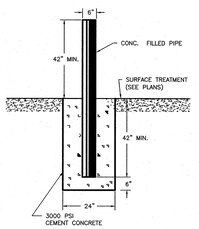



## ON-SITE STANDARD-DUTY PAVEMENT
NOT TO SCALE

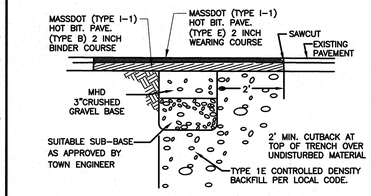
NOTE: WHERE BITUMINOUS PAVEMENT SECTIONS ARE TRANSITIONED TO CONCRETE SECTIONS, THE BITUMINOUS PAVEMENT SHOULD BE THICKENED BY 2 IN. (BINDER COURSE) TO MITIGATE THE CHANCES OF DIFFERENTIAL SETTLEMENT AND CRACKING BETWEEN THE TWO SECTIONS. THE LATERAL EXTENT OF THE THICKENED SECTION SHOULD BE 6 IN. AND SHOULD TRANSITION BACK TO THE RECOMMENDED FLEXIBLE PAVEMENT SECTION ON A 2H:1V SLOPE.



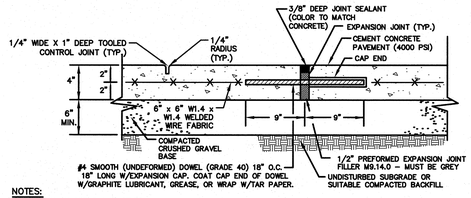

## TYPICAL TIP DOWN CURB ELEVATION
NOT TO SCALE




## BOLLARD DETAIL
NOT TO SCALE

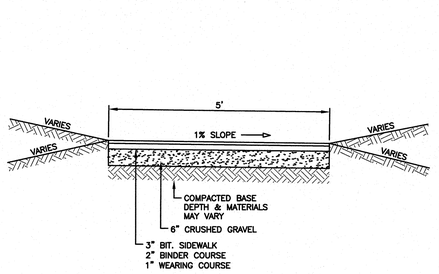



## PAVEMENT REPAIR IN STREET R.O.W.
NOT TO SCALE

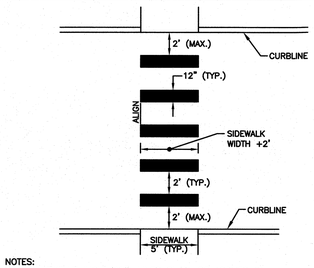



NOTES:
1. MAINTAIN 2" CLEARANCE (TYP) BETWEEN ALL CONCRETE EDGES AND WIRE FABRIC OR DOWEL.
2. CONTROL JOINTS TO BE LOCATED 5 FT. ON CENTER.
3. EXPANSION JOINTS TO BE LOCATED 25 FT. ON CENTER.

## CEMENT CONCRETE SIDEWALK SECTION AND JOINT DETAILS
NOT TO SCALE

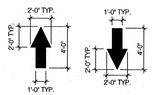



## BITUMINOUS CONCRETE SIDEWALK
NOT TO SCALE



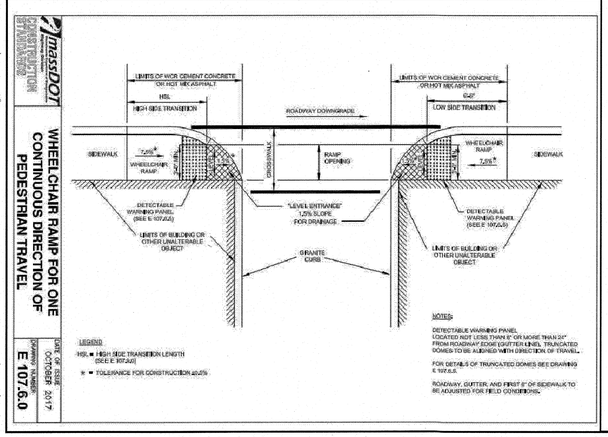

NOTES:
1. TWELVE INCH (12") LINES SHALL BE APPLIED IN ONE APPLICATION, NO COMBINATION OF LINES (TWO - 6 INCH LINES) WILL BE ACCEPTED.
2. LONGITUDINAL CROSSWALK LINES TO BE PARALLEL TO CURBLINE.
3. ALL LONGITUDINAL CROSSWALK LINES TO BE THE SAME LENGTH AND PROPERLY ALIGNED.

## CROSSWALK
NOT TO SCALE




ALL PAVEMENT MARKINGS TO BE WHITE PAVEMENT PAINT, UNLESS STATED OTHERWISE.

## ON-SITE PAVEMENT MARKING DETAILS
NOT TO SCALE




GPI
Engineering
Design
Planning
Construction Management
603.893.0720 GPINET.COM
Greenman-Pedersen, Inc.
44 Stiles Road, Suite One
Salem, NH 03079

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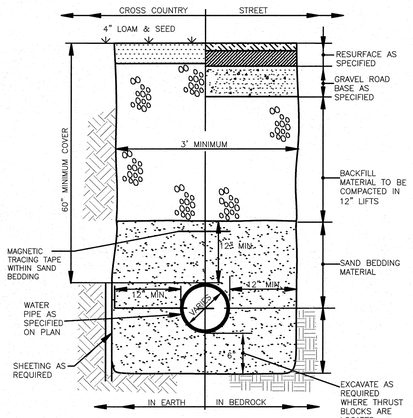
DETAIL SHEET

SCALE: NOT TO SCALE

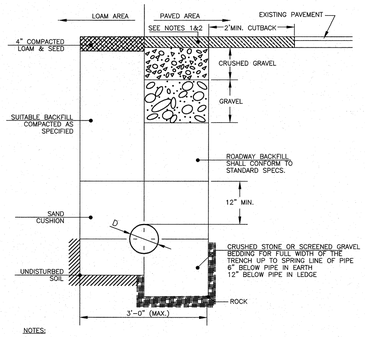
PROJECT NO. NEX-2021347

10 OF 14




## TYPICAL TRENCH SECTION FOR WATER SERVICE

NOT TO SCALE




NOTES:

1.) PAVEMENT REPAIR IN EXISTING ROADWAYS SHALL CONFORM TO STREET OPENING REGULATIONS. DEPTH FOR BITUMINOUS PAVEMENT SHALL BE EQUAL TO EXISTING PAVEMENT WITH 3" MINIMUM. (1" WEARING, 2" BASE).

2.) NEW ROADWAY CONSTRUCTION SHALL CONFORM TO DPW SPECIFICATIONS.

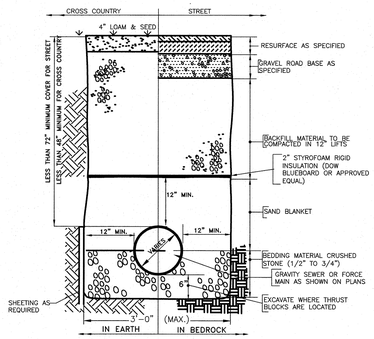
3.) IN LIEU OF THE 12" GRAVEL COURSE AND 9" OF CRUSHED GRAVEL, 18" OF CRUSHED GRAVEL OR RECLAIMED STABILIZED BASE MAY BE USED AS A BASE FOR THE PAVEMENT REPAIR.

4.) MATERIAL SHALL BE REPLACED IN KIND WHENEVER POSSIBLE.

5.) A MINIMUM 2' CUTBACK IS REQUIRED AT THE TOP OF THE TRENCH WALL OVER UNDISTURBED MATERIAL.

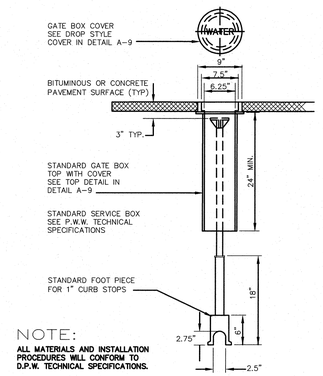
## TYPICAL SEWER TRENCH DETAIL

NOT TO SCALE




## TYPICAL TRENCH SECTION FOR SANITARY SEWER SERVICE WITH LESS THAN 6' OF COVER

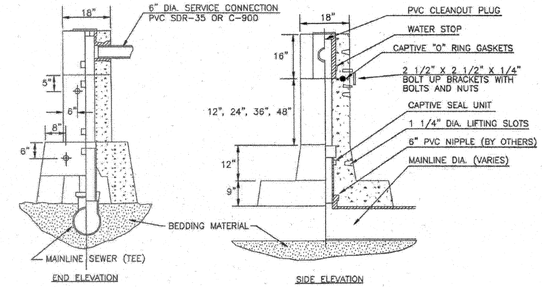
NOT TO SCALE




NOTE:
ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO D.P.W. TECHNICAL SPECIFICATIONS.

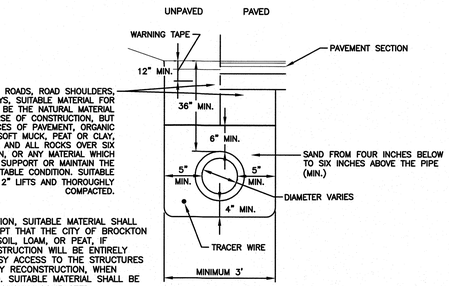
## SERVICE BOX INSTALLATION IN PAVEMENT

NOT TO SCALE




## SEWER CHIMNEY DETAIL

NOT TO SCALE

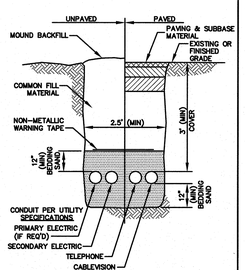



SUITABLE MATERIAL: IN ROADS, ROAD SHOULDERS, WALK-WAYS AND TRAVELED WAYS, SUITABLE MATERIAL FOR TRENCH BACKFILL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING THE COURSE OF CONSTRUCTION, BUT SHALL EXCLUDE DEBRIS, PIECES OF PAVEMENT, ORGANIC MATTER, TOP SOIL, ALL WET OR SOFT MUCK, PEAT OR CLAY, ALL EXCAVATED LEDGE MATERIAL, AND ALL ROCKS OVER SIX INCHES IN THE LARGEST DIMENSION, OR ANY MATERIAL WHICH WILL NOT PROVIDE SUFFICIENT SUPPORT OR MAINTAIN THE COMPLETED CONSTRUCTION IN A STABLE CONDITION. SUITABLE MATERIAL SHALL BE PLACED IN 12" LIFTS AND THOROUGHLY COMPACTED.

IN CROSS-COUNTRY CONSTRUCTION, SUITABLE MATERIAL SHALL BE DESCRIBED AS ABOVE, EXCEPT THAT THE CITY OF BROCKTON MAY PERMIT THE USE OF TOP SOIL, LOAM, OR PEAT, IF SATTIED THE COMPLETED CONSTRUCTION WILL BE ENTIRELY STABLE AND PROVIDED THAT EASY ACCESS TO THE STRUCTURES FOR MAINTENANCE AND POSSIBLY RECONSTRUCTION, WHEN NECESSARY WILL BE PRESERVED. SUITABLE MATERIAL SHALL BE PLACED IN 18" LIFTS AND THOROUGHLY COMPACTED.

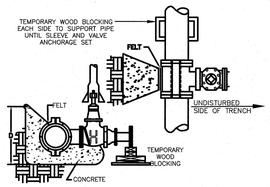
## TYPICAL GAS TRENCH

NOT TO SCALE



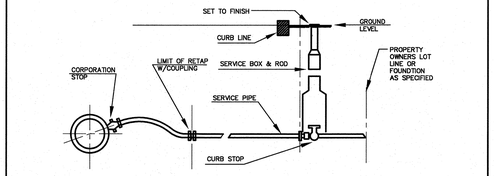

## UTILITY TRENCH

NOT TO SCALE



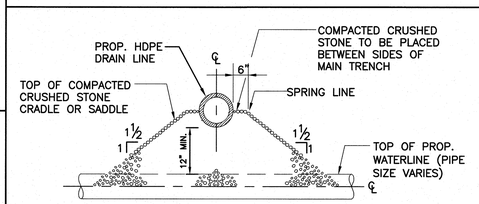

## TAPPING VALVE AND SLEEVE DETAIL

NOT TO SCALE



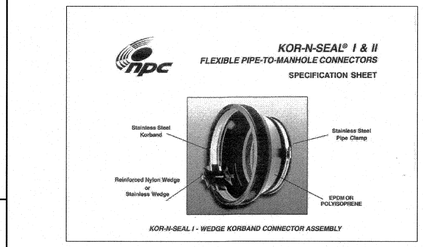

## TYPICAL SERVICE CONNECTION

NOT TO SCALE



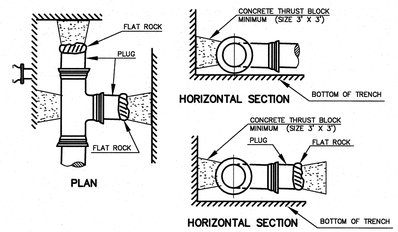

## PIPE CROSSING DETAIL

NOT TO SCALE



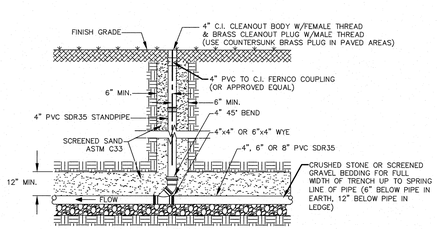

## KOR-N-SEAL DETAIL

NOT TO SCALE



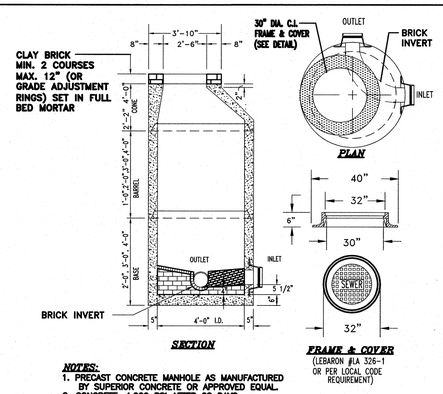

## THRUST BLOCK DETAILS

NOT TO SCALE




## TYPICAL SEWER SERVICE CLEANOUT

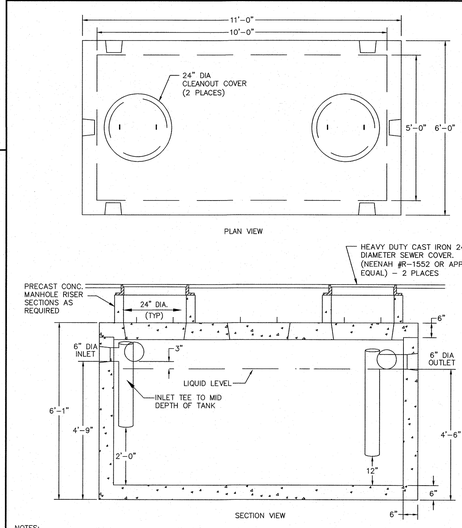
NOT TO SCALE




NOTES:
1. PRECAST CONCRETE MANHOLE AS MANUFACTURED BY SUPERIOR CONCRETE OR APPROVED EQUAL.
2. CONCRETE: 4,000 PSI AFTER 28 DAYS.
3. REINFORCING: H-20 LOADING 4 X 4/4 X 4 W.W.M.
4. SHIPLAP JOINTS SEALED WITH 1 STRIP OF 1" DIA. BUTYL RUBBER SEALANT.
5. EXTERIOR ASPHALT COATED.
6. LOCK JOINT FLEXIBLE PIPE SLEEVES, CAST IN.
7. EACH CASTING TO HAVE LIFTING HOLES CAST IN.
8. EACH SECTION TO BE LABELED AS NOTED.
9. MANHOLE STEPS @ 12" O.C. #PS2-PF-SL.
10. 2" LIP AT TOP OF CONE PROVIDED TO ACCOMMODATE VACUUM TESTING.

## PRECAST CONCRETE SANITARY MANHOLE

NOT TO SCALE




NOTES:
1. CONCRETE: 5,000 PSI MINIMUM AFTER 28 DAYS.
2. FINAL DESIGN OF GREASE TRAP TO MEET ALL LOCAL AND STATE REQUIREMENTS.
3. ALL REINFORCEMENT PER ASTM C1227-93.
4. DESIGNED FOR H-20 LOADING.
5. TONGUE & GROOVE JOINT SEALED WITH BUTYL RESIN.
6. TEES AND BAFFLES SOLD SEPARATELY.
7. GREASE TRAP AS MANUFACTURED BY SHEA CONCRETE PRODUCTS OR APPROVED EQUAL.
8. CONTRACTOR TO PROVIDE DESIGN ENGINEER SHOP DRAWINGS PRIOR TO CONSTRUCTION.

| | WEIGHT |
|---|---|
| SHEA ITEM NO. TK-M1500C | 22,840# |

COMMERCIAL LINE TANK
1500 GALLON MONOLITHIC

## 1,500 GALLON GREASE TRAP DETAIL

NOT TO SCALE

GPI
Engineering
Design
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Construction Management
603.893.0720
GPINET.COM
Greenman-Pedersen, Inc.
44 Stiles Road, Suite One
Salem, NH 03079

PREPARED FOR
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280 MERRIMACK STREET
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**ASSESSORS MAP 610 BLOCK 58 LOTS 4 & 5**
**477 & 479 BROADWAY**
**METHUEN, MASSACHUSETTS**

COMMONWEALTH OF MASSACHUSETTS
CHRISTOPHER M. TYMULA
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No. 57140
REGISTERED PROFESSIONAL ENGINEER
3/6/24

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DETAIL SHEET

SCALE: NOT TO SCALE

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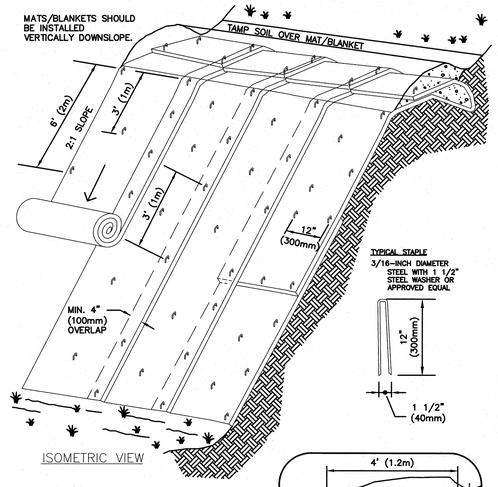
11 OF 14




ISOMETRIC VIEW

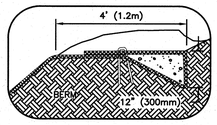
## TYPICAL SLOPE SOIL STABILIZATION

NOTES:

1. BEGIN AT THE TOP OF BLANKET INSTALLATION AREA BY ANCHORING BLANKET IN A 6" DEEP TRENCH. BACKFILL AND COMPACT TRENCH AFTER STAPLING.
2. ROLL THE BLANKET DOWN THE SWALE IN THE DIRECTION OF THE WATER FLOW. LAY BLANKETS LOOSELY & MAINTAIN DIRECT CONTACT WITH SOIL – DO NOT STRETCH.
3. THE EDGES OF BLANKETS MUST BE STAPLED WITH APPROX. 4 INCH OVERLAP WHERE 2 OR MORE STRIP WIDTHS ARE REQUIRED.
4. WHEN BLANKETS MUST BE SPLICED DOWN THE SWALE, PLACE BLANKET END OVER END WITH 6 INCH (MIN.) OVERLAP AND ANCHOR DOWN SLOPE BLANKET IN A 6 INCH DEEP TRENCH.
5. BLANKETS SHALL BE STAPLED ENOUGH TO ANCHOR BLANKET WHILE MAINTAINING CONTACT WITH SOIL. STAPLES SHALL BE PLACED DOWN THE CENTER & STAGGERED WITH THE STAPLES PLACED ALONG EDGES. PATTERN & AMOUNT OF STAPLES VARIES BY MANUFACTURER, SO FOLLOW MANUFACTURERS RECOMMENDATIONS.
6. BLANKET SHALL BE NORTH AMERICAN GREEN SC–150 OR APPROVED EQUAL.

MAINTENANCE & MATS

1. BLANKETS SHALL BE INSPECTED WEEKLY DURING CONSTRUCTION & AFTER A RAINFALL IN EXCESS OF 1/2" IN A 24–HOUR PERIOD.
2. FAILURES SHALL BE REPAIRED IMMEDIATELY. IF ANY OF THE FOLLOWING OCCUR; SLOPE WASHOUT, MAT DISPLACEMENT, DAMAGE TO MAT, THE AFFECTED AREA SHALL BE REPAIRED & RESEEDED & MAT SHALL BE REPLACED OR RE–INSTALLED.



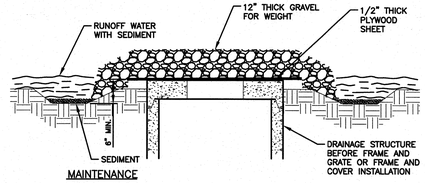

TYPICAL INSTALLATION OF EROSION CONTROL BLANKETS FOR SLOPES

NOT TO SCALE

**NOTE: DO NOT USE PRODUCTS THAT CONTAIN WELDED PLASTIC OR THAT ARE "PHOTODEGRADABLE". USE PRODUCTS WITH BIODEGRADABLE NETTING AND NATURAL FIBER MATERIAL (I.E. STRAW OR COCONUT FIBER).**

## BLANKET SLOPE PROTECTION FOR EROSION CONTROL

NOT TO SCALE

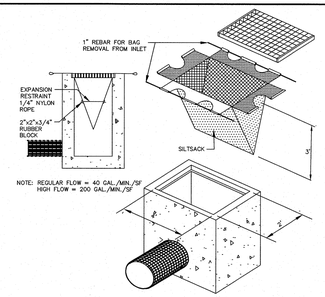



MAINTENANCE

1. ALL STRUCTURES SHOULD BE INSPECTED AFTER EVERY RAIN STORM AND REPAIRS MADE AS NECESSARY.
2. SEDIMENT SHOULD BE REMOVED FROM THE TRAPPING DEVICES AFTER THE SEDIMENT HAS REACHED A MAXIMUM OF ONE HALF OF THE DEPTH OF THE TRAP. THE SEDIMENT SHOULD BE DISPOSED OF IN A SUITABLE AREA AND PROTECTED FROM EROSION BY EITHER STRUCTURAL OR VEGETATIVE MEANS.
3. THE TEMPORARY TRAPS SHOULD BE REMOVED AND THE AREA REPAIRED AS SOON AS THE CONTRIBUTING DRAINAGE AREA TO THE INLET HAS BEEN COMPLETELY STABILIZED.
4. ALL STRUCTURES WITH INLET PROTECTION MUST BE CLEANED AT THE END OF CONSTRUCTION AND WHEN THE SITE IS FULLY STABILIZED.

## INLET PROTECTION DETAIL

NOT TO SCALE




## SILTSACK DETAIL–ON OR OFF SITE

NOT TO SCALE

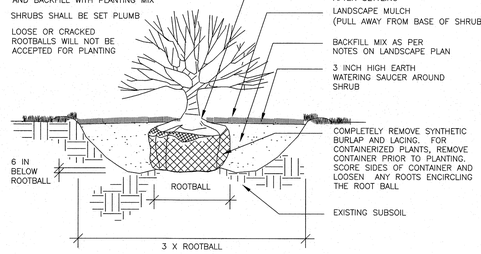
SHRUB PLANTING NOTES:

WATER BY FLOODING TWICE IN FIRST TWO HOURS AFTER PLANTING.

EXCAVATE TO REQUIRED DEPTH AND BACKFILL WITH PLANTING MIX

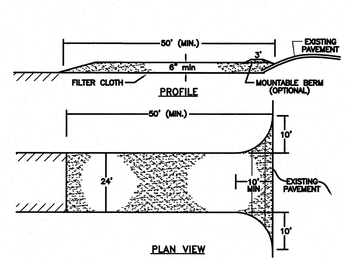
SHRUBS SHALL BE SET PLUMB

LOOSE OR CRACKED ROOTBALLS WILL NOT BE ACCEPTED FOR PLANTING




## TYPICAL SHRUB PLANTING

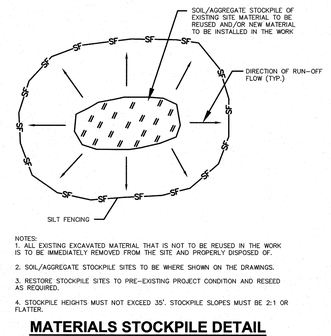
NOT TO SCALE




1. STONE FOR A STABILIZED CONSTRUCTION ENTRANCE SHALL BE 1 TO 2 INCH STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
2. THE LENGTH OF THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 50 FEET, EXCEPT FOR A SINGLE RESIDENTIAL LOT WHERE A 30 FOOT MINIMUM WOULD APPLY.
3. THE THICKNESS OF THE STONE FOR THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 6 INCHES.
4. THE WIDTH OF THE ENTRANCE SHALL NOT BE LESS THAN THE FULL WIDTH OF THE ENTRANCE WHERE INGRESS OCCURS OR 10 FEET, WHICH EVER IS GREATER.
5. GEOTEXTILE FILTER CLOTH SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING THE STONE. FILTER CLOTH IS NOT REQUIRED FOR A SINGLE FAMILY RESIDENCE LOT.
6. ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE, IF PIPING IS IMPRACTICAL, A BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
7. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY. THIS MAY REQUIRE PERIODIC TOPDRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, WASHED OR TRACKED ONTO PUBLIC RIGHT–OF–WAY MUST BE REMOVED PROMPTLY.
8. WHEELS SHALL BE CLEANED TO REMOVE MUD PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS–OF–WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

## STABILIZED CONSTRUCTION ENTRANCE DETAIL

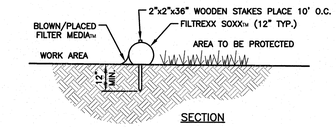
NOT TO SCALE




NOTES:
1. ALL EXISTING EXCAVATED MATERIAL THAT IS NOT TO BE REUSED IN THE WORK IS TO BE IMMEDIATELY REMOVED FROM THE SITE AND PROPERLY DISPOSED OF.
2. SOIL/AGGREGATE STOCKPILE SITES TO BE WHERE SHOWN ON THE DRAWINGS.
3. RESTORE STOCKPILE SITES TO PRE–EXISTING PROJECT CONDITION AND RESEED AS REQUIRED.
4. STOCKPILE HEIGHTS MUST NOT EXCEED 35'. STOCKPILE SLOPES MUST BE 2:1 OR FLATTER.

## MATERIALS STOCKPILE DETAIL

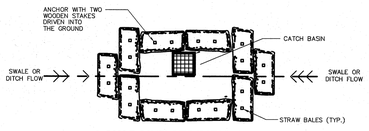
NOT TO SCALE




NOTES:
1. ALL MATERIAL TO MEET FILTREXX SPECIFICATIONS
2. FILTER MEDIA FILL TO MEET APPLICATION REQUIREMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMIND BY ENGINEER.
4. IN THE EVENT THAT STAKING IS NOT POSSIBLE, HEAVY CONCRETE BLOCKS SHALL BE USED BEHIND THE SEDIMENT CONTROL TO HELP STABILIZE DURING RAINFALL/RUNOFF EVENTS.

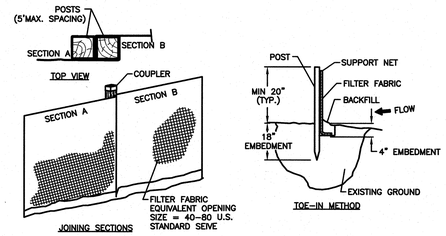
## COMPOST FILTER SOCK

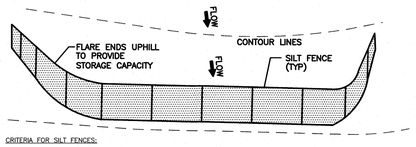
NOT TO SCALE




## LOW POINT SEDIMENTATION CONTROL BARRIER

NOT TO SCALE




CRITERIA FOR SILT FENCES:

1) SILT FENCE FILTER CLOTH: THE FABRIC FOR THE SILT FENCE SHALL MEET THE FOLLOWING SPECIFICATIONS:

| FABRIC PROPERTIES: | MINIMUM ACCEPTABLE VALUES | TEST METHOD |
|---|---|---|
| GRAB TENSILE STRENGTH (lbs) | 90 | ASTM D1682 |
| ELONGATION AT FAILURE (%) | 50 | ASTM D1682 |
| MULLEN BURST STRENGTH (PSI) | 190 | ASTM D3786 |
| PUNCTURE STRENGTH (lbs) | 40 | ASTM D751 |
| EQUIVELANT OPENING SIZE | 40–80 | US STD SIEVE |

2) FENCE POSTS (FOR FABRICATED UNITS) – THE POSTS SHALL BE A MINIMUM OF 36 INCHES LONG. WOOD POSTS WILL BE OF SOUND QUALITY HARDWOOD WITH A MINIMUM CROSS SECTIONAL AREA OF 3.0 SQUARE INCHES. STEEL POSTS WILL BE STANDARD T OR U SECTIONS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT. MAXIMUM SPACING SHALL BE 6 LINEAR FEET.

3) WIRE FENCE (FOR FABRICATED UNITS) – WIRE FENCING SHALL BE A MINIMUM 14.5 GUAGE WITH A MAXIMUM 6 INCH MESH OPENING.

4) PREFABRICATED UNITS – PREFABRICATED UNITS MAY BE USED IN LIEU OF THE ABOVE METHOD PROVIDING: (1) THE FILTER CLOTH AND FENCE POSTS MEET THE ABOVE CRITERIA; AND (2) THE UNIT IS INSTALLED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

MAINTENANCE:

1) SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REPAIRS THAT ARE REQUIRED SHALL BE MADE IMMEDIATELY.

2) IF THE FABRIC ON A SILT FENCE SHOULD DECOMPOSE OR BECOME INEFFECTIVE DURING THE EXPECTED LIFE OF THE FENCE, THE FABRIC SHALL BE REPLACED PROMPTLY.

3) SEDIMENT DEPOSITS SHOULD BE INSPECTED AFTER EVERY STORM EVENT. THE DEPOSITS SHOULD BE REMOVED WHEN THEY REACH APPROXIMITELY ONE–HALF THE HEIGHT OF THE BARRIER.

4) SEDIMENT DEPOSITS THAT ARE REMOVED OR LEFT IN PLACE AFTER THE FABRIC HAS BEEN REMOVED SHALL BE GRADED TO CONFORM WITH THE EXISTING TOPOGRAPHY AND VEGETATED.

CONSTRUCTION SPECIFICATIONS:

1) THE GEOTEXTILE FABRIC SHALL MEET THE DESIGN CRITERIA FOR SILT FENCES.

2) THE FABRIC SHALL BE EMBEDDED A MINIMUM OF 8 INCHES INTO THE GROUND (4" DEEP & 4" WIDE) AND THE SOIL COMPACTED OVER THE EMBEDDED FABRIC.

3) WOVEN WIRE FENCE SHALL BE FASTENED SECURELY TO THE FENCE POSTS WITH WIRE TIES OR STAPLES.

4) FILTER CLOTH SHALL BE FASTENED SECURELY TO THE WOVEN WIRE FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP, MID–SECTION AND BOTTOM.

5) WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EAC OTHER, THEY SHALL BE OVERLAPPED BY 6 INCHES (24" IS PREFERRED), FOLDED, AND STAPLED.

6) POSTS TO BE SPACED AT A MAXIMUM OF 6' ON CENTER.

## SILT FENCE DETAIL

NOT TO SCALE

## SILT FENCE DETAIL

NOT TO SCALE

PERENNIAL PLANTING NOTES:

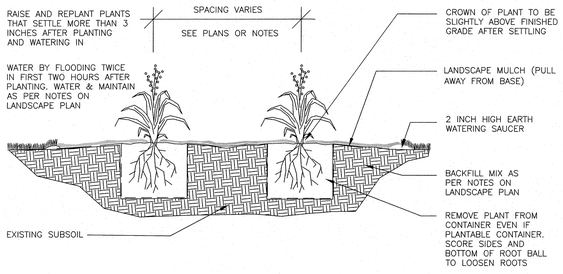
EXCAVATE TO REQUIRED DEPTH AND BACKFILL WITH PLANTING MIX

RAISE AND REPLANT PLANTS THAT SETTLE MORE THAN 3 INCHES AFTER PLANTING AND WATERING IN

SPACING VARIES

SEE PLANS OR NOTES

WATER BY FLOODING TWICE IN FIRST TWO HOURS AFTER PLANTING. WATER & MAINTAIN AS PER NOTES ON LANDSCAPE PLAN



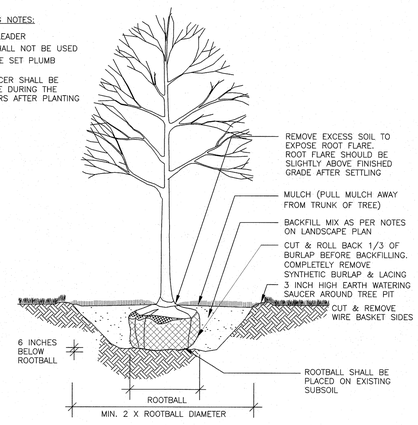

## TYPICAL PERENNIAL PLANTING

NOT TO SCALE

TREE PLANTING NOTES:

DO NOT CUT LEADER
TREE WRAP SHALL NOT BE USED
TREE SHALL BE SET PLUMB

WATERING SAUCER SHALL BE FLOODED TWICE DURING THE FIRST 24 HOURS AFTER PLANTING




## TYPICAL TREE PLANTING

NOT TO SCALE

GPI Engineering Design Planning Construction Management
603.893.0720 GPINET.COM
Greenman–Pedersen, Inc.
44 Stiles Road, Suite One
Salem, NH 03079

PREPARED FOR
CAFUA MANAGEMENT COMPANY, LLC
280 MERRIMACK STREET
METHUEN, MA 01844

# ASSESSORS MAP 610 BLOCK 58 LOTS 4 & 5
# 477 & 479 BROADWAY
# METHUEN, MASSACHUSETTS

COMMONWEALTH OF MASSACHUSETTS
CHRISTOPHER M. TYMULA
CIVIL
No. 57140
REGISTERED PROFESSIONAL ENGINEER
3/6/24

| REVISIONS | | |
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| | | |
| NO. | REVISION | DATE |

MARCH 6, 2024

| DRAWN/DESIGN BY | CHECKED BY |
|---|---|
| SJB/CMT | CMT |

DETAIL SHEET

SCALE: NOT TO SCALE

PROJECT NO. NEX–2021347

12 OF 14

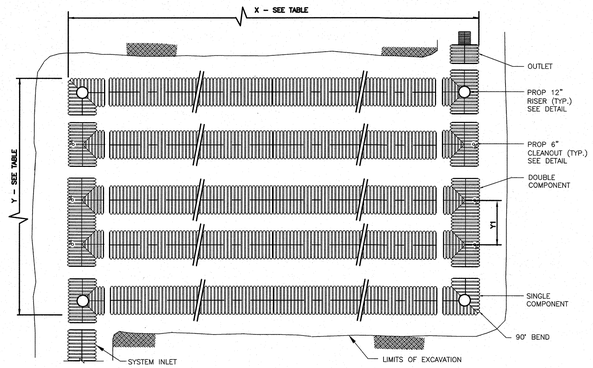
F:\Projects\NEX–2021347 – Methuen, MA – Cafua Management (Old 351314)\CAD Files\21347_DET.dwg DET–3 3/05/24 4:47pm cmason

## DETENTION SYSTEM NOTES:

1) ALL SITE DRAINAGE PIPE SHALL BE CORRUGATED HIGH-DENSITY POLYETHYLENE PIPE, DUAL WALL, SMOOTH INTERIOR AS MANUFACTURED BY ADS, INC., OR APPROVED EQUAL, UNLESS OTHERWISE NOTED ON PLAN.

2) CONTRACTOR SHOULD CONFIRM SYSTEM PARTS AND OBTAIN SHOP DRAWINGS FROM MANUFACTURER. SUBSTITUTIONS AND SHOP DRAWINGS SHOULD BE APPROVED BY THE ENGINEER.

3) PARTS SPECIFICATIONS SHOWN ARE AS PROVIDED BY ADS, INC., OR APPROVED EQUAL. ANY CHANGES TO THESE SPECIFICATIONS SHOULD BE APPROVED BY DESIGN ENGINEER FOR PERFORMANCE.



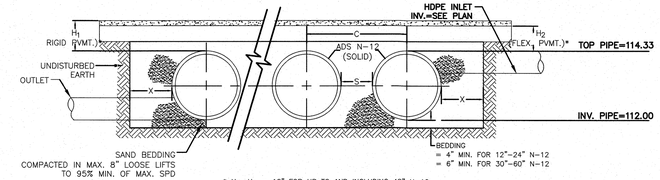

NOTE: FOR ADDITIONAL DETAILS, SEE ADS STD-702 & STD-703.

| UNDERGROUND STORMWATER DETENTION SYSTEM TABLE | | | | | | |
|---|---|---|---|---|---|---|
| UG DETENTION SYSTEM | LENGTH (X) | WIDTH (Y) | *SPACING (Y1) (O.C. TYP.) | PIPE SIZE (INCHES) SOLID | INV. PIPE ELEV. (A) | # PIPE ROWS |
| DET-1 | 54.7' | 23.0' | 63" | 24"SOLID(ST) | 112.10 | 7 |

* SEE TYPICAL CROSS SECTIONS BELOW
ST = SOIL TIGHT JOINTS

## TYPICAL UNDERGROUND DETENTION SYSTEM LAYOUT

NOT TO SCALE




* $H_1$, $H_2$ = 12" FOR UP TO AND INCLUDING 48" N-12
= 24" FOR 60" N-12
* FOR LIVE LOAD INSTALLATIONS PROVIDE 24" COVER FOR 42"-60" N-12

| NOMINAL DIAMETER | NOMINAL O.D. | TYPICAL SPACING "S" | TYPICAL SPACING "C" | TYPICAL SIDE WALL "X" |
|---|---|---|---|---|
| 12" | 14.5" | 11" | 25.4" | 8" |
| 15" | 18" | 12" | 28.9" | 8" |
| 18" | 21" | 13" | 33.9" | 9" |
| 24" | 28" | 13.4" | 41.4" | 10" |
| 30" | 36" | 17.1" | 53.1" | 18" |
| 36" | 42" | 22" | 63" | 18" |
| 42" | 48" | 24" | 71.9" | 18" |

NOTES

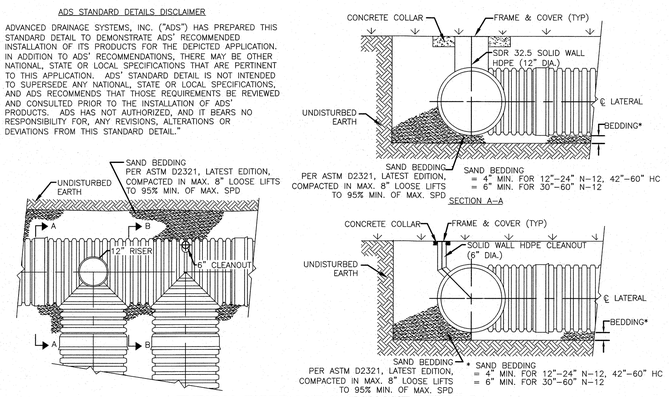
1. ALL DETENTION SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST EDITION.
2. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.
3. SEE GRADING & DRAINAGE PLAN FOR INVERT DATA.
4. EXISTING TOPSOIL, BRUSH, TREES, BOULDERS, FILL AND DEBRIS TO BE REMOVED FOR 5' ALL AROUND UNDERGROUND DETENTION SYSTEM DOWN TO NATIVE MATERIAL. BACKFILL WITH STONE BEDDING MATERIAL (CLASS I).

## TYPICAL UNDERGROUND DETENTION SYSTEM CROSS SECTION

NOT TO SCALE

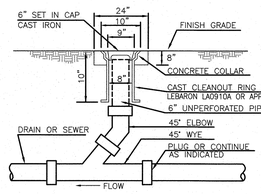
ADS STANDARD DETAILS DISCLAIMER

ADVANCED DRAINAGE SYSTEMS, INC. ("ADS") HAS PREPARED THIS STANDARD DETAIL TO DEMONSTRATE ADS' RECOMMENDED INSTALLATION OF ITS PRODUCTS FOR THE DEPICTED APPLICATION. IN ADDITION TO ADS' RECOMMENDATIONS, THERE MAY BE OTHER NATIONAL, STATE OR LOCAL SPECIFICATIONS THAT ARE PERTINENT TO THIS APPLICATION. ADS' STANDARD DETAIL IS NOT INTENDED TO SUPERSEDE ANY NATIONAL, STATE OR LOCAL SPECIFICATIONS, AND ADS RECOMMENDS THAT THOSE REQUIREMENTS BE REVIEWED AND CONSULTED PRIOR TO THE INSTALLATION OF ADS' PRODUCTS. ADS HAS NOT AUTHORIZED, AND IT BEARS NO RESPONSIBILITY FOR, ANY REVISIONS, ALTERATIONS OR DEVIATIONS FROM THIS STANDARD DETAIL."



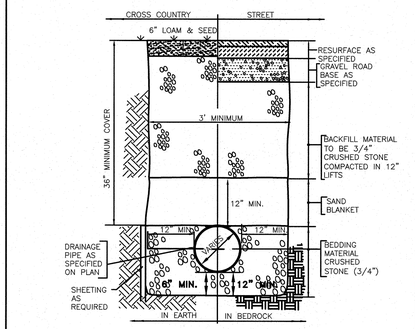

## TYPICAL RISER AND CLEANOUT DETAILS

NOT TO SCALE




## TYPICAL DRAIN CLEANOUT

NOT TO SCALE

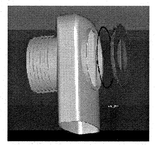


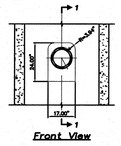

## TYPICAL TRENCH SECTION FOR STORM DRAIN

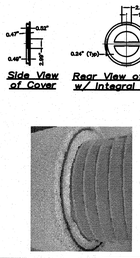
NOT TO SCALE

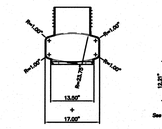
## TEST PIT DATA

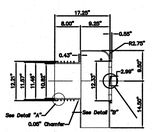
| | | | | | |
|---|---|---|---|---|---|
| **Test Pit No.** | | **1** | SCS Soil: | | Urban Land |
| ESHWT: | | 60" | Standing Water: | | 108" |
| Refusal: | | >118" | Roots: | | None |
| Depth | Horizon | Soil Texture | Color | Consistence | Mottles; Quantity/Contrast |
| 0-40" | Fill | Urban Fill | | | |
| 40-118" | C | Medium-Coarse Sand | 2.5y 7/3 | FR | @60" Distinct |
| **Test Pit No.** | | **2** | SCS Soil: | | Urban Land |
| ESHWT: | | 60" | Standing Water: | | 84" |
| Refusal: | | >116" | Roots: | | 24" |
| Depth | Horizon | Soil Texture | Color | Consistence | Mottles; Quantity/Contrast |
| 0-24" | A | Loamy Sand | 10yr 3/2 | FR | |
| 24-36" | B | Loamy Sand | 10yr 5/6 | FR | |
| 36-116" | C | Medium-Coarse Sand | 2.5y 7/3 | FR | @60" Distinct |
| **Test Pit No.** | | **3** | SCS Soil: | | Wareham Loamy Sand |
| ESHWT: | | 60" | Standing Water: | | 72" |
| Refusal: | | >119" | Roots: | | 24" |
| Depth | Horizon | Soil Texture | Color | Consistence | Mottles; Quantity/Contrast |
| 0-10" | A | Loamy Sand | 10yr 3/2 | FR | |
| 10-21" | B | Loamy Sand | 10yr 5/6 | FR | |
| 21-119" | C | Medium-Coarse Sand | 2.5y 7/3 | | @ 60" Distinct |
| **Test Pit No.** | | **4** | SCS Soil: | | Wareham Loamy Sand |
| ESHWT: | | 60" | Standing Water: | | 84" |
| Refusal: | | >110" | Roots: | | 24" |
| Depth | Horizon | Soil Texture | Color | Consistence | Mottles; Quantity/Contrast |
| 0-32" | A | Loamy Sand | 10yr 3/2 | FR | |
| 32-110" | C | Medium-Coarse Sand | 2.5y 7/3 | FR | @60" Distinct |
| **Test Pit No.** | | **5** | SCS Soil: | | Wareham Loamy Sand |
| ESHWT: | | 60" | Standing Water: | | 72" |
| Refusal: | | >120" | Roots: | | 24" |
| Depth | Horizon | Soil Texture | Color | Consistence | Mottles; Quantity/Contrast |
| 0-30" | Fill | Urban Fill | | | |
| 30-120" | C | Medium-Coarse Sand | 2.5y 7/3 | FR | @60" Distinct |
| **Test Pit No.** | | **6** | SCS Soil: | | Deerfield Loamy Fine Sand |
| ESHWT: | | 60" | Standing Water: | | 108" |
| Refusal: | | 112" | Roots: | | 24" |
| Depth | Horizon | Soil Texture | Color | Consistence | Mottles; Quantity/Contrast |
| 0-36" | Fill | Urban Fill | | | |
| 36-112" | C | Medium-Coarse Sand | 2.5y 7/3 | FR | @60" Distinct |





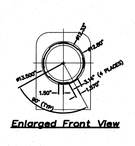


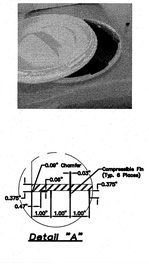



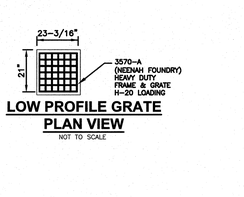




## THE ELIMINATOR CATCH BASIN OIL & DEBRIS TRAP

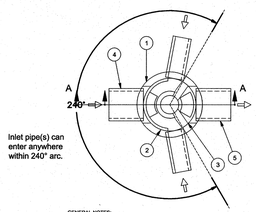





## LOW PROFILE GRATE PLAN VIEW

NOT TO SCALE



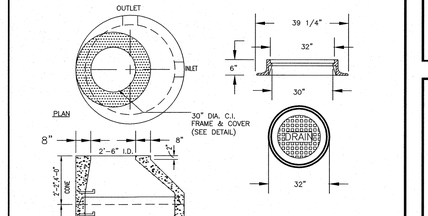

GENERAL NOTES:
1. GENERAL ARRANGEMENT DRAWINGS ONLY. CONTACT HYDRO INTERNATIONAL FOR SITE SPECIFIC FABRICATION DRAWINGS.
2. THE DIAMETER OF THE INLET & OUTLET PIPES MAY BE NO MORE THAN 24".
3. MULTIPLE INLET PIPES POSSIBLE (REFER TO PROJECT PLANS).
4. INLET/OUTLET PIPE ANGLE CAN VARY TO ALIGN WITH DRAINAGE NETWORK (REFER TO PROJECT PLANS).
5. PEAK FLOW RATE AND MINIMUM HEIGHT LIMITED BY AVAILABLE COVER AND PIPE DIAMETER.
6. LARGER SEDIMENT STORAGE CAPACITY MAY BE PROVIDED WITH A DEEPER SUMP DEPTH.

PRODUCT SPECIFICATIONS:
A. THE TREATMENT SYSTEM SHALL USE AN INDUCED VORTEX TO SEPARATE POLLUTANTS FROM STORMWATER RUNOFF.
B. THE TREATMENT SYSTEM SHALL FIT WITHIN THE LIMITS OF EXCAVATION (AREA AND DEPTH) AS SHOWN IN THE PROJECT PLANS AND WILL NOT EXCEED THE DIMENSIONS FOR THE "FIRST DEFENSE" FD-4HC SPECIFIED HEREIN.
C. THE TREATMENT SYSTEM SHALL REMOVE GREATER THAN OR EQUAL TO 80% OF TSS BASED ON THE TARGET PARTICLE SIZE (TPS) OF 106 MICRONS AND/OR 80% OF TSS BASED ON THE TPS OF 230 MICRONS AT CLY CFS AND 1.2 CFS, RESPECTIVELY.
D. THE TREATMENT SYSTEM SHALL CONVEY THE PEAK ON-LINE FLOW RATES OF UP TO 18 CFS WITHOUT RESUSPENSION OF CAPTURED SEDIMENT. FULL-SCALE FIELD LABORATORY SCOUR TESTING SHALL DEMONSTRATE EFFLUENT CONCRETE OF LESS THAN OR EQUAL TO 5 MG/L FOR ALL FLOWS UP TO 200% OF MTFR=106.
E. THE TREATMENT SYSTEM SHALL BE CAPABLE OF CAPTURING AND RETAINING FINE SILT AND SAND SIZE PARTICLES. ANALYSIS OF CAPTURED SEDIMENT FROM FULL-SCALE FIELD INSTALLATIONS SHALL DEMONSTRATE PARTICLE SIZES PREDOMINATELY IN THE 20-MICRON RANGE

| PARTS LIST | | | | |
|---|---|---|---|---|
| ITEM | QTY | SIZE (in) | SIZE (mm) | DESCRIPTION |
| 1 | 1 | 48 | 1200 | I.D. PRECAST MANHOLE |
| 2 | 1 | | | INTERNAL COMPONENTS (PRE-INSTALLED) |
| 3 | 1 | 30 | 750 | FRAME AND GRATE |
| 4 | 1 | 24 (MAX) | 600 (MAX) | OUTLET PIPE (BY OTHERS) |
| 5 | 1 | 24 (MAX) | 600 (MAX) | INLET PIPE (BY OTHERS) |

## "FIRST DEFENSE" FD-4HC UNIT DETAIL

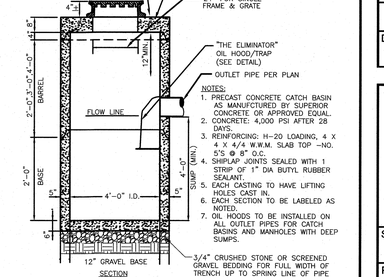
(OR APPROVED EQUAL)
NOT TO SCALE
NOTE: CONTRACTOR SHALL CONFIRM SYSTEM PARTS AND OBTAIN SHOP DRAWINGS FROM MANUFACTURER PRIOR TO CONSTRUCTION.




FRAME & COVER
NOTES:
1. PRECAST CONCRETE MANHOLE AS MANUFACTURED BY SUPERIOR CONCRETE OR APPROVED EQUAL.
2. CONCRETE: 4,000 PSI AFTER 28 DAYS.
3. REINFORCING: H-20 LOADING 4 X 4/4 X 4 W.W.M.
4. SHIPLAP JOINTS SEALED WITH 1 STRIP OF 1" DIA. BUTYL RUBBER SEALANT.
5. EACH CASTING TO HAVE LIFTING HOLES CAST IN.
6. EACH SECTION TO BE LABELED AS NOTED.
7. MANHOLE STEPS @ 12" O.C. #PS2-PF-SL.
8. PIPE OPENINGS CAST IN AS REQUIRED.
9. 8" SLAB TOP AVAILABLE.

## PRECAST CONCRETE DRAIN MANHOLE

MAXIMUM PIPE DIAMETER 30"
NOT TO SCALE




NOTES:
1. PRECAST CONCRETE CATCH BASIN AS MANUFACTURED BY SUPERIOR CONCRETE OR APPROVED EQUAL.
2. CONCRETE: 4,000 PSI AFTER 28 DAYS.
3. REINFORCING: H-20 LOADING, 4 X 4 X 4/4 W.W.M. SLAB TOP -NO. 5'S @ 8" O.C.
4. SHIPLAP JOINTS SEALED WITH 1 STRIP OF 1" DIA BUTYL RUBBER SEALANT.
5. EACH CASTING TO HAVE LIFTING HOLES CAST IN.
6. EACH SECTION TO BE LABELED AS NOTED.
7. OIL HOODS TO BE INSTALLED ON ALL OUTLET PIPES FOR CATCH BASINS AND MANHOLES WITH DEEP SUMPS.

3/4" CRUSHED STONE OR SCREENED GRAVEL BEDDING FOR FULL WIDTH OF TRENCH UP TO SPRING LINE OF PIPE (6" IN EARTH, 12" IN LEDGE)

## PRECAST CONCRETE CATCH BASIN WITH HOOD

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Engineering
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Planning
Construction Management
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Greenman-Pedersen, Inc.
44 Stiles Road, Suite One
Salem, NH 03079


PREPARED FOR
CAFUA MANAGEMENT COMPANY, LLC
280 MERRIMACK STREET
METHUEN, MA 01844

# ASSESSORS MAP 610 BLOCK 58 LOTS 4 & 5
# 477 & 479 BROADWAY
# METHUEN, MASSACHUSETTS

COMMONWEALTH OF MASSACHUSETTS
CHRISTOPHER M. TYMULA
CIVIL
No. 57140
REGISTERED PROFESSIONAL ENGINEER
3/6/24

| REVISIONS | | |
|---|---|---|
| NO. | REVISION | DATE |
| | | |

MARCH 6, 2024

| DRAWN/DESIGN BY | CHECKED BY |
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| SJB/CMT | CMT |

DETAIL SHEET

SCALE: NOT TO SCALE
PROJECT NO. NEX-2021347

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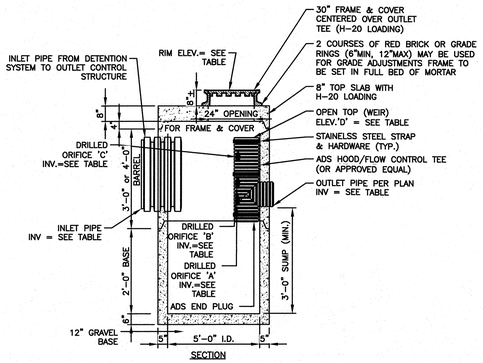



NOTES:

1. PRECAST CONCRETE MAN HOLE AS MANUFCTURED BY SUPERIOR CONCRETE OR APPROVED EQUAL.
2. CONCRETE: 4,000 PSI AFTER 28 DAYS.
3. REINFORCING: H-20 LOADING, 4 X 4/4 X 4 W.W.M. SLAB TOP -NO. 5'S @ 8" O.C.
4. SHIPLAP JOINTS SEALED WITH 1 STRIP OF 1" DIA BUTYL RUBBER SEALANT.
5. EACH CASTING TO HAVE LIFTING HOLES CAST IN.
6. LENGTH AND DIAMETER OF TEE VARIES WITH PIPE.

| OUTLET CONTROL STRUCTURE TABLE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OCS | RIM | ORIFICE | SIZE (IN.) | ELEV. | INV.IN (SIZE) | INV.IN (ELEV) | INV.OUT (SIZE) | INV.OUT (ELEV) |
| #1 | 116.50 | A | 3" DIA. X 4 | 113.10 | 12" | 113.04 | 12" | 113.10 |
| | | B | 4" DIA. X 2 | 113.60 | | | | |
| | | C | – | – | | | | |
| | | D | 12" DIA. | 114.75 | | | | |

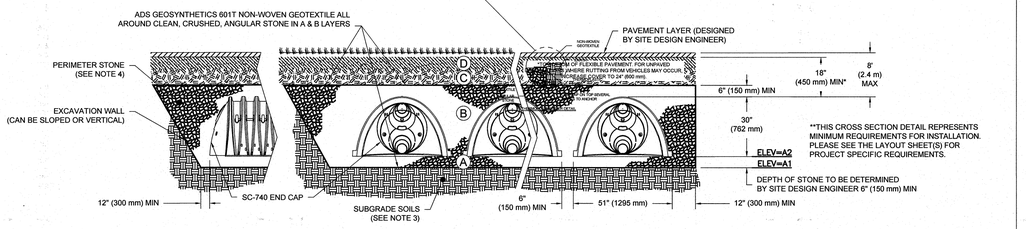
## CONCRETE OUTLET CONTROL STRUCTURE (OCS)

NOT TO SCALE

## ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS

| | MATERIAL LOCATION | DESCRIPTION | AASHTO MATERIAL CLASSIFICATIONS | COMPACTION / DENSITY REQUIREMENT |
|---|---|---|---|---|
| D | **FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER. | ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS. | N/A | PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS. |
| C | **INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER. | GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE.<br>MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER. | AASHTO M145[4]<br>A-1, A-2-4, A-3<br>OR<br>AASHTO M43[3]<br>3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10 | BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN). |
| B | **EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE. | CLEAN, CRUSHED, ANGULAR STONE | AASHTO M43[3]<br>3, 357, 4, 467, 5, 56, 57 | NO COMPACTION REQUIRED. |
| A | **FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER. | CLEAN, CRUSHED, ANGULAR STONE | AASHTO M43[3]<br>3, 357, 4, 467, 5, 56, 57 | PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3] |

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



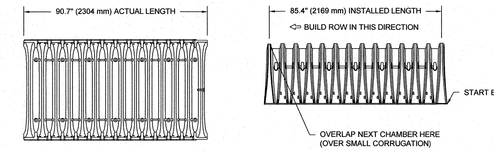

**THIS CROSS SECTION DETAIL REPRESENTS MINIMUM REQUIREMENTS FOR INSTALLATION. PLEASE SEE THE LAYOUT SHEET(S) FOR PROJECT SPECIFIC REQUIREMENTS.

| ELEVATION TABLE | | |
|---|---|---|
| SYSTEM # | ELEV. A1 | ELEV. A2 |
| INF | 111.50 | 112.00 |

## NOTES:

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 550 LBS/FT/%, AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

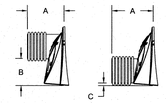
1 SC-740 CROSS SECTION DETAIL




**NOMINAL CHAMBER SPECIFICATIONS**

| | | |
|---|---|---|
| SIZE (W X H X INSTALLED LENGTH) | 51.0" X 30.0" X 85.4" | (1295 mm X 762 mm X 2169 mm) |
| CHAMBER STORAGE | 45.9 CUBIC FEET | (1.30 m³) |
| MINIMUM INSTALLED STORAGE* | 74.9 CUBIC FEET | (2.12 m³) |
| WEIGHT | 75.0 lbs. | (33.6 kg) |

*ASSUMES 6" (152 mm) STONE ABOVE, BELOW, AND BETWEEN CHAMBERS




PRE-FAB STUB AT BOTTOM OF END CAP WITH FLAMP END WITH "BR"
PRE-FAB STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PRE-FAB STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
PRE-CORED END CAPS END WITH "PC"

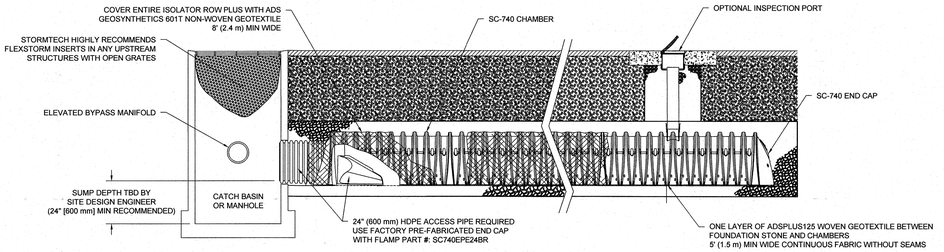
| PART # | STUB | A | B | C |
|---|---|---|---|---|
| SC740EPE06T / SC740EPE06TPC | 6" (150 mm) | 10.9" (277 mm) | 18.5" (470 mm) | --- |
| SC740EPE06B / SC740EPE06BPC | | | --- | 0.5" (13 mm) |
| SC740EPE08T /SC740EPE08TPC | 8" (200 mm) | 12.2" (310 mm) | 16.5" (419 mm) | --- |
| SC740EPE08B / SC740EPE08BPC | | | --- | 0.6" (15 mm) |
| SC740EPE10T / SC740EPE10TPC | 10" (250 mm) | 13.4" (340 mm) | 14.5" (368 mm) | --- |
| SC740EPE10B / SC740EPE10BPC | | | --- | 0.7" (18 mm) |
| SC740EPE12T / SC740EPE12TPC | 12" (300 mm) | 14.7" (373 mm) | 12.5" (318 mm) | --- |
| SC740EPE12B / SC740EPE12BPC | | | --- | 1.2" (30 mm) |
| SC740EPE15T / SC740EPE15TPC | 15" (375 mm) | 18.4" (467 mm) | 9.0" (229 mm) | --- |
| SC740EPE15B / SC740EPE15BPC | | | --- | 1.3" (33 mm) |
| SC740EPE18T / SC740EPE18TPC | 18" (450 mm) | 19.7" (500 mm) | 5.0" (127 mm) | --- |
| SC740EPE18B / SC740EPE18BPC | | | --- | 1.6" (41 mm) |
| SC740EPE24B* | 24" (600 mm) | 18.5" (470 mm) | --- | 0.1" (3 mm) |
| SC740EPE24BR* | 24" (600 mm) | 18.5" (470 mm) | --- | 0.1" (3 mm) |

ALL STUBS, EXCEPT FOR THE SC740EPE24B/SC740EPE24BR ARE PLACED AT BOTTOM OF END CAP SUCH THAT THE OUTSIDE DIAMETER OF THE STUB IS FLUSH WITH THE BOTTOM OF THE END CAP. FOR ADDITIONAL INFORMATION CONTACT STORMTECH AT 1-888-892-2694.

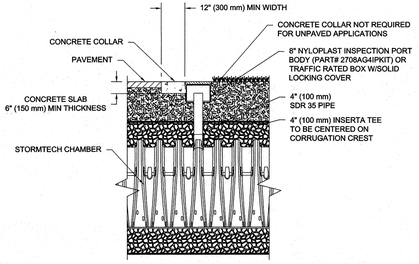
* FOR THE SC740EPE24B/SC740EPE24BR THE 24" (600 mm) STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 1.75" (44 mm). BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO THAT THE FITTING SITS LEVEL.

NOTE: ALL DIMENSIONS ARE NOMINAL

2 SC-740 TECHNICAL SPECIFICATIONS




3 SC-740 ISOLATOR ROW PLUS DETAIL




NOTE:
INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION CREST.

4 4" PVC INSPECTION PORT DETAIL (SC SERIES CHAMBER)

### INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45° (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

### NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

### UNDERGROUND INFILTRATION SYSTEM NOTES:

1) EXISTING TOPSOIL, BRUSH, TREES, BOULDERS, FILL, DEBRIS AND OTHER UNSUITABLES TO BE REMOVED FOR 5' ALL AROUND UNDERGROUND INFILTRATION SYSTEM DOWN TO NATIVE MATERIAL. BACKFILL WITH STONE BEDDING MATERIAL.
2) DO NOT TRAFFIC EXPOSED SOIL SURFACES WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE, PERFORM EXCAVATIONS WITH EQUIPMENT POSITIONED OUTSIDE THE LIMITS OF THE INFILTRATION SYSTEM.
3) AFTER EXCAVATION TO THE FINAL DESIGN ELEVATION, THE FLOOR SHALL BE DEEPLY TILLED WITH A ROTARY TILLER OR DISC HARROW TO RESTORE INFILTRATION RATES, FOLLOWED BY A PASS WITH A LEVELING DRAG.
4) DO NOT PLACE INFILTRATION SYSTEMS INTO SERVICE UNTIL THE CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
5) CONTRACTOR SHOULD CONFIRM SYSTEM PARTS AND OBTAIN SHOP DRAWINGS FROM MANUFACTURER. SUBSTITUTIONS AND SHOP DRAWINGS SHOULD BE APPROVED BY THE ENGINEER.
6) PARTS SPECIFICATIONS SHOWN ARE AS PROVIDED BY ADS INC., OR APPROVED EQUAL. ANY CHANGES TO THESE SPECIFICATIONS SHOULD BE APPROVED BY DESIGN ENGINEER FOR PERFORMANCE.

### CONSTRUCTION NOTES:

1. DO NOT TRAFFIC EXPOSED SOIL SURFACE WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE, PERFORM EXCAVATIONS WITH EQUIPMENT POSITIONED OUTSIDE THE LIMITS OF THE INFILTRATION SYSTEM.
2. AFTER THE INFILTRATION SYSTEM AREA IS EXCAVATED TO THE FINAL DESIGN ELEVATION, THE FLOOR SHOULD BE DEEPLY TILLED WITH A ROTARY TILLER OR DISC HARROW TO RESTORE INFILTRATION RATES, FOLLOWED BY A PASS WITH A LEVELING DRAG.
3. DO NOT PLACE INFILTRATION SYSTEMS INTO SERVICE UNTIL THE CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
4. STORMTECH CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH CONSTRUCTION GUIDE".
5. THE USE OF EQUIPMENT OVER CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH CONSTRUCTION GUIDE".
6. WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH CONSTRUCTION GUIDE".
7. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.
8. USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.
9. CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

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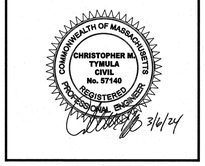
Greenman-Pedersen, Inc.
44 Stiles Road, Suite One
Salem, NH 03079

PREPARED FOR
CAFUA MANAGEMENT COMPANY, LLC
280 MERRIMACK STREET
METHUEN, MA 01844

# ASSESSORS MAP 610 BLOCK 58 LOTS 4 & 5
# 477 & 479 BROADWAY
# METHUEN, MASSACHUSETTS




| REVISIONS | | |
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MARCH 6, 2024

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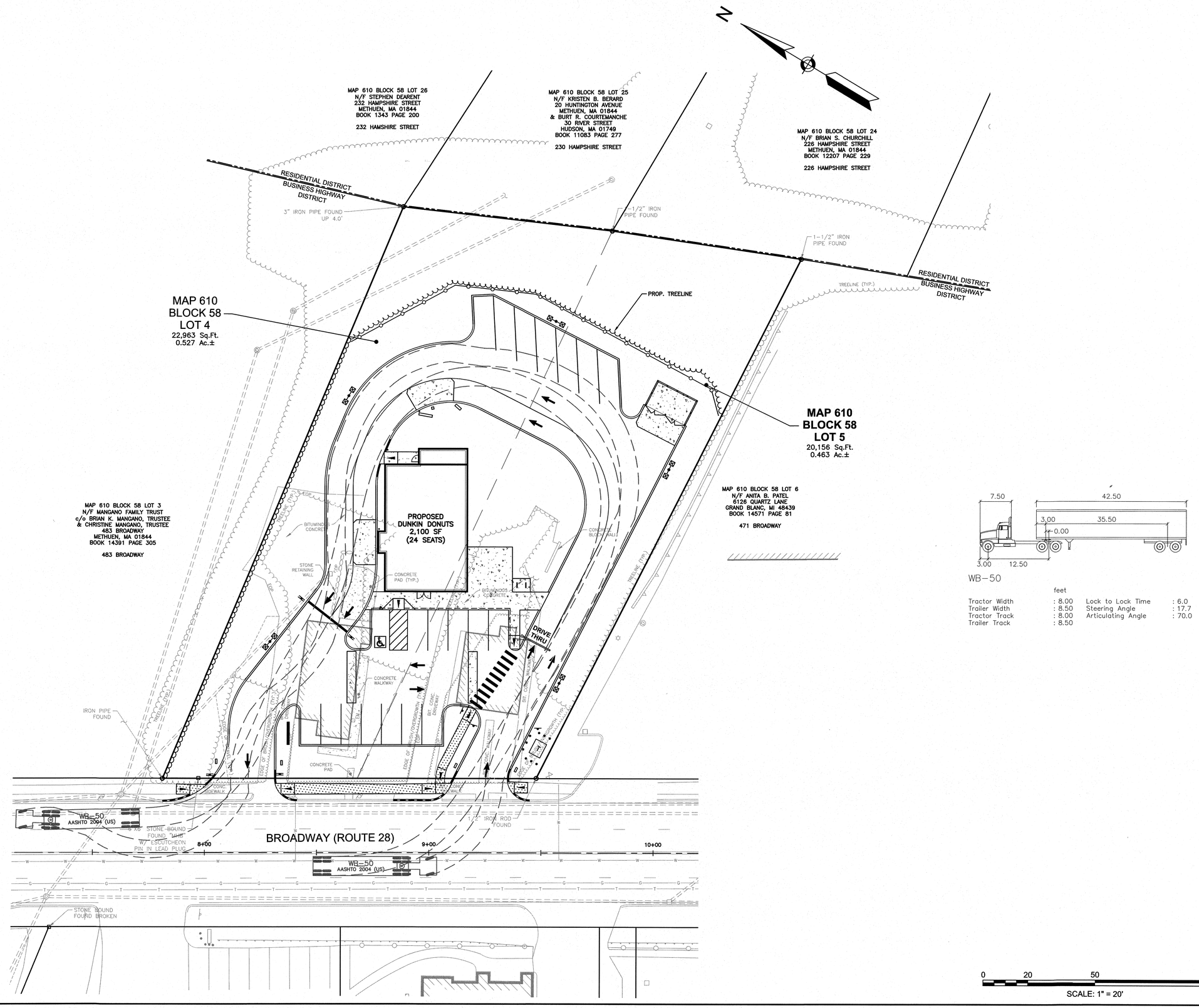
DETAIL SHEET

SCALE: NOT TO SCALE

PROJECT NO. NEX-2021347

14 OF 14




811 DigSafe MA-ME-NH-RI-VT

F:\Projects\NEX-2021347 - Methuen, MA - Cafua Management (Old 351314)\CAD Files\21347_SP.dwg TT 3/05/24 4:47pm cmason

GPI Engineering Design Planning Construction Management
603.883.0720 GPINET.COM
Greenman-Pedersen, Inc.
44 Stiles Road, Suite One
Salem, NH 03079

PREPARED FOR
CAFUA MANAGEMENT COMPANY, LLC
280 MERRIMACK STREET
METHUEN, MA 01844

# ASSESSORS MAP 610 BLOCK 58 LOTS 4 & 5
## 477 & 479 BROADWAY
## METHUEN, MASSACHUSETTS

COMMONWEALTH OF MASSACHUSETTS
CHRISTOPHER M. TYMULA
CIVIL
No. 57140
REGISTERED PROFESSIONAL ENGINEER
3/6/24

| REVISIONS | | |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| NO. | REVISION | DATE |

MARCH 6, 2024

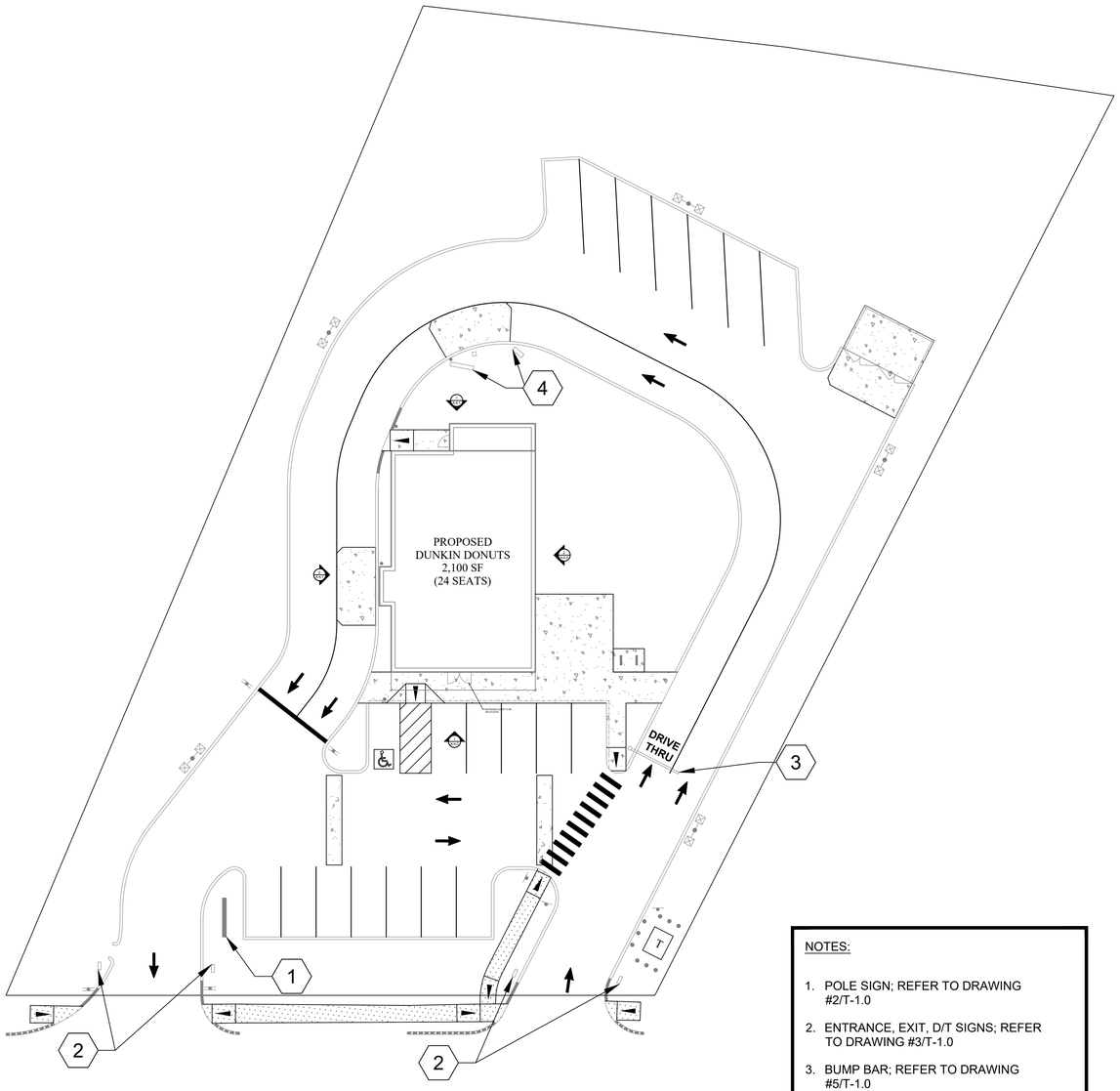
| DRAWN/DESIGN BY | CHECKED BY |
|---|---|
| SJB/CMT | CMT |

# TRUCK TURN PLAN

SCALE: 1"=20'

PROJECT NO. NEX-2021347

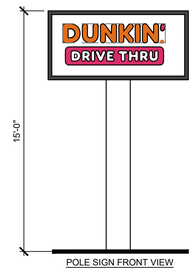
1 OF 1




NOTES:

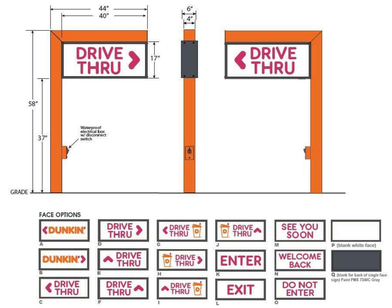
1. POLE SIGN; REFER TO DRAWING #2/T-1.0
2. ENTRANCE, EXIT, D/T SIGNS; REFER TO DRAWING #3/T-1.0
3. BUMP BAR; REFER TO DRAWING #5/T-1.0
4. D/T MENU BOARD AND SPEAKER WITH CANOPY; REFER TO DRAWING #4/T-1.0

| 1 | SITE PLAN |
|---|---|
| NTS | NOTE: |

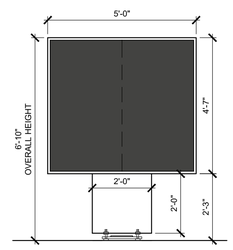



POLE SIGN FRONT VIEW

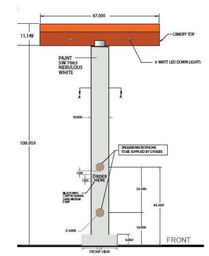
| 2 | POLE SIGN |
|---|---|
| NTS | NOTE: |




| 3 | ENTRANCE/ EXIT SIGNAGE |
|---|---|
| NTS | NOTE: |

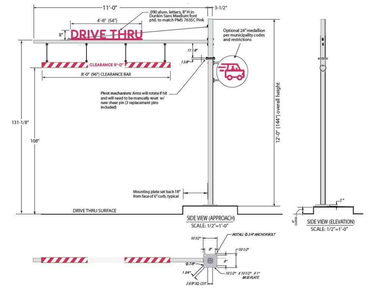



MENU BOARDS
FRONT VIEW




SPEAKER WITH CANOPY
FRONT VIEW

| 4 | D/T MENU BOARDS & SPEAKER WITH CANOPY |
|---|---|
| NTS | NOTE: |




| 5 | BUMP BAR |
|---|---|
| NTS | NOTE: |

dunkin' brands.

Interior Designer

GIANNA
DESIGN GROUP
1001 Osgood Street
North Andover, MA 01845
P: (978) 655-7455 F: (978) 225-0149

| DATE | 02/12/24 |
|---|---|
| SCALE | As Noted |
| DRAWN | LJ |
| CKD | |
| APPD | |

REVISIONS

| NO | DESCRIPTION | DATE |
|---|---|---|
| 1 | INITIAL ISSUE | xx |

Project:

Address:

447 Broadway,
Methuen, MA 01844

Drawing Title:

SITE SIGNAGE

T-1.0



NOTE: DRAWINGS ARE NOT TO SCALE IF SHEET IS PLOTTED ON 11" x 17"

01 GRAY

02 CHARCOAL

03 WOOD PATTERN

04 OFF WHITE FINISH

09 CHARCOAL

12 PINK

13 ORANGE

21'-10" A.F.F.
TOP OF MONOLITH

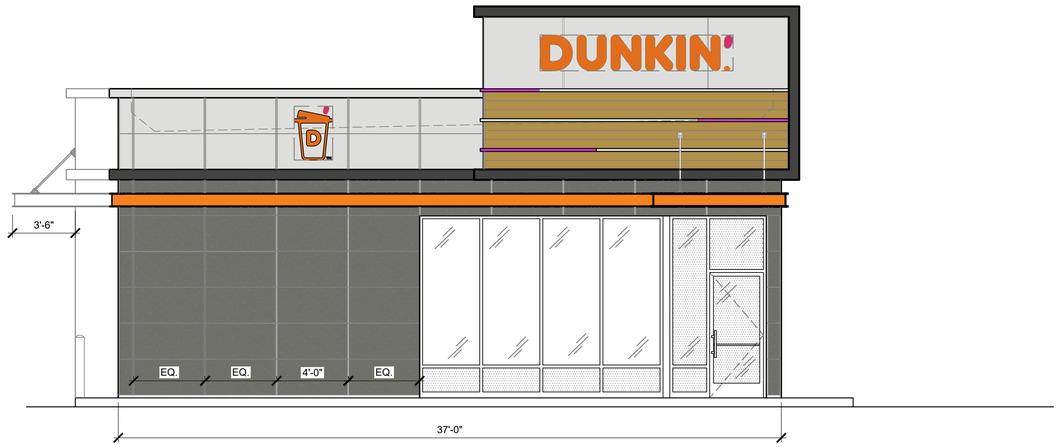
17'-3" A.F.F.
TOP OF PARAPET

12'-9" A.F.F.
TOP OF TRIM

10'-8" A.F.F.
BOTTOM OF ORANGE ACCENT BEAM/
DT WINDOW CANOPY

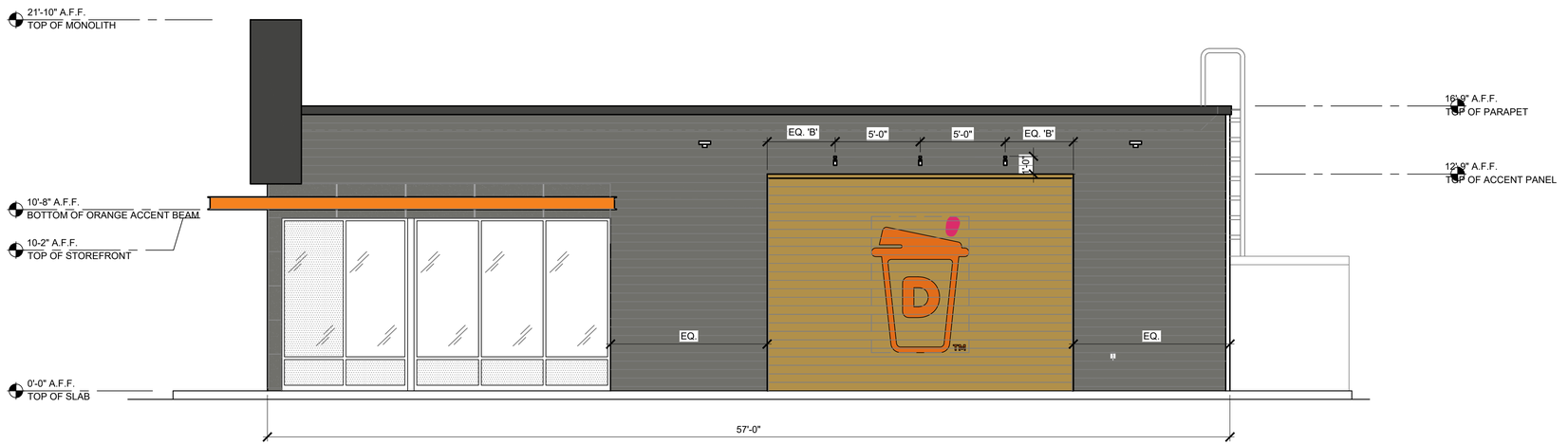
10'-2" A.F.F.
TOP OF STOREFRONT

0'-0" A.F.F.
TOP OF SLAB




1 FRONT ELEVATION

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




2 RIGHT ELEVATION

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

NOTE: DRAWINGS ARE NOT TO SCALE IF SHEET IS PLOTTED ON 11" x 17"

Stamp:

Consulting Architect

Interior Designer

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North Andover, MA 01845
P: (978) 655-7455 F: (978) 225-0149

| | |
|---|---|
| DATE | 02/12/24 |
| SCALE | As Noted |
| DRAWN | LJ |
| CKD | |
| APPD | |

REVISIONS

| NO | DESCRIPTION | DATE |
|---|---|---|
| 1 | INITIAL ISSUE | xx |

Project:

Address:

447 Broadway,
Methuen, MA 01844

Drawing Title:

EXTERIOR
ELEVATIONS

A-4.0

01 GRAY

02 CHARCOAL

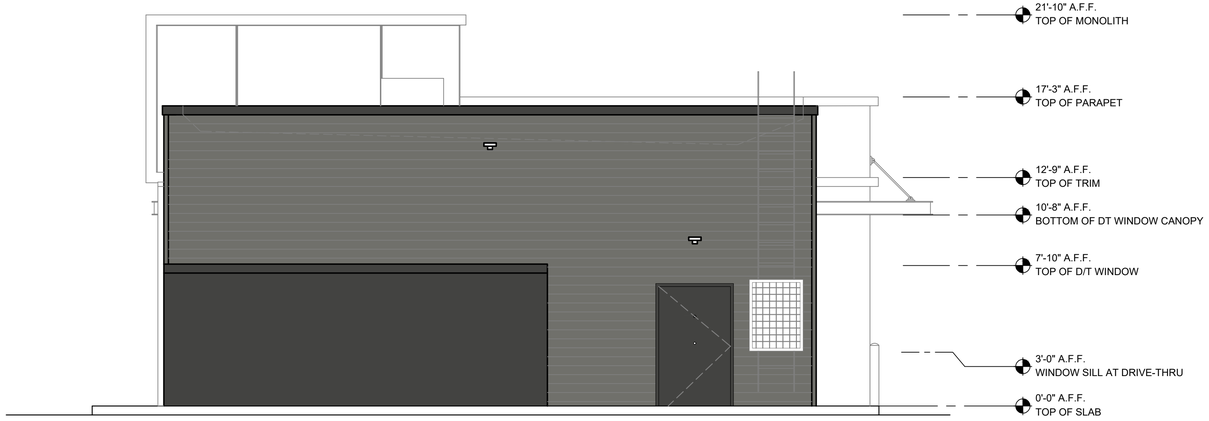
03 WOOD PATTERN

04 OFF WHITE FINISH

09 CHARCOAL

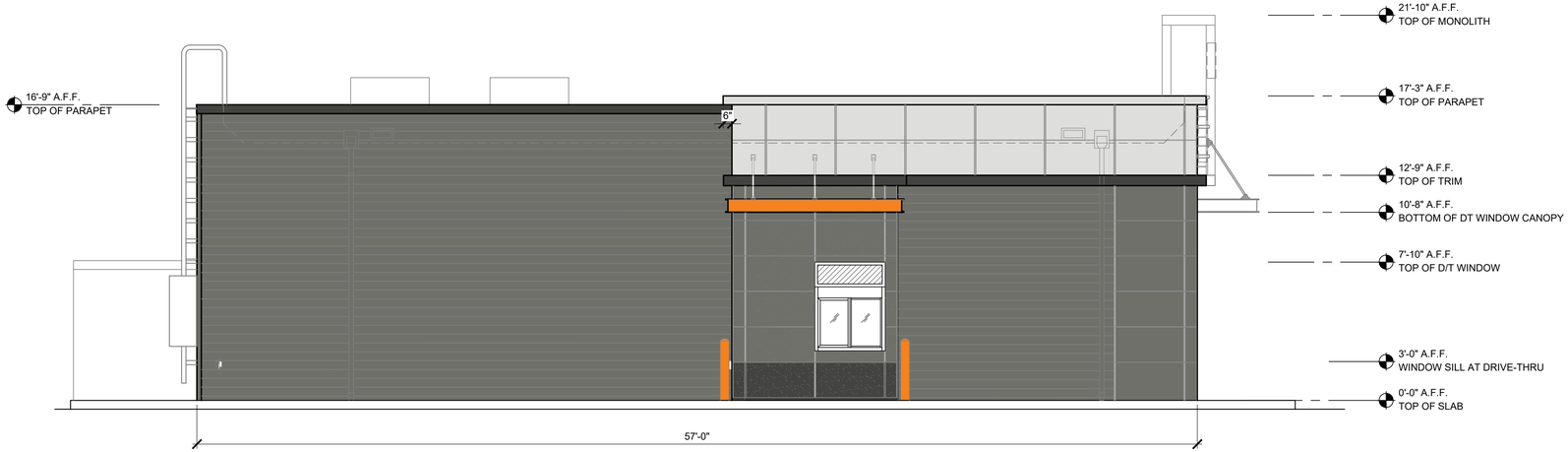
12 PINK

13 ORANGE




1 REAR ELEVATION

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




2 LEFT ELEVATION

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

Stamp:

Consulting Architect

Interior Designer

GIANNA
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North Andover, MA 01845
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| | |
|---|---|
| DATE | 02/12/24 |
| SCALE | As Noted |
| DRAWN | LJ |
| CKD | |
| APPD | |

REVISIONS

| NO | DESCRIPTION | DATE |
|---|---|---|
| 1 | INITIAL ISSUE | xx |

Project:

Address:

447 Broadway,
Methuen, MA 01844

Drawing Title:

PROPOSED
EXTERIOR
ELEVATIONS

A-4.1



NOTE: DRAWINGS ARE NOT TO SCALE IF SHEET IS PLOTTED ON 11" x 17"