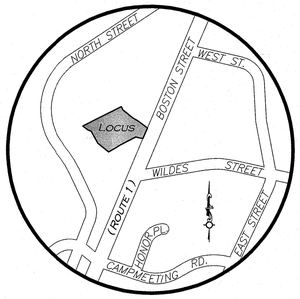
SITE DEVELOPMENT PLANS FOR
OVER 55 RESIDENTIAL DEVELOPMENT
470 BOSTON STREET
TOPSFIELD, MA



LOCUS MAP
(NOT TO SCALE)

OWNER\APPLICANT:
SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MA 01810
978.475.4055

ARCHITECT:
THE MZO GROUP
335 MAIN STREET, SUITE 201
STONEHAM, MA 02180
781.279.4446

LAND SURVEYOR & CIVIL ENGINEER
ALLEN & MAJOR ASSOCIATES, INC.
100 COMMERCE WAY
WOBURN, MA 01888-0118
781.935.6889

SANITARY SEWER ENGINEER:
EAGLEBROOK ENGINEERING AND SURVEY, LCC
491 MAPLE STREET, SUITE 304
DANVERS, MA 01923
978.777.0494

LANDSCAPE ARCHITECT:
BROWN SARDINA
24 ROLAND STREET
BOSTON, MA 02129
617.482.4703

TRAFFIC ENGINEER:
VANASSE & ASSOCIATES, INC.
35 NEW ENGLAND BUSINESS CENTER DRIVE
SUITE 140
ANDOVER, MA 01810
978.688.6508

WETLAND SCIENTIST:
SEEKAMP ENVIRONMENTAL CONSULTANTS
129 ROUTE 125
KINGSTON, NH 03848
603.642.8300

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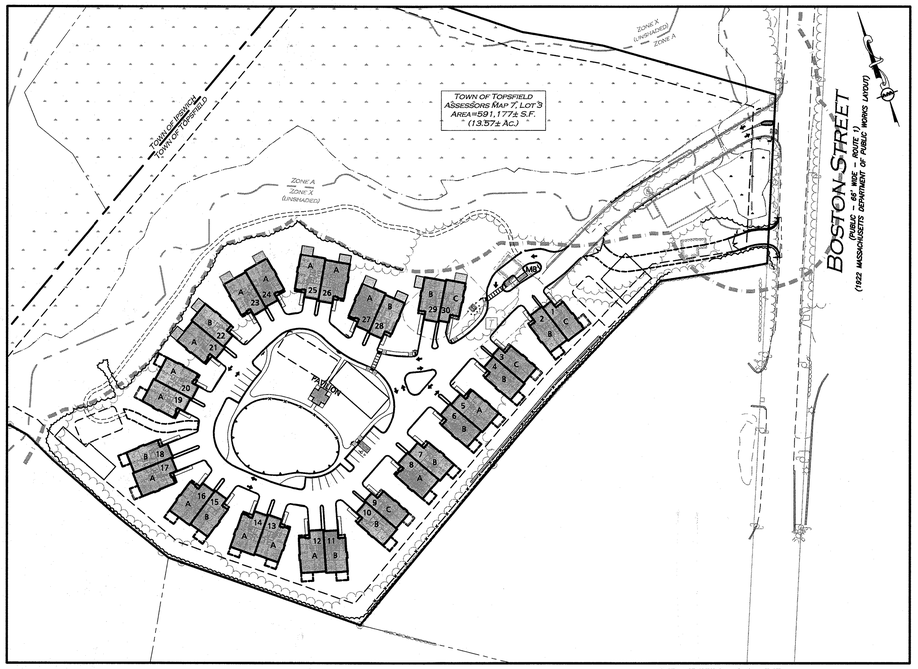

GRAPHIC SCALE
100 0 50 100 200 400
(IN FEET)
1 inch = 100 ft.

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW
AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE DATE

WE HEREBY CERTIFY THAT:

THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS DATED JANUARY 1, 1976 AND REVISED JANUARY 12, 1988.
ACCORDING TO DEEDS AND PLANS OF RECORD, THE PROPERTY LINES SHOWN ON THIS PLAN ARE THE LINES DIVIDING EXISTING OWNERSHIP, AND THE LINES OF THE STREETS OR WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS AND WAYS ALREADY ESTABLISHED, AND THAT NO NEW LINES FOR THE DIVISION OF EXISTING OWNERSHIP OR FOR NEW WAYS ARE SHOWN.
THE ABOVE CERTIFICATION IS INTENDED TO MEET REGISTRY OF DEEDS REQUIREMENTS FOR THE RECORDING OF PLANS AND IS NOT A CERTIFICATION TO THE TITLE OR OWNERSHIP OF THE PROPERTY SHOWN. OWNERS OF ADJOINING PROPERTIES ARE SHOWN ACCORDING TO CURRENT TOWN OF TOPSFIELD ASSESSOR'S INFORMATION.
THE ABOVE IS CERTIFIED TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, INFORMATION AND BELIEF.

ALLEN & MAJOR ASSOCIATES, INC.

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil & structural engineering ◆ land surveying
environmental consulting ◆ landscape architecture
www.allenmajor.com
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P.O. BOX 2118
WOBURN MA 01888-0118
TEL: (781) 935-6889
FAX: (781) 935-2896
WOBURN, MA ◆ LAKEVILLE, MA ◆ MANCHESTER, NH

COMMONWEALTH OF MASSACHUSETTS
TIMOTHY J. WILLIAMS
CIVIL
No. 43119
REGISTERED PROFESSIONAL ENGINEER
4/10/17
PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

COMMONWEALTH OF MASSACHUSETTS
KEVIN J. KIERNAN
No. 40038
PROFESSIONAL LAND SURVEYOR
KJK 4/10/17
PROFESSIONAL LAND SURVEYOR FOR ALLEN & MAJOR ASSOCIATES, INC.

FOR REGISTRY USE ONLY

CIVIL LIST OF DRAWINGS

DRAWING TITLE	SHEET NO.	ISSUED	LAST REVISED
EXISTING CONDITIONS PLAN	1	10-13-2016	3-16-17
ABBREVIATIONS & NOTES	ABB-1 - ABB-3	10-13-2016	4-10-17
DEMOLITION & EROSION CONTROL PLAN	C-1	10-13-2016	4-10-17
LAYOUT & MATERIALS PLAN	C-2	10-13-2016	4-10-17
GRADING & SPOT GRADES PLAN	C-3A - C3B	10-13-2016	4-10-17
DRAINAGE PLAN	C-4A - C4-B	10-13-2016	4-10-17
DRAINAGE PROFILES	C-4C - C-4D	10-13-2016	4-10-17
WATER & GAS UTILITIES PLAN	C-5A	10-13-2016	4-10-17
SITE ELECTRIC PLAN	C-5B	10-13-2016	4-10-17
FIRE TRUCK TURNING PLAN	C-6	10-13-2016	4-10-17
SNOW STORAGE PLAN	C-7	10-13-2016	4-10-17
TEST PITS PLAN	TPP-1	10-13-2016	4-10-17
DETAILS	D-1 - D-10	10-13-2016	4-10-17

LANDSCAPE ARCHITECTS LIST OF DRAWINGS

DRAWING TITLE	SHEET NO.	ISSUED	LAST REVISED
PLANTING PLAN	L-1	10-13-2016	3-16-17
PLANT LIST AND SEEDING PLAN	L-2	10-13-2016	3-16-17
LIGHTING CUT SHEETS	L-3	2-27-17	3-16-17
LIGHTING CUT SHEETS	L-4	2-27-17	3-16-17

SANITARY SEWER LIST OF DRAWINGS

DRAWING TITLE	SHEET NO.	ISSUED	LAST REVISED
SDS PLAN	SDS-1	10-13-2016	4-10-17
SDS PLAN	SDS-1.1	10-13-2016	4-10-17
SDS PLAN	SDS-2.1	10-13-2016	4-10-17
SDS PLAN	SDS-3.1	10-13-2016	4-10-17
SDS PLAN	SDS-4	10-13-2016	4-10-17
SDS PLAN	SDS-5	10-13-2016	4-10-17

ARCHITECTURAL LIST OF DRAWINGS

DRAWING TITLE	SHEET NO.	ISSUED	LAST REVISED
COVER	COVER	10-05-16	11-23-16
UNIT A ELEVATIONS I	A-1	10-05-16	11-23-16
UNIT A ELEVATIONS II	A-2	10-05-16	11-23-16
UNIT A FIRST FLOOR	A-3	10-05-16	11-23-16
UNIT A SECOND FLOOR	A-4	10-05-16	11-23-16
UNIT B ELEVATIONS I	A-5	10-05-16	11-23-16
UNIT B ELEVATIONS II	A-6	10-05-16	11-23-16
UNIT B FIRST FLOOR	A-7	10-05-16	11-23-16
UNIT B SECOND FLOOR	A-8	10-05-16	11-23-16
UNIT C ELEVATIONS I	A-9	10-05-16	11-23-16
UNIT C ELEVATIONS II	A-10	10-05-16	11-23-16
UNIT C FIRST FLOOR	A-11	10-05-16	11-23-16
UNIT C SECOND FLOOR	A-12	10-05-16	11-23-16

RE-ISSUED FOR SPECIAL PERMIT, SITE PLAN REVIEW & NOTICE OF INTENT: APRIL 10, 2017

RE-ISSUED FOR SPECIAL PERMIT,SITE PLAN REVIEW & NOTICE OF INTENT : MARCH 16, 2017
RE-ISSUED FOR SPECIAL PERMIT, SITE PLAN REVIEW & NOTICE OF INTENT: FEBRUARY 27, 2017
RE-ISSUED FOR SPECIAL PERMIT & SITE PLAN REVIEW : JANUARY 17, 2017
ISSUED FOR SPECIAL PERMIT, SITE PLAN REVIEW & NOTICE OF INTENT: OCTOBER 13, 2016

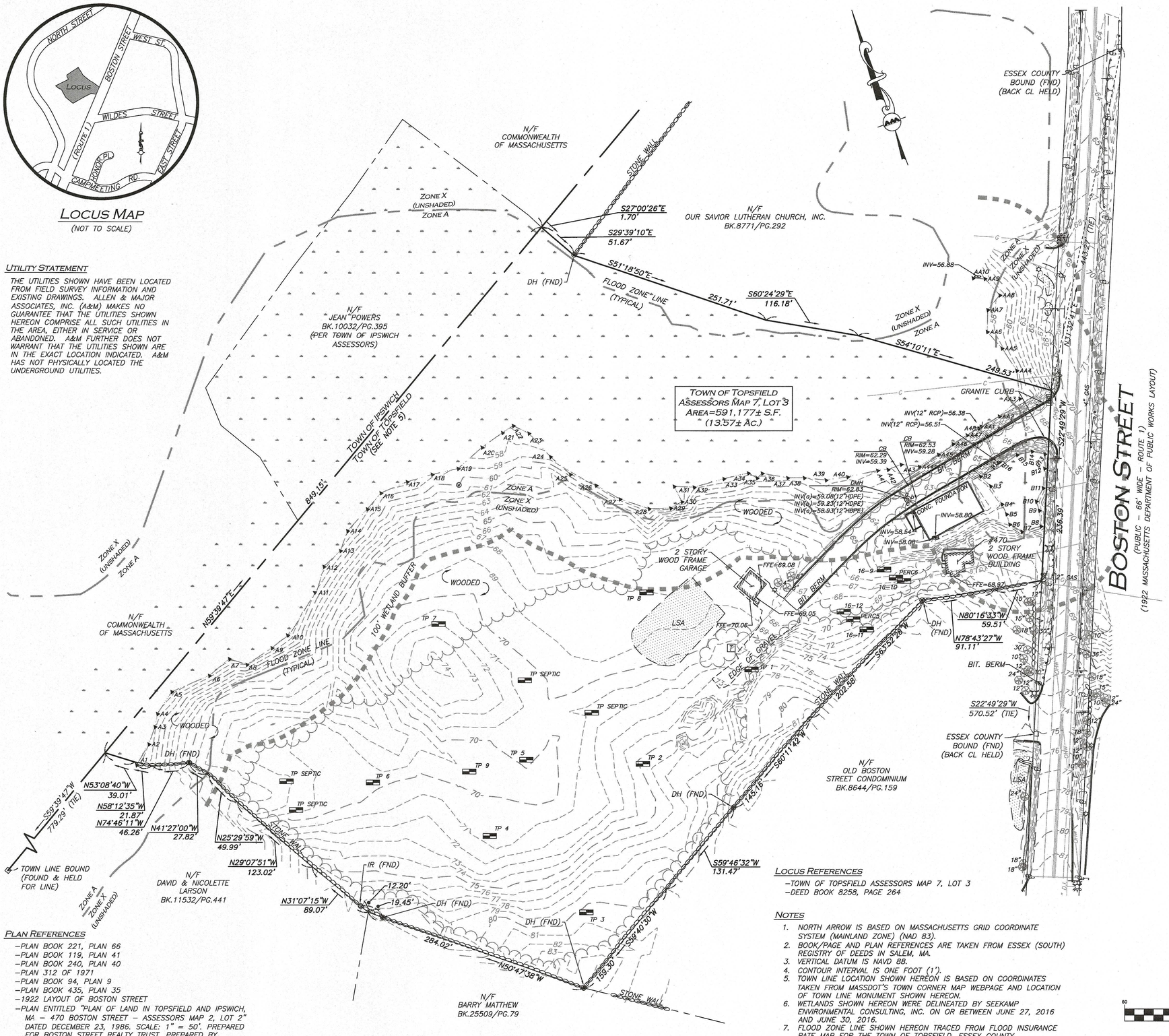
N:\PROJECTS\2165-01A\CIVIL\DRAWINGS\CURRENT\C-2165-01A - COVER.DWG

LOCUS MAP

(NOT TO SCALE)

UTILITY STATEMENT

THE UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. ALLEN & MAJOR ASSOCIATES, INC. (A&M) MAKES NO GUARANTEE THAT THE UTILITIES SHOWN HEREON COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. A&M FURTHER DOES NOT WARRANT THAT THE UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. A&M HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.



PLAN REFERENCES

- –PLAN BOOK 221, PLAN 66
- –PLAN BOOK 119, PLAN 41
- –PLAN BOOK 240, PLAN 40
- –PLAN 312 OF 1971
- –PLAN BOOK 94, PLAN 9
- –PLAN BOOK 435, PLAN 35
- –1922 LAYOUT OF BOSTON STREET
- –PLAN ENTITLED "PLAN OF LAND IN TOPSFIELD AND IPSWICH, MA – 470 BOSTON STREET – ASSESSORS MAP 2, LOT 2" DATED DECEMBER 23, 1986. SCALE: 1" = 50'. PREPARED FOR BOSTON STREET REALTY TRUST. PREPARED BY HANCOCK SURVEY ASSOCIATES, INC.

LOCUS REFERENCES

- –TOWN OF TOPSFIELD ASSESSORS MAP 7, LOT 3
- –DEED BOOK 8258, PAGE 264

NOTES

1. NORTH ARROW IS BASED ON MASSACHUSETTS GRID COORDINATE SYSTEM (MAINLAND ZONE) (NAD 83).
2. BOOK/PAGE AND PLAN REFERENCES ARE TAKEN FROM ESSEX (SOUTH) REGISTRY OF DEEDS IN SALEM, MA.
3. VERTICAL DATUM IS NAVD 88.
4. CONTOUR INTERVAL IS ONE FOOT (1').
5. TOWN LINE LOCATION SHOWN HEREON IS BASED ON COORDINATES TAKEN FROM MASSDOT'S TOWN CORNER MAP WEBPAGE AND LOCATION OF TOWN LINE MONUMENT SHOWN HEREON.
6. WETLANDS SHOWN HEREON WERE DELINEATED BY SEEKAMP ENVIRONMENTAL CONSULTING, INC. ON OR BETWEEN JUNE 27, 2016 AND JUNE 30, 2016.
7. FLOOD ZONE LINE SHOWN HEREON TRACED FROM FLOOD INSURANCE RATE MAP FOR THE TOWN OF TOPSFIELD, ESSEX COUNTY, MASSACHUSETTS AS SHOWN ON COMMUNITY PANEL NUMBER 250106 0266F, HAVING AN EFFECTIVE DATE OF JULY 3, 2012.

FOR REGISTRY USE ONLY

LEGEND

DRILL HOLE (DH)	
IRON ROD (IR)	
DRAIN MANHOLE (DMH)	
CATCH BASIN (CB)	
ROUND CATCH BASIN (RCB)	
UTILITY POLE	
UTILITY POLE W/RISER	
FIRE HYDRANT	
GAS GATE	GG
INVERT (INV)	
FLARED END SECTION	
LIGHT	
TREE	
TEST PIT LOCATION	
SIGN	
MAILBOX	MB
WETLAND FLAG	A31
HAND HOLE	H.H.
CABLE BOX	C
TELEPHONE BOX	T
ELECTRIC BOX	E
ELECTRIC METER	E
CONCRETE	
LANDSCAPED AREA (LSA)	
WETLAND AREA	
BUILDING	
WETLAND	
BUFFER ZONE	
1' CONTOUR	53
5' CONTOUR	55
PROPERTY LINE	
ABUTTERS LINE	
TOWN LINE	
STONE WALL	
CONCRETE RETAINING WALL	
TREE LINE	
EDGE OF PAVEMENT	
EDGE OF GRAVEL	
CURB	
STEEL GUARDRAIL	
DRAIN LINE	D
TELEPHONE LINE	T
WATER LINE	W
GAS LINE	G
COMCAST LINE	C
OVERHEAD WIRES	OHW
DUCTILE IRON	D.I.
FINISHED FLOOR ELEVATION	FFE
BITUMINOUS	BIT.
CONCRETE	CONC.
HIGH DENSITY POLYETHYLENE PIPE	HDPE
FOUND	FND
NOW OR FORMERLY	N/F
BOOK	BK.
PAGE	PG.
PLAN	PL.
CERTIFICATE OF TITLE	COT
LAND COURT	L.C.
LAND COURT CASE	L.C.C.

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.

N:\PROJECTS\2165-01A\SURVEY\DRAWINGS\S-2165-01A-EC.DWG
FB# 1707 PG. 104

WE HEREBY CERTIFY THAT:

THIS PLAN IS THE RESULT OF AN ACTUAL ON THE GROUND SURVEY PERFORMED ON OR BETWEEN JUNE 30, 2016 AND JULY 12, 2016.

THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS DATED JANUARY 1, 1976 AND REVISED JANUARY 12, 1988.

ACCORDING TO DEEDS AND PLANS OF RECORD, THE PROPERTY LINES SHOWN ON THIS PLAN ARE THE LINES DIVIDING EXISTING OWNERSHIP, AND THE LINES OF THE STREETS OR WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS AND WAYS ALREADY ESTABLISHED, AND THAT NO NEW LINES FOR THE DIVISION OF EXISTING OWNERSHIP OR FOR NEW WAYS ARE SHOWN.

THE ABOVE CERTIFICATION IS INTENDED TO MEET REGISTRY OF DEEDS REQUIREMENTS FOR THE RECORDING OF PLANS AND IS NOT A CERTIFICATION TO THE TITLE OR OWNERSHIP OF THE PROPERTY SHOWN. OWNERS OF ADJOINING PROPERTIES ARE SHOWN ACCORDING TO CURRENT TOWN OF TOPSFIELD AND TOWN OF IPSWICH ASSESSORS' INFORMATION.

THE ABOVE IS CERTIFIED TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, INFORMATION AND BELIEF.

ALLEN & MAJOR ASSOCIATES, INC.

COMMONWEALTH OF MASSACHUSETTS
KEVIN J. KIERNAN
No. 40038
PROFESSIONAL LAND SURVEYOR

KJK 5/16/17

PROFESSIONAL LAND SURVEYOR FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
4.	03/16/17	REVISED PER TOWN COMMENTS
3.	02/27/17	VARIOUS REVISIONS
2.	01/17/17	WATER LINE PER TOWN COMMENTS
1.	10/13/16	FLOOD ZONE LINE ADDED

APPLICANT\OWNER:

SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MA 01810

PROJECT:

470 BOSTON STREET
(ROUTE 1)
TOPSFIELD, MA

PROJECT NO.	2165-01A	DATE:	08/02/16
SCALE:	1" = 60'	DWG. NAME:	S-2165-01A-EC
DRAFTED BY:	COB\MSM	CHECKED BY:	KJK

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil & structural engineering ◆ land surveying
environmental consulting ◆ landscape architecture
www.allenmajor.com
100 COMMERCE WAY
P.O. BOX 2118
WOBURN MA 01888-0118
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WOBURN, MA ◆ LAKEVILLE, MA ◆ MANCHESTER, NH

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DRAWING TITLE: EXISTING CONDITIONS

SHEET No. 1

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GENERAL NOTES:

1. FOR EXISTING CONDITIONS SURVEY, SEE PLAN ENTITLED "EXISTING CONDITIONS", AS PREPARED BY ALLEN & MAJOR ASSOCIATES, INC. THE ON THE GROUND SURVEY WAS PERFORMED ON OR BETWEEN JUNE 30, 2016 & JULY 12, 2016.

2. ZONING DISTRICT IS BUSINESS PARK DISTRICT (BP), AS WELL AS AN ELDERLY HOUSING DISTRICT (EHD) OVERLAY IN THE TOWN OF TOPSFIELD.

3. PER THE TOWN OF TOPSFIELD ENGINEERING DEPARTMENT, IT IS THE CONTRACTOR'S RESPONSIBILITY TO:

   - SCHEDULE A PRECONSTRUCTION MEETING WITH THE TOPSFIELD ENGINEERING DEPARTMENT TO REVIEW THE CONSTRUCTION SCHEDULE, PERMITTED DRAWINGS AND PERMIT CONDITIONS AT LEAST ONE (1) WEEK PRIOR TO THE COMMENCEMENT OF EARTH DISTURBING ACTIVITIES AT NO ADDITIONAL COST TO OWNER.
   - GIVE REASONABLE NOTICE TO THE TOPSFIELD ENGINEERING DEPARTMENT FOR INSPECTION PRIOR TO INSTALLING ANY PROPOSED STORMWATER MANAGEMENT SYSTEMS OR INSTALLATION OF ANY OTHER CRITICAL DESIGN COMPONENTS IDENTIFIED DURING THE ABOVE MENTIONED PRECONSTRUCTION MEETING.
   - PROVIDE AS-BUILT PLANS IN ACCORDANCE WITH THE TOWN OF TOPSFIELD STORMWATER MANAGEMENT REGULATIONS.

4. OVERALL LOT SIZE: 13.57± ACRES. TOWN OF TOPSFIELD ASSESSORS MAP #7 PARCEL #3.

5. DURING CONSTRUCTION, ALL VEHICLES MUST BE PARKED ON SITE.

6. DURING CONSTRUCTION, ALL STAGING AND DELIVERIES WILL OCCUR ON SITE.

7. EXTERIOR CONSTRUCTION ACTIVITIES ON THE SITE SHALL FOLLOW ALL APPLICABLE REGULATIONS PER THE TOWN OF TOPSFIELD, AS IT RELATES TO CONSTRUCTION HOURS, NOISE AND CONSTRUCTION SCREENING AND FENCING.

8. THIS PROJECT WILL BE SERVED BY PUBLIC WATER, NATURAL GAS, TELEPHONE, CABLE AND ELECTRIC. ALL UTILITY LINES WILL BE INSTALLED UNDERGROUND UNLESS OTHERWISE NOTED.

9. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DIGSAFE" AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF UTILITIES AND THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS AT NO ADDITIONAL COST.

10. ALL MAIN BUILDING ENTRANCES AND WALKS SHALL BE HANDICAP ACCESSIBLE PER FEDERAL ADA & MA AAB REGULATIONS AT NO ADDITIONAL COST TO THE OWNER.

11. ALL SITE WORK DONE FOR THIS PROJECT SHALL BE IN STRICT ACCORDANCE WITH THE SITE PLANS AND SITE WORK SPECIFICATIONS FOR CONSTRUCTION.

12. ANY DAMAGE TO PRIVATE OR PUBLIC PROPERTIES DUE TO THE CONTRACTOR'S ACTIVITIES SHALL BE REPAIRED AND RESTORED BY THE CONTRACTOR AT THEIR OWN EXPENSE.

13. ALL PROPERTY MARKERS AND STREET LINE MONUMENTS SHALL BE PROPERLY PROTECTED DURING CONSTRUCTION. ANY DAMAGE TO THESE ITEMS SHALL BE REPAIRED AND RESTORED BY A SURVEYOR REGISTERED IN THE STATE OF MASSACHUSETTS AT THE CONTRACTOR'S EXPENSE.

14. ALL APPLICABLE PERMITS AND AN APPROVED SET OF PLANS SHALL BE AVAILABLE AT THE CONSTRUCTION SITE.

15. THE CONTRACTOR IS RESPONSIBLE FOR SCHEDULING A PRECONSTRUCTION MEETING THE WITH THE APPROPRIATE TOWN DEPARTMENTS, THE APPROPRIATE UTILITY COMPANIES, THE OWNER AND OWNER'S REPRESENTATIVE. THE MEETING SHALL TAKE PLACE PRIOR TO THE START OF CONSTRUCTION AND THE CONTRACTOR MUST PROVIDE 48 HOURS NOTICE TO ALL ATTENDEES PRIOR TO THE START OF THE MEETING.

16. APPROPRIATE WARNING SIGNS, MARKERS, BARRICADES AND/OR FLAG MEN SHALL BE PROVIDED TO REGULATE TRAFFIC. CONSTRUCTION TRAFFIC CONTROLS SHALL BE IMPLEMENTED AND OPERATED ACCORDING TO THE MASS DEPARTMENT OF TRANSPORTATION, THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND THE LOCAL AUTHORITY.

17. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ADDITIONAL BENCHMARK INFORMATION IF REQUIRED. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING BENCHMARKS. IF IT IS NECESSARY TO RELOCATE A BENCHMARK, IT SHALL BE RELOCATED BY A MASSACHUSETTS PROFESSIONAL LAND SURVEYOR AND DONE SO AT THE CONTRACTOR'S EXPENSE.

18. ALL BUILDING DIMENSIONS ARE MEASURED TO THE OUTSIDE FACE OF THE BUILDING.

19. ALL RADII ARE 3 FEET UNLESS OTHERWISE NOTED.

20. ALL PARKING LOT AND AISLE DIMENSIONS ARE TAKEN FROM THE FACE OF CURB AND INDICATE EDGE OF PAVEMENT.

21. CONSTRUCTION DURING WET WEATHER OR WINTER CONDITIONS IS TO BE ANTICIPATED AND PROVISIONS TO ADEQUATELY ADDRESS THESE CONDITIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AT NO ADDITIONAL COST.

22. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND PAYING FOR ANY PERMITS AND/OR CONNECTION FEES REQUIRED TO CARRY OUT THE WORK INCLUDING BUT NOT LIMITED TO DEMOLITION.

23. DISPOSAL OF ALL DEMOLISHED MATERIALS INCLUDING EXISTING MISC. CONSTRUCTION DEBRIS FILL IS THE RESPONSIBILITY OF THE CONTRACTOR AND MUST BE DISPOSED OF OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL MUNICIPAL REQUIREMENTS AT NO ADDITIONAL COST.

24. ALL DISTURBED AREAS NOT NOTED TO RECEIVE OTHER TREATMENT ARE TO RECEIVE SIX INCHES (6") MINIMUM OF TOPSOIL & SEED, AND BE MAINTAINED UNTIL ESTABLISHED & ACCEPTED.

25. EXISTING STRUCTURES WITHIN CONSTRUCTION LIMITS ARE TO BE ABANDONED, REMOVED OR RELOCATED AS NECESSARY.

26. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELOCATIONS, INCLUDING BUT NOT LIMITED TO, ALL UTILITIES, STORM DRAINAGE, SIGNS, TRAFFIC SIGNALS & POLES, ETC. AS REQUIRED. ALL WORK SHALL BE IN ACCORDANCE WITH THE TOWN OF TOPSFIELD'S GOVERNING AUTHORITY'S SPECIFICATIONS AND SHALL BE APPROVED BY SUCH.

27. THE CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO DETERMINE EXACT POINT OF SERVICE CONNECTION AND DISCONNECTION AT EXISTING UTILITY.

28. ALL ELEVATIONS SHOWN ARE IN REFERENCE TO THE BENCHMARK AND MUST BE VERIFIED BY THE GENERAL CONTRACTOR AT GROUNDBREAKING.

29. EXISTING AND PROPOSED GAS SERVICE LOCATIONS ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL CONFIRM WITH THE GAS COMPANY THAT THE GAS LINE INSTALLATION & DISCONNECTION SHALL BE BY THE LOCAL GAS COMPANY. THE CONTRACTOR SHALL GIVE THE GAS COMPANY ADVANCE NOTICE OF WHEN THE GAS LINE CAN BE INSTALLED.

GENERAL NOTES (CONTINUED):

30. EXISTING & PROPOSED ELECTRIC AND COMMUNICATIONS (TELEPHONE AND CABLE) SYSTEMS LOCATIONS ARE APPROXIMATE ONLY AND SHALL BE COORDINATED AND SCHEDULED WITH THE APPROPRIATE UTILITY COMPANY SERVICING THE PROJECT SITE.

31. CONTRACTOR IS RESPONSIBLE FOR DIGGING TEST HOLES AND VERIFYING ANY EXISTING UTILITY OR STRUCTURE PRIOR TO CONSTRUCTION. CONTRACTOR SHALL VERIFY THAT BASED ON EXACT LOCATION OF EXISTING UTILITIES, THERE ARE NO CONFLICTS BETWEEN THEM AND THE PROPOSED UTILITIES.

32. THE CONTRACTOR SHALL ADHERE TO ALL PERMIT CONDITIONS PROVIDED BY ALL GOVERNING AGENCIES AT NO ADDITIONAL COSTS. THIS INCLUDES BUT IS NOT LIMITED TO BUILDING PERMITS, DEMOLITION PERMITS, PLUMBING, GAS, AND ELECTRICAL PERMITS.

33. THE CONTRACTOR SHALL BE FAMILIAR WITH AND ADHERE TO THE TOPSFIELD CONSERVATION COMMISSION'S ORDER OF CONDITIONS (OOC), TOPSFIELD PLANNING BOARD DECISION, AND TOPSFIELD ZONING BOARD OF APPEALS DECISION, CONDITIONS, AND REQUIREMENTS AT NO ADDITIONAL COST TO OWNER.

34. IT IS THE CONTRACTORS RESPONSIBILITY TO PROPERLY DISPOSE OF AND ABATE ALL BUILDING MATERIALS OR ANY HAZARDOUS MATERIALS ONSITE IN ACCORDANCE WITH ALL STATE, FEDERAL, AND LOCAL LAWS AND REGULATIONS AT NO ADDITIONAL COST TO THE OWNER.

35. DURING EXCAVATION, ANY EXISTING LOAM WHICH DOES NOT MEET THE STANDARD LOAM DETAIL SHALL BE REMOVED OFFSITE BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

GRADING & DRAINAGE NOTES:

1. EXISTING PAVEMENT SHALL BE SAW-CUT AND PAVEMENT JOINT SHALL BE INSTALLED WHERE NECESSARY TO ENSURE A SMOOTH CONTINUOUS GRADE.

2. THE ARCHITECTURAL PLANS SHALL BE REFERRED TO IN ORDER TO DETERMINE THE EXACT LOCATIONS OF VESTIBULE, SLOPED PAVING, EXIT PORCHES, HANDICAPPED RAMPS, TRUCK DOCKS, COMPACTOR PAD, ROOF DRAIN LATERALS AND PRECISE BUILDING DIMENSIONS.

3. ALL GRADING OPERATIONS SHALL BE COORDINATED WITH THE APPROPRIATE UTILITY COMPANIES.

4. IN LANDSCAPED AREAS THE TOP ELEVATION OF MANHOLES SHALL MATCH THE FINISH GRADE OF THE TOPSOIL. IN PAVED AREAS THE TOP ELEVATIONS OF MANHOLES SHALL MATCH FINISH GRADE.

5. ALL AREAS DISTURBED DURING CONSTRUCTION SHALL BE STABILIZED AS SOON AS POSSIBLE UPON COMPLETION OF CONSTRUCTION WORK IN THE AREA.

6. TEMPORARY STRAW BALE PROTECTION AND/OR SILT SACK SHALL BE INSTALLED AND MAINTAINED AT EXISTING DRAINAGE STRUCTURES DURING CONSTRUCTION, TO PREVENT SEDIMENT LADEN RUNOFF FROM ENTERING THE DRAINAGE SYSTEM. SILT SACKS ARE REQUIRED AT ALL EXISTING DRAINAGE STRUCTURE INLETS DURING CONSTRUCTION.

7. CONTRACTOR IS RESPONSIBLE FOR DEMOLITION OF EXISTING STRUCTURES INCLUDING REMOVAL OF ANY EXISTING UTILITIES SERVING THE STRUCTURE.

8. ALL CATCH BASINS, MANHOLES, INFILTRATION SYSTEM, AND WATER QUALITY STRUCTURES ARE TO BE CLEANED OUT PRIOR TO FINAL APPROVAL TO REMOVE ALL CONSTRUCTION SILT AND DEBRIS.

9. IF ANY EXISTING UTILITY STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER AT NO ADDITIONAL COST.

10. ALL STORM PIPE ENTERING STRUCTURES SHALL BE GROUTED TO ASSURE CONNECTION AT STRUCTURE IS WATERTIGHT.

11. ALL STORM DRAIN MANHOLES SHALL HAVE TRAFFIC BEARING RING & COVERS & SHALL BE LABELED "DRAIN".

12. THE CONTRACTOR SHALL ADHERE TO ALL TERMS & CONDITIONS AS OUTLINED IN THE GENERAL N.P.D.E.S. PERMIT FOR STORM WATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES.

13. CONTRACTOR SHALL ASSURE POSITIVE DRAINAGE AWAY FROM BUILDINGS FOR ALL NATURAL AND PAVED AREAS.

14. ALL UNSURFACED AREAS DISTURBED BY GRADING OPERATION SHALL RECEIVE SIX INCHES (6") OF TOPSOIL. CONTRACTOR SHALL GRASS DISTURBED AREAS IN ACCORDANCE WITH LANDSCAPE & CIVIL SPECIFICATIONS & DRAWINGS UNTIL A HEALTHY STAND OF GRASS IS OBTAINED.

15. CONTRACTOR SHALL APPLY STABILIZATION FABRIC TO ALL SLOPES 3H:1V OR STEEPER.

16. ALL DRAINAGE SHALL CONFORM TO LOCAL REQUIREMENTS.

UTILITY NOTES:

1. THE LATEST STANDARDS OF THE TOWN OF TOPSFIELD SHALL BE FOLLOWED WHEN INSTALLING ANY SANITARY SEWER AND STORM DRAIN WORK. BOTH SEWER AND STORM DRAIN WORK WILL BE INSPECTED BY TOWN OF TOPSFIELD PERSONNEL AND ALL COSTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

2. THE LATEST STANDARDS OF THE TOWN OF TOPSFIELD SHALL BE FOLLOWED WHEN INSTALLING ANY WATER LINE WORK. WATER LINE WORK WILL BE INSPECTED BY TOWN OF TOPSFIELD PERSONNEL AND ALL COSTS SHALL INCLUDE PRESSURE TESTING, DISINFECTING, AND FLUSHING OF LINES. INSPECTION COSTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION AND REMOVAL OF ALL NECESSARY DISINFECTING AND FLUSHING TAPS AS DIRECTED BY THE TOWN.

3. THE CONTRACTOR SHALL REFER TO ARCHITECTURAL & PLUMBING DRAWINGS AND SPECIFICATIONS FOR ACTUAL LOCATION OF ALL ROOF DRAIN LATERALS AND UTILITY ENTRANCES TO INCLUDE SANITARY SEWER LATERALS, DOMESTIC AND FIRE PROTECTION WATER SERVICE, ELECTRIC, TELEPHONE, AND NATURAL GAS SERVICE. THE CONTRACTOR SHALL COORDINATE INSTALLATION OF UTILITIES IN SUCH A MANNER AS TO AVOID CONFLICTS AND COORDINATE WITH THE PROPER AGENCY THE LOCATION AND SCHEDULING OF CONNECTIONS WITH THEIR FACILITIES.

4. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION.

5. ABANDONED EXISTING UTILITIES AND UTILITIES TO BE ABANDONED SHALL EITHER BE ABANDONED IN PLACE AS NOTED OR SHALL BE REMOVED AND DISPOSED OF AS SPECIFIED. ANY UTILITIES 4" OR LARGER ARE TO BE REMOVED. ALL UTILITIES SCHEDULED FOR ABANDONMENT OR REMOVAL AND DISPOSAL MUST BE COORDINATED BY THE CONTRACTOR WITH THE RESPECTIVE UTILITY OWNER. WHEN ABANDONED UTILITIES ARE TO BE LEFT IN PLACE, PLUG OR CAP THE ENDS OF THE CONDUITS AND PIPES. REMOVE ABANDONED UTILITY MANHOLES, JUNCTION BOXES AND SIMILAR STRUCTURES TO A MINIMUM DEPTH OF 4 FEET BELOW FINISHED GRADE AND PUNCTURE OR BREAK THE BOTTOM SLABS OF MANHOLES AND SIMILAR STRUCTURE TO ALLOW DRAINAGE. BACKFILL AND COMPACT EXCAVATIONS RESULTING FROM REMOVAL OF UTILITY FACILITATES, AS REQUIRED TO RESTORE THE ORIGINAL GRADE.

6. THE CONTRACTOR SHALL MAKE ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENTS OF NATURAL GAS, ELECTRIC, TELEPHONE AND ANY OTHER UTILITY BY THE UTILITY OWNER.

UTILITY NOTES (CONTINUED):

7. THE CONTRACTOR SHALL USE THE FOLLOWING PIPE MATERIALS (UNLESS OTHERWISE NOTED):
   - SEWER – PVC (POLYVINYL CHLORIDE), SDR 35
   - DRAIN – HDPE (HIGH DENSITY CORRUGATED POLYETHYLENE PIPE WITH SMOOTH INNER WALL), ASTM D2321 (UNLESS OTHERWISE SPECIFIED ON PLAN)
   - DRAIN – RCP CLASS IV (REINFORCED CONCRETE PIPE, WHERE SPECIFIED ON PLAN)
   - WATER – C.L.D.I. (CEMENT LINED DUCTILE IRON)

8. REFER TO DEMOLITION PLAN FOR EXISTING ITEMS TO BE REMOVED AND FOR UTILITY ABANDONMENT.

9. BEFORE UTILITY WORK BEGINS, THE CONTRACTOR WILL COORDINATE WITH THE TOWN OF TOPSFIELD THE APPROPRIATE PERMIT AND INSPECTION FEES.

10. ALL UTILITY CONNECTIONS THROUGH THE BUILDING WALL SHALL BE BY MEANS OF FLEXIBLE JOINTS.

11. ALL WATER GATES TO PROPOSED HYDRANTS ARE 6" DIAMETER UNLESS NOTED.

12. A MINIMUM OF 10 FEET CLEAR HORIZONTALLY SHALL BE MAINTAINED BETWEEN WATER MAINS AND SANITARY SEWER MAINS AND/OR STORM DRAINS. WHENEVER CONDITIONS PREVENT A LATERAL SEPARATION OF 10 FEET TO A WATER MAIN, THE WATER MAIN SHALL BE LAID IN A SEPARATE TRENCH AND THE DIFFERENCE IN ELEVATION BETWEEN THE WATER MAIN AND THE SEWER MAIN SHALL BE AT LEAST 18 INCHES.

13. ALL FILL MATERIAL IS TO BE IN PLACE, AND COMPACTED BEFORE INSTALLATION OF PROPOSED UTILITIES.

14. CONTRACTOR SHALL NOTIFY THE UTILITY AUTHORITY'S INSPECTORS 72 HOURS BEFORE CONNECTING TO ANY EXISTING LINE.

15. MINIMUM TRENCH WIDTH SHALL BE 2 FEET.

16. ALL WATER JOINTS ARE TO BE MECHANICAL JOINTS WITH THRUST BLOCKING AT BENDS.

17. CONTRACTOR SHALL MAINTAIN A MINIMUM OF 5'-0" COVER ON ALL WATERLINES AND A MAXIMUM OF 8'-0" COVER.

18. IN THE EVENT OF A VERTICAL CONFLICT BETWEEN WATERLINES, SANITARY LINES, STORM LINES AND GAS LINES (EXISTING AND PROPOSED), THE SANITARY LINE SHALL BE DUCTILE IRON PIPE WITH MECHANICAL JOINTS AT LEAST 10 FEET ON BOTH SIDES OF CROSSING, THE WATERLINE SHALL HAVE MECHANICAL JOINTS WITH APPROPRIATE THRUST BLOCKING AS REQUIRED TO PROVIDE A MINIMUM OF 18" CLEARANCE BETWEEN THE PIPES. WHERE THE WATERLINE IS LESS THAN THE 18" VERTICAL CLEARANCE AND MEETING 10' HORIZONTAL CLEARANCE CANNOT BE MET, THE WATER MUST BE ENCASED IN CONCRETE TO MEET THE REQUIREMENTS OF ANSI A21.10 OR ANSI 21.11 (AWWA C-151) (CLASS 50).

19. ALL CONCRETE FOR ENCASEMENTS SHALL HAVE A MINIMUM 28 DAY COMPRESSION STRENGTH OF 3000 P.S.I.

20. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH THE SPECIFICATIONS OF THE LOCAL AUTHORITIES WITH REGARDS TO MATERIALS AND INSTALLATION OF THE WATER, SEWER, GAS AND ELECTRICAL AND TELECOMMUNICATIONS LINES.

21. ALL NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODES AND/OR UTILITY SERVICE COMPANIES SHALL BE PERFORMED PRIOR TO ANNOUNCED BUILDING POSSESSION AND THE FINAL CONNECTION OF SERVICE.

22. ALL HYDRANTS SHALL MEET LOCAL MUNICIPAL SPECIFICATION REQUIREMENTS AND SHALL BE INSTALLED IN ACCORDANCE WITH THE TOWN OF TOPSFIELD REQUIREMENTS.

23. DOMESTIC WATER SERVICES SHALL BE INSTALLED WITH APPROPRIATELY SIZED GATE, BOX, AND TEE FITTINGS.

24. ALL WATER MAIN APPURTENANCES, MATERIALS, METHODS OF INSTALLATION AND TESTING REQUIREMENTS SHALL MEET OR EXCEED THE TOWN OF TOPSFIELD REQUIREMENTS.

25. PRESSURE AND LEAKAGE TEST, DISINFECTION AND FLUSHING SHALL BE IN ACCORDANCE WITH ALL LOCAL AND MUNICIPAL STANDARDS AND REQUIREMENTS.

26. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS IN CONNECTION WITH THE UTILITY TESTS, FLUSHING AND INSPECTIONS AS REQUIRED BY THE LOCAL MUNICIPALITY.

27. SEWER PIPE BEDDING MATERIAL SHALL BE AS SPECIFIED ON THE DRAWINGS. IF LOCAL OR STATE AUTHORITIES REQUIRE DIFFERENT BEDDING OR BACKFILL MATERIAL, THEN THE MORE STRINGENT SHALL APPLY.

28. DRAWINGS DO NOT NECESSARILY SHOW ALL EXISTING UTILITIES.

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW
AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE DATE

N:\PROJECTS\2165-01A\CIVIL\DRAWINGS\CURRENT\C-2165-01A – ABBREVIATIONS & NOTES.DWG

NOT FOR CONSTRUCTION - FOR PERMITTING ONLY

COMMONWEALTH OF MASSACHUSETTS
TIMOTHY J. WILLIAMS
CIVIL
No. 43119
REGISTERED PROFESSIONAL ENGINEER
4/10/17

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
4	4-10-2017	REVISIONS PER TOWN REQUEST
3	3-16-2017	REVISIONS PER TOWN REQUEST
2	2-27-2017	REVISIONS PER TOWN COMMENTS
1	1-17-2017	REVISED PER PEER REVIEW & TOWN COMMENTS

APPLICANT\OWNER:
SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MA 01810

PROJECT:
RESIDENTIAL DEVELOPMENT
470 BOSTON STREET (ROUTE 1)
TOPSFIELD, MA

PROJECT NO.	2165-01A	DATE:	10-13-2016
SCALE:	NONE	DWG. NAME:	C-2165-01A
DESIGNED BY:	DMR	CHECKED BY:	RB

PREPARED BY:

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DRAWING TITLE: ABBREVIATIONS & NOTES

SHEET No. ABB-1

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EROSION & SEDIMENTATION CONTROL NOTES:

1. EROSION CONTROL SHALL BE INSTALLED PRIOR TO CONSTRUCTION AND SHALL BE ADEQUATE TO MAINTAIN SEDIMENT ON SITE. ANY MODIFICATIONS TO SILT CONTROLS SHOWN ON THE APPROVED PLANS AS A RESULT OF ACTUAL FIELD CONDITIONS OR CONSTRUCTION PRACTICES SHALL BE INSTALLED IN ACCORDANCE WITH B.M.P. (BEST MANAGEMENT PRACTICES) PER THE E.P.A. 2012 "CONSTRUCTION GENERAL PERMIT" MANUAL, AND MASSACHUSETTS 2003 EROSION & SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS, ANY SUCH MODIFICATIONS FROM THE ABOVE MANUALS SHALL BE INSTALLED AS APPROVED BY THE ENGINEER.

2. AREAS OF EXPOSED SOIL UNDERGOING CONSTRUCTION THAT WILL NOT BE COVERED AND OR FINISHED GRADED SHALL BE STABILIZED AS SOON AS PRACTICABLE BUT IN NO CASE MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY (UNLESS TOWN HAS STRICTER REQUIREMENTS WHICH SHALL BE FOLLOWED) IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. TEMPORARY EROSION CONTROL MEASURES SHALL INCLUDE EROSION CONTROL MESH, NETTING OR MULCH AS DIRECTED BY THE OWNER'S REPRESENTATIVE AND SHOWN ON THE DESIGN PLANS. IF MULCH IS USED, STRAW MULCH SHALL BE APPLIED AT THE RATE OF 4 BALES PER 1,000 SQUARE FEET. APPLICATION AREA SHALL BE SUFFICIENTLY COVERED WITH MULCH TO AVOID ANY VISIBLE SOIL EXPOSURE. MULCH SHALL BE KEPT MOIST TO AVOID LOSS DUE TO WIND. MULCH AND NETTING SHALL BE APPLIED IN THE BASE OF ALL GRASSED WATERWAYS, IN VEGETATIVE SLOPES WHICH EXCEED 15% AND DISTURBED AREAS WITHIN 100 FEET OF WETLANDS OR STREAMS.

3. IF DISTURBED AREAS DO NOT RECEIVE FINAL SEEDING BY OCTOBER 1ST OF THE CONSTRUCTION YEAR, THEN ALL DISTURBED AREAS SHALL BE SEEDED WITH A WINTER COVER CROP AT THE RATE OF 3 LBS PER 1,000 SQUARE FEET. WINTER SEEDING SHALL BE COVERED WITH EROSION CONTROL MESH (MULCH AND NETTING). HEAVY GRADE MATS SHALL BE USED IN THE BASE OF ALL GRASSED WATERWAYS ON VEGETATED SLOPES IN EXCESS OF 15%, AND ANY DISTURBED AREAS WITHIN 100 FEET OF WETLANDS OR STREAMS. MULCH AND NETTING SHALL ALSO BE PROVIDED FOR ADDITIONAL WINTER PROTECTION.

4. ALL TOPSOIL SHALL BE COLLECTED, STOCKPILED, SEEDED WITH RYE AT 3LBS PER 1,000 SQUARE FOOT AND MULCHED, AND REUSED AS REQUIRED. SILTATION FENCING SHALL BE PLACED DOWN GRADIENT FROM STOCKPILED LOAM. LOAM SHALL BE STOCKPILED AT LOCATIONS DESIGNATED BY THE OWNER AND ENGINEER.

5. ALL FILTER BARRIERS, SILT SACKS, AND EROSION CONTROL BERMS SHALL BE INSTALLED ACCORDING TO THE EROSION CONTROL PLAN. THESE SHALL BE MAINTAINED DURING DEVELOPMENT TO REMOVE SEDIMENT FROM RUNOFF WATER. ALL THE FILTER BARRIERS AND EROSION CONTROL BERMS SHALL BE INSPECTED AFTER ANY RAINFALL OR RUNOFF EVENT, MAINTAINED AND CLEANED UNTIL ALL AREAS HAVE AT LEAST 85–90% VIGOROUS PERENNIAL COVER OF GRASSES.

6. ADJACENT ROADS SHALL BE PERIODICALLY SWEPT OR WASHED TO AVOID TRACKING MUD, DUST OR DEBRIS FROM THE CONSTRUCTION AREA AS OFTEN AS NECESSARY (WHICH COULD BE ON A DAILY BASIS) TO REMOVE ANY SOIL OR SEDIMENTS AT NO ADDITIONAL COST TO THE OWNER. A WATERING TRUCK WILL BE USED TO PERIODICALLY SPRINKLE CONSTRUCTION AREAS IN ORDER TO KEEP THE LEVEL OF DUST TO A MINIMUM DURING THE DRY MONTHS AT NO ADDITIONAL COST TO THE OWNER.

7. THE CONTRACTOR SHALL USE EXTREME CAUTION TO AVOID ALLOWING SEDIMENTS TO ENTER THE STORM DRAIN SYSTEM DURING CONSTRUCTION. BOTH EXISTING AND PROPOSED CATCH BASIN INLETS SHALL BE PROTECTED DURING CONSTRUCTION BY THE USE SILT SACKS AND OR STRAW BALE BARRIERS AROUND EACH INLET AS NOTED ON THE PLANS. INLET PROTECTION MAY BE REMOVED ONLY AFTER FINISHED AREAS ARE PAVED AND THE VEGETATED SLOPES ARE ESTABLISHED WITH AT LEAST 85–90% OF VIGOROUS PERENNIAL GROWTH.

8. AS APPLICABLE, EROSION CONTROL MESH SHALL BE APPLIED IN ACCORDANCE WITH THE PLANS OVER ALL FINISHED SEEDED AREAS AS SPECIFIED ON THE DESIGN PLANS.

9. AT A MINIMUM, ALL STRAW BALES, SILT FENCE AND FILTER FABRIC SHALL REMAIN IN PLACE UNTIL SEEDINGS OR PLANTINGS HAVE BECOME 85–90% ESTABLISHED. THE TOWN OF TOPSFIELD CONSERVATION COMMISSION MUST APPROVE THE REMOVAL OR RELOCATION OF ANY OF THE STRAW BALES AND FILTER FABRIC. ONCE THE STRAWBALES AND SILT FENCE IS REMOVED THE AREAS ARE TO BE LOAM AND SEEDED TO ACHIEVE FULL STABILIZATION.

10. AT THE OWNER'S DISCRETION ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED TO MAINTAIN STABILITY OF EARTHWORKS AND FINISHED GRADED AREAS. THE CONTRACTOR, AT HIS EXPENSE, WILL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ANY ADDITIONAL MEASURES AS SPECIFIED BY THE OWNER. THIS INCLUDES BUT IS NOT LIMITED TO REQUESTS BY MA DEP. THE ENGINEER AND THE MUNICIPALITY, AS AUTHORIZED BY THE OWNER. FAILURE TO COMPLY WITH THE OWNER'S DIRECTIONS WILL RESULT IN DISCONTINUATION OF CONSTRUCTION ACTIVITIES.

11. INSPECTIONS AND MONITORING MAINTENANCE MEASURES SHALL BE APPLIED AS NEEDED DURING THE ENTIRE CONSTRUCTION CYCLE. WEEKLY INSPECTIONS SHALL BE HELD THROUGH THE DURATION OF CONSTRUCTION ACTIVITY. WEEKLY INSPECTION REPORTS SHALL BE MAINTAINED BY THE CONTRACTOR AND LOCATED IN THE CONTRACTORS FIELD OFFICE ONSITE. IN ADDITION TO THE NORMAL WEEKLY INSPECTIONS, THE CONTRACTOR SHALL PERFORM AN INSPECTION OF ALL EROSION CONTROL MEASURES AFTER EACH RAINFALL OR RUNOFF EVENT, AND PERFORM THE NECESSARY REPAIRS. THE INSPECTIONS SHALL INCLUDE BUT NOT BE LIMITED TO THE SITE'S DOWN STREAM DISCHARGE POINTS.

12. IF ANY EVIDENCE OF SEDIMENTATION IS OBSERVED AT THE STORMWATER MANAGEMENT AREA INLETS, THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, PROVIDE A PLAN TO THE ENGINEER TO REMOVE ANY ACCUMULATED SEDIMENT IN THESE AREAS. THE CONTRACTOR SHALL ALSO IMMEDIATELY PROVIDE ADDITIONAL ON SITE EROSION AND SEDIMENTATION CONTROL MEASURES TO PREVENT FURTHER DEGRADATION OF THE AREA.

13. FOLLOWING THE TEMPORARY OR FINAL SEEDINGS, THE CONTRACTOR SHALL INSPECT THE WORK AREA SEMI–MONTHLY TO ENSURE THE AREAS HAVE A MINIMUM OF 85–90% VEGETATED VIGOROUS GROWTH. RE–SEEDING SHALL BE CARRIED OUT BY THE CONTRACTOR WITH FOLLOW UP INSPECTIONS IN THE EVENT OF ANY FAILURES UNTIL VEGETATION IS ADEQUATELY ESTABLISHED.

14. CONTRACTOR & ALL SITE SUBCONTRACTORS SHALL BE FAMILIAR WITH & FOLLOW ALL APPROVED PERMITS AND CONDITIONS. CONTRACTOR SHALL MAINTAIN A COPY OF ALL APPROVED PERMITS ONSITE, INCLUDING THE ORDER OF CONDITIONS FROM THE TOPSFIELD CONSERVATION COMMISSION. ALL CONDITIONS & RECOMMENDATIONS WITHIN THE APPROVED PERMITS SHALL BE COMPLETED.

15. ALL EROSION MEASURES SHALL BE INSTALLED PRIOR TO CONSTRUCTION AND SHALL BE ADEQUATE TO MAINTAIN SEDIMENT ON SITE. ANY MODIFICATIONS SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER OR THE TOWN OF TOPSFIELD.

16. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE MAINTAINED DURING CONSTRUCTION, AND SHALL REMAIN IN PLACE UNTIL ALL SITE WORK IS COMPLETE AND GROUND COVER IS ESTABLISHED.

17. TOP OF STOCKPILES SHALL BE COVERED IN SUCH MANNER THAT STORMWATER DOES NOT INFILTRATE THE MATERIALS AND THEREBY RENDER THE SAME UNSUITABLE FOR FILL USE.

EROSION & SEDIMENTATION CONTROL NOTES (CONTINUED):

18. ALL DISTURBED OR EXPOSED AREAS SUBJECT TO EROSION SHALL BE STABILIZED WITH MULCH OR SEEDED FOR TEMPORARY VEGETATIVE COVER. NO AREA, SUBJECT TO EROSION SHALL BE LEFT DISTURBED AND UNSTABILIZED FOR PERIODS LONGER THAN IS ABSOLUTELY NECESSARY TO CARRY OUT THAT PORTION OF THE CONSTRUCTION WORK OR SIX MONTHS AFTER SOIL HAS BEEN DISTURBED WHICHEVER IS LESS.

19. CULVERT/PIPE INLETS AND OUTFALLS SHALL BE PROTECTED BY STRAW BALE FILTERS AND STONE CHECK DAMS UNTIL DISTURBED AREAS ARE PERMANENTLY STABILIZED.

20. STRAW BALE DIKES SHALL BE CONSTRUCTED AT ALL EXISTING & PROPOSED CATCH BASINS. NO SEDIMENTATION SHALL ENTER THE ON–SITE OR OFF–SITE DRAINAGE SYSTEMS AT ANY TIME.

21. ALL EROSION CONTROL MEASURES SHALL BE ROUTINELY INSPECTED, CLEANED AND REPAIRED OR REPLACED AS NECESSARY THROUGHOUT ALL PHASES OF CONSTRUCTION. IN ADDITION, INSPECTION SHALL TAKE PLACE WEEKLY AND BEFORE AND AFTER EACH RAINFALL EVENT.

22. ALL PROPOSED SLOPES EQUAL TO OR GREATER THAN 3:1 SHALL BE STABILIZED WITH JUTE MESH AND PROTECTED FROM EROSION UNTIL WORK IS COMPLETE AND GROUND COVER IS ESTABLISHED.

23. THE CONTRACTOR SHALL KEEP ON SITE AT ALL TIMES ADDITIONAL STRAW BALES AND EXTRA SILTATION FENCING FOR INSTALLATION AT THE DIRECTION OF THE ENGINEER OR THE TOWN ENGINEER TO MITIGATE ANY EMERGENCY CONDITION.

24. AS CONSTRUCTION DISTURBANCE IS GREATER THAN 1 ACRE, A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) CONSTRUCTION GENERAL PERMIT NOI, AND STORM WATER POLLUTION PREVENTION PLAN (SWPPP) WILL NEED TO BE SUBMITTED TO THE EPA. THE NPDES PERMIT FOR STORM WATER DISCHARGE, & CONSTRUCTION GENERAL PERMIT NOI WILL BE REQUIRED TO BE SUBMITTED AT LEAST 14 DAYS PRIOR TO COMMENCING CONSTRUCTION BY THE CONTRACTOR.

25. OWNER AND CONTRACTOR ARE RESPONSIBLE FOR COMPLIANCE WITH THE CONSTRUCTION GENERAL PERMIT NOI. WEEKLY SWPPP INSPECTION REPORTS TO BE PERFORMED BY CONTRACTOR. COPIES OF ALL SWPPP INSPECTION REPORTS SHALL BE PROVIDED TO THE TOWN OF TOPSFIELD, EPA, DEP, OR ANY OTHER AUTHORITY REQUESTING WITHIN 3 DAYS OF EACH INSPECTION.

26. APPLICABLE WORK AND MATERIALS SHALL COMPLY WITH ALL TOWN OF TOPSFIELD, MA DEP, EPA CONSTRUCTION GENERAL PERMIT STANDARDS. ALL CONSTRUCTION SHALL CONFORM TO THE APPLICABLE SITE PLAN REGULATIONS FROM THE TOWN OF TOPSFIELD AND USDA SOIL CONSERVATION SERVICE VEGETATIVE PRACTICES IN SITE DEVELOPMENT.

27. A WATERING TRUCK SHALL BE USED TO PERIODICALLY SPRINKLE CONSTRUCTION AREAS IN ORDER TO KEEP THE LEVEL OF DUST TO A MINIMUM DURING THE DRY MONTHS AND AS REQUIRED.

28. IF DEWATERING IS NECESSARY IT SHALL ONLY BE COMPLETED AS FOLLOWS: THE DISCHARGE SHALL BE STOPPED IMMEDIATELY IF THE RECEIVING AREA SHOWS ANY SIGN OF INSTABILITY OR EROSION. ALL CHANNELS, SWALES, AND DITCHES DUG FOR DISCHARGING WATER FROM THE EXCAVATED AREA SHALL BE STABLE PRIOR TO DIRECTING DISCHARGE TO THEM. IF A CONSTRUCTION EQUIPMENT BUCKET IS USED, IT SHALL EMPTY THE MATERIAL TO A STABLE AREA. NO DEWATERING SHALL OCCUR DURING PERIODS OF INTENSE, HEAVY RAIN. FLOW TO THE SEDIMENT REMOVAL STRUCTURE SHALL NOT EXCEED THE STRUCTURES CAPACITY TO SETTLE AND FILTER FLOW OR IS VOLUME CAPACITY. WHENEVER POSSIBLE, THE DISCHARGE FROM THE SEDIMENT REMOVAL STRUCTURE SHALL DRAIN TO A WELL–VEGETATED BUFFER BY SHEET FLOW WHILE MAXIMIZING THE DISTANCE TO THE NEAREST WATER RESOURCE AND MINIMIZING THE SLOPE OF THE BUFFER AREA. THERE SHALL BE NO DIRECT DISCHARGE TO EXISTING WETLANDS OR STREAMS. ALL DISCHARGE SHALL BE IN COMPLIANCE WITH STATE, LOCAL, AND FEDERAL REQUIREMENTS.

29. INITIATE STABILIZATION IMMEDIATELY IF CONSTRUCTION WORK TEMPORARILY OR PERMANENTLY CEASES.

30. ALL DISCHARGES FROM POLLUTION SOURCES IS PROHIBITED ONSITE SUCH AS FUELS, WASTEWATER FROM WASH OUT OF CONCRETE, WASTEWATER FROM CLEAN OUT OF PAINTS, FORM RELEASE OILS, SOLVENTS, ADHESIVES, CURING COMPOUNDS, POLLUTANTS USED FOR MAINTENANCE OF VEHICLES AND EQUIPMENT, SOAPS & SOLVENTS, TOXIC OR HAZARDOUS SUBSTANCES, CHEMICALS AND OILS. IF A POLLUTANT IS DISCHARGED IT NEEDS TO BE IMMEDIATELY CLEANED UP BY REMOVING THE CHEMICAL AND AFFECTED SOIL OR AREA OF SPILL FROM THE SITE IN ACCORDANCE WITH BOTH THE MANUFACTURER RECOMMENDATIONS, FEDERAL, STATE, AND LOCAL REQUIREMENTS. DO NOT HOSE DOWN AND SPREAD SPILLED ITEM. ALL CHEMICALS USED ON THE SITE SHALL BE IN LEAK–PROOF CONTAINERS STORED AWAY FROM WETLANDS, SURFACE WATERS, STORMWATER INLETS, AND DRAINAGE MEASURES. SPILL KITS SHALL BE AVAILABLE ONSITE FOR EMERGENCY USE. THERE SHALL BE A SECONDARY CONTAINMENT MEASURE OF ALL CHEMICALS IN ADDITION TO SPILL–PROOF CONTAINERS.

31. PRIOR TO COMMENCEMENT OF CONSTRUCTION, APPLICABLE CONTRACTOR PERSONNEL MUST HAVE AN UNDERSTANDING OF THE EPA CONSTRUCTION GENERAL PERMIT REQUIREMENTS AND THEIR SPECIFIC RESPONSIBILITIES UNDER THE PERMIT. AT A MINIMUM, PERSONNEL MUST BE TRAINED AND UNDERSTAND THE FOLLOWING: LOCATION OF ALL STORMWATER CONTROLS AND HOW TO MAINTAIN THEM, PROCEDURES FOR COMPLYING WITH THE POLLUTION PREVENTION REQUIREMENTS. PROCEDURES FOR CONDUCTING INSPECTIONS, RECORDING FINDINGS, AND TAKING CORRECTIVE ACTION.

32. ALL SEDIMENT TRACKED ONTO ROADWAYS MUST BE REMOVED AT END OF EACH WORK DAY.

33. ALL USE OF CATIONIC TREATMENT CHEMICALS (EXAMPLES INCLUDE POLYMERS, CHITOSAN, CATIONIC PAM, FLOCCULANTS OR OTHER CHEMICAL UTILIZED FOR STABILIZATION) ARE PROHIBITED. IF ALL OTHER AVAILABLE STABILIZATION MEASURES ARE NOT POSSIBLE AND USE OF CATIONIC CHEMICALS IS ABSOLUTELY NECESSARY THE CONTRACTOR WILL NEED TO CONTACT THE EPA NEW ENGLAND OFFICE IN WRITING FOR APPROVAL AND SPECIFIC REQUIREMENTS (MAXIMUM DOSAGE RATE, RESIDUAL TESTING, SPECIFIC LIMITATIONS, ETC) PRIOR TO USE.

34. IF USING NON–VEGETATIVE STABILIZATION MEASURES, IT MUST BE COMPLETED NO LATER THAN 14 DAYS AFTER INITIATING STABILIZATION. ALL AREAS OF EXPOSED SOILS MUST BE COVERED.

35. INSPECTIONS OF EROSION CONTROL MEASURES SHALL BE AT LEAST ONCE EVERY 7 DAYS BY THE CONTRACTOR. AT A MINIMUM INSPECTIONS SHALL INCLUDE ALL DISTURBED AREAS, ALL STORMWATER CONTROLS AND POLLUTION PREVENTION MEASURES, ALL LOCATIONS WHERE STABILIZATION MEASURES HAVE BEEN IMPLEMENTED, EQUIPMENT AND MATERIAL STORAGE AREAS, ALL AREAS WHERE STORMWATER FLOWS AND ALL POINTS OF DISCHARGE. WHEN CORRECTIVE ACTIONS ARE REQUIRED, THE CONTRACTOR MUST IMMEDIATELY TAKE ALL STEPS TO PREVENT POLLUTANT DISCHARGES UNTIL A PERMANENT SOLUTION IS IMPLEMENTED. AS NECESSARY NEW OR MODIFIED CONTROLS MUST BE INSTALLED AND OPERATIONAL, THE REPAIR MUST BE COMPLETED WITHIN 7 DAYS FROM THE TIME OF DISCOVERY. WITHIN 24 HOURS OF A TRIGGERING CONDITION OCCURRING THAT REQUIRES A CORRECTIVE ACTION, A CORRECTIVE ACTION REPORT MUST BE COMPLETED.

MAINTENANCE:

ALL MEASURES STATED ON THE STORMWATER POLLUTION PREVENTION PLANS, SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION BY CONTRACTOR UNTIL NO LONGER REQUIRED FOR A COMPLETED PHASE OF WORK OR FINAL STABILIZATION OF THE SITE. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CHECKED BY A QUALIFIED PERSON IN ACCORDANCE WITH THE CONTRACT DOCUMENTS OR THE APPLICABLE PERMIT, WHICHEVER IS MORE STRINGENT, AND REPAIRED IN ACCORDANCE WITH THE FOLLOWING:

1. INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING, OR DETERIORATION.

2. ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A HEALTHY STAND OF GRASS IS MAINTAINED. AREAS SHOULD BE FERTILIZED, WATERED, AND RESEEDED AS NEEDED.

3. ALL SEDIMENT CONTROLS SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED. SEDIMENT SHALL BE REMOVED FROM THE TUBULAR SEDIMENT CONTROLS WHEN IT REACHES HALF THE HEIGHT OF THE CONTROL MEASURE OR AS REQUESTED BY THE OWNER OR ENGINEER.

4. THE CONSTRUCTION ENTRANCES SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS–OF–WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE CONSTRUCTION ENTRANCES AS CONDITIONS DEMAND.

5. THE TEMPORARY PARKING AND STORAGE AREA SHALL BE KEPT IN GOOD CONDITION (SUITABLE FOR PARKING AND STORAGE). THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE TEMPORARY PARKING AS CONDITIONS DEMAND.

6. OUTLET STRUCTURES IN THE SEDIMENTATION BASINS SHALL BE MAINTAINED IN OPERATIONAL CONDITIONS AT ALL TIMES. SEDIMENT SHALL BE REMOVED FROM SEDIMENT BASINS OR TRAPS WHEN THE DESIGN CAPACITY HAS BEEN REDUCED BY 50%.

ABBREVIATIONS:

ABAN	ABANDON
ADA	AMERICANS WITH DISABILITIES ACTS
ADJ	ADJUST
B	BORING
BC	BOTTOM OF CURB
BIT	BITUMINOUS
BLDG	BUILDING
BM	BENCH MARK
BOS	BOTTOM OF SLOPE
BOW	BOTTOM OF WALL
BV&B	BUTTERFLY VALVE & BOX
BVW	BORDERING VEGETATED WETLAND
CATV	CABLE TELEVISION
CB	CATCH BASIN
CF	CUBIC FEET
CFS	CUBIC FEET PER SECOND
CI	CAST IRON (PIPE)
CL	CENTERLINE
CLDI	CEMENT LINED DUCTILE IRON (PIPE)
CLF	CHAIN LINK FENCE
CMP	CORRUGATED METAL PIPE
CO	CLEAN OUT
CONC	CONCRETE
CONST	CONSTRUCTION
CONT	CONTRACTOR
CRD	COORDINATE
CUL	CULVERT
CY	CUBIC YARD
DB	DISTRIBUTION BOX
DBL	DOUBLE
DEM	DEMOLISH
DET	DETENTION
DIA	DIAMETER
DI	DUCTILE IRON (PIPE)
DIM	DIMENSION
DMH	DRAIN MANHOLE
DW	DOMESTIC WATER (OR DRY WELL)
DWG	DRAWING
DYCL	DOUBLE YELLOW CENTERLINE
EHH	ELECTRIC HANDHOLE
EL	ELEVATION
ELEC	ELECTRIC
EMH	ELECTRIC MANHOLE
EOP	EDGE OF PAVEMENT
EOR	EDGE OF ROAD
EOW	EDGE OF WETLANDS
ETC	ELECTRIC, TELEPHONE, CABLE
EXIST	EXISTING
EXT	EXTERIOR
FCC	FLUSH CONCRETE CURB
FES	FLARED END SECTION
FFE	FINISH FLOOR ELEVATION
FPS	FEET PER SECOND
FS	FIRE SERVICE
FT	FOOT/FEET
GC	GENERAL CONTRACTOR
GEN	GENERAL
GG	GAS GATE
GR	GUIDE RAIL
GRAN	GRANITE
GV	GATE VALVE
GV&B	GATE VALVE & BOX
GW	GROUND WATER
H	HORIZONTAL
HOR	HORIZONTAL
HT	HEIGHT
HW	HEADWALL
HWY	HIGHWAY
HYD	HYDRANT
ID	INSIDE DIAMETER
IN	INCHES
INCL	INCLUDE
INST	INSTALLED
INV, I.E.	INVERT, INVERT ELEVATION
L	LENGTH
LP	LIGHT POLE
MAT	MATERIAL
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MTD	MOUNTED
MW	MONITORING WELL
N	NORTH
NIC	NOT IN CONTRACT
NO	NUMBER
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OHW	OVERHEAD WIRE
OVHD	OVERHEAD
OW	OBSERVATION WELL
PC	POINT OF CURVATURE
PCC	PRECAST CONCRETE CURB
PI	POINT OF INTERSECTION
PL	PROPERTY LINE
POC	POINT ON CURVATURE
POT	POINT ON TANGENT
PRC	POINT OF REVERSE CURVATURE
PROP, P	PROPOSED
PT	POINT (OR POINT OF TANGENT)
PVC	POLYVINYL CHLORIDE (PIPE)
R&R	REMOVE & RESET/REPLACE
R&S	REMOVE & STACK
RCP	REINFORCED CONCRETE PIPE
RD	ROAD (OR ROOF DRAIN)
RELOC	RELOCATE
REM	REMOVE
RET	RETAIN, RETAINING OR RETENTION
ROW	RIGHT OF WAY
RR	RAILROAD
RWY	ROADWAY
SD	SUBDRAIN
SF	SQUARE FEET
SGC	SLOPED GRANITE CURB
SMH	SEWER MANHOLE
SP	STANDPIPE
SPEC	SPECIFICATION
STA	STATION
STD	STANDARD
SWEL	SOLID WHITE EDGE LINE
SW	SIDEWALK
SWLL	SOLID WHITE LANE LINE
SYCL	SOLID YELLOW CENTERLINE
TB	TEST BORING
TC	TOP OF CURB
TD	TRENCH DRAIN
TEL, T	TELEPHONE
TMH	TELEPHONE MANHOLE
TOS	TOP OF SLOPE
TOW	TOP OF WALL
TP	TEST PIT
TYP	TYPICAL
UD	UNDERDRAIN
UP	UTILITY POLE
V	VERTICAL
VCP	VITRIFIED CLAY PIPE
VERT	VERTICAL
VGC	VERTICAL GRANITE CURB
WG	WATER GATE
WM	WATER MAIN
WMH	WATER MANHOLE
WSO	WATER SHUTOFF

CONSTRUCTION GENERAL PERMIT NOTES AND NARRATIVE:

NARRATIVE: THE STORMWATER POLLUTION PREVENTION PLANS CONSIST OF THE EROSION CONTROL PLANS TOGETHER WITH AN EXISTING CONDITIONS PLANS, GRADING PLANS, ABBREVIATIONS AND NOTES SHEETS, AND DETAIL SHEETS.

THE EROSION CONTROL PLAN WILL BE IMPLEMENTED TO:

A. TREAT EROSION AS SOON AS POSSIBLE AFTER DISTURBANCE.

B. PREVENT SEDIMENT FROM LEAVING THE CONSTRUCTION AREA AND ENTERING THE RECEIVING WATERS.

C. CONSTRUCTION ACTIVITIES SHALL BE SCHEDULED TO MINIMIZE EROSION.

D. ONLY DISTURB, CLEAR, OR GRADE AREAS NECESSARY FOR CONSTRUCTION.

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW
AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE DATE

N:\PROJECTS\2165-01A\CIVIL\DRAWINGS\CURRENT\C-2165-01A – ABBREVIATIONS & NOTES.DWG

NOT FOR CONSTRUCTION - FOR PERMITTING ONLY

4/10/17
COMMONWEALTH OF MASSACHUSETTS
TIMOTHY J. WILLIAMS
CIVIL
No. 43119
REGISTERED PROFESSIONAL ENGINEER

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
4	4-10-2017	REVISIONS PER TOWN REQUEST
3	3-16-2017	REVISIONS PER TOWN REQUEST
2	2-27-2017	REVISIONS PER TOWN COMMENTS
1	1-17-2017	REVISED PER PEER REVIEW & TOWN COMMENTS

APPLICANT\OWNER:
SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MA 01810

PROJECT:
RESIDENTIAL DEVELOPMENT
470 BOSTON STREET (ROUTE 1)
TOPSFIELD, MA

PROJECT NO.	2165-01A	DATE:	10-13-2016
SCALE:	NONE	DWG. NAME:	C-2165-01A
DESIGNED BY:	DMR	CHECKED BY:	RB

PREPARED BY:

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DRAWING TITLE: ABBREVIATIONS & NOTES

SHEET No. ABB-2

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STORMWATER POLLUTION PREVENTION PLAN

2.1 GENERAL

FOR GRADING AND DRAINAGE SEE DRAWING SHEETS C-3A & C-3B, AS WELL AS C-4A THROUGH C-4D.

2.1.1. THE FIRST STAGE INVOLVES ACTIVITIES NEEDED TO ADDRESS STORMWATER MANAGEMENT; EXCAVATING MATERIAL DESIGNATED FOR OFF-SITE REMOVAL OR ON-SITE RELOCATION; AND FENCING SELECTED AREAS. STAGE ONE WILL PREPARE SITE FOR CONVENTIONAL CONSTRUCTION.

2.1.2. THE SECOND STAGE WILL CONSIST OF ROUTINE CONSTRUCTION INVOLVING DEMOLITION, PAVING, LANDSCAPING AND UTILITIES.

2.1.3. THERE ARE GENERAL PHASES OF CONSTRUCTION AS IDENTIFIED BELOW. IN EACH PHASE OF CONSTRUCTION, IMPLEMENT STANDARD EROSION AND SEDIMENT CONTROL PRACTICES PRIOR TO INITIATING EARTH DISTURBING ACTIVITIES, AND MAINTAIN THESE PRACTICES THROUGHOUT THE COURSE OF CONSTRUCTION.

TYPICAL PRACTICES TO BE APPLIED TO THE SITE INCLUDE THE FOLLOWING:

PRIOR TO DEMOLITION AND EARTH DISTURBANCE IN ANY WORK AREA, INSTALL SILTATION BARRIERS (BALES OR SILT FENCE WITH BALES) BETWEEN THE WORK AREA AND THE AREA(S) TO WHICH IT DRAINS.

DISCHARGE WATER FROM DEWATERING OPERATIONS TO A TEMPORARY SILTATION TRAP OR SEDIMENTATION BASIN.

PROVIDE TEMPORARY BERMS AND SWALES TO DIVERT SURFACE WATER AWAY FROM THE AREAS THAT WILL BE EXPOSED BY CONSTRUCTION ACTIVITY TO MINIMIZE THE AMOUNT OF SURFACE WATER COMING INTO CONTACT WITH EXPOSED SOILS. PROVIDE STABLE OUTLETS FOR THESE DEVICES, AND LINE OR VEGETATE THESE DIVERSIONS TO PROVIDE FOR DEVICES, AND LINE OR VEGETATE THESE DIVERSIONS TO PROVIDE FOR THEIR STABILITY DURING CONSTRUCTION.

LIMIT THE EXTENT OF EXPOSED SOILS TO AREAS THAT CAN BE WORKED AND RESTABILIZED WITHIN THE CONSTRUCTION SEASON AND DURING THE SPECIFIC CONSTRUCTION PHASE. WHEN EARTHWORK CONSTRUCTION ACTIVITY IN AN AREA IS COMPLETE, STABILIZE THE AREA WITH A SUITABLE SURFACE AS DESCRIBED BELOW.

IN ADDITION TO THESE PRACTICES, FOLLOW THE SPECIAL PRACTICES DESCRIBED BELOW. COMPLY WITH THE DIRECTIONS OF THE OWNER'S REPRESENTATIVE TO ADDRESS EROSION AND SEDIMENTATION CONDITIONS THAT MAY ARISE ON A CASE BY CASE BASIS DURING CONSTRUCTION.

THE FOLLOWING IS A DESCRIPTION OF MINIMUM CONSTRUCTION REQUIREMENTS AND DOES NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITIES WITH REGARD TO DETERMINING THE ADEQUACY OF MEANS AND METHODS OF CONSTRUCTION.

2.2 ESTIMATED CONSTRUCTION SEQUENCING.

THE FOLLOWING IS AN ESTIMATED CONSTRUCTION SEQUENCING. SOME ACTIVITIES MAY OCCUR AT THE SAME TIME RATHER THAN AT SEPARATE TIMES OR OUT OF SEQUENCE DUE TO ACTUAL FIELD CONDITIONS OR OTHER FACTORS. ACTUAL SCHEDULING WILL BE COMPLETED BY THE SITE CONTRACTOR.
(CONTRACTOR TO FOLLOW ANY ADDITIONAL PERMIT REQUIREMENTS OR STEPS AT NO ADDITIONAL COST TO THE OWNERS FROM EITHER STATE OR LOCAL PERMITS, THIS INCLUDES BUT IS NOT LIMITED TO THE ORDER OF CONDITIONS FROM THE TOPSFIELD CONSERVATION COMMISSION)

- INSTALL ALL EROSION CONTROL MEASURES INCLUDING BUT NOT LIMITED TO TEMPORARY STRAW BALE FILTERS, SILT SACKS, CONSTRUCTION ENTRANCES, AND STRAWBALES AND SILT FENCE.
- SETUP STAGING AND MATERIAL STORAGE / STOCKPILE AREAS.
- IF REQUIRED, CONSTRUCT TEMPORARY SILT / DEWATERING BASINS.
- PROTECT AND MARK ALL EXISTING ITEMS NOTED TO REMAIN.
- PERFORM DEMOLITION WORK. SURVEY AND IDENTIFY LIMITS OF SITE CLEARING. CONDUCT SITE CLEARING.
- PULVERIZE EXISTING PAVEMENT TO BE REMOVED AND DEMO EXISTING BUILDING SECTIONS AND MATERIALS AS NOTED.
- REMOVE EXISTING LOAM AND SUBSOIL AND STOCKPILE FOR REUSE.
- PERFORM ROUGH GRADING.
- INSTALL UNDERGROUND UTILITIES.
- PERFORM FINE GRADING; PLACE BINDER PAVEMENT COURSE.
- PLACE PAVEMENT TOP COURSE; CONSTRUCT SIDEWALKS AND ALL OTHER SITE IMPROVEMENTS.
- ERADICATE EXISTING PAVEMENT MARKINGS ON REMAINING PAVEMENT.
- INSTALL NEW PAVEMENT MARKINGS, SITE SIGNAGE & COMPLETE LANDSCAPING.
- REMOVE TEMPORARY SILT CONTROLS AFTER ONCE GIVEN APPROVAL BY TOPSFIELD CONSERVATION COMMISSION AND SITE IS STABILIZED.

OPERATION AND MAINTENANCE CONSTRUCTION ACTIVITIES:

1. CONTACT THE TOPSFIELD CONSERVATION COMMISSION AGENT AT LEAST THREE (3) DAYS PRIOR TO START OF CONSTRUCTION.
2. INSTALL STRAWBALES AND SILT FENCE AS SHOWN ON THE EROSION CONTROL PLAN. INSTALL CONSTRUCTION FENCING IF DETERMINED TO BE NECESSARY AT THE COMMENCEMENT OF CONSTRUCTION.
3. INSTALL THE CONSTRUCTION ENTRANCES AT THE LOCATIONS SHOWN ON THE EROSION AND CONTROL PLAN.
4. SITE ACCESS SHALL BE ACHIEVED ONLY FROM THE DESIGNATED CONSTRUCTION ENTRANCES.
5. STOCKPILES SHALL BE STABILIZED WITH EROSION CONTROL MATTING OR TEMPORARY SEEDING WHENEVER PRACTICABLE, BUT IN NO CASE MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED.
6. INSTALL SILT SACKS AND STRAWBALES AROUND EACH DRAIN INLET AS SOON AS PRACTICABLE.
7. ALL EROSION CONTROL MEASURES SHALL BE INSPECTED WEEKLY AND AFTER EVERY RAINFALL EVENT.
8. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED, REPAIRED OR REPLACED AS REQUIRED OR AT THE DIRECTION OF THE OWNER'S ENGINEER, THE TOWN ENGINEER, OR THE TOWN CONSERVATION AGENT.
9. SEDIMENT ACCUMULATION UP-GRADIENT OF THE STRAWBALES AND SILT FENCE GREATER THAN 6" IN DEPTH SHALL BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
10. IF IT APPEARS THAT SEDIMENT IS EXITING THE SITE, SILT SACKS SHALL BE INSTALLED IN ALL CATCH BASINS ADJACENT TO THE SITE. SEDIMENT ACCUMULATION ON ALL ADJACENT CATCH BASIN INLETS SHALL BE REMOVED AND THE SILT SACK REPLACED IF TORN OR DAMAGED.
11. INSTALL STONE OR DIVERSION SWALE STRAW BALE CHECK DAMS ON SITE AS REQUIRED DURING CONSTRUCTION. REFER TO THE EROSION CONTROL DRAWING, DETAIL SHEETS D-1 THRU D-8.
12. THE CONTRACTOR SHALL COMPLY WITH THE GENERAL AND EROSION NOTES AS SHOWN ON THE SITE DEVELOPMENT PLANS AND SPECIFICATIONS.
13. THE STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSPECTED WEEKLY. THE ENTRANCES SHALL BE MAINTAINED BY ADDING ADDITIONAL CLEAN, ANGULAR, DURABLE STONE TO REMOVE THE SOIL FROM THE CONSTRUCTION VEHICLE TIRES WHEN EXITING THE SITE. IF SOIL IS STILL LEAVING THE SITE VIA THE CONSTRUCTION VEHICLE TIRES, ADJACENT ROADWAYS SHALL BE KEPT CLEAN BY STREET SWEEPING.
14. DUST POLLUTION SHALL BE CONTROLLED USING ON-SITE WATER TRUCKS AND OR AN APPROVED SOIL STABILIZATION PRODUCT.
15. CARE SHOULD BE TAKEN TO PREVENT DISCHARGE OF SEDIMENT TO ABUTTERS.

2.3 MAINTENANCE

2.3.1 DURING THE PERIOD OF CONSTRUCTION AND/OR UNTIL LONG TERM VEGETATION IS ESTABLISHED: SEEDED AREAS WILL BE FERTILIZED AND RESEEDED AS NECESSARY TO INSURE VEGETATION ESTABLISHMENT.

2.3.2 TEMPORARY SEDIMENTATION BASINS WILL BE CHECKED AFTER EACH SIGNIFICANT RAINFALL AND NO LESS THAN WEEKLY, AND CLEANED AS NEEDED TO RETAIN STORAGE CAPACITY.

2.3.3 TEMPORARY DRAINAGE SWALES WILL BE CHECKED WEEKLY AND REPAIRED WHEN NECESSARY.

2.3.4 THE HAYBALE AND SILTATION FENCING BARRIERS AND OTHER EROSION AND SEDIMENT CONTROL MEASURES/DEVICES SHALL BE INSPECTED, CLEANED, REPLACED AND/OR REPAIRED AS NECESSARY, AND NO LESS THAN WEEKLY, AND AFTER EACH SIGNIFICANT RAINFALL. ACCUMULATED SEDIMENTS SHALL BE REMOVED WHEN THEY REACH HALF THE HEIGHT OF THE BARRIER.

2.4. GENERAL

2.4.1. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH (USDA) NATURAL RESOURCES CONSERVATION SERVICE (NRCS, FORMERLY SCS) GUIDELINES AND ALL LOCAL MUNICIPAL REGULATIONS.

2.4.2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING ALL CONTROL POINTS AND BENCH MARKS NECESSARY FOR THE WORK.

2.4.3. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO THE COMMENCEMENT OF ANY SITEWORK OR EARTHWORK OPERATIONS, SHALL BE MAINTAINED DURING CONSTRUCTION, AND SHALL REMAIN IN PLACE UNTIL ALL SITEWORK IS COMPLETE AND GROUNDCOVER IS ESTABLISHED.

2.4.4. ALL WORK SHALL BE IN ACCORDANCE WITH THE PERMITS AND APPROVALS ISSUED BY THE LOCAL PLANNING BOARD, THEIR AGENTS, AND THE CONSTRUCTION SPECIFICATIONS.

2.4.5. STOCKPILES SHALL BE SURROUNDED ON THEIR PERIMETERS WITH STAKED BALES AND/OR SILTATION FENCES TO PREVENT AND/OR CONTROL SILTATION AND EROSION.

2.4.6. TOPS OF STOCKPILES SHALL BE COVERED IN SUCH A MANNER THAT STORMWATER DOES NOT INFILTRATE THE MATERIALS AND THEREBY RENDER THE SAME UNSUITABLE FOR FILL USE.

IF APPLICABLE, EFFORTS SHALL BE MADE TO AVOID STOCKPILING CUT GLACIAL TILL SOILS SINCE STOCKPILING INCREASES EXPOSURE TO PRECIPITATION AND PROVIDES GREATER OPPORTUNITY FOR FROST PENETRATION. SOME OF THE STEPS IN SEQUENCING MAY OCCUR SIMULTANEOUSLY, PARTICULARLY CUT AND FILL OPERATIONS, IN AN EFFORT TO AVOID STOCKPILING.

2.4.7. ALL DISTURBED OR EXPOSED AREAS SUBJECT TO EROSION SHALL BE STABILIZED WITH MULCH OR SEEDED FOR TEMPORARY VEGETATIVE COVER. NO AREA, SUBJECT TO EROSION SHALL BE LEFT DISTURBED AND UNSTABILIZED FOR PERIODS LONGER THAN IS ABSOLUTELY NECESSARY TO CARRY OUT THAT PORTION OF THE CONSTRUCTION WORK.

2.4.8. THE LOCATION OF TEMPORARY DRAINAGE SWALES AND SEDIMENTATION TRAPS ARE APPROXIMATE ONLY AND SHALL BE RELOCATED AS REQUIRED AS CONSTRUCTION PROGRESSES.

2.4.9. BALE DIKES SHALL BE CONSTRUCTED AT ALL EXISTING & PROPOSED CATCH BASINS LOCATED IN AREAS SUBJECT TO STORMWATER RUN-OFF FROM PROPOSED CONSTRUCTION, OR AS DIRECTED BY THE OWNER'S REPRESENTATIVE. NO SEDIMENTS SHALL ENTER THE OFF-SITE DRAINAGE SYSTEMS AT ANY TIME. SEDIMENT DISCHARGE TO OFF-SITE PROPERTY IS PROHIBITED.

2.4.10. CULVERT/PIPE INLETS AND OUTFALLS SHALL BE PROTECTED FROM INCOMING SILT UNTIL ALL DISTURBED AREAS TRIBUTARY TO THEM ARE PERMANENTLY STABILIZED.

2.4.11. ANY DEWATERING REQUIRED DURING CONSTRUCTING ON THE SITE SHALL DISCHARGE INTO A DEWATERING FILTER OR THE TEMPORARY SILT BASIN PRIOR TO DISCHARGE TO THE EXISTING DETENTION BASIN OR TO OFF-SITE .

2.4.12. BALES AND SILTATION FENCING AND TEMPORARY SILT BASIN SHALL BE INSPECTED NO LESS THAN WEEKLY AND AFTER EACH SIGNIFICANT RAINFALL AND REPLACED AS REQUIRED.

2.4.13. ALL PROPOSED NON-RIPRAP SLOPES STEEPER THAN 3:1 SHALL BE STABILIZED WITH EROSION CONTROL FABRIC AND PROTECTED FROM EROSION.

2.4.14. THE CONTRACTOR SHALL KEEP ON SITE AT ALL TIMES ADDITIONAL BALES AND EXTRA SILTATION FENCING FOR INSTALLATION AT THE DIRECTION OF THE OWNER'S REPRESENTATIVE OR THE MUNICIPAL AGENTS TO MITIGATE ANY EMERGENCY CONDITION.

2.4.15. BORINGS WERE TAKEN FOR THE PURPOSE OF DESIGN AND SHOW CONDITIONS AT BORING POINTS ONLY. THEY DO NOT NECESSARILY SHOW THE NATURE OF ALL MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION.

2.4.16. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND PAYING FOR ANY PERMITS AND/OR CONNECTION FEES REQUIRED TO CARRY OUT THE WORK INCLUDING BUT NOT LIMITED TO DEMOLITION.

2.4.17. DISPOSAL OF ALL DEMOLISHED MATERIALS IS THE RESPONSIBILITY OF THE CONTRACTOR AND MUST BE OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL MUNICIPAL REQUIREMENTS.

2.4.18. THE CONTRACTOR SHALL PROTECT AND/OR CAP OFF ALL EXISTING ON- SITE UTILITY SERVICES DESIGNATED ON THESE DRAWINGS. SERVICES SHALL BE CAPPED OFF WHERE SAME ENTER THE PERIMETER PROPERTY LINE.

2.4.19. THE LIMIT OF WORK LINE FOR THE AREA TO BE CLEARED AND GRUBBED SHALL BE THE SAME AS THE LIMIT OF WORK LINE NECESSARY FOR GRADING PURPOSES, (I.E., THE GRADING LIMITS AROUND THE PERIMETER OF THE PROJECT AREA).

2.4.20. THE AREA OR AREAS OF ENTRANCE AND EXIT TO AND FROM THE SITE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED IMMEDIATELY.

2.4.21. FOLLOWING THE ADDITION OF A BINDER COURSE, THE CONTRACTOR SHALL SWEEP ALL ON-SITE PAVEMENT, IF NECESSARY, UNTIL ALL SITE CONSTRUCTION IS COMPLETED.

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW
AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE DATE

N:\PROJECTS\2165-01A\CIVIL\DRAWINGS\CURRENT\C-2165-01A - ABBREVIATIONS & NOTES.DWG

NOT FOR CONSTRUCTION - FOR PERMITTING ONLY

4/1/17
COMMONWEALTH OF MASSACHUSETTS
TIMOTHY J. WILLIAMS
CIVIL
No.43119
REGISTERED PROFESSIONAL ENGINEER

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

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1	1-17-2017	REVISED PER PEER REVIEW & TOWN COMMENTS

APPLICANT\OWNER:
SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MA 01810

PROJECT:
RESIDENTIAL DEVELOPMENT
470 BOSTON STREET (ROUTE 1)
TOPSFIELD, MA

PROJECT NO.	2165-01A	DATE:	10-13-2016
SCALE:	NONE	DWG. NAME:	C-2165-01A
DESIGNED BY:	DMR	CHECKED BY:	RB

PREPARED BY:
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DRAWING TITLE: ABBREVIATIONS & NOTES

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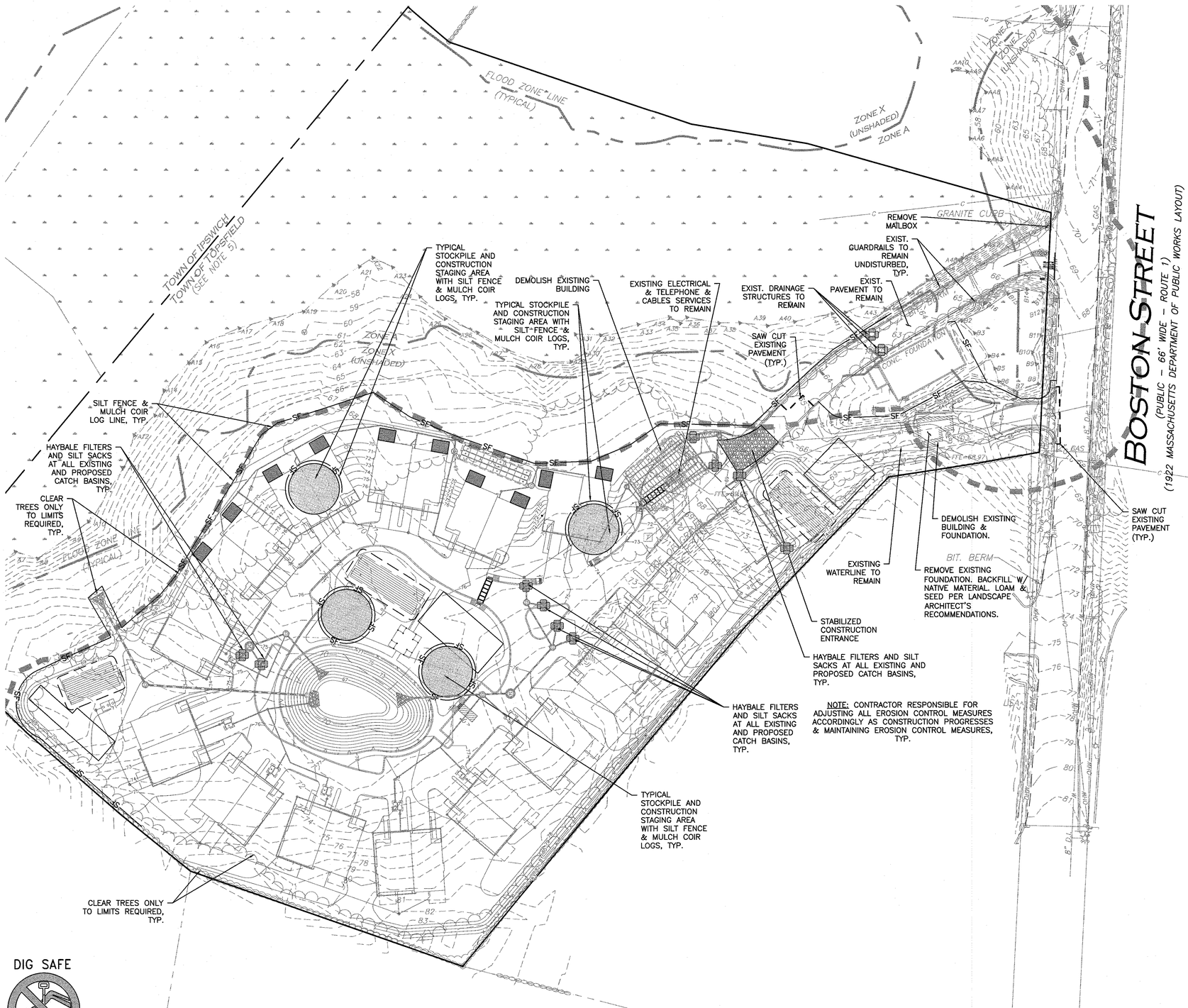

LEGEND:

PROPERTY LINE	—SF—
SILT FENCE & MULCH COIR LOG	—SF—
HAYBALE FILTER W/ SILT SACK	
STABILIZED CONST. ENTRANCE	
PROPOSED GRADING	125
STOCKPILE/CONSTRUCTION STAGING AREA	
SAW CUT	— — — — —

NOTES:

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3. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR IT'S REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
4. ALL ELEVATIONS REFER TO NAVD 88.
5. ALTHOUGH CERTAIN ITEMS HAVE BEEN NOTED ON THIS DRAWING FOR DEMOLITION, NO ATTEMPT HAS BEEN MADE TO DELINEATE EACH AND EVERY ITEM THAT REQUIRES DEMOLITION FOR THE COMPLETION OF THE PROJECT. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL NECESSARY DEMOLITION WORK TO COMPLETE THE PROJECT. ALLEN & MAJOR ASSOCIATES, INC. IS NOT RESPONSIBLE FOR SITE DEMOLITION ITEMS NOT SHOWN ON THE SURVEY, OR SPECIFICALLY NOTED. THE DEMOLITION NOTES AND ARROWS ON THIS PLAN ARE TYPICAL AND DO NOT REFLECT QUANTITY.
6. PORTIONS OF THE SITE ARE LOCATED WITHIN FEMA FLOODPLAIN ZONE A – AREAS SUBJECT TO INUNDATION BY THE 1–PERCENT–ANNUAL–CHANCE FLOOD EVENT AS SHOWN ON FEMA MAP 25009C0266F, EFFECTIVE DATE JULY 3, 2012.
7. THE CONTRACTOR SHALL CONTACT "DIGSAFE" AND THE TOWN OF TOPSFIELD DEPARTMENT OF PUBLIC WORKS AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST THE LOCATION OF THE EXISTING UTILITIES.

   DIGSAFE: 1–800–344–7233
   TOPSFIELD DEPT. OF PUBLIC WORKS:
   978–887–1517 (WATER DEPT.)
   978–887–1542 (HIGHWAY DEPT.
8. SEE THE ABBREVIATIONS AND NOTES PLAN, SHEETS ABB–1, ABB–2, & ABB–3 FOR GENERAL NOTES, AND EROSION CONTROL NOTES.
9. TYPICALLY, THE LIMIT OF WORK COINCIDES WITH COIR LOG AND SILT FENCE LINE UNLESS INDICATED OTHERWISE. IN THE INSTANCE A STABILIZED CONSTRUCTION ENTRANCE, CURB REMOVAL OR SILT SACK IS LOCATED BEYOND THE STRAW BALE AND SILT FENCE LINE IN WHICH CASE THAT IS THE LIMIT OF WORK LINE.
10. FOR OPERATIONS AND MAINTENANCE (O&M) INFORMATION BOTH DURING CONSTRUCTION AND POST CONSTRUCTION CONTACTOR & OWNER TO SEE SECTION 2 (O&M PLAN) IN THE REPORT ENTITLED "SITE DEVELOPMENT DRAINAGE REPORT" PREPARED BY A&M.
11. PRIOR TO AND DURING CONSTRUCTION, CONTRACTOR RESPONSIBLE FOR FOLLOWING THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP). SEE SWPPP FOR ADDITIONAL SITE RESPONSIBILITIES.

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE DATE

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

DIG SAFE

BEFORE YOU DIG
CALL 811 OR
1-888-DIG-SAFE
1-888-344-7233

N:\PROJECTS\2165-01A\CIVIL\DRAWINGS\CURRENT\C-2165-01A – EROSION CONTROL PLAN.DWG

2/10/17
COMMONWEALTH OF MASSACHUSETTS
TIMOTHY J. WILLIAMS
CIVIL
No.43119
REGISTERED PROFESSIONAL ENGINEER

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

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1	1-17-2017	REVISED PER PEER REVIEW & TOWN COMMENTS

APPLICANT\OWNER:
SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MA 01810

PROJECT:
RESIDENTIAL DEVELOPMENT
470 BOSTON STREET (ROUTE 1)
TOPSFIELD, MA

PROJECT NO.	2165-01A	DATE:	10-13-2016
SCALE:	1"=50'	DWG. NAME:	C-2165-01A
DESIGNED BY:	DMR	CHECKED BY:	RB

PREPARED BY:

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DRAWING TITLE:
DEMOLITION & EROSION CONTROL PLAN

SHEET No.
C-1

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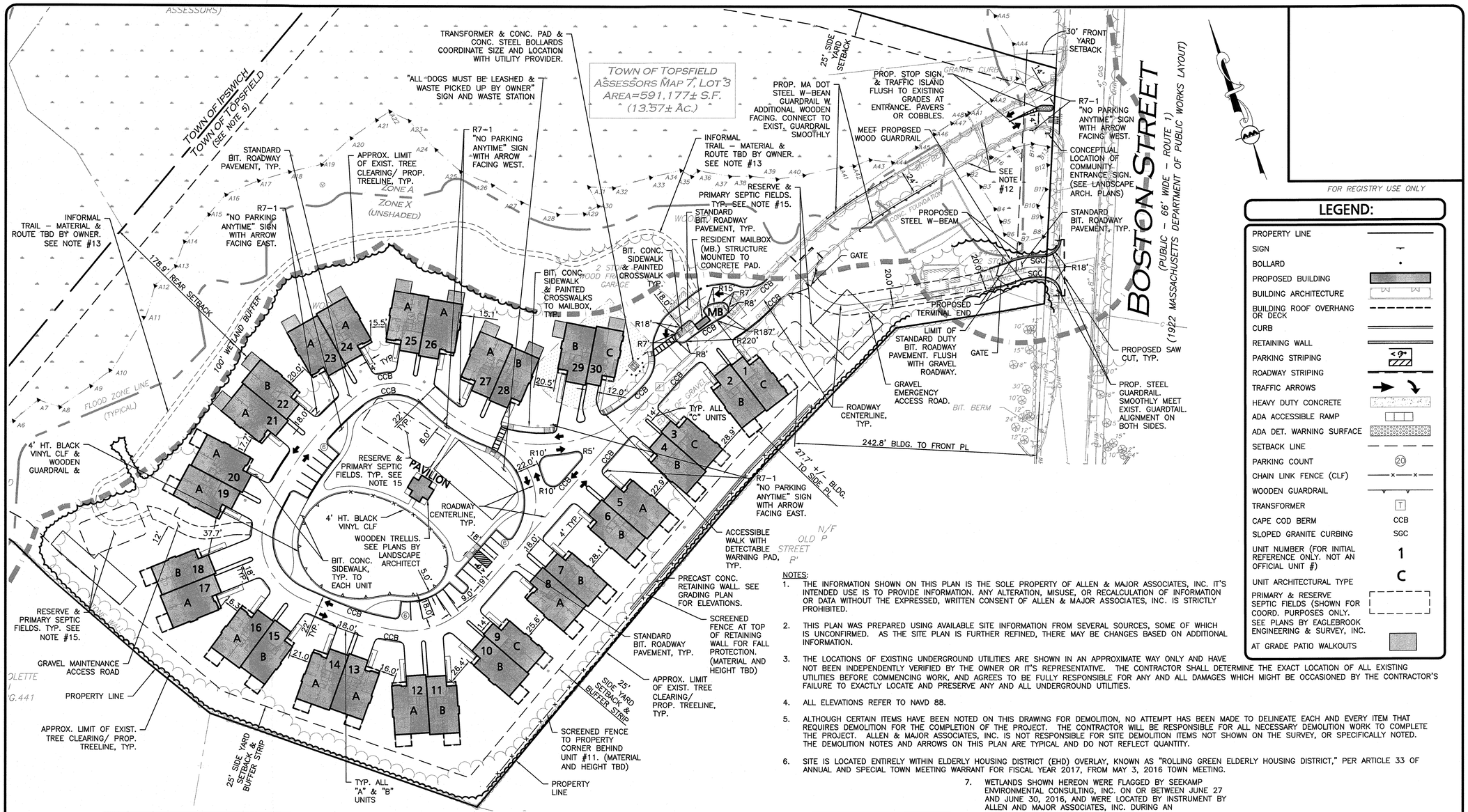

LEGEND:

PROPERTY LINE	
SIGN	
BOLLARD	
PROPOSED BUILDING	
BUILDING ARCHITECTURE	
BUILDING ROOF OVERHANG OR DECK	
CURB	
RETAINING WALL	
PARKING STRIPING	< 9"
ROADWAY STRIPING	
TRAFFIC ARROWS	
HEAVY DUTY CONCRETE	
ADA ACCESSIBLE RAMP	
ADA DET. WARNING SURFACE	
SETBACK LINE	
PARKING COUNT	20
CHAIN LINK FENCE (CLF)	
WOODEN GUARDRAIL	
TRANSFORMER	T
CAPE COD BERM	CCB
SLOPED GRANITE CURBING	SGC
UNIT NUMBER (FOR INITIAL REFERENCE ONLY. NOT AN OFFICIAL UNIT #)	1
UNIT ARCHITECTURAL TYPE	C
PRIMARY & RESERVE SEPTIC FIELDS (SHOWN FOR COORD. PURPOSES ONLY. SEE PLANS BY EAGLEBROOK ENGINEERING & SURVEY, INC.	
AT GRADE PATIO WALKOUTS	

NOTES:

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6. SITE IS LOCATED ENTIRELY WITHIN ELDERLY HOUSING DISTRICT (EHD) OVERLAY, KNOWN AS "ROLLING GREEN ELDERLY HOUSING DISTRICT," PER ARTICLE 33 OF ANNUAL AND SPECIAL TOWN MEETING WARRANT FOR FISCAL YEAR 2017, FROM MAY 3, 2016 TOWN MEETING.
7. WETLANDS SHOWN HEREON WERE FLAGGED BY SEEKAMP ENVIRONMENTAL CONSULTING, INC. ON OR BETWEEN JUNE 27 AND JUNE 30, 2016, AND WERE LOCATED BY INSTRUMENT BY ALLEN AND MAJOR ASSOCIATES, INC. DURING AN ON-THE-GROUND SURVEY.
8. ALL CURB RADII ARE TO BE 3 FEET UNLESS OTHERWISE SPECIFIED.
9. A PORTION OF THE SITE IS LOCATED WITHIN FEMA FLOODPLAIN ZONE A – AREAS SUBJECT TO INUNDATION BY THE 1-PERCENT-ANNUAL-CHANCE FLOOD EVENT AS SHOWN ON FEMA MAP 25009C0266F, EFFECTIVE DATE JULY 3, 2012. AS IT IS A ZONE A, NO BASE FLOOD ELEVATION IS DETERMINED. LOCATION OF ZONE A IS SHOWN ON THE A&M EXISTING CONDITIONS PLAN.
10. BUILDING FOOTPRINTS FROM CAD FILES PROVIDED TO A&M ON 8/3/16 BY THE ARCHITECT "THE MZO GROUP".
11. SEE ARCHITECT'S PLANS FOR ALL BUILDING INFORMATION. (DOORS, GUTTERS, LOCATIONS OF UTILITY CONNECTIONS TO BUILDING, DRAINAGE DOWNSPOUTS, STEPS, FOUNDATIONS, ETC.)
12. EXIST. STEEL GUARDRAIL TO REMAIN. INSTALL NEW WOODEN FACING ON TOP OF EXISTING STEEL. (ON SUBJECT PARCEL ONLY; EXIST. STEEL GUARDRAIL IN ROUTE 1 R.O.W. TO REMAIN UNDISTURBED).
13. PER APPLICANT, INFORMAL TRAIL IN WOODS TO AVOID TREE REMOVAL. PATH LAYOUT, MATERIALS, GRADES, & LOCATION TO BE DETERMINED BY APPLICANT. PATH LOCATION SHOWN ON PLANS IS CONCEPTUAL ONLY.
14. PER TOWN OF TOPSFIELD & APPLICANT THE PROPERTY IN TOPSFIELD SUBJECT TO THE SPECIAL PERMIT SHALL NOT BE FURTHER SUBDIVIDED.
15. SEE EAGLEBROOK ENGINEERING & SURVEY, INC. PLANS FOR SUBSURFACE SEWER DISPOSAL SYSTEM DESIGN.

470 BOSTON STREET
LAND USAGE TABLE - ELDERLY HOUSING DISTRICT (EHD)

ITEM	REQUIRED/ALLOWED	EXISTING	PROPOSED
LOT SIZE	435,600 S.F. 10.0 ACRES MIN.	TOTAL= 591,177± S.F. 13.57± ACRES	TOTAL = 591,177± S.F. 13.57± ACRES
LOT WIDTH (MIN.)	125 FEET	198.9± FEET	198.9± FEET
STREET FRONTAGE	50 FEET	236.39± FEET	236.39± FEET
FRONT YARD SETBACK	30 FEET	85.3± FEET	242.8± FEET
SIDE YARD SETBACK	25 FEET	22.5± FEET	27.7± FEET
REAR YARD SETBACK	25 FEET	472.4± FEET	178.9± FEET
BUILDING HEIGHT (MAX.)	35 FEET	<35 FEET	<35 FEET
BUILDING STORIES	2-½ STORIES	<2-½ STORIES	2-½ STORIES
BUILDING COVERAGE (MAX.)	30%	0.25%±	9.2%±
ABUTTING LOT BUFFER ZONE	25' MIN.	0'±	25.0±'
UNITS PER BUILDABLE ACRE* (MAX.)	5 UNITS/ACRE	0.2± UNITS/ACRE	3.2± UNITS/ACRE*

*9.45+/- BUILDABLE ACRES (UPLAND) CALCULATED (MAX. 47 UNITS)

OFF-STREET PARKING SUMMARY

REQUIRED PARKING FOR ELDERLY HOUSING DEVELOPMENT:
NOT LESS THAN SIX (6) NOR MORE THAN EIGHT (8) PARKING SPACES FOR EACH THREE (3) ELDERLY DWELLING UNITS CONTAINED IN THE DEVELOPMENT. (*SEE NOTES)

30 UNITS / 3 = 10

10*6 = 60 (MINIMUM)

10*8 = 80 (MAXIMUM)

PROPOSED 2 GARAGE SPACES PER UNIT FOR A & B UNITS, 1 SPACE FOR C UNITS
TOTAL 30 UNITS, (15) A UNITS, (11) B UNITS, (4) C UNITS

THEREFORE, 56 PROPOSED PARKING SPACES AT UNITS

PROVIDED PARKING:
COMMON PUBLIC SURFACE PARKING SPACES
= (17) 9' X 18' & (1) ACCESSIBLE 8' X 18' = 18 TOTAL COMMON SURFACE SPACES
GARAGE PARKING SPACES = 56
TOTAL PROPOSED PARKING SPACES = 18+56=74

EXISTING PARKING	PROPOSED PARKING	
	TOTAL PROVIDED	TOTAL REQUIRED
2	74	60 (MIN) – 80 (MAX)

PARKING NOTES:
*PARKING SPACES WITHIN A GARAGE SHALL BE COUNTED TOWARD THE REQUIRED NUMBER OF PARKING SPACES

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BEFORE YOU DIG CALL 811 OR 1-888-DIG-SAFE 1-888-344-7233

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE DATE

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

N:\PROJECTS\2165-01A\CIVIL\DRAWINGS\CURRENT\C-2165-01A – LAYOUT & MATERIALS PLAN.DWG

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WE HEREBY CERTIFY THAT:

THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS DATED JANUARY 1, 1976 AND REVISED JANUARY 12, 1988.

ACCORDING TO DEEDS AND PLANS OF RECORD, THE PROPERTY LINES SHOWN ON THIS PLAN ARE THE LINES DIVIDING EXISTING OWNERSHIP, AND THE LINES OF THE STREETS OR WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS AND WAYS ALREADY ESTABLISHED, AND THAT NO NEW LINES FOR THE DIVISION OF EXISTING OWNERSHIP OR FOR NEW WAYS ARE SHOWN.

THE ABOVE CERTIFICATION IS INTENDED TO MEET REGISTRY OF DEEDS REQUIREMENTS FOR THE RECORDING OF PLANS AND IS NOT A CERTIFICATION TO THE TITLE OR OWNERSHIP OF THE PROPERTY SHOWN. OWNERS OF ADJOINING PROPERTIES ARE SHOWN ACCORDING TO CURRENT TOWN OF TOPSFIELD ASSESSOR'S INFORMATION.

THE ABOVE IS CERTIFIED TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, INFORMATION AND BELIEF.

ALLEN & MAJOR ASSOCIATES, INC.

KJK 4/10/17

COMMONWEALTH OF MASSACHUSETTS KEVIN J. KIERNAN No.40038 PROFESSIONAL LAND SURVEYOR

PROFESSIONAL LAND SURVEYOR FOR ALLEN & MAJOR ASSOCIATES, INC.

4/10/17

COMMONWEALTH OF MASSACHUSETTS TIMOTHY J. WILLIAMS CIVIL No.43119 REGISTERED PROFESSIONAL ENGINEER

PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
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3	3-16-2017	REVISIONS PER TOWN REQUEST
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1	1-17-2017	REVISED PER PEER REVIEW & TOWN COMMENTS

APPLICANT\OWNER:
SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MA 01810

PROJECT:
RESIDENTIAL DEVELOPMENT
470 BOSTON STREET (ROUTE 1)
TOPSFIELD, MA

PROJECT NO.	2165-01A	DATE:	10-13-2016
SCALE:	1"=50'	DWG. NAME:	C-2165-01A
DESIGNED BY:	DMR	CHECKED BY:	RB

PREPARED BY:

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civil & structural engineering ◆ land surveying
environmental consulting ◆ landscape architecture
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DRAWING TITLE: LAYOUT & MATERIALS PLAN

SHEET No. C-2

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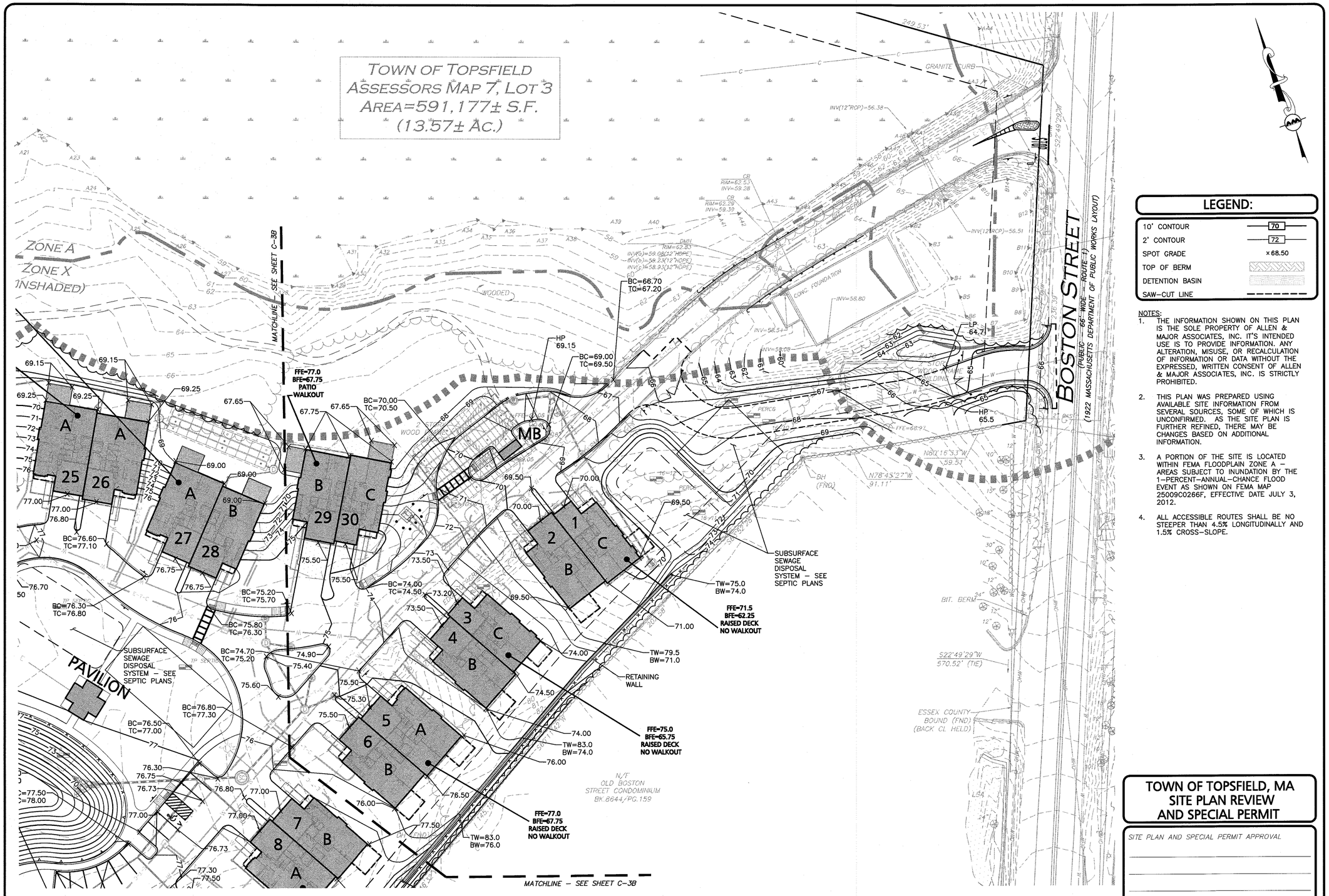

LEGEND:

10' CONTOUR	70
2' CONTOUR	72
SPOT GRADE	× 68.50
TOP OF BERM	
DETENTION BASIN	
SAW-CUT LINE	

NOTES:

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4. ALL ACCESSIBLE ROUTES SHALL BE NO STEEPER THAN 4.5% LONGITUDINALLY AND 1.5% CROSS-SLOPE.

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE DATE

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

N:\PROJECTS\2165-01A\CIVIL\DRAWINGS\CURRENT\C-2165-01A – GRADING AND SPOT GRADES PLAN.DWG

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2 ELM SQUARE
ANDOVER, MA 01810

PROJECT:

RESIDENTIAL DEVELOPMENT
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TOPSFIELD, MA

PROJECT NO.	2165-01A	DATE:	10-13-2016
SCALE:	1"=30'	DWG. NAME:	C-2165-01A
DESIGNED BY:	DMR	CHECKED BY:	RB

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DRAWING TITLE:

GRADING AND SPOT GRADES PLAN

SHEET No.

C-3A

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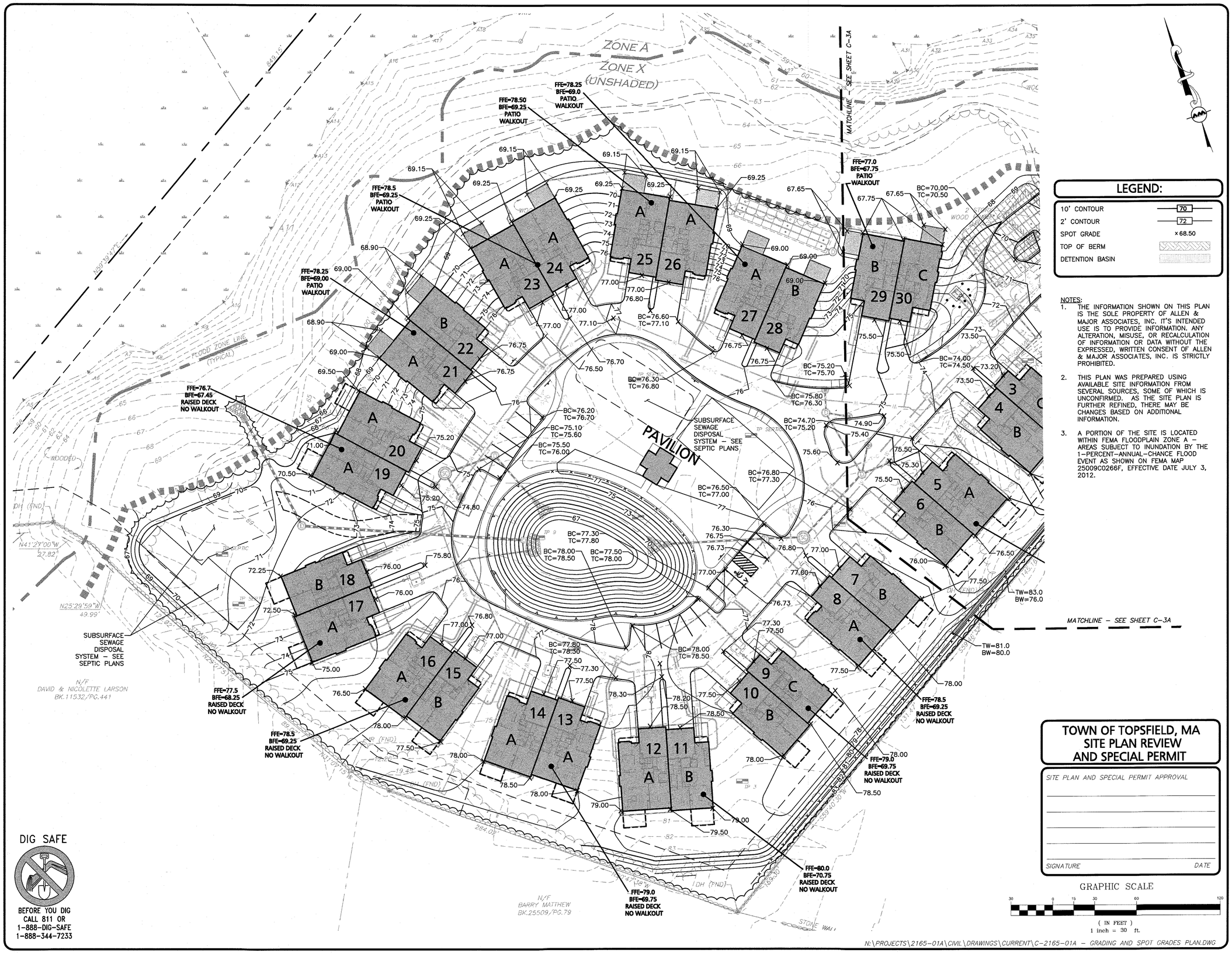

LEGEND:

10' CONTOUR	70
2' CONTOUR	72
SPOT GRADE	×68.50
TOP OF BERM	
DETENTION BASIN	

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AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE DATE

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(IN FEET)
1 inch = 30 ft.

N:\PROJECTS\2165-01A\CIVIL\DRAWINGS\CURRENT\C-2165-01A – GRADING AND SPOT GRADES PLAN.DWG

COMMONWEALTH OF MASSACHUSETTS
TIMOTHY J. WILLIAMS
CIVIL
No. 43119
REGISTERED PROFESSIONAL ENGINEER
4/10/17

PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

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GRADING AND SPOT GRADES PLAN

SHEET No.

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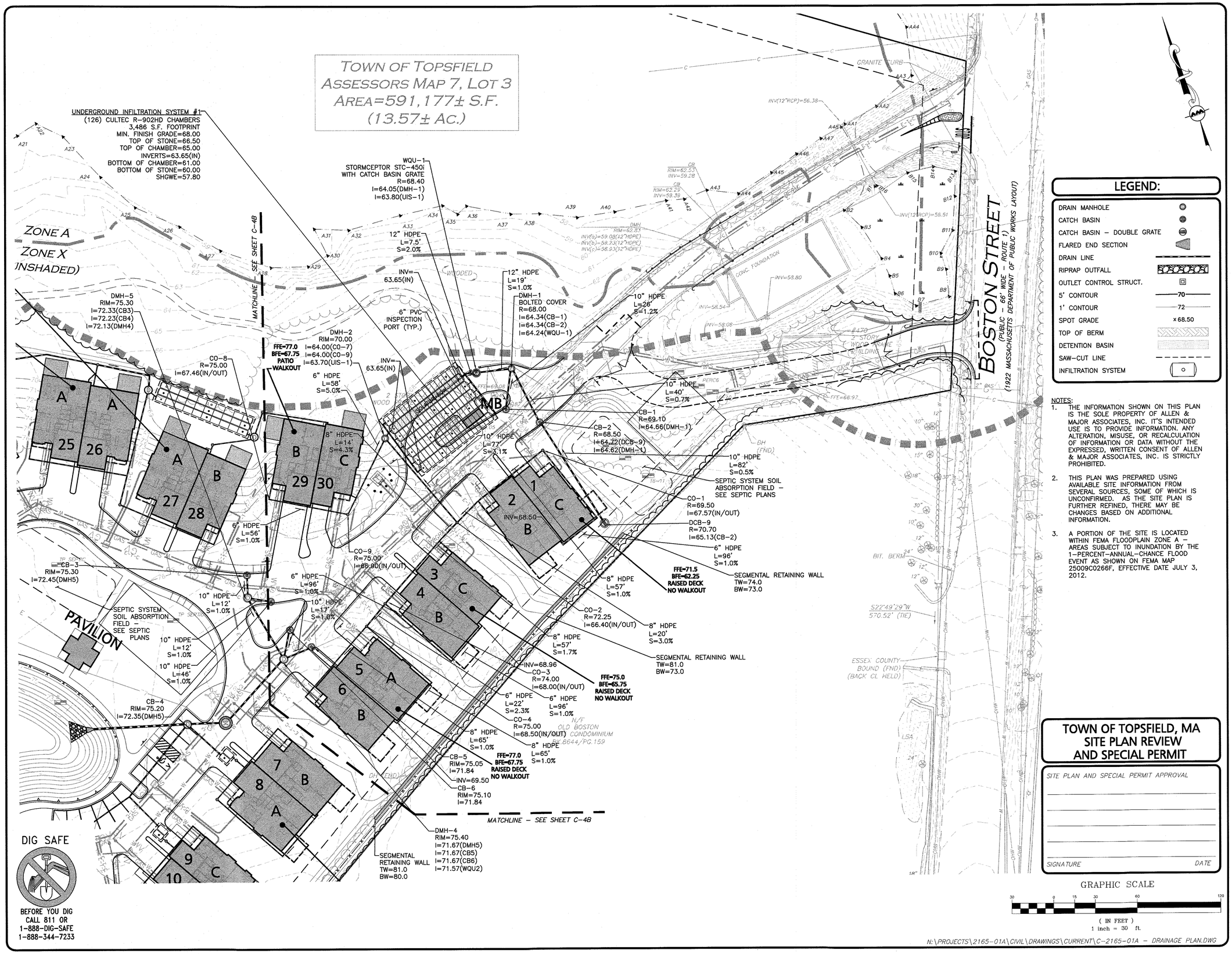

LEGEND:

DRAIN MANHOLE	
CATCH BASIN	
CATCH BASIN – DOUBLE GRATE	
FLARED END SECTION	
DRAIN LINE	
RIPRAP OUTFALL	
OUTLET CONTROL STRUCT.	
5' CONTOUR	70
1' CONTOUR	72
SPOT GRADE	×68.50
TOP OF BERM	
DETENTION BASIN	
SAW-CUT LINE	
INFILTRATION SYSTEM	

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TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW
AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE DATE

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

N:\PROJECTS\2165-01A\CIVIL\DRAWINGS\CURRENT\C-2165-01A - DRAINAGE PLAN.DWG

4/10/17

COMMONWEALTH OF MASSACHUSETTS
TIMOTHY J. WILLIAMS
CIVIL
No. 43119
REGISTERED PROFESSIONAL ENGINEER

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
4	4-10-2017	REVISIONS PER TOWN REQUEST
3	3-16-2017	REVISIONS PER TOWN REQUEST
2	2-27-2017	REVISIONS PER TOWN COMMENTS
1	1-17-2017	REVISED PER PEER REVIEW & TOWN COMMENTS

APPLICANT\OWNER:

SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MA 01810

PROJECT:

RESIDENTIAL DEVELOPMENT
470 BOSTON STREET (ROUTE 1)
TOPSFIELD, MA

PROJECT NO.	2165-01A	DATE:	10-13-2016
SCALE:	1"=30'	DWG. NAME:	C-2165-01A
DESIGNED BY:	DMR	CHECKED BY:	RB

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil & structural engineering ◆ land surveying
environmental consulting ◆ landscape architecture
www.allenmajor.com

100 COMMERCE WAY
WOBURN MA 01801-8501
TEL: (781) 935-6889
FAX: (781) 935-2896

WOBURN, MA ◆ LAKEVILLE, MA ◆ MANCHESTER, NH

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DRAWING TITLE: DRAINAGE PLAN

SHEET No. C-4A

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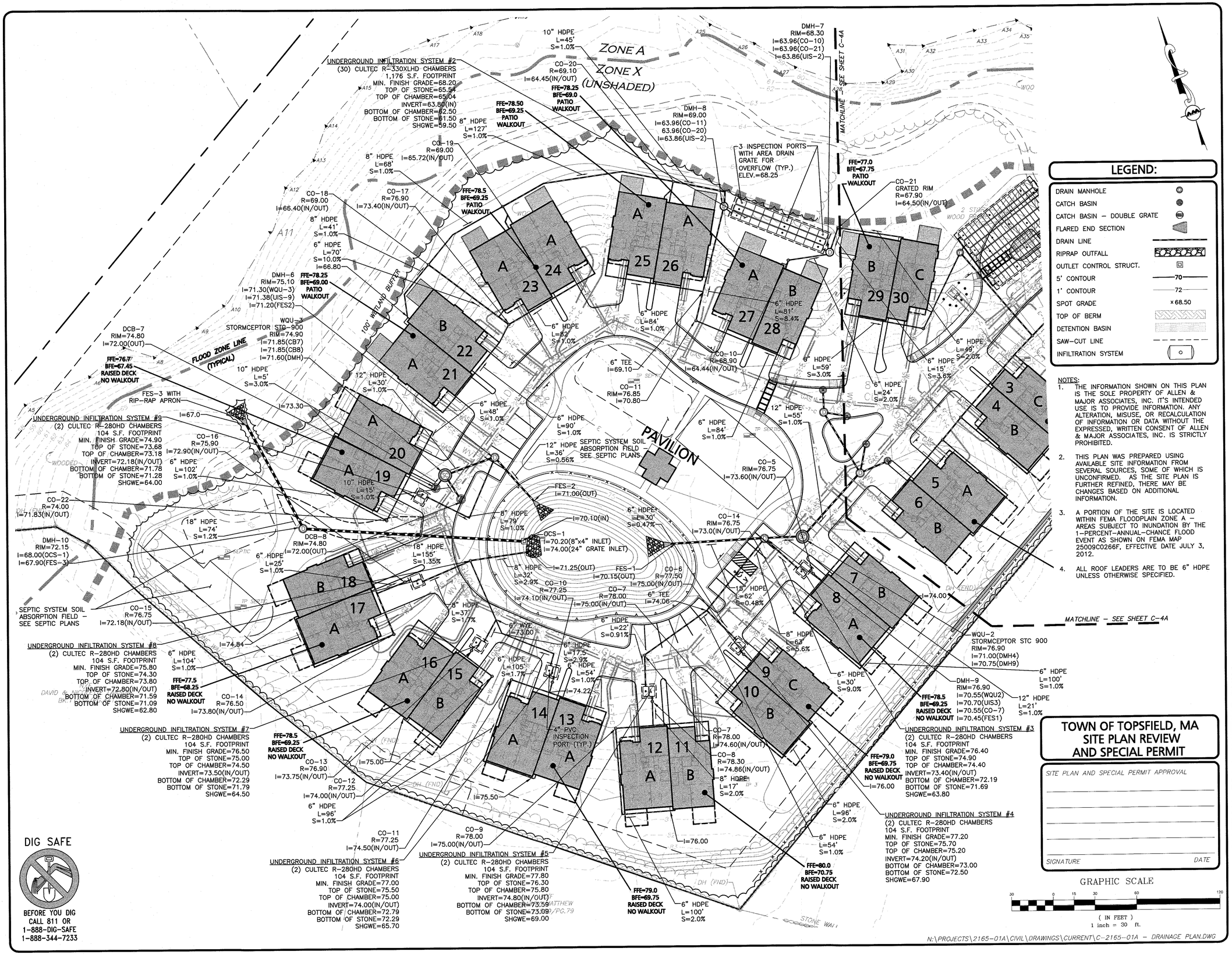

LEGEND:

DRAIN MANHOLE	
CATCH BASIN	
CATCH BASIN – DOUBLE GRATE	
FLARED END SECTION	
DRAIN LINE	
RIPRAP OUTFALL	
OUTLET CONTROL STRUCT.	
5' CONTOUR	70
1' CONTOUR	72
SPOT GRADE	×68.50
TOP OF BERM	
DETENTION BASIN	
SAW-CUT LINE	
INFILTRATION SYSTEM	

NOTES:

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4. ALL ROOF LEADERS ARE TO BE 6" HDPE UNLESS OTHERWISE SPECIFIED.

TOWN OF TOPSFIELD, MA
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SIGNATURE DATE

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N:\PROJECTS\2165-01A\CIVIL\DRAWINGS\CURRENT\C-2165-01A - DRAINAGE PLAN.DWG

1/10/17
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CIVIL
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2 ELM SQUARE
ANDOVER, MA 01810

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470 BOSTON STREET (ROUTE 1)
TOPSFIELD, MA

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SCALE:	1"=30'	DWG. NAME:	C-2165-01A
DESIGNED BY:	DMR	CHECKED BY:	RB

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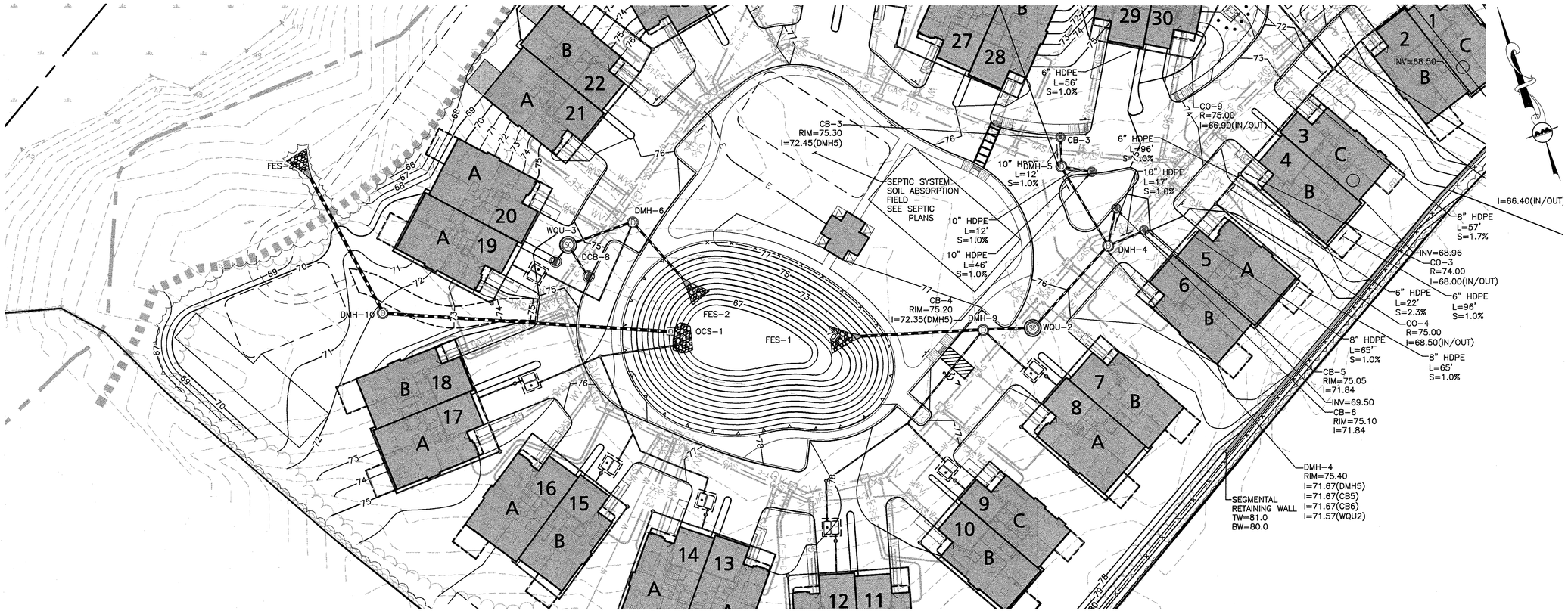
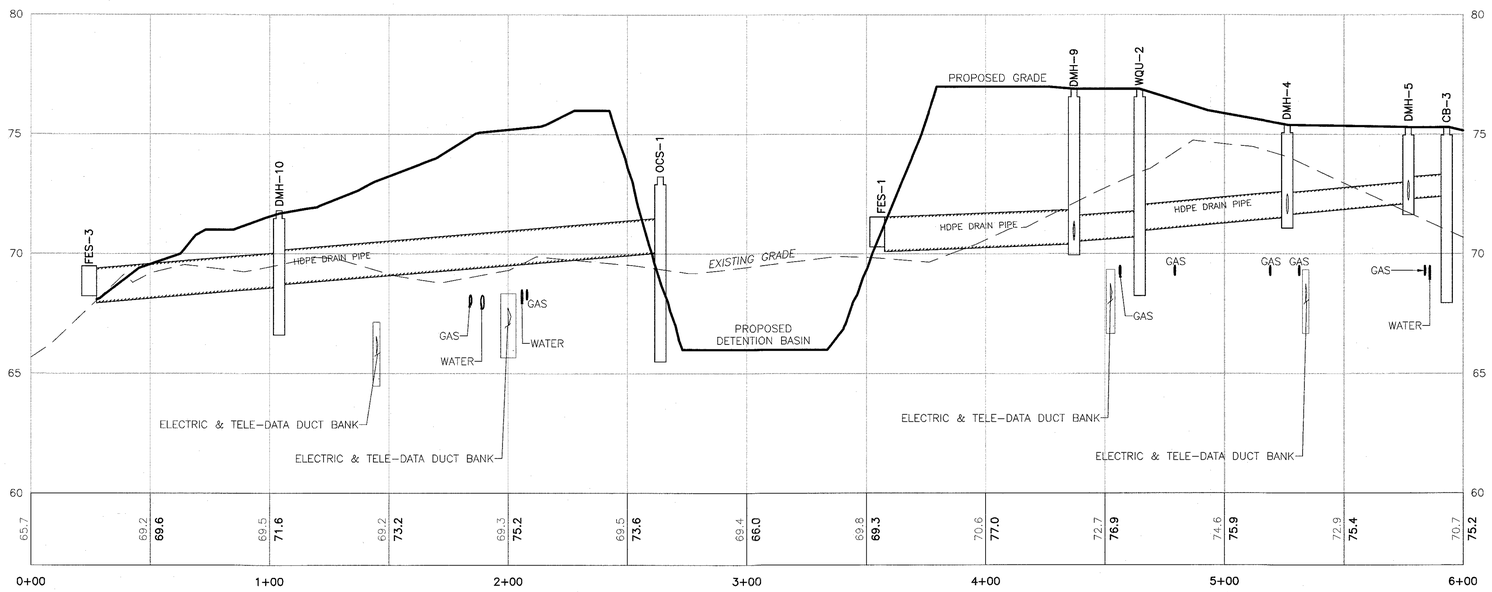


DRAINAGE 01 PROFILE



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GRAPHIC SCALE

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Vertical: 1 inch = 3 ft.

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4/10/17
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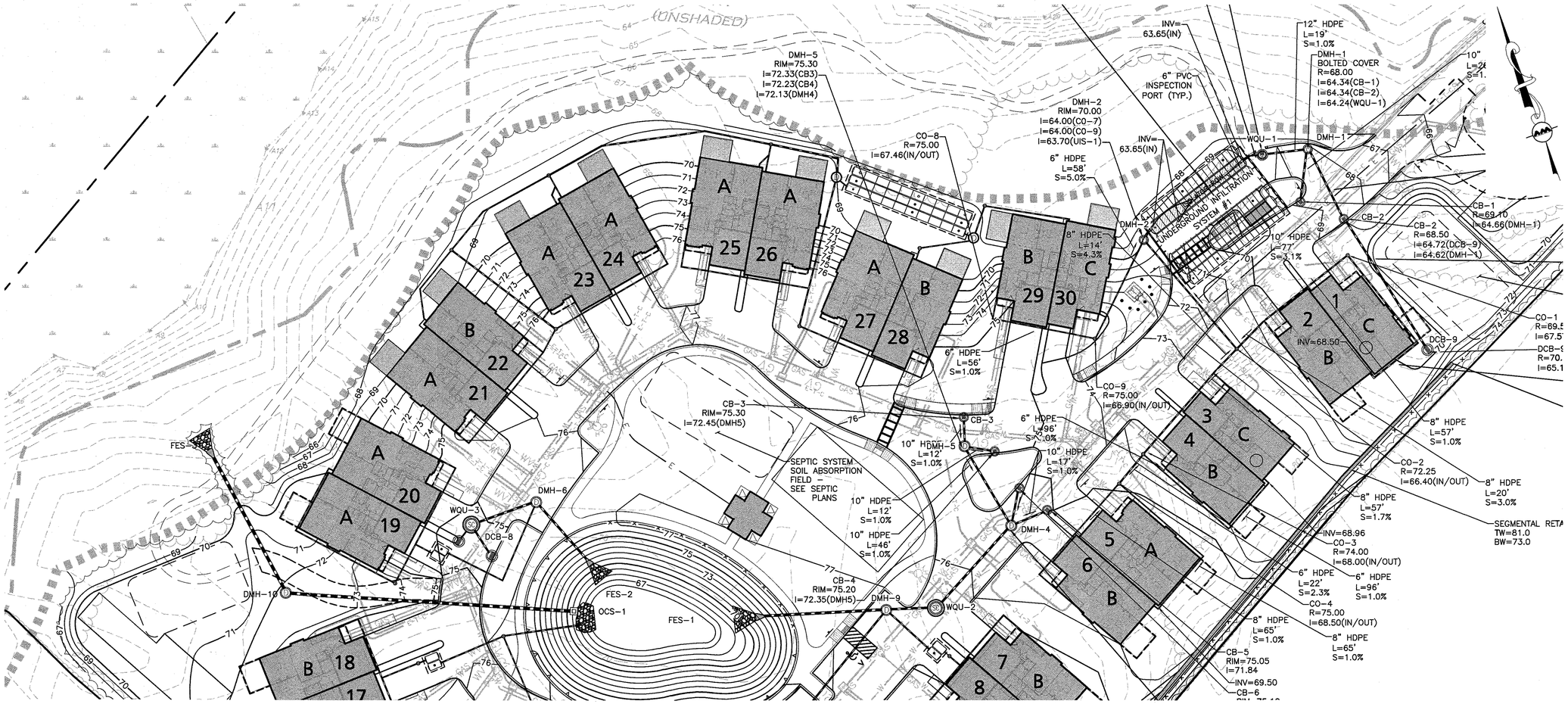

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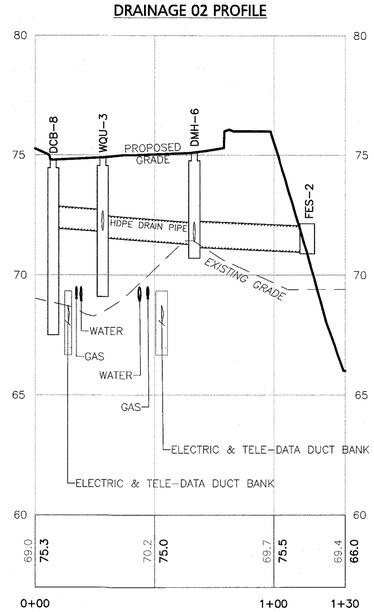

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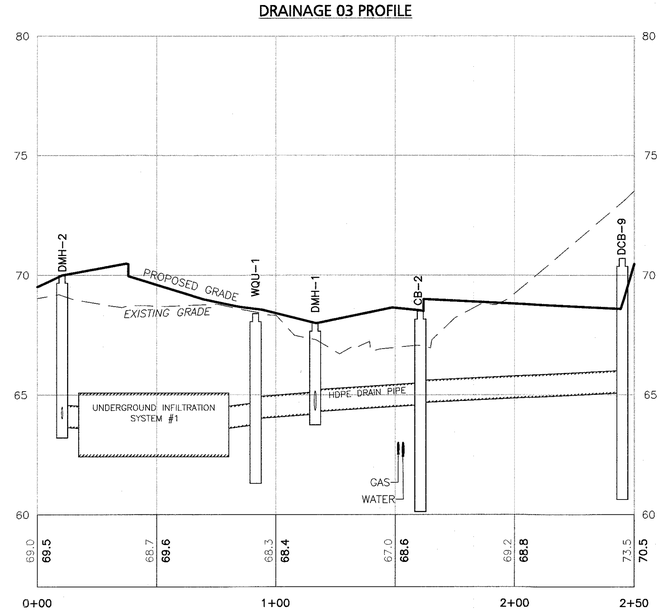

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SIGNATURE DATE

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DRAWING TITLE: DRAINAGE PROFILE

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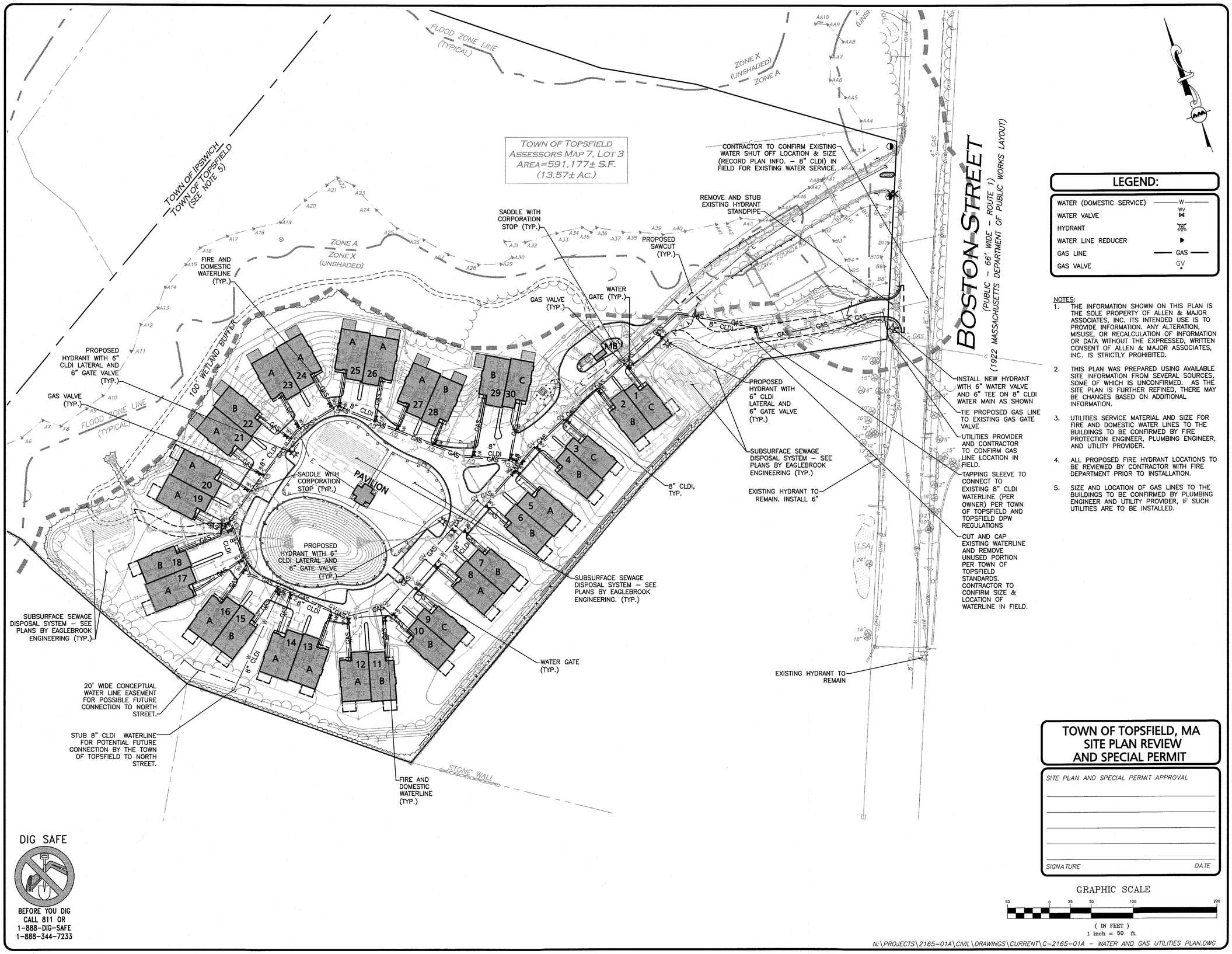

LEGEND:

WATER (DOMESTIC SERVICE)	W
WATER VALVE	WV
HYDRANT	
WATER LINE REDUCER	
GAS LINE	GAS
GAS VALVE	GV

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3. UTILITIES SERVICE MATERIAL AND SIZE FOR FIRE AND DOMESTIC WATER LINES TO THE BUILDINGS TO BE CONFIRMED BY FIRE PROTECTION ENGINEER, PLUMBING ENGINEER, AND UTILITY PROVIDER.
4. ALL PROPOSED FIRE HYDRANT LOCATIONS TO BE REVIEWED BY CONTRACTOR WITH FIRE DEPARTMENT PRIOR TO INSTALLATION.
5. SIZE AND LOCATION OF GAS LINES TO THE BUILDINGS TO BE CONFIRMED BY PLUMBING ENGINEER AND UTILITY PROVIDER, IF SUCH UTILITIES ARE TO BE INSTALLED.

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE DATE

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

N:\PROJECTS\2165-01A\CIVIL\DRAWINGS\CURRENT\C-2165-01A – WATER AND GAS UTILITIES PLAN.DWG

4/10/17
COMMONWEALTH OF MASSACHUSETTS
TIMOTHY J. WILLIAMS
CIVIL
No. 43119
REGISTERED PROFESSIONAL ENGINEER

PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

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DRAWING TITLE:
WATER & GAS UTILITIES PLAN

SHEET No.
C-5A

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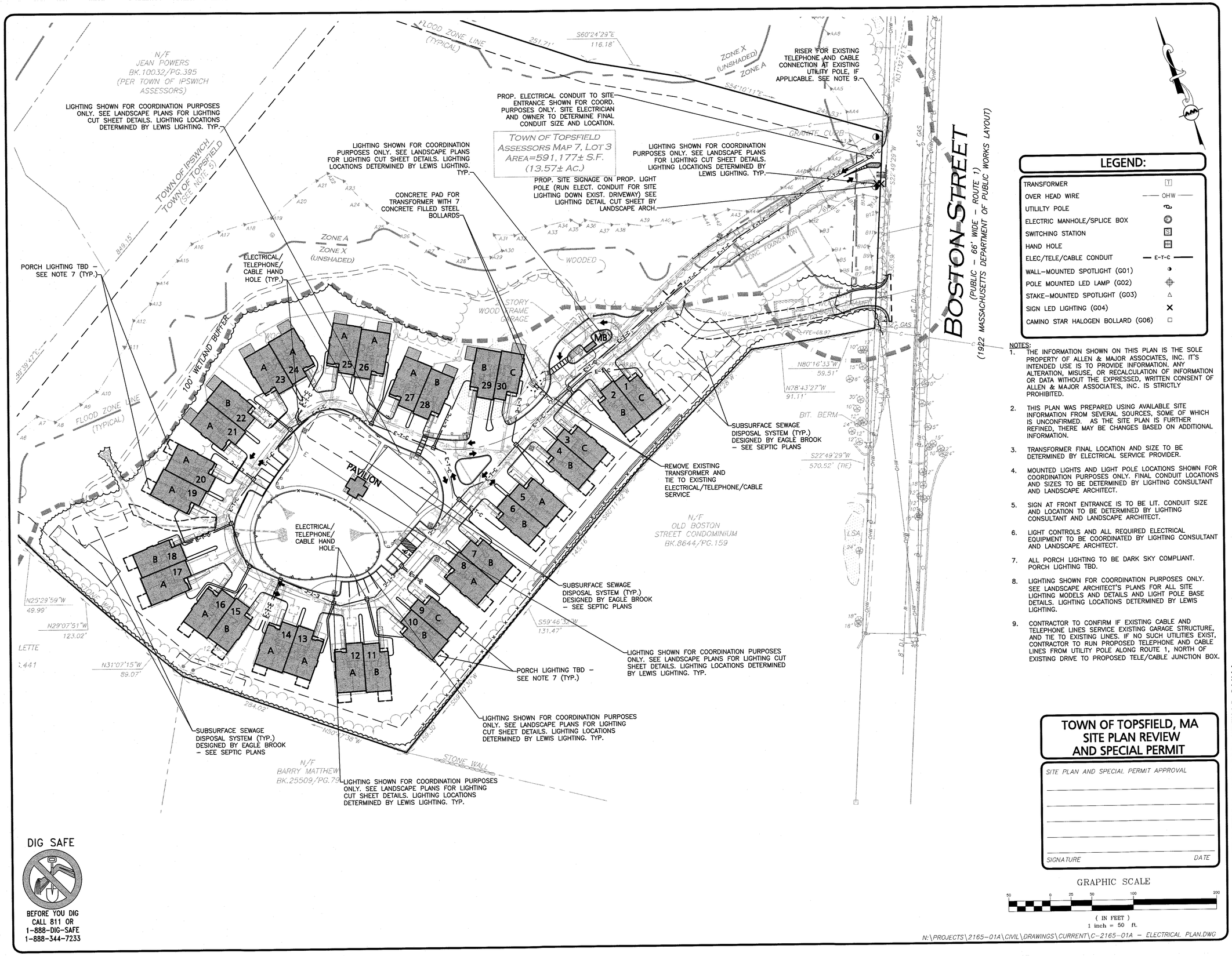

LEGEND:

TRANSFORMER	T
OVER HEAD WIRE	—— OHW ——
UTILILTY POLE	
ELECTRIC MANHOLE/SPLICE BOX	E
SWITCHING STATION	S
HAND HOLE	HH
ELEC/TELE/CABLE CONDUIT	— E-T-C —
WALL-MOUNTED SPOTLIGHT (G01)	
POLE MOUNTED LED LAMP (G02)	
STAKE-MOUNTED SPOTLIGHT (G03)	△
SIGN LED LIGHTING (G04)	×
CAMINO STAR HALOGEN BOLLARD (G06)	□

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3. TRANSFORMER FINAL LOCATION AND SIZE TO BE DETERMINED BY ELECTRICAL SERVICE PROVIDER.
4. MOUNTED LIGHTS AND LIGHT POLE LOCATIONS SHOWN FOR COORDINATION PURPOSES ONLY. FINAL CONDUIT LOCATIONS AND SIZES TO BE DETERMINED BY LIGHTING CONSULTANT AND LANDSCAPE ARCHITECT.
5. SIGN AT FRONT ENTRANCE IS TO BE LIT. CONDUIT SIZE AND LOCATION TO BE DETERMINED BY LIGHTING CONSULTANT AND LANDSCAPE ARCHITECT.
6. LIGHT CONTROLS AND ALL REQUIRED ELECTRICAL EQUIPMENT TO BE COORDINATED BY LIGHTING CONSULTANT AND LANDSCAPE ARCHITECT.
7. ALL PORCH LIGHTING TO BE DARK SKY COMPLIANT. PORCH LIGHTING TBD.
8. LIGHTING SHOWN FOR COORDINATION PURPOSES ONLY. SEE LANDSCAPE ARCHITECT'S PLANS FOR ALL SITE LIGHTING MODELS AND DETAILS AND LIGHT POLE BASE DETAILS. LIGHTING LOCATIONS DETERMINED BY LEWIS LIGHTING.
9. CONTRACTOR TO CONFIRM IF EXISTING CABLE AND TELEPHONE LINES SERVICE EXISTING GARAGE STRUCTURE, AND TIE TO EXISTING LINES. IF NO SUCH UTILITIES EXIST, CONTRACTOR TO RUN PROPOSED TELEPHONE AND CABLE LINES FROM UTILITY POLE ALONG ROUTE 1, NORTH OF EXISTING DRIVE TO PROPOSED TELE/CABLE JUNCTION BOX.

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE DATE

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
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DRAWING TITLE: SITE ELECTRICAL PLAN

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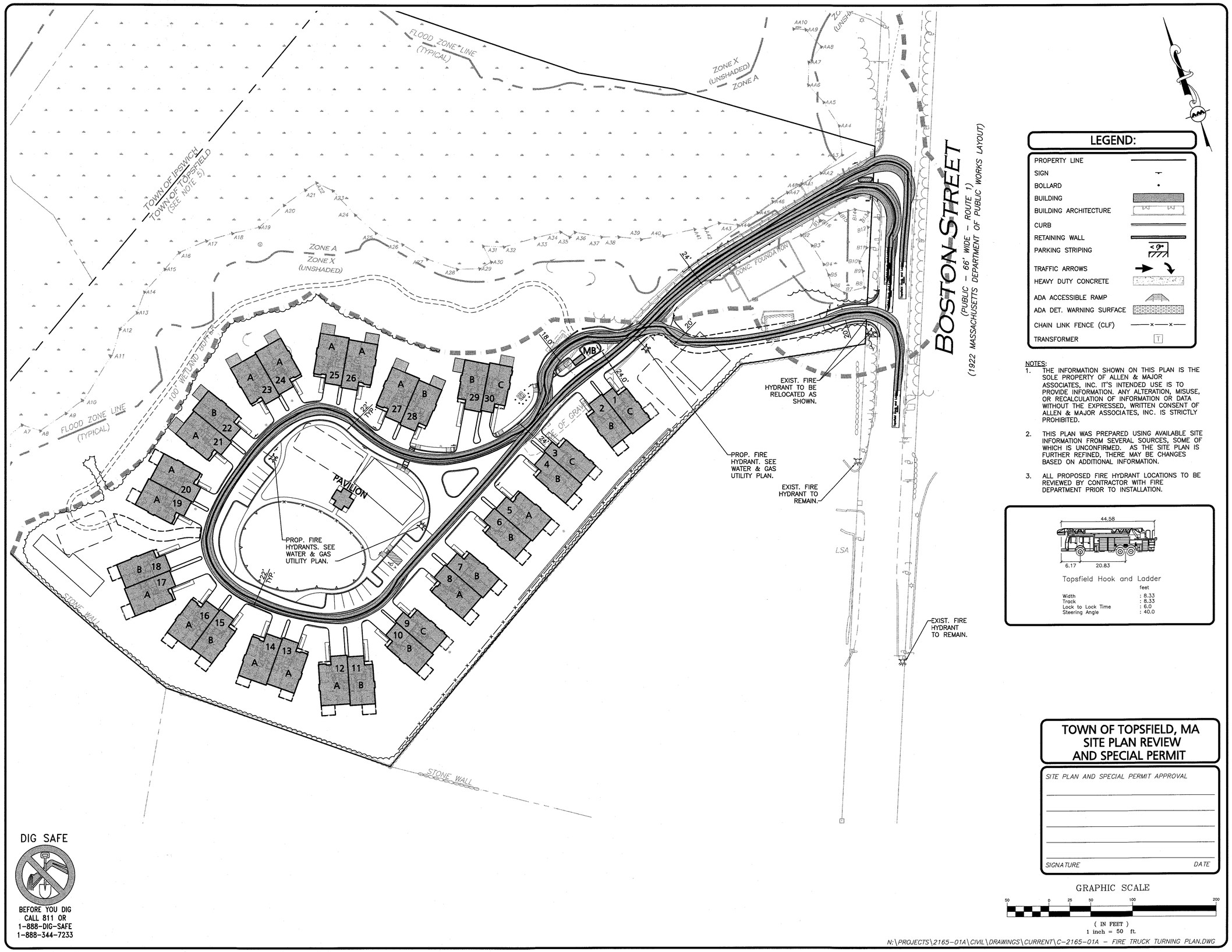

LEGEND:

PROPERTY LINE	
SIGN	
BOLLARD	
BUILDING	
BUILDING ARCHITECTURE	
CURB	
RETAINING WALL	
PARKING STRIPING	
TRAFFIC ARROWS	
HEAVY DUTY CONCRETE	
ADA ACCESSIBLE RAMP	
ADA DET. WARNING SURFACE	
CHAIN LINK FENCE (CLF)	—x—x—
TRANSFORMER	T

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3. ALL PROPOSED FIRE HYDRANT LOCATIONS TO BE REVIEWED BY CONTRACTOR WITH FIRE DEPARTMENT PRIOR TO INSTALLATION.

Topsfield Hook and Ladder

	feet
Width	: 8.33
Track	: 8.33
Lock to Lock Time	: 6.0
Steering Angle	: 40.0

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW
AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE DATE

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

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N:\PROJECTS\2165-01A\CIVIL\DRAWINGS\CURRENT\C-2165-01A – FIRE TRUCK TURNING PLAN.DWG

NOT FOR CONSTRUCTION - FOR PERMITTING ONLY

COMMONWEALTH OF MASSACHUSETTS
TIMOTHY J. WILLIAMS
CIVIL
No. 43119
REGISTERED PROFESSIONAL ENGINEER

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
4	4-10-2017	REVISIONS PER TOWN REQUEST
3	3-16-2017	REVISIONS PER TOWN REQUEST
2	2-27-2017	REVISIONS PER TOWN COMMENTS
1	1-17-2017	REVISED PER PEER REVIEW & TOWN COMMENTS

APPLICANT\OWNER:

SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MA 01810

PROJECT:

RESIDENTIAL DEVELOPMENT
470 BOSTON STREET (ROUTE 1)
TOPSFIELD, MA

PROJECT NO.	2165-01A	DATE:	10-13-2016
SCALE:	1"=50'	DWG. NAME:	C-2165-01A
DESIGNED BY:	DMR	CHECKED BY:	RB

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil & structural engineering ◆ land surveying
environmental consulting ◆ landscape architecture
www.allenmajor.com
100 COMMERCE WAY
WOBURN MA 01801-8501
TEL: (781) 935-6889
FAX: (781) 935-2896
WOBURN, MA ◆ LAKEVILLE, MA ◆ MANCHESTER, NH

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DRAWING TITLE: FIRE TRUCK TURNING PLAN

SHEET No. C-6

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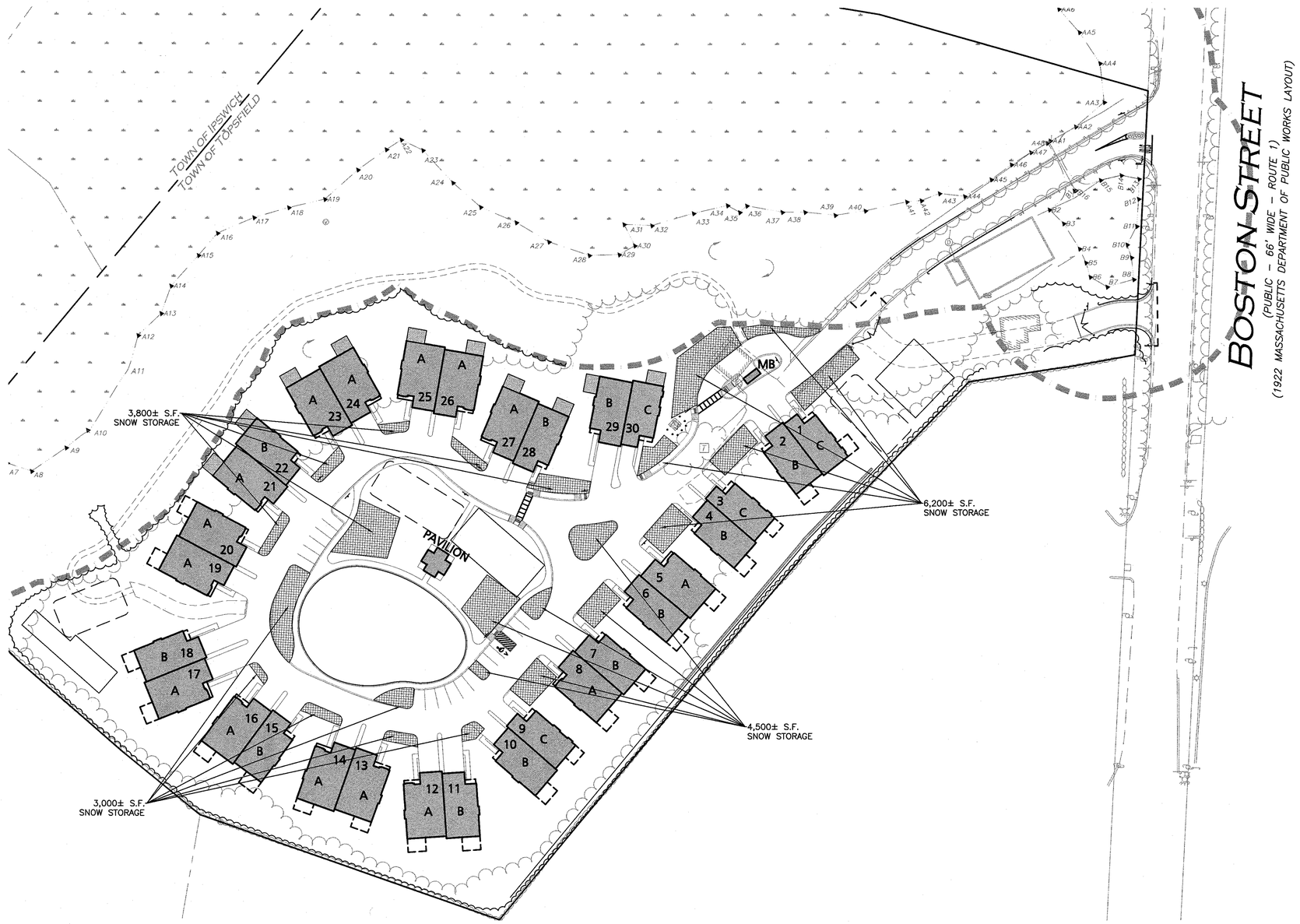

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SNOW STORAGE AREA

NOTES:

1. SNOW WILL BE STOCKPILED ON SITE UNTIL THERE IS NOT ENOUGH SPACE. AS NECESSARY, THE SNOW WILL BE REMOVED AND DISPOSED OF OFF-SITE. IT WILL BE THE RESPONSIBILITY OF THE SNOW REMOVAL CONTRACTOR TO PROPERLY DISPOSE OF TRANSPORTED SNOW ACCORDING TO MASSACHUSETTS DEP, BUREAU OF RESOURCE PROTECTION – SNOW DISPOSAL GUIDELINE #BRPG01-01, GOVERNING THE PROPER DISPOSAL OF SNOW. IT WILL BE THE RESPONSIBILITY OF THE SNOW REMOVAL CONTRACTOR TO FOLLOW THESE GUIDELINES AND ALL APPLICABLE LAWS AND REGULATIONS.
2. APPROXIMATE TOTAL SNOW STORAGE AREA ON SITE: 17,500± S.F.

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW
AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE DATE

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
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NOT FOR CONSTRUCTION - FOR PERMITTING ONLY

COMMONWEALTH OF MASSACHUSETTS
TIMOTHY J. WILLIAMS
CIVIL
No. 43119
REGISTERED PROFESSIONAL ENGINEER
4/10/17

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

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APPLICANT\OWNER:

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2 ELM SQUARE
ANDOVER, MA 01810

PROJECT:

RESIDENTIAL DEVELOPMENT
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PROJECT NO.	2165-01A	DATE:	10-13-2016
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DESIGNED BY:	DMR	CHECKED BY:	RB

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DRAWING TITLE:

SNOW STORAGE PLAN

SHEET No.

C-7

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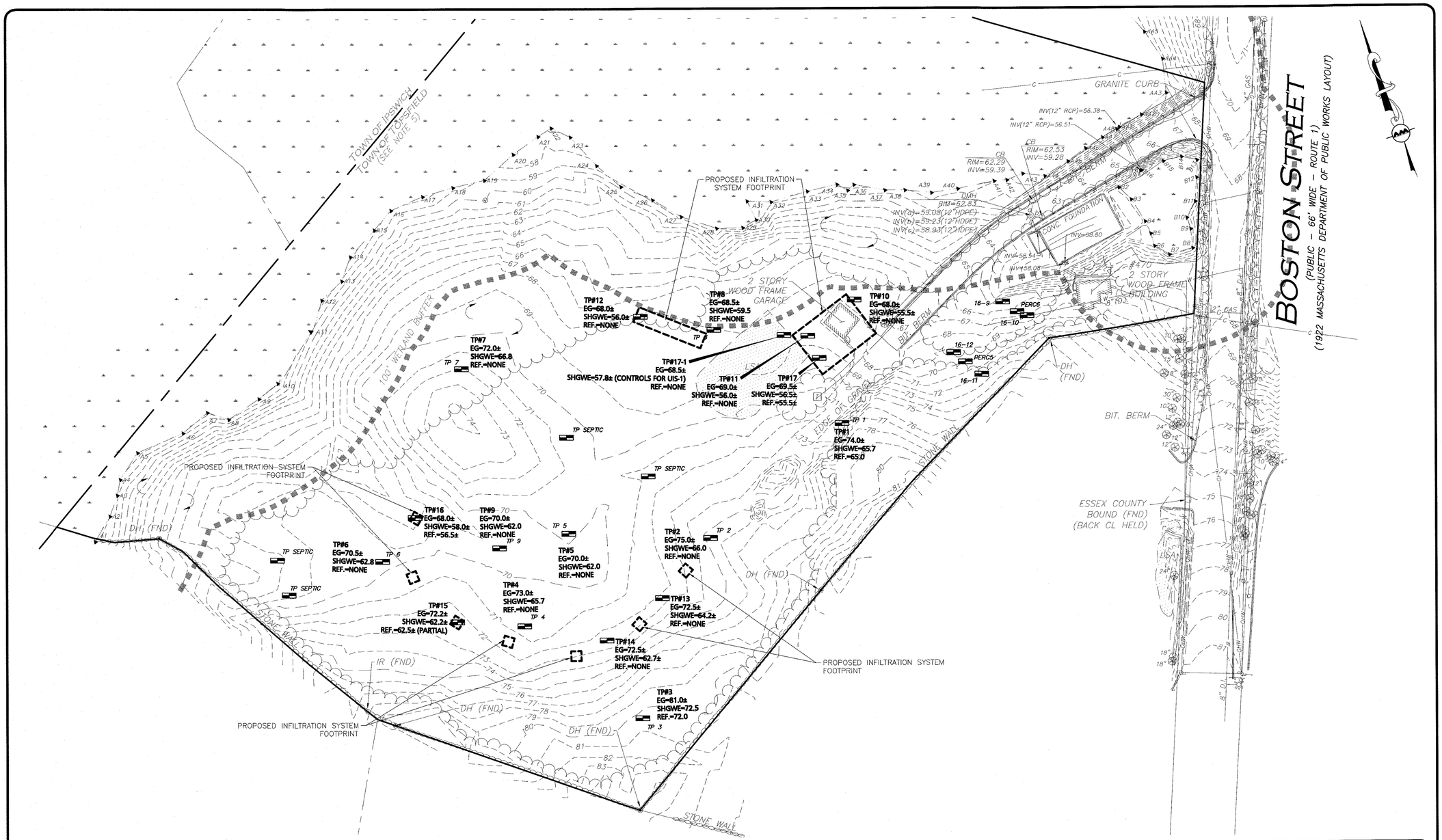

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SIGNATURE DATE

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

N:\PROJECTS\2165-01A\CIVIL\DRAWINGS\CURRENT\C-2165-01A – TEST PIT LOCATIONS PLAN.DWG

4/10/17

COMMONWEALTH OF MASSACHUSETTS
TIMOTHY J. WILLIAMS
CIVIL
No. 43119
REGISTERED PROFESSIONAL ENGINEER

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

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DRAWING TITLE: TEST PITS PLAN

SHEET No. TPP-1

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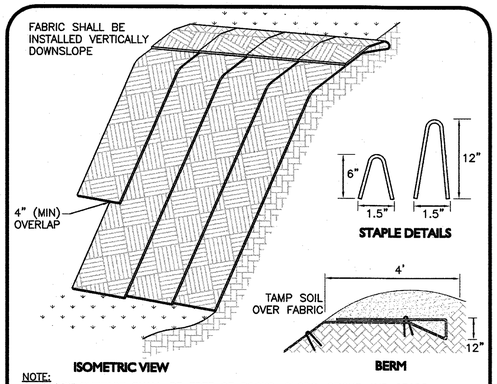
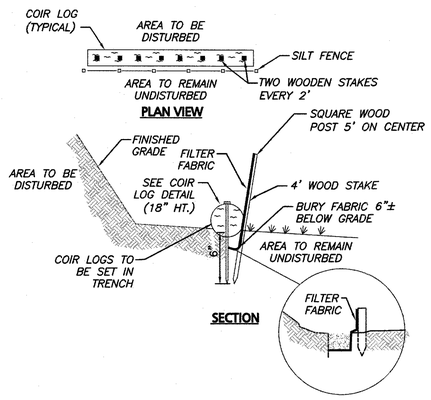
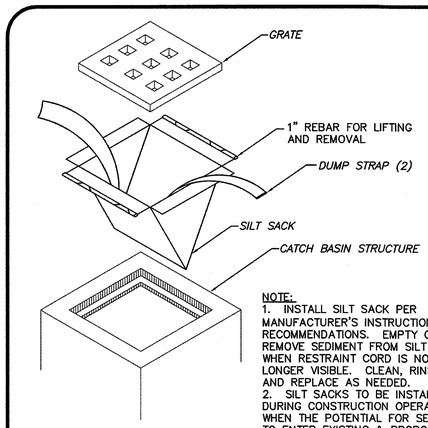


NOTE:
1. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS AND GRASS. FABRIC SHALL HAVE GOOD SOIL CONTACT.
2. APPLY PERMANENT SEEDING BEFORE PLACING FABRIC.
3. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.
4. CHOOSE MATERIAL BASED ON SLOPE, SOILS, AND APPLICATION.

EROSION CONTROL FABRIC (1)
NOT TO SCALE

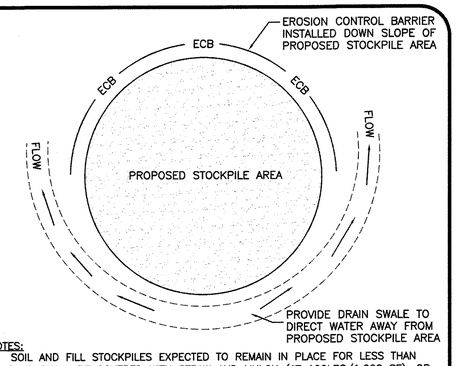


SILT FENCE AND COIR LOG (2)
NOT TO SCALE



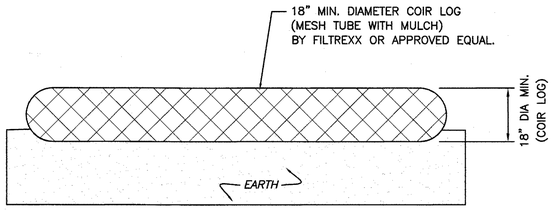
NOTE:
1. INSTALL SILT SACK PER MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS. EMPTY OR REMOVE SEDIMENT FROM SILT SACK WHEN RESTRAINT CORD IS NO LONGER VISIBLE. CLEAN, RINSE, AND REPLACE AS NEEDED.
2. SILT SACKS TO BE INSTALLED DURING CONSTRUCTION OPERATIONS WHEN THE POTENTIAL FOR SEDIMENT TO ENTER EXISTING & PROPOSED BASINS EXISTS.

SILT SACK INLET DETAIL (3)
NOT TO SCALE



NOTES:
1. SOIL AND FILL STOCKPILES EXPECTED TO REMAIN IN PLACE FOR LESS THAN 90 DAYS SHALL BE COVERED WITH STRAW AND MULCH (AT 100LBS/1,000 SF), OR WITH AN ANCHORED TARP WITHIN 7 DAYS OR PRIOR TO ANY RAINFALL.
2. SOIL AND FILL STOCKPILES EXPECTED TO REMAIN IN PLACE FOR 90 DAYS OR MORE SHALL BE SEEDED WITH WINTER RYE (FOR FALL SEEDING AT 1LB/1,000 SF) OR OATS (FOR SUMMER SEEDING AT 2LB/1,000 SF) AND THEN COVERED WITH HAY MULCH (AT 100LB/1,000 SF) OR AN ANCHORED TARP WITHIN 7 DAYS OR PRIOR TO ANY RAINFALL.

STOCKPILE PROTECTION (4)
NOT TO SCALE



SECTION

NOTES:
1. ALL MATERIALS TO MEET MANUFACTURERS SPECIFICATIONS.
2. DIG TRENCH AND PLACE TUBULAR SEDIMENT CONTROLS. INSTALL WOODEN STAKES THROUGH COIR LOG MESH AND INTO EARTH EVERY 5' O.C. TIE ADJACENT LOGS TOGETHER WITH BIODEGRADABLE TWINE AND OVERLAP LOGS A MINIMUM OF 12".
3. THE CONTRACTOR SHALL MAINTAIN THE COIR LOGS IN A FUNCTIONAL CONDITION AT ALL TIMES. THE COIR LOGS SHALL BE ROUTINELY INSPECTED BY THE CONTRACTOR.
4. WHERE THE COIR LOGS REQUIRE REPAIR OR SEDIMENT, IT WILL BE ROUTINELY COMPLETED BY THE CONTRACTOR AT NO ADDITIONAL COST.
5. AT A MINIMUM, THE CONTRACTOR SHALL REMOVE SEDIMENTS COLLECTED AT THE BASE WHEN THEY REACH 1/3 THE EXPOSED HEIGHT OF THE COIR LOG OR IF MORE FREQUENTLY AS DIRECTED BY THE ENGINEER.

TYPICAL MULCH COIR LOG DETAIL (5)
NOT TO SCALE

DEWATERING

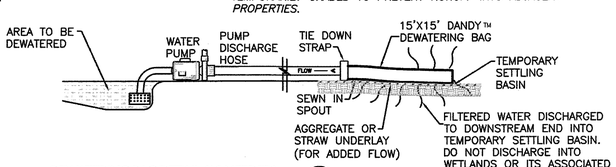
IF DEWATERING IS NECESSARY IT SHALL ONLY BE COMPLETED AS FOLLOWS:

THE DISCHARGE SHALL BE STOPPED IMMEDIATELY IF THE RECEIVING AREA SHOWS ANY SIGN OF INSTABILITY OR EROSION. ALL CHANNELS, SWALES, AND DITCHES DUG FOR DISCHARGING WATER FROM THE EXCAVATED AREA SHALL BE STABLE PRIOR TO DIRECTING DISCHARGE TO THEM. IF A CONSTRUCTION EQUIPMENT BUCKET IS USED, IT SHALL EMPTY THE MATERIAL TO A STABLE AREA. NO DEWATERING SHALL OCCUR DURING PERIODS OF INTENSE, HEAVY RAIN. FLOW TO THE SEDIMENT REMOVAL STRUCTURE SHALL NOT EXCEED THE STRUCTURES CAPACITY TO SETTLE AND FILTER FLOW OR IS VOLUME CAPACITY. WHENEVER POSSIBLE, THE DISCHARGE FROM THE SEDIMENT REMOVAL STRUCTURE SHALL DRAIN TO A WELL-VEGETATED BUFFER BY SHEET FLOW WHILE MAXIMIZING THE DISTANCE TO THE NEAREST WATER RESOURCE AND MINIMIZING THE SLOPE OF THE BUFFER AREA. THERE SHALL BE NO DIRECT DISCHARGE TO EXISTING WETLANDS. ALL DISCHARGE SHALL BE IN COMPLIANCE WITH STATE, LOCAL, AND FEDERAL REQUIREMENTS.

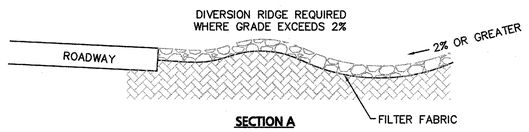
THE EROSION CONTROL PLAN WILL BE IMPLEMENTED TO:
A. TREAT EROSION AS SOON AS POSSIBLE AFTER DISTURBANCE.
B. PREVENT SEDIMENT FROM LEAVING THE CONSTRUCTION AREA AND ENTERING THE WETLANDS.
C. CONSTRUCTION ACTIVITIES SHALL BE SCHEDULED TO MINIMIZE EROSION.
D. ONLY DISTURB, CLEAR, OR GRADE AREAS NECESSARY FOR CONSTRUCTION.
E. IF NECESSARY, CONSTRUCT TEMPORARY SEDIMENTATION BASINS

NOTES:
1. INSPECTION AND MAINTENANCE: AFTER EACH RAINFALL, INSPECT ANY STRUCTURE USED TO TRAP SEDIMENT AND CLEAN OUT OR REPAIR PROMPTLY, INSPECT CHANNELS AT REGULAR INTERVALS AND AFTER SIGNIFICANT STORM EVENTS. REMOVE DEBRIS if NECESSARY AND MAKE NEEDED REPAIRS WHERE STONES HAVE BEEN DISPLACED. REPAIR ERODED AREAS PROMPTLY.

2. TEMPORARY SEDIMENT TRAPS AND OTHER TEMPORARY SEDIMENT AND EROSION CONTROLS DURING CONSTRUCTION WILL BE DETERMINED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER FOR APPROVAL. DURING CONSTRUCTION THE SITE SHALL BE TEMPORARILY GRADED TO PREVENT RUNOFF INTO ADJACENT PROPERTIES.



DEWATERING BAG DETAIL (AS NEEDED) (6)
NOT TO SCALE



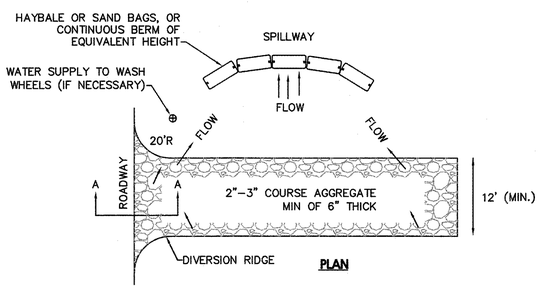
SECTION A

NOTES:
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

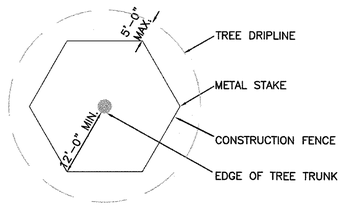
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTERING THE PUBLIC RIGHT-OF-WAY.

3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

4. USE SANDBAGS, HAYBALES, OR OTHER APPROVED METHODS TO CHANNELIZE RUNOFF TO BASIN AS REQUIRED.

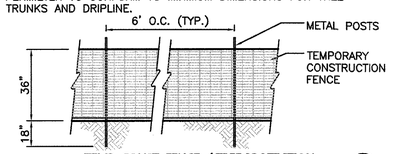


TEMPORARY CONSTRUCTION ENTRANCE/EXIT (7)
NOT TO SCALE



NOTE:
1. CONSTRUCTION FENCE TO BE "VISUAL BARRIER FENCE" AS MANUFACTURED BY EXXON CHEMICAL COMPANY ATLANTA, GA; "KONTROL SAFETY FENCE" AS MANUFACTURED BY MIRAFI, CHARLOTTE, N.C. OR APPROVED EQUAL.

2. IF GROUPS OF TREES ARE TO BE PROTECTED, EXTEND FENCE AROUND PERIMETER TO CONFORM TO MINIMUM DIMENSIONS FOR TREE TRUNKS AND DRIPLINE.



TEMP. CONST. FENCE / TREE PROTECTION (8)
NOT TO SCALE

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE *DATE*

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COMMONWEALTH OF MASSACHUSETTS
TIMOTHY J. WILLIAMS
CIVIL
No. 43119
REGISTERED PROFESSIONAL ENGINEER
5/4/17

PROFESSIONAL ENGINEER FOR
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DRAWING TITLE: DETAILS

SHEET No. D-1

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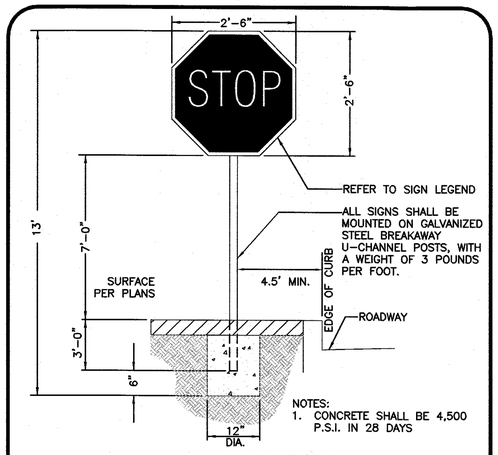
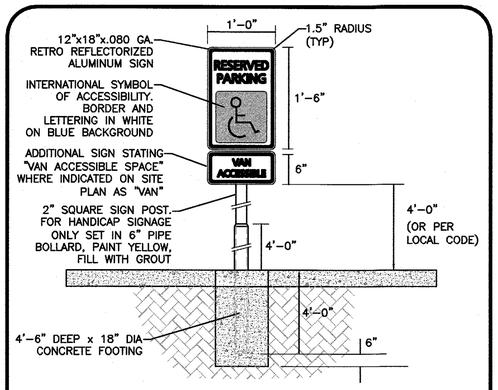


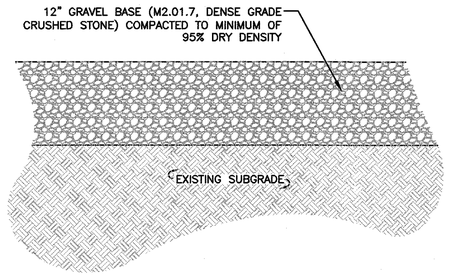
NOTES:
1. CONCRETE SHALL BE 4,500 P.S.I. IN 28 DAYS

TYPICAL SIGN AND POST DETAIL (1)
NOT TO SCALE

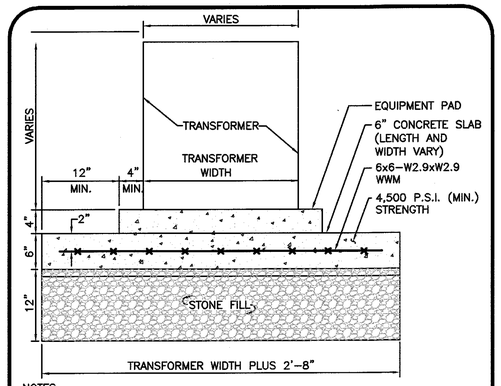


NOTES:
1. SPECIFIC CODE SHALL BE REFERENCED FOR LOCAL AND STATE REQUIREMENTS.
2. PROVIDE (1) SIGN PER HANDICAP SPACE. SEE SITE PLAN FOR EXACT LOCATION.
3. EXPANSION JOINT MATERIAL NOT REQUIRED WITH FLEXIBLE PAVEMENT.

ADA ACCESSIBLE PARKING / TRAFFIC CONTROL SIGNAGE (2)
NOT TO SCALE



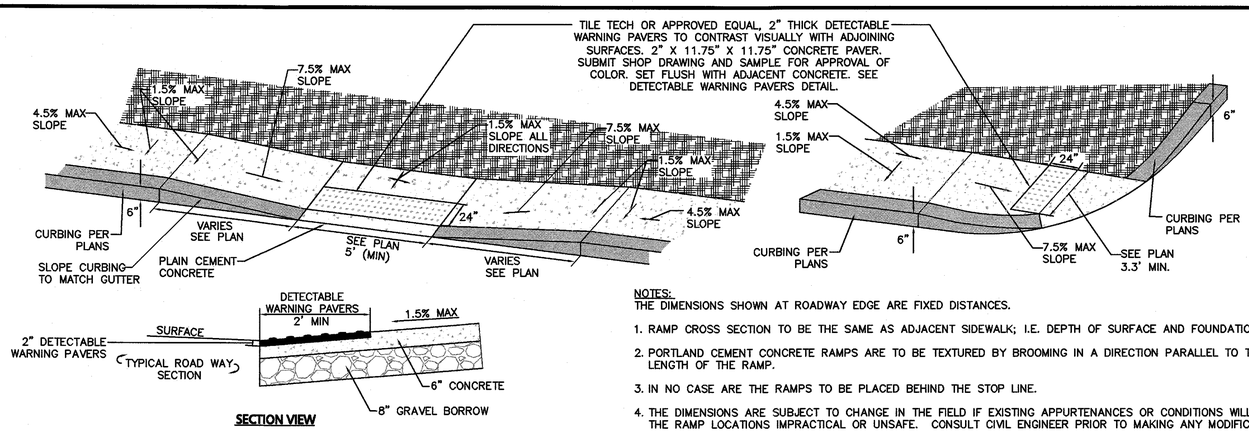
GRAVEL ACCESS DRIVE (BOTH MAINTENANCE DRIVE & EMERGENCY ACCESS DRIVE) (3)
NOT TO SCALE



NOTES:
1. REFERENCE MECHANICAL/ELECTRICAL/ PLUMBING ENGINEER'S PLANS FOR ANY PIPE, GAS, CONDUIT AND GROUND WIRE LOCATIONS.

2. CONCRETE PAD, EQUIPMENT, AND BOLLARDS SHALL BE INSTALLED PER UTILITY PROVIDER REQUIREMENTS AT NO ADDITIONAL COST TO OWNER.

TRANSFORMER PAD DETAIL (4)
NOT TO SCALE



NOTES:
THE DIMENSIONS SHOWN AT ROADWAY EDGE ARE FIXED DISTANCES.

1. RAMP CROSS SECTION TO BE THE SAME AS ADJACENT SIDEWALK; I.E. DEPTH OF SURFACE AND FOUNDATION.

2. PORTLAND CEMENT CONCRETE RAMPS ARE TO BE TEXTURED BY BROOMING IN A DIRECTION PARALLEL TO THE LENGTH OF THE RAMP.

3. IN NO CASE ARE THE RAMPS TO BE PLACED BEHIND THE STOP LINE.

4. THE DIMENSIONS ARE SUBJECT TO CHANGE IN THE FIELD IF EXISTING APPURTENANCES OR CONDITIONS WILL MAKE THE RAMP LOCATIONS IMPRACTICAL OR UNSAFE. CONSULT CIVIL ENGINEER PRIOR TO MAKING ANY MODIFICATIONS.

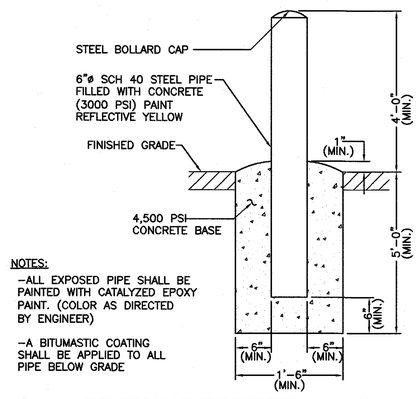
HANDICAP CURB CUT & CURB TRANSITION (5)
NOT TO SCALE

DESC.	SIGN	SIZE	MOUNTING HEIGHT	DESCRIPTION	REFLECTORIZED
R1-1	STOP	30"x30"	7' - 0"	WHITE ON RED	YES
R7-8	VAN ACCESSIBLE	12"x20"	7' - 0"	WHITE ON BLUE	YES
R7-8 (MODIFIED)	VAN ACCESSIBLE	12"x20"	7' - 0"	WHITE ON BLUE	YES
R5-1	DO NOT ENTER	30"x30"	7' - 0"	RED ON WHITE	YES
R6-1	ONE WAY	36" x 12"	7' - 0"	BLACK ON WHITE	YES
E	EMERGENCY VEHICLES ONLY	24" x 36"	7' - 0"	BLACK ON WHITE	YES
R7-1	NO PARKING ANY TIME	12" x 18"	7' - 0"	RED ON WHITE	YES

NOTE:
ALL TRAFFIC AND SAFETY SIGNAGE SHALL COMPLY WITH LATEST MUTCD STANDARDS.

*COORDINATE DIRECTION OF ARROWS WITH TRAFFIC DIRECTIONAL FLOW.

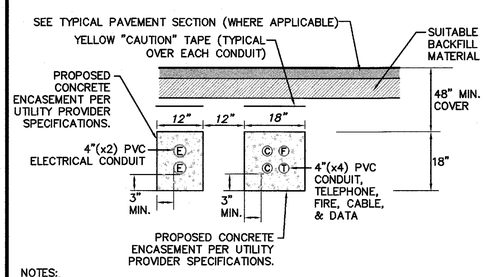
SIGN TABLE (6)
NOT TO SCALE



NOTES:
-ALL EXPOSED PIPE SHALL BE PAINTED WITH CATALYZED EPOXY PAINT. (COLOR AS DIRECTED BY ENGINEER)

-A BITUMASTIC COATING SHALL BE APPLIED TO ALL PIPE BELOW GRADE

FIXED PIPE BOLLARD AT TRANSFORMER (7)
NOT TO SCALE



NOTES:

1. CONDUITS SHALL BE SCHEDULE 80 PVC

2. ALL UTILITY INSTALLATION REQUIREMENTS, SEPARATIONS, AND CONDUIT SIZES TO BE VERIFIED WITH EACH UTILITY COMPANY PRIOR TO INSTALLATION OF ANY UNDERGROUND UTILITY CONDUIT.

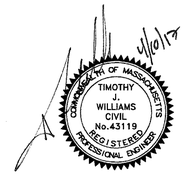
CONDUIT TRENCH SECTION A-A (8)
NOT TO SCALE

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE DATE

N:\PROJECTS\2165-01A\CIVIL\DRAWINGS\CURRENT\C-2165-01A - DETAILS.DWG



PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
4	4-10-2017	REVISIONS PER TOWN REQUEST
3	3-16-2017	REVISIONS PER TOWN REQUEST
2	2-27-2017	REVISIONS PER TOWN COMMENTS
1	1-17-2017	REVISED PER PEER REVIEW & TOWN COMMENTS

APPLICANT\OWNER:
SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MA 01810

PROJECT:
RESIDENTIAL DEVELOPMENT
470 BOSTON STREET (ROUTE 1)
TOPSFIELD, MA

PROJECT NO.	2165-01A	DATE:	10-13-2016
SCALE:	N.T.S.	DWG. NAME:	C-2165-01A
DESIGNED BY:	DMR	CHECKED BY:	RB

PREPARED BY:

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environmental consulting ◆ landscape architecture
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WOBURN MA (1801-8501
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WOBURN, MA ◆ LAKEVILLE, MA ◆ MANCHESTER, NH

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DRAWING TITLE: DETAILS

SHEET No. D-2

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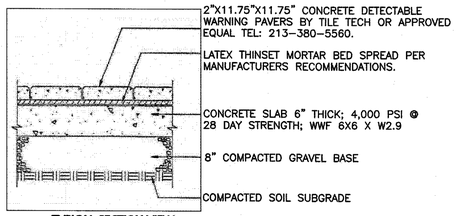
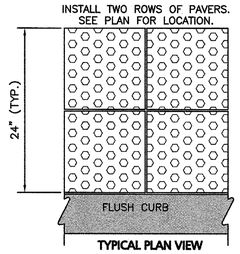


TYPICAL SECTION VIEW

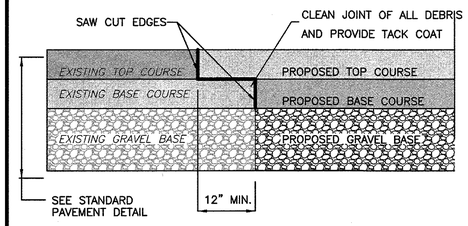


TYPICAL PLAN VIEW

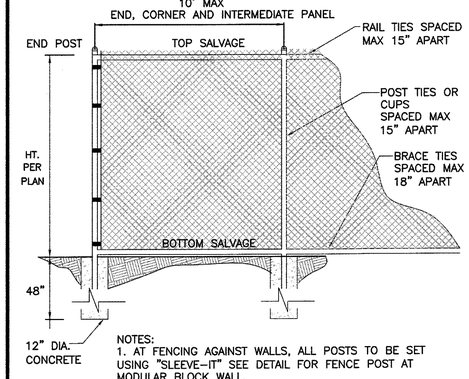
NOTES:
1. CONCRETE SLAB SHALL BE SLOPED 1.5% CROSS PITCH MAX TO PROVIDE COMPLETE SURFACE DRAINAGE. SEE GRADING PLAN & HANDICAP CURB CUT / CURB TRANSITION DETAIL.
2. SLAB TO HAVE STEEL TROWEL AND FINE BROOM FINISH. DO NOT USE CURING COMPOUNDS. CONTRACTOR TO ADD EXPANSION JOINTS AND PREMOLDED FILLER AT EDGE OF TILES AND ADJACENT MATERIAL.
3. SET TILES FLUSH WITH ADJACENT MATERIALS.
4. SUBMIT SHOP DRAWINGS OF TILES AND SAMPLE FOR APPROVAL OF COLOR TO OWNER / ARCH.
5. INSTALL DETECTABLE WARNING PAVERS PER MANUFACTURER'S RECOMMENDATIONS.

DETECTABLE WARNING PAVERS (1)
NOT TO SCALE

NOTE:
TACK COAT – PROVIDE EMULSIFIED ASPHALT WHICH CONFORMS TO THE REQUIREMENTS OF THE STATE SPECIFICATIONS, DILUTED WITH ONE PART WATER TO ONE ONE PART ASPHALT FOLLOWING AASHTO M140/ASTM D997, OR AASHTO M208/ASTM D2397, SS-1H, CSS-1, OR CSS-1H.



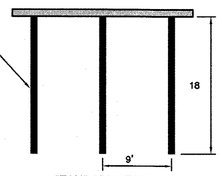
TYPICAL PAVEMENT KEY CUT DETAIL (2)
NOT TO SCALE



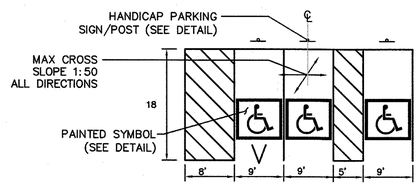
NOTES:
1. AT FENCING AGAINST WALLS, ALL POSTS TO BE SET USING "SLEEVE-IT" SEE DETAIL FOR FENCE POST AT MODULAR BLOCK WALL.
2. ALL FENCE MATERIALS TO BE BLACK VINYL COATED.

BLACK VINYL COATED CHAIN LINK FENCE (3)
NOT TO SCALE

NOTE:
1. "V" DENOTES HANDICAPPED ACCESSIBLE PARKING SPACE.
2. TWO(2) COATS OF WHITE PAINT ARE REQUIRED FOR ALL STRIPING IN ROADWAY AND PARKING LOTS.

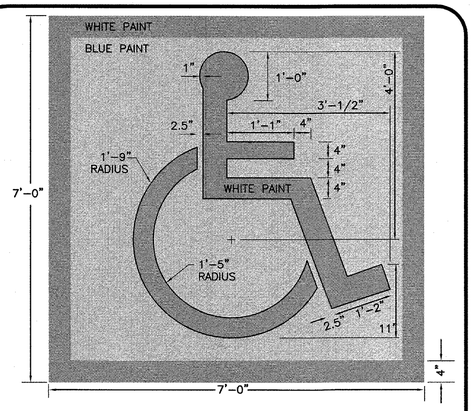


STANDARD STALL



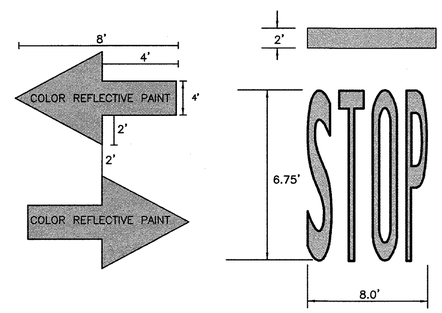
STANDARD AND VAN ACCESSIBLE HANDICAPPED PARKING SPACE

HANDICAPPED AND STANDARD STALL DETAIL (4)
NOT TO SCALE



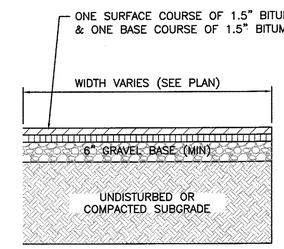
SYMBOL TO BE CENTERED ON WIDTH OF PARKING STALL. SYMBOL IS REQUIRED TO CONTRAST WITH BACKGROUND. USE WHITE ON BLUE (COLOR #105090 IN FEDERAL STANDARD 5952) DOUBLE COAT.

ACCESSIBLE PARKING STALL PAVEMENT MARKING (5)
NOT TO SCALE



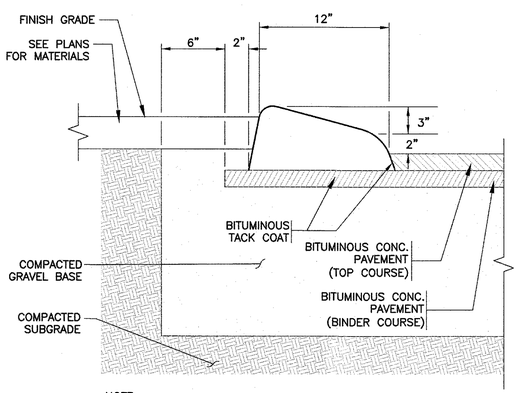
NOTE:
1. TWO(2) COATS OF THERMOPLASTIC ARE REQUIRED FOR ALL STRIPING IN ROADWAY AND PARKING LOTS.

WHITE THERMOPLASTIC LETTERING/ARROWS (6)
NOT TO SCALE



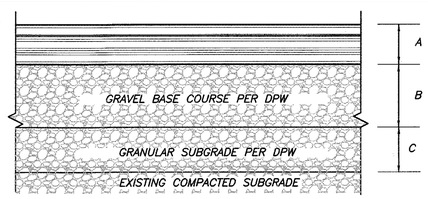
NOTES
1. SEE PLAN FOR ELEVATIONS.

BITUMUNOUS WALKWAY (7)
NOT TO SCALE



NOTE:
1. SEE ROADWAY DETAIL FOR BIT. PAVEMENT & GRAVEL BASE.

CAPE COD BERM (8)
NOT TO SCALE



NOTES:
1. SURFACE COURSE, BASE, AND SUBGRADE SHALL BE PER DWP & GEO-TECHNICAL ENGINEER'S RECOMMENDATIONS FOR LOCAL SOILS OR DRAINAGE CONDITIONS AND/OR METHODS.
2. BOTH B GRAVEL BASE COURSE & C GRANULAR SUBGRADE SHALL BE COMPACTED TO 95% OF PROCTOR.
3. COORDINATE PAVEMENT DETAIL WITH GEO-TECH, ENGINEER & DPW. PROVIDE SHOP DRAWINGS FOR APPROVAL PRIOR TO PURCHASE OF ASPHALT CONCRETE AND GRAVEL BASE COURSES.
4. FOR ANY PAVING IN ROUTE 1 RIGHT OF WAY (BOSTON STREET), CONTRACTOR TO FOLLOW ALL MA DOT STANDARDS AT NO ADDITIONAL COST TO THE OWNER (INCLUDING BUT NOT LIMITED TO PAVEMENT & BASE COURSE DETAIL, POLICE DETAILS, TEMPORARY TRAFFIC MEASURES, AND REQUIREMENTS OF MA DOT ACCESS PERMIT DECISION) COORD. WITH MA DOT & TOWN OF TOPSFIELD DPW.

STANDARD DUTY PAVING

A = 1.5" ASPHALT CONCRETE – SURFACE COURSE (M3.11.03, TABLE A, TOP COURSE)
2.5" ASPHALT CONCRETE – BINDER COURSE (M3.11.03, TABLE A, BINDER COURSE)

B = 12" 3/4" MINUS GRAVEL BASE COURSE STONE PER TOWN OF TOPSFIELD DPW STANDARD. CONTRACTOR TO COORD. DIRECTLY WITH DPW & PROVIDE SIEVE TESTS FOR APPROVAL TO GEOTECH, A&M & DPW PRIOR TO PURCHASE & PLACEMENT.

C = 12" 4" MINUS GRANULAR SUBGRADE PER TOWN OF TOPSFIELD DPW STANDARD. CONTRACTOR CAN USE ONSITE GRANULAR MATERIAL IF IT MEETS DPW STANDARD. CONTRACTOR TO COORD. DIRECTLY WITH DPW & PROVIDE SIEVE TESTS FOR APPROVAL TO GEOTECH, A&M & DPW PRIOR TO PURCHASE & PLACEMENT.

STANDARD DUTY BITUMINOUS ROADWAY (ONSITE ONLY) (9)
NOT TO SCALE

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE DATE

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N:\PROJECTS\2165-01A\CIVIL\DRAWINGS\CURRENT\C-2165-01A – DETAILS.DWG

PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
4	4-10-2017	REVISIONS PER TOWN REQUEST
3	3-16-2017	REVISIONS PER TOWN REQUEST
2	2-27-2017	REVISIONS PER TOWN COMMENTS
1	1-17-2017	REVISED PER PEER REVIEW & TOWN COMMENTS

APPLICANT\OWNER:
SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MA 01810

PROJECT:
RESIDENTIAL DEVELOPMENT
470 BOSTON STREET (ROUTE 1)
TOPSFIELD, MA

PROJECT NO.	2165-01A	DATE:	10-13-2016
SCALE:	N.T.S.	DWG. NAME:	C-2165-01A
DESIGNED BY:	DMR	CHECKED BY:	RB

PREPARED BY:

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environmental consulting ◆ landscape architecture
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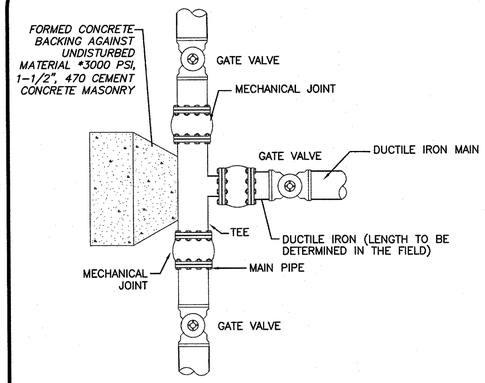
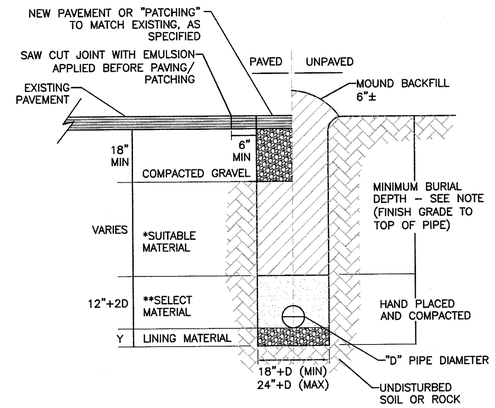


TYPICAL 3-WAY GATE WATER CONNECTION WITH MECHANICAL JOINTS

NOT TO SCALE — 1

NOTES:

1. MINIMUM BURIAL DEPTH (FINISH GRADE TO TOP OF PIPE)
   GRAVITY PIPE – SEE PLAN OR PROFILE
   PRESSURE PIPE UNDER PAVING – 4'
   PRESSURE PIPE BENEATH UNPAVED – 3'
2. WHERE BACKFILL IS DESIGNATED AS COMPACTED, THIS MEANS 90 TO 95% STANDARD PROCTOR. AASHTO T–99. ALL FILL PLACED BELOW PIPES AND STRUCTURES MUST MEET THIS REQUIREMENT.
3. FOR ALL TRENCHES WITH A GRADE GREATER THAN 4% AND/OR WHERE GROUNDWATER IS APPARENT, INSTALL CLAY DAMS AROUND THE PIPE AT 100' INTERVALS.
4. BACKFILL AS PER DCED–R100 AND REFERENCED AS STANDARD DRAWING.
5. TRENCHES WITHIN MILL STREET MAY REQUIRE FLOWABLE FILL. VERIFY WITH TOWN ENGINEER.



TRENCH DETAIL

NOT TO SCALE — 2

CONDITION & PIPE	**SELECT MATERIAL	LINING MATERIAL	Y–DIMENSION
DUCTILE IRON "ORDINARY SOIL"	TYPE I, II, OR III	SAND OR TYPE III	3"
RCP "ORDINARY SOIL"	TYPE II OR III	SAND OR TYPE III	3"
ALL PIPE OVER BEDROCK OR LEDGE	TYPE II OR III	SAND OR TYPE III	8"
DUCTILE IRON IN CLAY OR MUCK	TYPE II OR III	SAND	4"
RCP IN CLAY	TYPE II OR III	SAND	8"
ALL PLASTICS	TYPE III	SAND OR TYPE III	6"

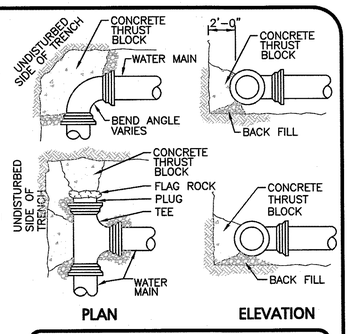
* SUITABLE MATERIAL SHALL CONTAIN NO STONE GREATER THAN 4" IN DIAMETER, NO FROZEN LUMPS, AND ONLY MINOR AMOUNTS OF CLAY OR ORGANIC MATERIAL. ALL MATERIAL TO BE PLACED IN MAX 12" LIFTS AND COMPACTED BEFORE PLACING NEXT LIFT.

**TYPE I MATERIAL SHALL BE EITHER GRAVEL OR EXCAVATED MATERIAL CONTAINING NO STONES GREATER THAN 1.5" DIAMETER, NO FROZEN LUMPS, CLAY OR ORGANIC MATERIAL.

**TYPE II MATERIAL SHALL BE CLEAN, HARD, CRUSHED OR NATURAL STONE WITH A GRADATION BY WEIGHT OF 100% PASSING A 1.5" SQUARE OPENING, NOT MORE THAN 25% PASSING A ¾" OPENING, AND NOT MORE THAN 5% PASSING A ½" SQUARE OPENING.

**TYPE III MATERIAL SHALL BE CLEAN, HARD, CRUSHED STONE FREE FROM COATINGS AND THOROUGHLY WASHED WITH A GRADATION BY WEIGHT OF 100% PASSING A 1" SQUARE OPENING, AND 0 TO 5% PASSING A ¾" SQUARE OPENING.

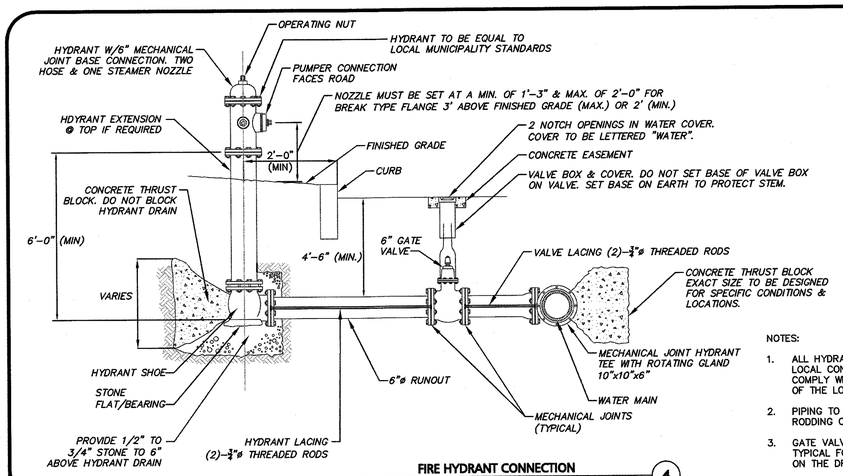
NOTES:
1. ALL WATER MAIN FITTINGS, BENDS, TEES, PLUGS ETC. SHALL BE RESTRAINED W/ THRUST BLOCKS EXCEPT WHERE NOTED.
2. ALL THRUST BLOCKS & COLLARS SHALL BE INSTALLED SO THAT THEY BEAR AGAINST UNDISTURBED EARTH.
3. SIZE OF CONCRETE THRUST BLOCKS SHALL BE AS NOTED BELOW.
4. MINIMUM COMPRESSIVE STRENGTH OF THRUST BLOCK CONCRETE SHALL BE 3,000 P.S.I.
5. KEEP CONCRETE CLEAR OF MECHANICAL JOINTS.
6. THE BELOW PREDICATED ON A WATER PRESSURE OF 225 PSI AND A SOIL RESISTANCE OF 2000 PSF (TILL). FOR OTHER SOILS THE VALUES IN THE ABOVE TABLE SHALL BE MULTIPLIED BY:



MINIMUM THRUST BLOCK BEARING AREAS				
PIPE ø	90° BEND (SQ. FT.)	45° BEND (SQ. FT.)	22.5° BEND (SQ. FT.)	TEES, PLUGS, CAPS & HYD. (SQ.FT.)
6"	5	3	3	4
8"	9	6	3	9
10"	13	7	4	12
12"	20	10	5	16

THRUST BLOCK DETAILS

NOT TO SCALE — 3

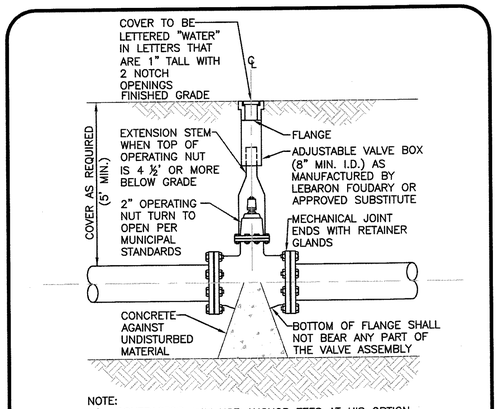


NOTES:

1. ALL HYDRANTS, VALVES AND LOCAL CONNECTIONS SHALL COMPLY WITH THE SPECIFICATIONS OF THE LOCAL MUNICIPALITY.
2. PIPING TO BE RESTRAINED WITH RODDING OR RETAINING GLANDS.
3. GATE VALVE INSTALLATION IS TYPICAL FOR ALL GATES SHOWN ON THE DRAWINGS.

FIRE HYDRANT CONNECTION

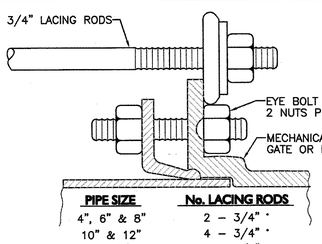
NOT TO SCALE — 4



NOTE:
1.) CONTRACTOR MAY USE ANCHOR TEES AT HIS OPTION.
2.) HYDRANTS AND VALVES TO OPERATE PER MUNICIPAL STANDARDS

GATE VALVE DETAIL

NOT TO SCALE — 5



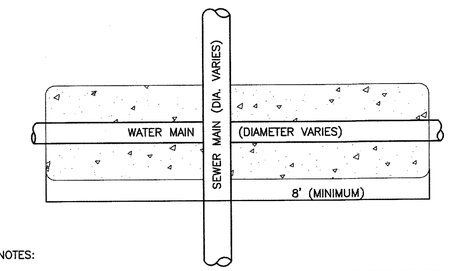
PIPE SIZE	No. LACING RODS
4", 6" & 8"	2 – 3/4" *
10" & 12"	4 – 3/4" *
16"	4 – 3/4" *
20"	6 – 3/4" *

* STANDARD LENGTHS ARE 6' & 10'. COUPLINGS MAY BE USED FOR LONGER LENGTHS.

NOTES:
1. NUMBER OF LACING RODS IS BASED ON MAXIMUM PRESSURE OF 125 P.S.I. IN MAIN.
2. EYE–BOLTS AND LACING RODS ARE TO BE FABRICATED FROM A–36 STEEL.
3. STEEL LACING RODS SHALL HAVE A YIELD STRESS OF NOT LESS THAN 36,000 P.S.I.
4. EYE–BOLTS SHALL HAVE A MINIMUM TENSILE STRENGTH OF 7,000 LBS. EACH.

MECHANICAL JOINT LACING DETAIL

NOT TO SCALE — 6



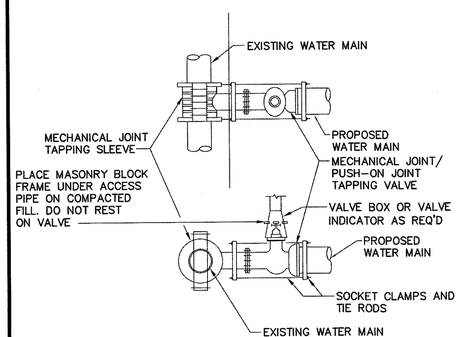
NOTES:

WHENEVER CONDITIONS PREVENT A LATERAL SEPARATION OF 10 FEET BETWEEN A SEWER MAIN AND A WATER MAIN:

1. THE WATER MAIN SHALL BE LAID IN A SEPARATE TRENCH AND THE DIFFERENCE IN ELEVATION BETWEEN THE WATER MAIN AND THE SEWER MAIN SHALL BE AT LEAST 18 INCHES.
2. THE PIPE CROSSING SHALL OCCUR AS CLOSE TO 90° AS PRACTICABLE.
3. THE PIPE JOINTS SHALL BE STAGGERED TO PROVIDE THE MAXIMUM SEPARATION FROM THE POINT OF CROSSING.
4. THE CROSSING SHALL BE ENCASED IN CONCRETE FOR THE ENTIRE WIDTH OF THE TRENCH AND FOR A DISTANCE OF 8 LINEAR FEET CENTERED ON THE CROSSING.

SEWER / WATER CROSSING DETAIL

NOT TO SCALE — 7



TAPPING SLEEVE

NOT TO SCALE — 8

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE DATE

N:\PROJECTS\2165–01A\CIVIL\DRAWINGS\CURRENT\C–2165–01A – DETAILS.DWG

PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
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3	3-16-2017	REVISIONS PER TOWN REQUEST
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1	1-17-2017	REVISED PER PEER REVIEW & TOWN COMMENTS

APPLICANT\OWNER:
SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MA 01810

PROJECT:
RESIDENTIAL DEVELOPMENT
470 BOSTON STREET (ROUTE 1)
TOPSFIELD, MA

PROJECT NO.	2165-01A	DATE:	10-13-2016
SCALE:	N.T.S.	DWG. NAME:	C-2165-01A
DESIGNED BY:	DMR	CHECKED BY:	RB

PREPARED BY:
ALLEN & MAJOR ASSOCIATES, INC.
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environmental consulting • landscape architecture
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WOBURN MA 01801-8501
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WOBURN, MA ◆ LAKEVILLE, MA ◆ MANCHESTER, NH

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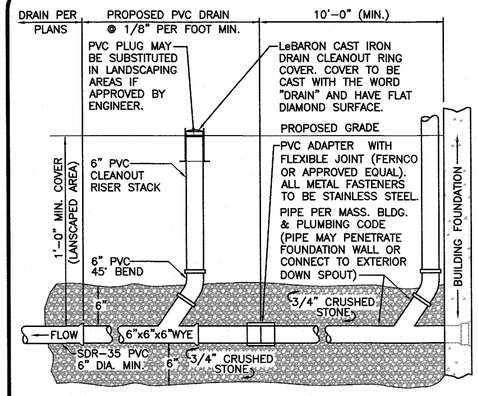
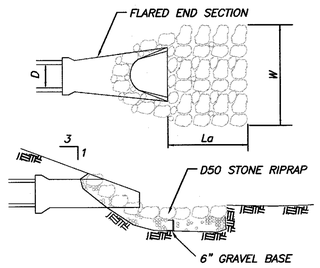
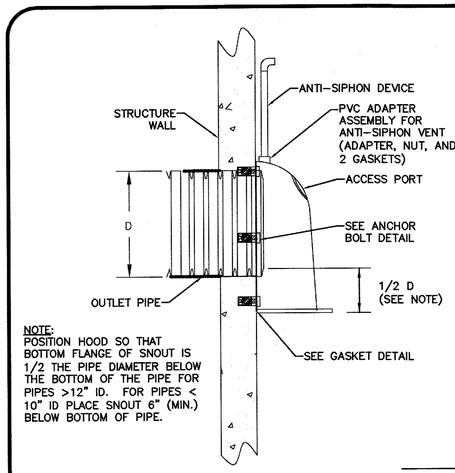


ROOF LEADER (1)
NOT TO SCALE



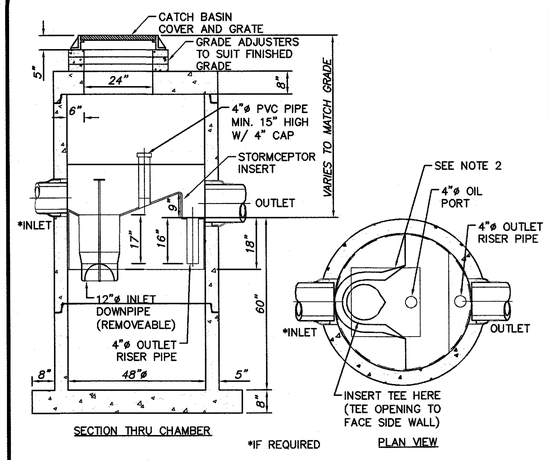
NOTES:
1.) RIP RAP SHALL EXTEND FROM THE FES TO THE AREAS SHOWN ON THE GRADING & DRAINAGE PLANS.

FLARED END SECTION WITH RIP RAP (2)
NOT TO SCALE



NOTE:
POSITION HOOD SO THAT BOTTOM FLANGE OF SNOUT IS 1/2 THE PIPE DIAMETER BELOW THE BOTTOM OF THE PIPE FOR PIPES >12" ID. FOR PIPES < 10" ID PLACE SNOUT 6" (MIN.) BELOW BOTTOM OF PIPE.

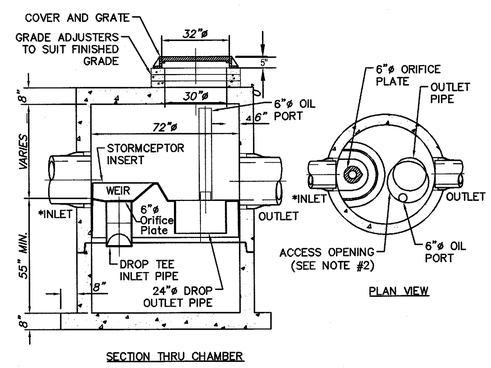
SNOUT OIL & DEBRIS STOP (3)
NOT TO SCALE



SECTION THRU CHAMBER
*IF REQUIRED
PLAN VIEW

NOTE :
1. THE USE OF FLEXIBLE CONNECTIONS IS RECOMMENDED AT THE INLET AND OUTLET WHERE APPLICABLE.
2. THE COVER SHOULD BE POSITIONED OVER THE 24"ø OUTLET RISER PIPE AND THE 6"ø OIL PORT.
3. THE STORMCEPTOR SYSTEM IS PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS: #4985148, #5498331, #5725760, #5753115, #5849181.
4. CONTACT A CONCRETE PIPE DIVISION REPRESENTATIVE FOR FURTHER DETAILS NOT LISTED ON THIS DRAWING.

STC 450I PRECAST CONCRETE STORMCEPTOR (450 US GALLON CAPACITY) (4)
NOT TO SCALE



SECTION THRU CHAMBER
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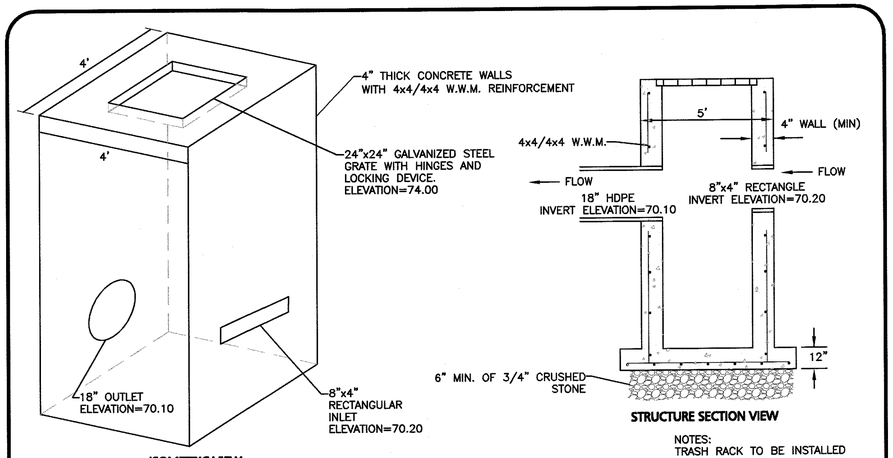
4. CONTACT A CONCRETE PIPE DIVISION REPRESENTATIVE FOR FURTHER DETAILS NOT LISTED ON THIS DRAWING.

STC 900 PRECAST CONCRETE STORMCEPTOR (900 US GALLON CAPACITY) (5)
NOT TO SCALE



NOTES:
TRASH RACK TO BE INSTALLED OVER ALL INLETS.

INFILTRATION BASIN OUTLET CONTROL STRUCTURE #1 (6)
NOT TO SCALE

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE *DATE*

N:\PROJECTS\2165-01A\CIVIL\DRAWINGS\CURRENT\C-2165-01A – DETAILS.DWG

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COMMONWEALTH OF MASSACHUSETTS
TIMOTHY J. WILLIAMS
CIVIL
No. 43119
REGISTERED PROFESSIONAL ENGINEER
2/10/17

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

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PREPARED BY:

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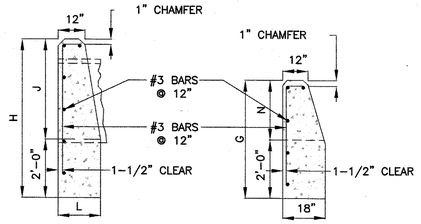
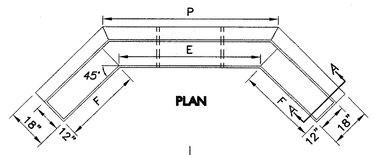
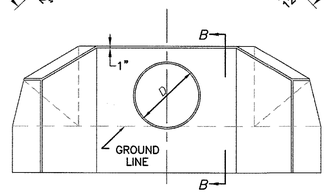


SECT. B-B

SECT. A-A



PLAN

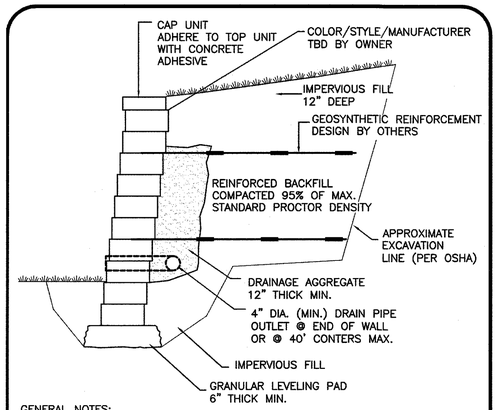


FRONT ELEVATION

1-1/2:1 AND 2:1 SLOPE								1-1/2:1 SLOPE			2:1 SLOPE		
D	E	G	H	J	L	N	P	F	CU. YDS.	LBS.	F	CU. YDS.	LBS.
30"	4'-0"	4'-0"	5'-6"	3'-6"	1'-6"	2'-0"	5'-3"	3'-0"	2.60	45	4'-3"	3.16	54
36"	4'-6"	4'-3"	6'-0"	4'-0"	1'-8"	2'-3"	5'-11"	3'-6"	3.35	54	5'-0"	4.15	64
42"	5'-0"	4'-6"	6'-6"	4'-6"	1'-10"	2'-6"	6'-6"	4'-0"	4.20	59	5'-9"	5.25	70
48"	5'-6"	4'-9"	7'-0"	5'-0"	2'-0"	2'-9"	7'-2"	4'-6"	5.19	65	6'-6"	6.50	83

NOTE: ALL CONCRETE DIMENSIONS SHOWN ARE MINIMUM.

CONCRETE HEADWALL
NOT TO SCALE
1

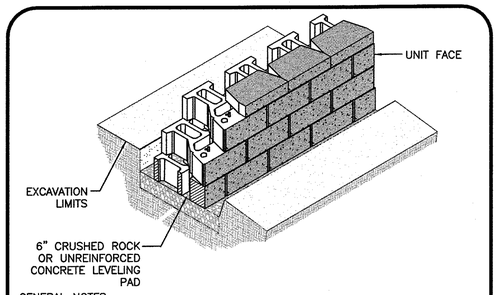


GENERAL NOTES:
1. STRUCTURAL ENGINEER LICENSED IN THE STATE OF MASSACHUSETTS TO REVIEW & APPROVE FINAL WALL DESIGN FOR STRUCTURAL INTEGRITY AT CONTRACTOR COST. CONTRACTOR TO INCORPORATE ANY NECESSARY REVISIONS AT NO ADDITIONAL COST.

2. PROVIDE SHOP DRAWING FOR MANUFACTURERS WALL DESIGN, GEOREINFORCEMENT BLOCK STYLE & COLOR, DRAIN PIPE, LEVELING PAD, (DETAILS & SECTIONS & ELEVATIONS) FOR APPROVAL PRIOR TO PURCHASE.

3. INSTALL PER MANUFACTURERS, GEOTECHNICAL ENGINEERS & STRUCTURAL ENGINEERS RECOMMENDATIONS AT CONTRACTOR COST.

TYPICAL PRECAST CONC. SEGMENTAL RETAINING WALL
NOT TO SCALE
2



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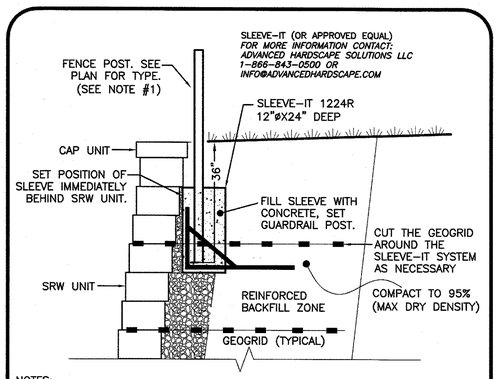
3. INSTALL PER MANUFACTURERS, GEOTECHNICAL ENGINEERS & STRUCTURAL ENGINEERS RECOMMENDATIONS AT CONTRACTOR COST.

BASE LEVELING PAD NOTES:
1. THE LEVELING PAD IS TO BE CONSTRUCTED OF CRUSHED STONE OR 4000 PSI UNREINFORCED CONCRETE

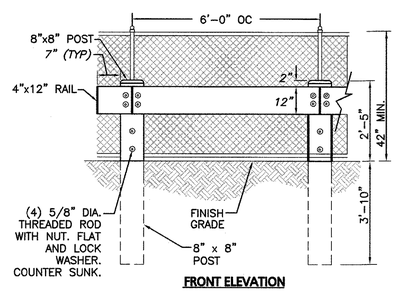
2. THE BASE FOUNDATION IS TO BE APPROVED BY THE SITE GEOTECHNICAL ENGINEER AT CONTRACTOR COST PRIOR TO PLACEMENT OF THE LEVELING PAD.

STANDARD PRECAST CONC. UNIT/BASE PAD ISOMETRIC SECTION VIEW
NOT TO SCALE
3

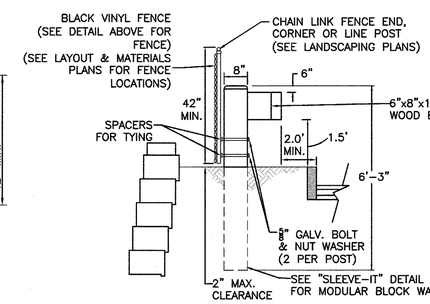


NOTES:
1. FENCING SYSTEMS APPROVED FOR USE WITH SLEEVE-IT 1224R ARE LIMITED TO THE FOLLOWING HEIGHTS:
   A. CHAIN LINK – UP TO 8-FT,
   B. PRIVACY – UP TO 6-FT (WOODEN, PVC, METAL).

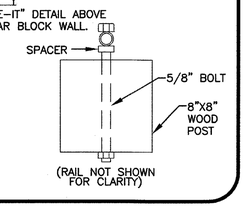
FENCE POST AT TOP OF MODULAR BLOCK RETAINING WALL
NOT TO SCALE
4



FRONT ELEVATION



SECTION AT CURB



NOTES:

1. ALL PRESSURE TREATED TIMBERS SHALL BE SOUTHERN YELLOW PINE TREATED WITH CAA AND HAVE A MINIMUM 0.60 RETENTION. PRESSURE TREATED TIMBERS SHALL BE "SUPATIMBER" BY CHEMICAL SPECIALTIES, INC., CHARLOTTE, NC OR EQUAL.

2. ALL HARDWARE TO BE GALVANIZED STEEL.

WOOD BEAM GUARD RAIL W/ BLACK VINYL FENCE AT PORTION OF DETENTION BASIN
NOT TO SCALE
5

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE *DATE*

COMMONWEALTH OF MASSACHUSETTS
TIMOTHY J. WILLIAMS
CIVIL
No. 43119
REGISTERED PROFESSIONAL ENGINEER
4/10/17

PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

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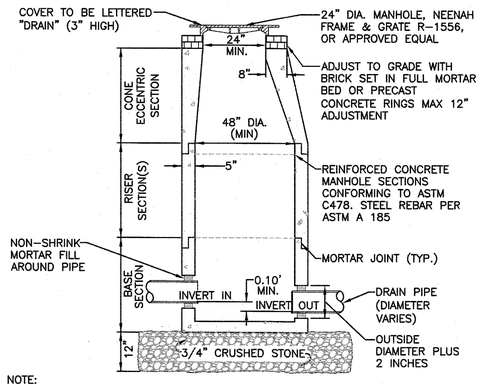
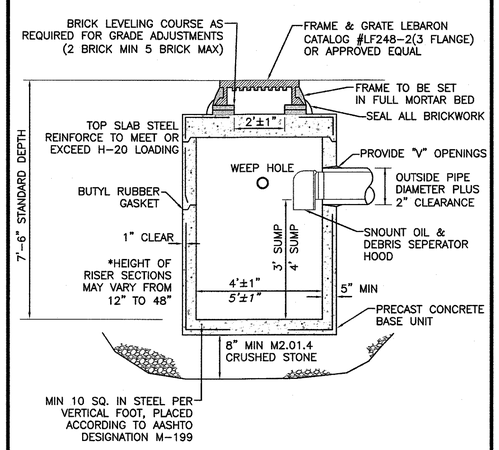
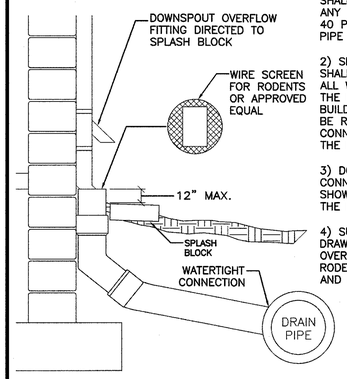


NOTE:
1. THE MANHOLE, INCLUDING ALL COMPONENT PARTS, SHALL HAVE ADEQUATE SPACE AND STRENGTH QUALITIES CONSIDERED NECESSARY FOR THE INTENDED SERVICE. SPACE REQUIREMENT AND CONFIGURATIONS SHALL BE AS SHOWN ON THE DRAWING. THE COMPLETE STRUCTURE SHALL BE OF SUCH MATERIAL AND QUALITY AS TO WITHSTAND (HS20-44 LOADING) WITHOUT FAILURE. VERTICAL FOOT OF MANHOLE.

PRECAST DRAIN MANHOLE (1)
NOT TO SCALE



CATCH BASIN (2)
NOT TO SCALE



NOTES:

1) A WATERTIGHT CONNECTION SHALL BE MAINTAINED FROM ANY TRANSITION FROM SCH. 40 PVC PIPE TO ANY OTHER PIPE TYPE.

2) SITEWORK CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK TO AND INCLUDING THE RODENT SCREEN. BUILDING CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONNECTION AT THE POINT OF THE RODENT SCREEN.

3) DOWNSPOUTS SHALL BE CONNECTED IN THE MANNER SHOWN AND CONVEYED TO THE NEAREST STORM DRAIN.

4) SUBMIT SHOP DRAWINGS FOR DOWNSPOUT OVERFLOW, SPLASH BACK, RODENT SCREEN, FITTINGS AND PIPE.

TYPICAL ROOF DRAIN (RD) DOWNSPOUT COLLECTOR (3)
NOT TO SCALE

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE DATE

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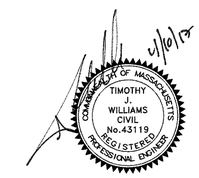

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FAX: (781) 935-2896
WOBURN, MA ◆ LAKEVILLE, MA ◆ MANCHESTER, NH

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DRAWING TITLE: DETAILS

SHEET No. D-7

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N:\PROJECTS\2165-01A\CIVIL\DRAWINGS\CURRENT\C-2165-01A - DETAILS.DWG

CULTEC RECHARGER® 330XLHD PRODUCT SPECIFICATIONS

GENERAL
CULTEC RECHARGER 330XLHD CHAMBERS ARE DESIGNED FOR UNDERGROUND STORMWATER MANAGEMENT. THE CHAMBERS MAY BE USED FOR RETENTION, RECHARGING, DETENTION OR CONTROLLING THE FLOW OF ON-SITE STORMWATER RUNOFF.

CHAMBER PARAMETERS
1. THE CHAMBERS WILL BE MANUFACTURED BY CULTEC, INC. OF BROOKFIELD, CT (203-775-4416 OR 1-800-428-5832).
2. THE CHAMBER WILL BE VACUUM THERMOFORMED OF BLACK POLYETHYLENE.
3. THE CHAMBER WILL BE ARCHED IN SHAPE.
4. THE CHAMBER WILL BE OPEN-BOTTOMED.
5. THE CHAMBER WILL BE JOINED USING AN INTERLOCKING OVERLAPPING RIB METHOD. CONNECTIONS MUST BE FULLY SHOULDERED OVERLAPPING RIBS, HAVING NO SEPARATE COUPLINGS OR SEPARATE END WALLS
6. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC RECHARGER 330XLHD SHALL BE 30.5 INCHES (775 mm) TALL, 52 INCHES (1321 mm) WIDE AND 8.5 FEET (2.59 m) LONG. THE INSTALLED LENGTH OF A JOINED RECHARGER 330XLHD SHALL BE 7 FEET (2.13 m).
7. MAXIMUM INLET OPENING ON THE CHAMBER END WALL IS 24 INCHES (600 mmn).
8. THE CHAMBER WILL HAVE TWO SIDE PORTALS TO ACCEPT CULTEC HVLV® FC-24 FEED CONNECTORS TO CREATE AN INTERNAL MANIFOLD. THE NOMINAL DIMENSIONS OF EACH SIDE PORTAL WILL BE 10.5 INCHES (267 mm) HIGH BY 11.5 INCHES (292 mm) WIDE. MAXIMUM ALLOWABLE OUTER DIAMETER (O.D.) PIPE SIZE IN THE SIDE PORTAL IS 11.75 INCHES (298 mm).
9. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC HVLV FC-24 FEED CONNECTOR SHALL BE 12 INCHES (305 mm) TALL, 16 INCHES (406 mm) WIDE AND 24.2 INCHES (614 mm) LONG.
10. THE NOMINAL STORAGE VOLUME OF THE RECHARGER 330XLHD CHAMBER WILL BE 7.459 FT^3 / FT (0.693 m^3 / m) - WITHOUT STONE. THE NOMINAL STORAGE VOLUME OF A JOINED RECHARGER 330XLHD SHALL BE 52.213 FT^3 / UNIT (1.478 m^3 / UNIT) - WITHOUT STONE.
11. THE NOMINAL STORAGE VOLUME OF THE HVLV FC-24 FEED CONNECTOR WILL BE 0.913 FT^3 / FT (0.085 m^3 / m) - WITHOUT STONE.
12. THE RECHARGER 330XLHD CHAMBER WILL HAVE FIFTY-SIX DISCHARGE HOLES BORED INTO THE SIDEWALLS OF THE UNIT'S CORE TO PROMOTE LATERAL CONVEYANCE OF WATER.
13. THE RECHARGER 330XLHD CHAMBER SHALL HAVE 16 CORRUGATIONS.
14. THE END WALL OF THE CHAMBER, WHEN PRESENT, WILL BE AN INTEGRAL PART OF THE CONTINUOUSLY FORMED UNIT. SEPARATE END PLATES CANNOT BE USED WITH THIS UNIT.
15. THE RECHARGER 330XLRHD STAND ALONE UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO FULLY FORMED INTEGRAL END WALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS.
16. THE RECHARGER 330XLSHD STARTER UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY FORMED INTEGRAL END WALL AND ONE PARTIALLY FORMED INTEGRAL END WALL WITH A LOWER TRANSFER OPENING OF 14 INCHES (356 mm) HIGH X 34.5 INCHES (876 mm) WIDE.
17. THE RECHARGER 330XLIHD INTERMEDIATE UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY OPEN ENDWALL AND ONE PARTIALLY FORMED INTEGRAL END WALL WITH A LOWER TRANSFER OPENING OF 14 INCHES (356 mm) HIGH X 34.5 INCHES (876 mm) WIDE.
18. THE RECHARGER 330XLEHD END UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY FORMED INTEGRAL END WALL AND ONE FULLY OPEN END WALL AND HAVING NO SEPARATE END PLATES OR END WALLS.
19. THE HVLV FC-24 FEED CONNECTOR MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO OPEN END WALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS. THE UNIT WILL FIT INTO THE SIDE PORTALS OF THE RECHARGER 330XLHD AND ACT AS CROSS FEED CONNECTIONS.
20. CHAMBERS MUST HAVE HORIZONTAL STIFFENING FLEX REDUCTION STEPS BETWEEN THE RIBS.
21. HEAVY DUTY UNITS ARE DESIGNATED BY A COLORED STRIPE FORMED INTO THE PART ALONG THE LENGTH OF THE CHAMBER.
22. THE CHAMBER WILL HAVE A 6 INCH (152 mm) DIAMETER RAISED INTEGRAL CAP LOCATED ON TOP OF THE ARCH IN THE CENTER OF EACH UNIT TO BE USED AS AN OPTIONAL INSPECTION PORT OR CLEAN-OUT.
23. THE UNITS MAY BE TRIMMED TO CUSTOM LENGTHS BY CUTTING BACK TO ANY CORRUGATION.
24. THE CHAMBER SHALL BE MANUFACTURED IN AN ISO 9001:2006 CERTIFIED FACILITY.
25. MAXIMUM ALLOWED COVER OVER TOP OF UNIT SHALL BE 12 FEET (3.66 m)
26. THE CHAMBER WILL BE DESIGNED TO WITHSTAND TRAFFIC LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.

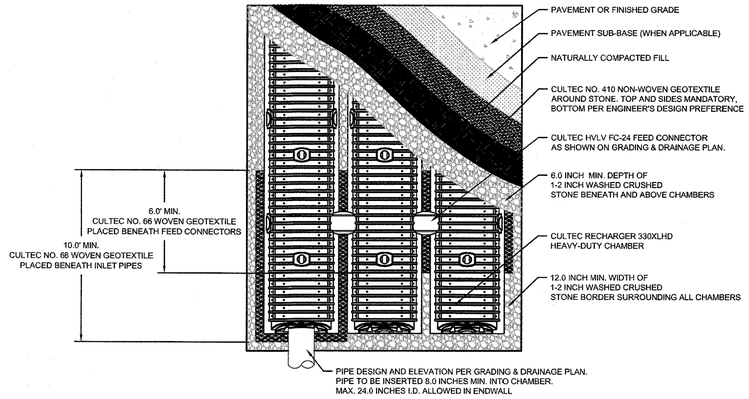
CULTEC HVLV FC-24 FEED CONNECTOR PRODUCT SPECIFICATIONS
GENERAL
CULTEC HVLV FC-24 FEED CONNECTORS ARE DESIGNED TO CREATE AN INTERNAL MANIFOLD FOR CULTEC RECHARGER MODEL 330XLHD STORMWATER CHAMBERS.

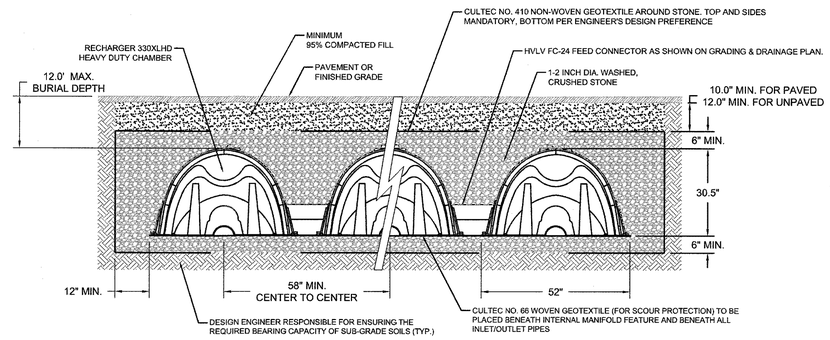
CHAMBER PARAMETERS
1. THE CHAMBERS WILL BE MANUFACTURED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE CHAMBER WILL BE VACUUM THERMOFORMED OF BLACK HIGH MOLECULAR WEIGHT HIGH DENSITY POLYETHYLENE (HMWHDPE).
3. THE CHAMBER WILL BE ARCHED IN SHAPE.
4. THE CHAMBER WILL BE OPEN-BOTTOMED.
5. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC HVLV FC-24 FEED CONNECTOR SHALL BE 12 INCHES (305 mm) TALL, 16 INCHES (406 mm) WIDE AND 24.2 INCHES (614 mm) LONG.
6. THE NOMINAL STORAGE VOLUME OF THE HVLV FC-24 FEED CONNECTOR WILL BE 0.913 FT^3 / FT (0.085 m^3 / m) - WITHOUT STONE.
7. THE HVLV FC-24 FEED CONNECTOR CHAMBER SHALL HAVE 2 CORRUGATIONS.
8. THE HVLV FC-24 FEED CONNECTOR MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO OPEN END WALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS. THE UNIT WILL FIT INTO THE SIDE PORTALS OF THE CULTEC RECHARGER STORMWATER CHAMBER AND ACT AS CROSS FEED CONNECTIONS CREATING AN INTERNAL MANIFOLD.
9. THE CHAMBER WILL BE DESIGNED TO WITHSTAND TRAFFIC LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.
10. THE CHAMBER SHALL BE MANUFACTURED IN AN ISO 9001:2008 CERTIFIED FACILITY.

CULTEC NO. 66™ WOVEN GEOTEXTILE

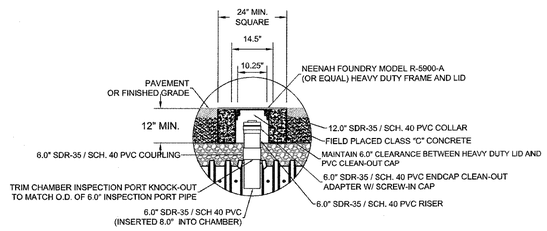
GENERAL
CULTEC NO. 66™ WOVEN GEOTEXTILE IS UTILIZED AS AN UNDERLAYMENT TO PREVENT SCOURING CAUSED BY WATER MOVEMENT WITHIN THE CULTEC CHAMBERS AND FEED CONNECTORS UTILIZING THE CULTEC MANIFOLD FEATURE.

GEOTEXTILE PARAMETERS
1. THE GEOTEXTILE SHALL BE PROVIDED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE GEOTEXTILE SHALL BE BLACK IN APPEARANCE.
3. THE GEOTEXTILE SHALL HAVE A TENSILE STRENGTH OF 315 LBS (1.40KN) PER ASTM D4632 TESTING METHOD.
4. THE GEOTEXTILE SHALL HAVE A TENSILE ELONGATION RESISTANCE OF 15% PER ASTM D4632 TESTING METHOD.
5. THE GEOTEXTILE SHALL HAVE A MULLEN BURST RESISTANCE OF 600PSI (4138 KPA) PER ASTM D3786 TESTING METHOD.
6. THE GEOTEXTILE SHALL HAVE A TEAR RESISTANCE OF 115 LBS (0.51 KN) PER ASTM D4533 TESTING METHOD.
7. THE GEOTEXTILE SHALL HAVE A PUNCTURE RESISTANCE OF 150 LBS (0.66 KN) PER ASTM D4833 TESTING METHOD.
8. THE GEOTEXTILE SHALL HAVE A CBR PUNCTURE RESISTANCE OF 900 LBS (4.00 KN) PER ASTM D6241 TESTING METHOD.
9. THE GEOTEXTILE SHALL HAVE A UV RESISTANCE OF 70% @ 500 HRS. PER ASTM D4355 TESTING METHOD.
10. THE GEOTEXTILE SHALL HAVE A PERMITTIVITY RATING OF 0.05 SEC-1 PER ASTM D4491 TESTING METHOD.
11. THE GEOTEXTILE SHALL HAVE A WATER FLOW RATING OF 4 GPM/FT2 (160 LPM/M2) PER ASTM D4491 TESTING METHOD.
12. THE GEOTEXTILE SHALL HAVE A PERCENT OPEN AREA OF <1% PER CW-02215 TESTING METHOD.
13. THE GEOTEXTILE SHALL HAVE AN APPARENT OPENING SIZE OF 40 US STD. SIEVE (0.425 MM) PER ASTM D4751 TESTING METHOD.
14. THE GEOTEXTILE SHALL CONSIST OF A 100% HIGH-TENACITY, SILT-FILM POLYPROPYLENE YARNS.





END SECTION



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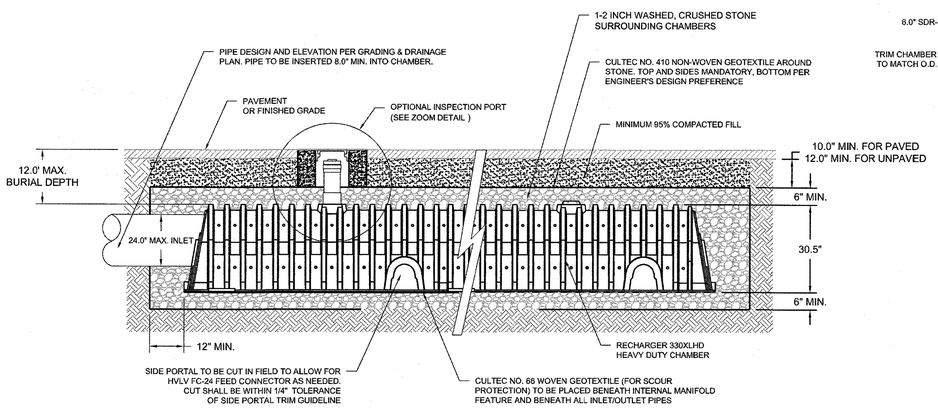

CROSS SECTION

NOTES:

1) SEE A&M GRADING & DRAINAGE PLANS FOR ALL INVERTS & ELEVATIONS.

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW
AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE *DATE*

NOT FOR CONSTRUCTION - FOR PERMITTING ONLY

N:\PROJECTS\2165-01A\CIVIL\DRAWINGS\CURRENT\C-2165-01A - DETAILS.DWG

4/10/17
COMMONWEALTH OF MASSACHUSETTS
TIMOTHY J. WILLIAMS
CIVIL
No. 43119
REGISTERED PROFESSIONAL ENGINEER

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
4	4-10-2017	REVISIONS PER TOWN REQUEST
3	3-16-2017	REVISIONS PER TOWN REQUEST
2	2-27-2017	REVISIONS PER TOWN COMMENTS
1	1-17-2017	REVISED PER PEER REVIEW & TOWN COMMENTS

APPLICANT\OWNER:
SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MA 01810

PROJECT:
RESIDENTIAL DEVELOPMENT
470 BOSTON STREET (ROUTE 1)
TOPSFIELD, MA

PROJECT NO.	2165-01A	DATE:	10-13-2016
SCALE:	N.T.S.	DWG. NAME:	C-2165-01A
DESIGNED BY:	DMR	CHECKED BY:	RB

PREPARED BY:
ALLEN & MAJOR ASSOCIATES, INC.
civil & structural engineering ◆ land surveying
environmental consulting ◆ landscape architecture
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100 COMMERCE WAY
WOBURN MA 01801-8501
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CULTEC RECHARGER® 280HD SPECIFICATIONS

GENERAL

CULTEC RECHARGER 280HD CHAMBERS ARE DESIGNED FOR UNDERGROUND STORMWATER MANAGEMENT. THE CHAMBERS MAY BE USED FOR RETENTION, RECHARGING, DETENTION OR CONTROLLING THE FLOW OF ON-SITE STORMWATER RUNOFF.

CHAMBER PARAMETERS

1. THE CHAMBERS WILL BE MANUFACTURED IN THE U.S.A. BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE CHAMBER WILL BE VACUUM THERMOFORMED OF BLACK HIGH MOLECULAR WEIGHT HIGH DENSITY POLYETHYLENE (HMWHDPE).
3. THE CHAMBER WILL BE ARCHED IN SHAPE.
4. THE CHAMBER WILL BE OPEN-BOTTOMED.
5. THE CHAMBER WILL BE JOINED USING AN INTERLOCKING OVERLAPPING RIB METHOD. CONNECTIONS MUST BE FULLY SHOULDERED OVERLAPPING RIBS, HAVING NO SEPARATE COUPLINGS OR SEPARATE END WALLS.
6. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC RECHARGER 280HD SHALL BE 26.5 INCHES (673 mm) TALL, 47 INCHES (1194 mm) WIDE AND 8 FEET (2.44 m) LONG. THE INSTALLED LENGTH OF A JOINED RECHARGER 280HD SHALL BE 7 FEET (2.13 m).
7. MAXIMUM INLET OPENING ON THE CHAMBER ENDWALL IS 18 INCHES (450 mm).
8. THE CHAMBER WILL HAVE TWO SIDE PORTALS TO ACCEPT CULTEC HVLV® FC-24 FEED CONNECTORS TO CREATE AN INTERNAL MANIFOLD. NOMINAL INSIDE DIMENSIONS OF THE SIDE PORTAL SHALL HAVE A WIDTH OF 11.25" [288 mm] AND HEIGHT OF 11.5" [292 mm]. THE SIDE PORTAL CAN ACCEPT A MAXIMUM OUTER DIAMETER (O.D.) PIPE SIZE OF 12.25 INCHES [311 mm].
9. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC HVLV® FC-24 FEED CONNECTOR SHALL BE 12 INCHES (305 mm) TALL, 16 INCHES (406 mm) WIDE AND 24.2 INCHES (614 mm) LONG.
10. THE NOMINAL STORAGE VOLUME OF THE RECHARGER 280HD CHAMBER WILL BE 6.079 FT3 / FT (0.565 m^3 / m) - WITHOUT STONE. THE NOMINAL STORAGE VOLUME OF A JOINED RECHARGER 280HD SHALL BE 42.553 FT^3 / UNIT (1.205 m^3 / UNIT) - WITHOUT STONE.
11. THE NOMINAL STORAGE VOLUME OF THE HVLV FC-24 FEED CONNECTOR WILL BE 0.913 FT^3 / FT (0.085 m^3 / m) - WITHOUT STONE.
12. THE RECHARGER 280HD CHAMBER WILL HAVE EIGHTY-TWO DISCHARGE HOLES BORED INTO THE SIDEWALLS OF THE UNIT'S CORE TO PROMOTE LATERAL CONVEYANCE OF WATER.
13. THE RECHARGER 280HD CHAMBER SHALL HAVE 15 CORRUGATIONS.
14. THE ENDWALL OF THE CHAMBER, WHEN PRESENT, WILL BE AN INTEGRAL PART OF THE CONTINUOUSLY FORMED UNIT. SEPARATE END PLATES CANNOT BE USED WITH THIS UNIT.
15. THE RECHARGER 280RHD STAND ALONE UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO FULLY FORMED INTEGRAL ENDWALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS.
16. THE RECHARGER 280SHD STARTER UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY FORMED INTEGRAL ENDWALL AND ONE PARTIALLY FORMED INTEGRAL ENDWALL WITH A LOWER TRANSFER OPENING OF 9 INCHES (229 mm) HIGH X 35 INCHES (889 mm) WIDE.
17. THE RECHARGER 280IHD INTERMEDIATE UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY OPEN ENDWALL AND ONE PARTIALLY FORMED INTEGRAL ENDWALL WITH A LOWER TRANSFER OPENING OF 9 INCHES (229 mm) HIGH X 35 INCHES (889 mm) WIDE.
18. THE RECHARGER 280EHD END UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY FORMED INTEGRAL ENDWALL AND ONE FULLY OPEN END WALL AND HAVING NO SEPARATE END PLATES OR END WALLS.
19. THE HVLV FC-24 FEED CONNECTOR MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO OPEN END WALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS. THE UNIT WILL FIT INTO THE SIDE PORTALS OF THE RECHARGER 280HD AND ACT AS CROSS FEED CONNECTIONS.
20. CHAMBERS MUST HAVE HORIZONTAL STIFFENING FLEX REDUCTION STEPS BETWEEN THE RIBS.
21. HEAVY DUTY UNITS ARE DESIGNATED BY A COLORED STRIPE FORMED INTO THE PART ALONG THE LENGTH OF THE CHAMBER.
22. THE CHAMBER WILL HAVE A RAISED INTEGRAL CAP AT THE TOP OF THE ARCH IN THE CENTER OF EACH UNIT TO BE USED AS AN OPTIONAL INSPECTION PORT OR CLEAN-OUT.
23. THE UNITS MAY BE TRIMMED TO CUSTOM LENGTHS BY CUTTING BACK TO ANY CORRUGATION.
24. THE CHAMBER SHALL BE MANUFACTURED IN AN IN AN ISO 9001:2008 CERTIFIED FACILITY
25. THE CHAMBER WILL BE DESIGNED TO WITHSTAND TRAFFIC LOADS WHEN INSTALLED ACCORDING TO CULTEC'S INSTALLATION INSTRUCTIONS.
26. MAXIMUM ALLOWED COVER OVER TOP OF UNIT SHALL BE 12 FEET (3.65 m).

CULTEC HVLV® FC-24 FEED CONNECTOR PRODUCT SPECIFICATIONS

GENERAL

CULTEC HVLV FC-24 FEED CONNECTORS ARE DESIGNED TO CREATE AN INTERNAL MANIFOLD FOR CULTEC RECHARGER 280HD STORMWATER CHAMBERS.

CHAMBER PARAMETERS

1. THE CHAMBERS WILL BE MANUFACTURED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE CHAMBER WILL BE VACUUM THERMOFORMED OF BLACK HIGH MOLECULAR WEIGHT HIGH DENSITY POLYETHYLENE (HMWHDPE).
3. THE CHAMBER WILL BE ARCHED IN SHAPE.
4. THE CHAMBER WILL BE OPEN-BOTTOMED.
5. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC HVLV FC-24 FEED CONNECTOR SHALL BE 12 INCHES (305 mm) TALL, 16 INCHES (406 mm) WIDE AND 24.2 INCHES (614 mm) LONG.
6. THE NOMINAL STORAGE VOLUME OF THE HVLV FC-24 FEED CONNECTOR WILL BE 0.913 FT^3 / FT (0.085 m^3 / m) - WITHOUT STONE.
7. THE HVLV FC-24 FEED CONNECTOR CHAMBER SHALL HAVE 2 CORRUGATIONS.
8. THE HVLV FC-24 FEED CONNECTOR MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO OPEN END WALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS. THE UNIT WILL FIT INTO THE SIDE PORTALS OF THE CULTEC RECHARGER STORMWATER CHAMBER AND ACT AS CROSS FEED CONNECTIONS CREATING AN INTERNAL MANIFOLD.
9. THE CHAMBER WILL BE DESIGNED TO WITHSTAND TRAFFIC LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.
10. THE CHAMBER SHALL BE MANUFACTURED IN AN ISO 9001:2008 CERTIFIED FACILITY.

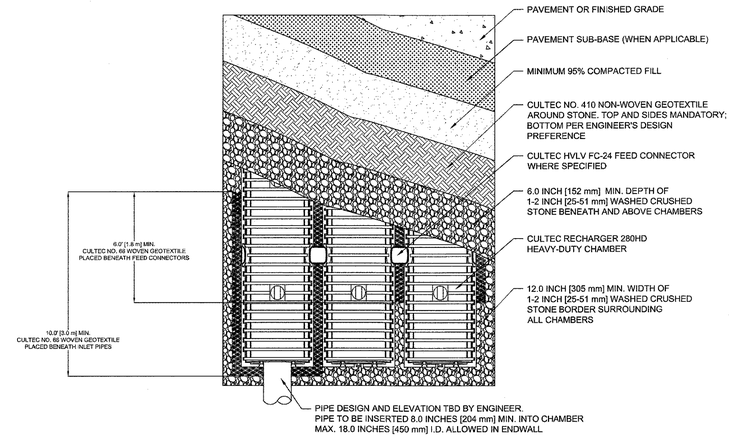
CULTEC NO. 66™ WOVEN GEOTEXTILE

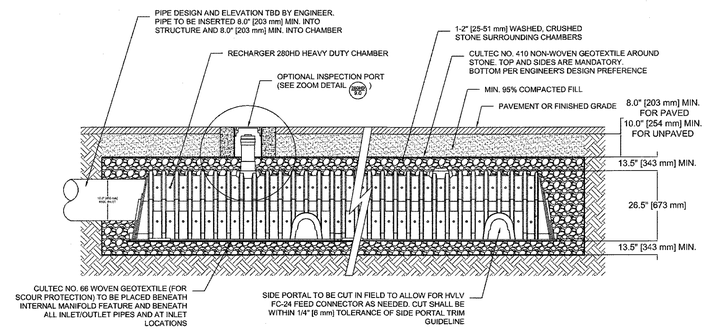
GENERAL

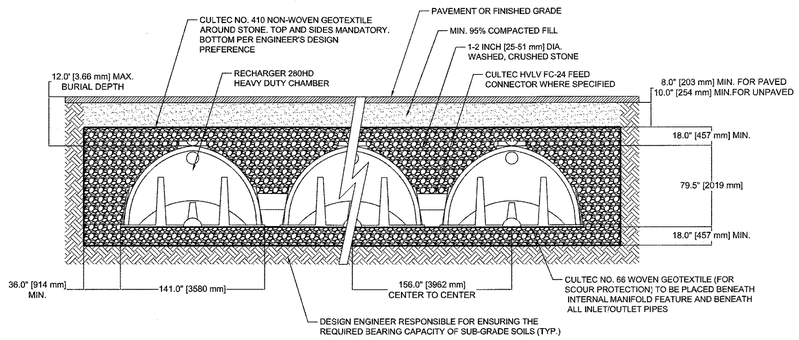
CULTEC NO. 66™ WOVEN GEOTEXTILE IS UTILIZED AS AN UNDERLAYMENT TO PREVENT SCOURING CAUSED BY WATER MOVEMENT WITHIN THE CULTEC CHAMBERS AND FEED CONNECTORS UTILIZING THE CULTEC MANIFOLD FEATURE.

GEOTEXTILE PARAMETERS

1. THE GEOTEXTILE SHALL BE PROVIDED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE GEOTEXTILE SHALL BE BLACK IN APPEARANCE.
3. THE GEOTEXTILE SHALL HAVE A TENSILE STRENGTH OF 315 LBS (1.40KN) PER ASTM D4632 TESTING METHOD.
4. THE GEOTEXTILE SHALL HAVE A TENSILE ELONGATION RESISTANCE OF 15% PER ASTM D4632 TESTING METHOD.
5. THE GEOTEXTILE SHALL HAVE A MULLEN BURST RESISTANCE OF 600PSI (4138 KPA) PER ASTM D3786 TESTING METHOD.
6. THE GEOTEXTILE SHALL HAVE A TEAR RESISTANCE OF 115 LBS (0.51 KN) PER ASTM D4533 TESTING METHOD.
7. THE GEOTEXTILE SHALL HAVE A PUNCTURE RESISTANCE OF 150 LBS (0.66 KN) PER ASTM D4833 TESTING METHOD.
8. THE GEOTEXTILE SHALL HAVE A CBR PUNCTURE RESISTANCE OF 900 LBS (4.00 KN) PER ASTM D6241 TESTING METHOD.
9. THE GEOTEXTILE SHALL HAVE A UV RESISTANCE OF 70% @ 500 HRS. PER ASTM D4355 TESTING METHOD.
10. THE GEOTEXTILE SHALL HAVE A PERMITTIVITY RATING OF 0.05 SEC-1 PER ASTM D4491 TESTING METHOD.
11. THE GEOTEXTILE SHALL HAVE A WATER FLOW RATING OF 4 GPM/FT2 (160 LPM/M2) PER ASTM D4491 TESTING METHOD.
12. THE GEOTEXTILE SHALL HAVE A PERCENT OPEN AREA OF <1% PER CW-02215 TESTING METHOD.
13. THE GEOTEXTILE SHALL HAVE AN APPARENT OPENING SIZE OF 40 US STD. SIEVE (0.425 MM) PER ASTM D4751 TESTING METHOD.
14. THE GEOTEXTILE SHALL CONSIST OF A 100% HIGH-TENACITY, SILT-FILM POLYPROPYLENE YARNS.



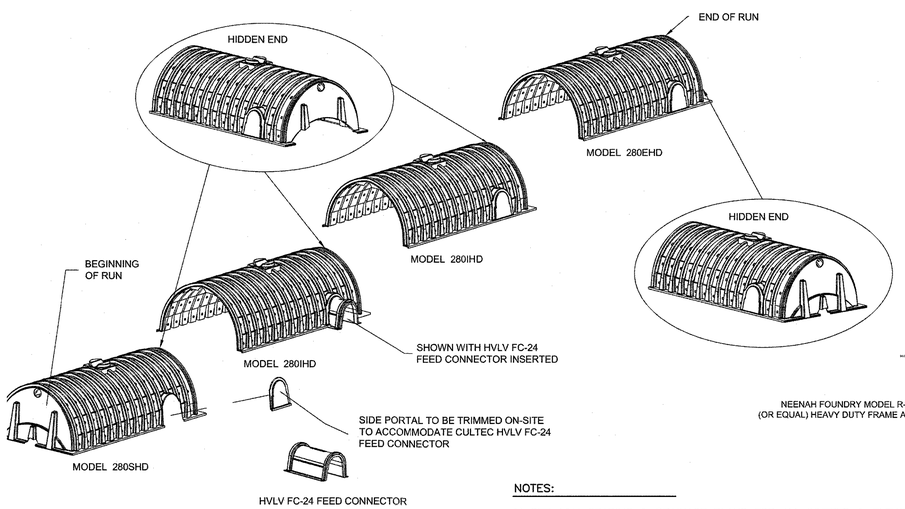




GENERAL NOTES

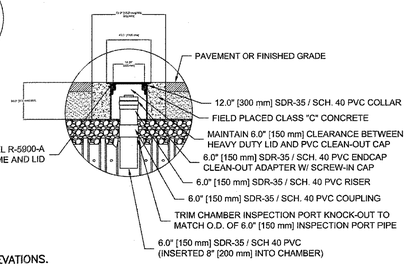
RECHARGER 280HD BY CULTEC, INC. OF BROOKFIELD, CT.
STORAGE PROVIDED = 9.21 CF/FT [1.83 m^3/m] PER DESIGN UNIT.
REFER TO CULTEC, INC.'S CURRENT RECOMMENDED INSTALLATION GUIDELINES.
MAXIMUM ALLOWED COVER OVER TOP OF UNIT SHALL BE 12' (3.65 m)
THE CHAMBER WILL BE DESIGNED TO WITHSTAND TRAFFIC LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.

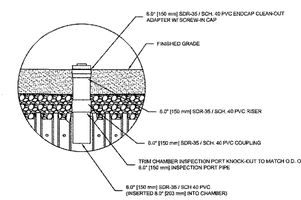
ALL RECHARGER 280HD HEAVY DUTY UNITS ARE MARKED WITH A COLOR STRIPE FORMED INTO THE PART ALONG THE LENGTH OF THE CHAMBER.
ALL RECHARGER 280HD CHAMBERS MUST BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.



NOTES:

1) SEE A&M GRADING & DRAINAGE PLANS FOR ALL INVERTS & ELEVATIONS.





TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE DATE

NOT FOR CONSTRUCTION - FOR PERMITTING ONLY

PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
4	4-10-2017	REVISIONS PER TOWN REQUEST
3	3-16-2017	REVISIONS PER TOWN REQUEST
2	2-27-2017	REVISIONS PER TOWN COMMENTS
1	1-17-2017	REVISED PER PEER REVIEW & TOWN COMMENTS

APPLICANT\OWNER:

SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MA 01810

PROJECT:

RESIDENTIAL DEVELOPMENT
470 BOSTON STREET (ROUTE 1)
TOPSFIELD, MA

PROJECT NO.	2165-01A	DATE:	10-13-2016
SCALE:	N.T.S.	DWG. NAME:	C-2165-01A
DESIGNED BY:	DMR	CHECKED BY:	RB

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil & structural engineering ◆ land surveying
environmental consulting ◆ landscape architecture
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DRAWING TITLE: DETAILS

SHEET No. D-9

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CULTEC RECHARGER® 902HD PRODUCT SPECIFICATIONS

GENERAL

CULTEC RECHARGER®902HD CHAMBERS ARE DESIGNED FOR UNDERGROUND STORMWATER MANAGEMENT. THE CHAMBERS MAY BE USED FOR RETENTION, RECHARGING, DETENTION OR CONTROLLING THE FLOW OF ON-SITE STORMWATER RUNOFF.

CHAMBER PARAMETERS

1. THE CHAMBERS SHALL BE MANUFACTURED IN THE U.S.A. BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE CHAMBERS SHALL BE DESIGNED AND TESTED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS."
3. THE CHAMBER SHALL PROVIDE RESISTANCE TO THE LOADS AND LOAD FACTORS AS DEFINED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 12.12.
4. THE CHAMBER SHALL BE STRUCTURAL FOAM INJECTION MOLDED OF BLUE VIRGIN HIGH MOLECULAR WEIGHT IMPACT-MODIFIED POLYPROPYLENE.
5. THE CHAMBER SHALL BE ARCHED IN SHAPE.
6. THE CHAMBER SHALL BE OPEN-BOTTOMED.
7. THE CHAMBER SHALL BE JOINED USING AN INTERLOCKING OVERLAPPING RIB METHOD. CONNECTIONS MUST BE FULLY SHOULDERED OVERLAPPING RIBS, HAVING NO SEPARATE COUPLINGS.
8. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC RECHARGER®902HD SHALL BE 48 INCHES (1219 mm) TALL, 78 INCHES (1981 mm) WIDE AND 4.10 FEET (1.25 mm) LONG. THE INSTALLED LENGTH OF A JOINED RECHARGER®902HD SHALL BE 3.67 FEET (1.12 m).
9. MULTIPLE CHAMBERS MAY BE CONNECTED TO FORM DIFFERENT LENGTH ROWS. EACH ROW SHALL BEGIN AND END WITH A SEPARATELY FORMED CULTEC RECHARGER®902HD END CAP. MAXIMUM INLET OPENING ON THE END CAP IS 24 INCHES (600 mm).
10. THE CHAMBER SHALL HAVE TWO SIDE PORTALS TO ACCEPT CULTEC HVLV™FC-48 FEED CONNECTORS TO CREATE AN INTERNAL MANIFOLD. MAXIMUM ALLOWABLE PIPE SIZE IN THE SIDE PORTAL IS 11.5 INCHES (292 mm).
11. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC HVLV™FC-48 FEED CONNECTOR SHALL BE 12 INCHES (305 mm) TALL, 16 INCHES (406 mm) WIDE AND 49 INCHES (1245 mm) LONG.
12. THE NOMINAL STORAGE VOLUME OF THE RECHARGER®902HD CHAMBER SHALL BE 17.66 FT3 / FT (1.641 m3 / m) – WITHOUT STONE. THE NOMINAL STORAGE VOLUME OF A JOINED RECHARGER®902HD SHALL BE 64.75 FT3 / UNIT (1.834 m3 / UNIT) – WITHOUT STONE.
13. THE NOMINAL STORAGE VOLUME OF THE HVLV™FC-48 FEED CONNECTOR SHALL BE 0.913 FT3 / FT (0.085 m3 / m) – WITHOUT STONE.
14. THE RECHARGER®902HD CHAMBER SHALL HAVE TWENTY-FOUR DISCHARGE HOLES BORED INTO THE SIDEWALLS OF THE UNIT'S CORE TO PROMOTE LATERAL CONVEYANCE OF WATER.
15. THE RECHARGER®902HD CHAMBER SHALL HAVE 7 CORRUGATIONS.
16. THE CHAMBER SHALL HAVE A RAISED INTEGRAL CAP AT THE TOP OF THE ARCH NEAR THE CENTER OF EACH UNIT TO BE USED AS AN OPTIONAL INSPECTION PORT OR CLEAN-OUT.
17. THE UNITS MAY BE TRIMMED TO CUSTOM LENGTHS BY CUTTING BACK TO ANY CORRUGATION.
18. THE CHAMBER SHALL BE MANUFACTURED IN A FACILITY EMPLOYING CULTEC'S QUALITY CONTROL AND ASSURANCE PROCEDURES.
19. MAXIMUM ALLOWABLE COVER OVER THE TOP OF THE CHAMBER SHALL BE 8.3 FEET (2.53 m).

END CAP PARAMETERS

1. THE CULTEC RECHARGER®902HD END CAP (REFERRED TO AS 'END CAP') SHALL BE MANUFACTURED IN THE U.S.A. BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE END CAP SHALL BE TWIN-SHEET THERMOFORMED OF BLACK VIRGIN HIGH MOLECULAR WEIGHT POLYETHYLENE.
3. THE END CAP SHALL BE JOINED AT THE BEGINNING AND END OF EACH ROW OF CHAMBERS USING AN INTERLOCKING OVERLAPPING RIB METHOD. CONNECTIONS MUST BE FULLY SHOULDERED OVERLAPPING RIBS, HAVING NO SEPARATE COUPLINGS.
4. THE NOMINAL DIMENSIONS OF THE END CAP SHALL BE 48.5 INCHES (1231 mm) TALL, 78 INCHES (1982 mm) WIDE AND 9.7 INCHES (246 mm) LONG. WHEN JOINED WITH A RECHARGER 902HD CHAMBER, THE INSTALLED LENGTH OF THE END CAP SHALL BE 6.2 INCHES (157 mm).
5. MAXIMUM INLET OPENING ON THE END CAP IS 24 INCHES (600 mm).
6. THE END CAP SHALL PROVIDE RESISTANCE TO THE LOADS AND LOAD FACTORS AS DEFINED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 12.12.

CULTEC HVLV FC-48 FEED CONNECTOR PRODUCT SPECIFICATIONS

GENERAL

CULTEC HVLV FC-48 FEED CONNECTORS ARE DESIGNED TO CREATE AN INTERNAL MANIFOLD FOR CULTEC RECHARGER MODEL 902HD STORMWATER CHAMBERS.

FEED CONNECTOR PARAMETERS

1. THE FEED CONNECTOR SHALL BE MANUFACTURED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE FEED CONNECTOR SHALL BE VACUUM THERMOFORMED OF BLACK HIGH MOLECULAR WEIGHT HIGH DENSITY POLYETHYLENE (HMWHDPE).
3. THE FEED CONNECTOR SHALL BE ARCHED IN SHAPE.
4. THE FEED CONNECTOR SHALL BE OPEN-BOTTOMED.
5. THE NOMINAL DIMENSIONS OF THE CULTEC HVLV FC-48 FEED CONNECTOR SHALL BE 12 INCHES (305 mm) TALL, 16 INCHES (406 mm) WIDE AND 49 INCHES (1245 mm) LONG.
6. THE NOMINAL STORAGE VOLUME OF THE HVLV FC-48 FEED CONNECTOR SHALL BE 0.913 FT^3 / FT (0.085 m^3 / m) – WITHOUT STONE.
7. THE HVLV FC-48 FEED CONNECTOR SHALL HAVE 4 CORRUGATIONS.
8. THE HVLV FC-48 FEED CONNECTOR MUST BE FORMED AS A WHOLE UNIT HAVING TWO OPEN END WALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS. THE UNIT SHALL FIT INTO THE SIDE PORTALS OF THE CULTEC RECHARGER STORMWATER CHAMBER AND ACT AS CROSS FEED CONNECTIONS CREATING AN INTERNAL MANIFOLD.
9. THE FEED CONNECTOR SHALL BE DESIGNED TO WITHSTAND AASHTO HS-25 DEFINED LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.
10. THE FEED CONNECTOR SHALL BE MANUFACTURED IN AN ISO 9001:2008 CERTIFIED FACILITY.

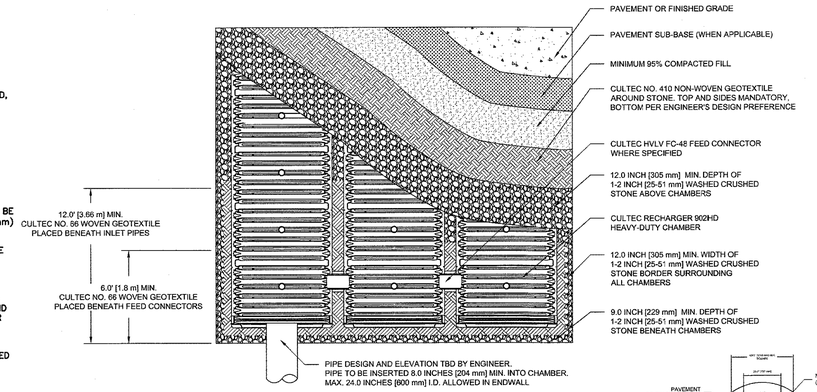
CULTEC NO. 66™ WOVEN GEOTEXTILE

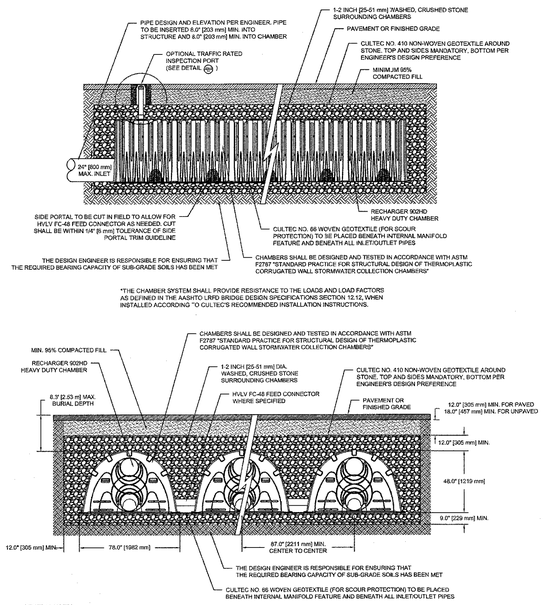
GENERAL

CULTEC NO. 66™ WOVEN GEOTEXTILE IS UTILIZED AS AN UNDERLAYMENT TO PREVENT SCOURING CAUSED BY WATER MOVEMENT WITHIN THE CULTEC CHAMBERS AND FEED CONNECTORS UTILIZING THE CULTEC MANIFOLD FEATURE.

GEOTEXTILE PARAMETERS

1. THE GEOTEXTILE SHALL BE PROVIDED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE GEOTEXTILE SHALL BE BLACK IN APPEARANCE.
3. THE GEOTEXTILE SHALL HAVE A TENSILE STRENGTH OF 315 LBS (1.40KN) PER ASTM D4632 TESTING METHOD.
4. THE GEOTEXTILE SHALL HAVE A TENSILE ELONGATION RESISTANCE OF 15% PER ASTM D4632 TESTING METHOD.
5. THE GEOTEXTILE SHALL HAVE A MULLEN BURST RESISTANCE OF 600PSI (4138 KPA) PER ASTM D3786 TESTING METHOD.
6. THE GEOTEXTILE SHALL HAVE A TEAR RESISTANCE OF 115 LBS (0.51 KN) PER ASTM D4533 TESTING METHOD.
7. THE GEOTEXTILE SHALL HAVE A PUNCTURE RESISTANCE OF 150 LBS (0.66 KN) PER ASTM D4833 TESTING METHOD.
8. THE GEOTEXTILE SHALL HAVE A CBR PUNCTURE RESISTANCE OF 900 LBS (4.00 KN) PER ASTM D6241 TESTING METHOD.
9. THE GEOTEXTILE SHALL HAVE A UV RESISTANCE OF 70% @ 500 HRS. PER ASTM D4355 TESTING METHOD.
10. THE GEOTEXTILE SHALL HAVE A PERMITTIVITY RATING OF 0.05 SEC-1 PER ASTM D4491 TESTING METHOD.
11. THE GEOTEXTILE SHALL HAVE A WATER FLOW RATING OF 4 GPM/FT2 (160 LPM/M2) PER ASTM D4491 TESTING METHOD.
12. THE GEOTEXTILE SHALL HAVE A PERCENT OPEN AREA OF <1% PER CW-02215 TESTING METHOD.
13. THE GEOTEXTILE SHALL HAVE AN APPARENT OPENING SIZE OF 40 US STD. SIEVE (0.425 MM) PER ASTM D4751 TESTING METHOD.
14. THE GEOTEXTILE SHALL CONSIST OF A 100% HIGH-TENACITY, SILT-FILM POLYPROPYLENE YARNS.

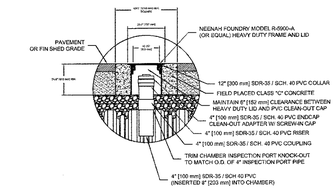


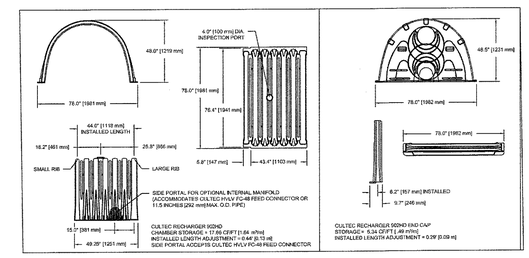


GENERAL NOTES

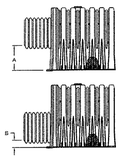
RECHARGER 902HD BY CULTEC, INC. OF BROOKFIELD, CT.
THE CHAMBER SYSTEM SHALL PROVIDE RESISTANCE TO THE LOADS AND LOAD FACTORS AS DEFINED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 12.12, WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS. ALL RECHARGER 902HD CHAMBERS MUST BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.

REFER TO CULTEC, INC.'S CURRENT RECOMMENDED INSTALLATION GUIDELINES. CALL CULTEC, INC. AT (800) 428-5832 TO ARRANGE A PRE-CONSTRUCTION MEETING. USE RECHARGER 902HD HEAVY DUTY FOR TRAFFIC APPLICATIONS.





PIPE	A	B
6" [150 mm]	N/A	N/A
8" [200 mm]	N/A	N/A
10" [250 mm]	N/A	N/A
12" [300 mm]	23.50" [249 mm]	2.25" [57 mm]
15" [375 mm]	26.50" [673 mm]	2.25" [57 mm]
18" [450 mm]	23.50" [597 mm]	2.50" [64 mm]
24" [600 mm]	16.00" [420 mm]	3.00" [76 mm]



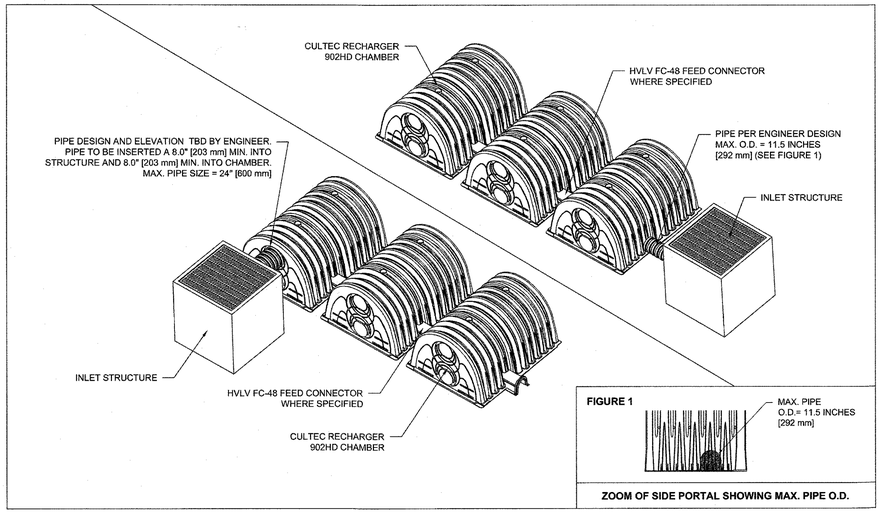
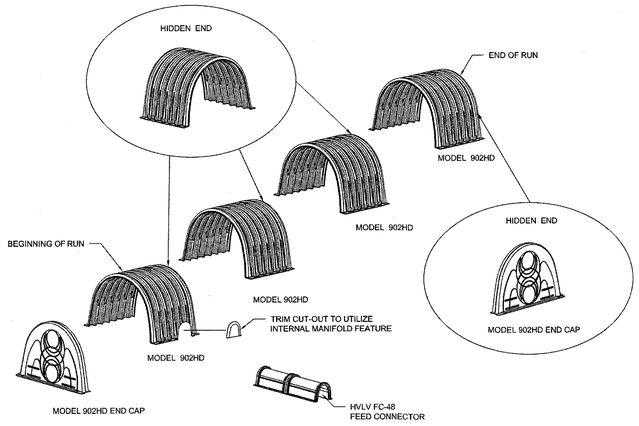


FIGURE 1

ZOOM OF SIDE PORTAL SHOWING MAX. PIPE O.D.



TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE *DATE*

NOT FOR CONSTRUCTION - FOR PERMITTING ONLY

4/10/17
COMMONWEALTH OF MASSACHUSETTS
TIMOTHY J. WILLIAMS
CIVIL
No. 43119
REGISTERED PROFESSIONAL ENGINEER

PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
4	4-10-2017	REVISIONS PER TOWN REQUEST
3	3-16-2017	REVISIONS PER TOWN REQUEST
2	2-27-2017	REVISIONS PER TOWN COMMENTS
1	1-17-2017	REVISED PER PEER REVIEW & TOWN COMMENTS

APPLICANT\OWNER:

SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MA 01810

PROJECT:

RESIDENTIAL DEVELOPMENT
470 BOSTON STREET (ROUTE 1)
TOPSFIELD, MA

PROJECT NO.	2165-01A	DATE:	10-13-2016
SCALE:	N.T.S.	DWG. NAME:	C-2165-01A
DESIGNED BY:	DMR	CHECKED BY:	RB

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
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environmental consulting ◆ landscape architecture
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DRAWING TITLE: DETAILS

SHEET No. D-10

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N:\PROJECTS\2165-01A\CIVIL\DRAWINGS\CURRENT\C-2165-01A – DETAILS.DWG

(1) CF
(1) NS
(1) ARK
(1) MDW
(1) CF
(2) JV
(1) CF
(1) ML
(1) QB
(3) AW
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(5) PG
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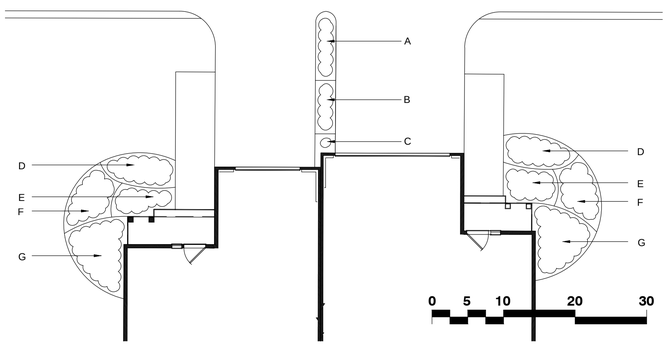
(1) ARK

1 / L-2 SEEDING PLAN

SCALE: 1" = 50'-0"

THREE FOUNDATION PLANTING PALETTES
CONTRACTOR CAN CHOOSE FOR EACH UNIT

	A	B	C	D	E	F	G
PALETTE 01	(11) AQ	(5) PA	(1) IG	(12) EP	(4) SAW	(7) PA	(6) GM
PALETTE 02	(11) RF	(5) MS	(1) IG	(12) AQ	(4) RK	(7) MS	(6) KL
PALETTE 03	(11) NF	(5) CSS	(1) IG	(12) SN	(4) RK	(7) CSS	(6) IGS



2 / L-2 FOUNDATION PLANTING PALETTES

SCALE: 1" = 10'-0"

SEEDING LEGEND

SEED MIX #1 - LAWN
40% FINE FESCUE
40% KENTUCKY BLUEGRASS
20% PERENNIAL RYE GRASS
DROUGHT TOLERANT MIX

SEED MIX #2 - MEADOW MIX
NEW ENGLAND CONSERVATION / WILDLIFE
MIX BY NEW ENGLAND WETLAND PLANTS

SEE MIX #3 - BASIN MIX
NEW ENGLAND EROSION CONTROL /
RESTORATION MIX FOR DETENTION
BASINS AND MOIST SITES
BY NEW ENGLAND WETLAND PLANTS

PLANTING LEGEND

CAL	CALIPER
B&B	BALLED IN BURLAP
TRIA. SP.	TRIANGULAR SPACING
O.C.	ON CENTER
#3 CONT	#3 SIZED CONTAINER
HT	HEIGHT
SPR	SPREAD
	PROPOSED TREES
	PROPOSED SHRUBS

PLANTING NOTES

1. REFER TO LAWNS AND GRASSES SPECIFICATIONS FOR FURTHER INFORMATION ON SEED MIXES.
2. ANY AREAS OF THE SITE, NOT OTHERWISE DESIGNATED, WHICH ARE DISTURBED DURING CONSTRUCTION SHALL BE HYDROSEEDED SEED MIXES, UNLESS OTHERWISE DIRECTED.
3. PLACE A 2" LAYER OF SHREDDED PINE BARK MULCH OVER ALL BEDS AND OVER ALL TREE PITS.
4. CONTRACTOR SHALL VERIFY PLANT COUNTS BY CONFIRMING PLANTING PLAN AND PLANT LIST FOR ACCURACY DURING THE BIDDING PROCESS. REPORT ANY DISCREPANCIES IMMEDIATELY FOR CLARIFICATION BY THE LANDSCAPE ARCHITECT DURING THE ADDENDUM PHASE OF THE PROJECT.

PLANT LIST

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
DECIDUOUS TREES				
ARA	ACER RUBRUM 'ARMSTRONG'	ARMSTRONG RED MAPLE	2 - 2 1/2" CAL.	B&B, NO BRANCHES BELOW 6' MIN.
ARK	ACER RUBRUM 'KARPICK'	KARPICK RED MAPLE	2 - 2 1/2" CAL.	B&B, NO BRANCHES BELOW 6' MIN.
ARR	ACER RUBRUM 'RED SUNSET'	RED SUNSET RED MAPLE	2 - 2 1/2" CAL.	B&B, NO BRANCHES BELOW 6' MIN.
ARO	ACER RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE	2 - 2 1/2" CAL.	B&B, NO BRANCHES BELOW 6' MIN.
AS	ACER SACCHARUM	SUGAR MAPLE	2 - 2 1/2" CAL.	B&B, NO BRANCHES BELOW 6' MIN.
BN	BETULA NIGRA	RIVER BIRCH	6' - 8' HT.	B&B, MULTI-STEM.
CJ	CERCIDIPHYLLUM JAPONICUM	KATSURA TREE	2 - 2 1/2" CAL.	B&B, NO BRANCHES BELOW 6' MIN.
GT	GLEDITSIA TRIACANTHOS VAR. INERMIS 'SKYLINE'	SKYLINE HONEYLOCUST	2 - 2 1/2" CAL.	B&B, NO BRANCHES BELOW 6' MIN.
LS	LIQUIDAMBAR STYRACIFLUA 'HAPIDAZE'	HAPIDAZE SWEETGUM	2 - 2 1/2" CAL.	B&B, NO BRANCHES BELOW 6' MIN.
LT	LIRIODENDRON TULIPIFERA 'EMERALD CITY'	EMERALD TULIP TREE	2 - 2 1/2" CAL.	B&B, NO BRANCHES BELOW 6' MIN.
NS	NYSSA SYLVATICA	BLACK TUPELO	2 - 2 1/2" CAL.	B&B, NO BRANCHES BELOW 6' MIN.
QA	QUERCUS ALBA	WHITE OAK	2 - 2 1/2" CAL.	B&B, NO BRANCHES BELOW 6' MIN.
QB	QUERCUS BICOLOR	SWAMP OAK	2 - 2 1/2" CAL.	B&B, NO BRANCHES BELOW 6' MIN.
QR	QUERCUS RUBRA	RED OAK	2 - 2 1/2" CAL.	B&B, NO BRANCHES BELOW 6' MIN.
UM	ULMUS AMERICANA 'NEW HARMONY'	NEW HARMONY ELM	2 - 2 1/2" CAL.	B&B, NO BRANCHES BELOW 6' MIN.
EVERGREEN TREES				
AW	ABIES CONCOLOR	WHITE FIR	8' - 10' HT.	B&B, BRANCHED TO GROUND
JV	JUNIPERUS VIRGINIANA	EASTERN RED CEDAR	7' - 8' HT.	B&B, BRANCHED TO GROUND
PA	PICEA ABIES	NORWAY SPRUCE	9' - 10- HT.	B&B, BRANCHED TO GROUND
PG	PICEA GLAUCA	WHITE SPRUCE	8' - 10" HT.	B&B, BRANCHED TO GROUND
PS	PINUS STROBUS	EASTERN WHITE PINE	8' - 10" HT.	B&B, BRANCHED TO GROUND
FLOWERING TREES				
AC	AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE'	AUTUMN BRILLIANCE APPLE SERVICEBERRY	6' - 8' HT.	B&B, MULTI-STEM
CF	CORNUS FLORIDA	FLOWERING DOGWOOD	6' - 8' HT.	B&B, HEAVY
HJ	HAMAMELIS X INTERMEDIA 'JELENA'	JELENA WITCHHAZEL	6' - 7' HT.	B&B, HEAVY
MDW	MAGNOLIA 'DONALD WYMAN'	DONALD WYMAN CRABAPPLE	2 - 2 1/2" CAL.	B&B, NO BRANCHES BELOW 4'
ML	MAGNOLIA X LOEBNERI 'LEONARD MESSEL'	LEONARD MESSEL MAGNOLIA	6' - 8' HT.	B&B, HEAVY
PSC	PRUNUS SARGENTI 'COLUMNARIS'	COLUMNAR SARGENT CHERRY	2 - 2 1/2" CAL.	B&B, HEAVY
PYO	PRUNUS YEDOENSIS	YOSHINO CHERRY	2 - 2 1/2" CAL.	B&B, HEAVY
DECIDUOUS SHRUBS				
CAE	CLETHRA ALNIFOLIA	SUMMERSWEET	18"-24"" HT.	
CS	CORNUS SERICEA	RED TWIG DOGWOOD	36"-48" HT.	
MP	MYRICA PENSYLVANICA	NORTHERN BAYBERRY	24"- 30" HT.	
RK	ROSA KNOCK OUT BLUSHING PINK	BLUSHING PINK KNOCK OUT ROSE	18"- 24" HT.	30" O.C., TRIA. SP.
SAW	SPIREA JAPONICA 'ANTHONY WATERER'	ANTHONY WATERER SPIREA	24"- 30" HT.	42" O.C., TRIA. SP.
VT	VIBURNUM TRILOBUM	CRANBERRY VIBURNUM	24" HT./SPR.	
EVERGREEN SHRUBS				
IG	ILEX GLABRA	INKBERRY	30" HT./SPR.	
IGS	ILEX GLABRA 'SHAMROCK'	SHAMROCK INKBERRY - COMPACT	30" HT./SPR.	
JC	JUNIPERUS CHINENSIS SARGENTII	SARGENTII JUNIPER	18" HT./SPR.	42" O.C., TRIA. SP.
JHB	JUNIPERUS HORIZONTALIS	JUNIPER	18" - 24" HT.	42" O.C., TRIA. SP.
KL	KALMIA LATIFOLIA 'ELF'	ELF MOUNTAIN LAUREL	18"- 24" HT.	36" O.C., TRIA. SP.
RM	RHODODENDRON CATAWBIENSE 'LODER'S WHITE'	LODER'S WHITE RHODODENDRON	24"-30" HT.	48" O.C., TRIA. SP.
GRASSES / PERENNIALS				
AQ	HEMEROCALLIS	DAYLILLIES	#1 CONT	18" O.C., TRIA. SP.
CSS	CAREX STRICTA	TUSSOCK SEDGE	# 3 CONT	18" O.C., TRIA. SP.
EP	ECHINACEA PURPUREA	PURPLE CONEFLOWER	#1 CONT	18" O.C., TRIA. SP.
MS	MISCANTHUS SINENSIS 'LITTLE KITTEN'	LITTLE KITTEN MAIDEN GRASS	#2 CONT	18" O.C., TRIA. SP.
NF	NEPETA X FAASSENII 'BLUE WHISPER'	BLUE WHISPER CATMINT	#2 CONT	18" O.C., TRIA. SP.
PA	PENNISETUM ALOPECUROIDES 'HAMELN'	HAMELN DWARF FOUNTAIN GRASS	#2 CONT	24" O.C., TRIA. SP.
RF	RUDBECKIA FULGIDA 'GOLDSTRUM'	BLACK EYED SUSAN	#1 CONT	18" O.C., TRIA. SP.
SN	SYMPHYOTRICHUM NOVAE-ANGLIAE	NEW ENGLAND ASTER	# 3 CONT	24" O.C., TRIA. SP.

F:\ACTIVE FILES\SDC – SARKIS\1501 TOPSFIELD\DWGS\L-1.DWG

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW
AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE DATE

MASSACHUSETTS WILLIAM BROWN No. 1015 REGISTERED LANDSCAPE ARCHITECT
3.16.2017

REGISTERED LANDSCAPE ARCHITECT FOR BROWN SARDINA, INC.

REV	DATE	DESCRIPTION
3	3-16-17	REVISIONS PER TOWN REQUEST
2	2-27-17	REVISIONS PER TOWN COMMENTS
1	2-7-17	REVISED PER PEER REVIEW AND TOWN COMMENTS

APPLICANT\OWNER:

SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MA 01810

PROJECT:

RESIDENTIAL DEVELOPMENT
470 BOSTON STREET (ROUTE 1)
TOPSFIELD, MA

PROJECT NO.	2165-01A	DATE:	10-13-2016
SCALE:	AS SHOWN	DWG. NAME:	L-1.dwg
DESIGNED BY:	BDB	CHECKED BY:	WB

PREPARED BY:

Brown | Sardina
Brown Sardina, Inc.
Landscape Architecture, Planning, Urban Design
24 Roland Street Boston, MA 02129
Tel: 617.482.4703
www.brownsardina.com

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DRAWING TITLE:

PLANT LIST AND SEEDING PLAN

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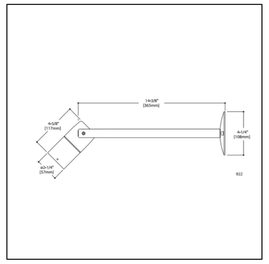
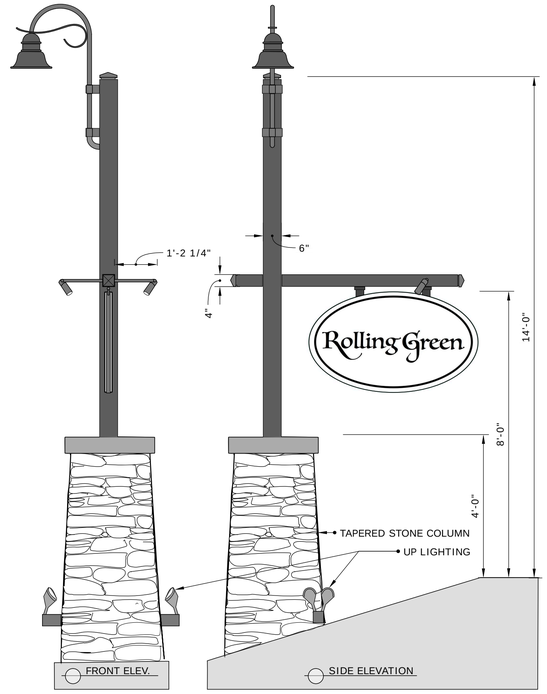
SHEET No.

L-2





S	SARKIS DEVELOPMENT	ROLLING GREEN CONDOMINIMUMS	TOWN of TOPSFIELD MA.	PROPOSED STREET SIGN 2/22/17

HOUSE DESIGN

lewis · lighting design

www.lewislighting.com | 180 Lincoln street 3rd floor, boston, ma | 857.816.3663

Rolling Green
Lighting Fixture Schedule
Not for Bidding or Construction

Date: 3/15/2017
LLD Project #: 1702
By: nd/wl

Type	Description	Fixture Catalog #	Light Source	Notes
G01	Exterior surface wall mounted LED decorative lantern, integral electronic driver, wall mounting bracket.	• ELA: BEL-30-CR34-H4-40LED-_-DSFG-MN-HSS	• INTEGRAL LED, 40W	1, 5, @ Rte 1 Intersection
G02	Exterior pole mounted LED area light, 14 7/8" wide, 23", 15' pole, Type 3 distribution, corrosion resistant cast aluminum alloy , powder coat finish, and IP65 rated.	• ELA: BEL-30-CA-H2-40LED-_-DSFG-MN-CR-17A-P3011B-16'	• INTEGRAL LED, 40W	1, 5, @ Road
G03	Exterior ground stake mounted spotlight, 2-1/2" diameter aperture, silicone O-ring, thermoplastic PVC , black polyester powder coat finish, 12" adjustable stake, integral electronic transformer, ul 1838 rating.	• Vision 3: FL1A-BLT-RND-C4-K1-117-L2-0-0-M01S-BL-S3-12-voltage-0	• INTEGRAL LED, 10W	1, @ Gazeebo
G04	Exterior wall surface mounted led sign light, 33 1/16" straight arm, center rear swivel, single head, painted black finish, linear spread lens, 21 degree narrow downlight, [x] delivered lm, 2700K CCT, 80+ CRI, remote electronic transformer.	• Lumiere: 922-10LED2741-12-BK-LSL T60	• INTEGRAL LED, 10W	1, @ Entry Sign
G06	Exterior ground stake mounted low-voltage path light, 3" diameter base, 5 1/2" diameter top, 23" height, machined aluminum body, polyester powder coating, T4 halogen lamp, 950 lamp lm, integral dimmable transformer, wet location.	• B-K Lighting: CS-LV-65-*FINISH* -H-18-*MOUNTING* -L75E-*VOLTAGE*	• Q50T-4/CL-12V, 50W	1, @ Pathway

Notes:
1. Provide a complete and operable system including all necessary mounting hardware, power feeds, wiring connections, ballasts, drivers, and control interfaces.
2. Provide overall lighted lengths as shown on architectural drawings.
3. Provide overall lighted lengths as shown on architectural drawings using 4' and 8' fixture bodies.
4. Mounted in an architectural detail. See drawings for mounting configuration and hardware requirements.
5. Provide remote astronomical timeclock - see construction documents for location details.

170315 LLD FS - Rolling Green.xlsx

1 of 1

lewis · lighting design | fixture type: G01 G02 - Option A

functional, beautiful, sustainable visual environments

ELA Environmental Lighting for Architecture, Inc.

Project Name:	Type:
Notes:	Order Matrix Number:

BELL

Available in two sizes, the *Bell* draws from the Mission Revival architectural movement while offering state of the art lighting technology for maximum performance. Suitable for pole, cross arm, pendant, or wall mounting conditions, the *Bell* is the perfect high-end solution to street and roadway lighting, parking lots, site and walkway lighting, shopping malls, warehouses, "Big Box" style retail stores, and much more.

Constructed of high grade aluminum and finished with a powder-coated finish with a sealed, tempered glass lens, the *Bell* is built for the toughest of conditions. The *Bell* can also meet the high performance standards of today's lighting requirements. The *Bell* is available with an array of high-performance segmented reflectors to achieve maximum performance for all light distributions and is designed with a natural full cut-off to meet all **Dark Skies** requirements. Available in up to a maximum 400 watt Metal Halide or 310 watt High Pressure Sodium, the *Bell* can also accommodate today's **Low-Energy** requirements with up to 135 watt LED or 300 watt Induction sources while still maintaining excellent light output.

The *Bell* offers a classic traditional mission look while performing at a level that is second to none.

Stamp Applied on 02/07/2017

lewis · lighting design | fixture type: G01 G02 - Option A

functional, beautiful, sustainable visual environments

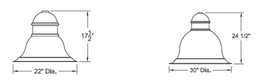
ELA Environmental Lighting for Architecture, Inc.

Ordering Matrix
Bell - BEL

1 Fixture	2 Size	3 Mounting	4 Optics	5 Ballast	6 Voltage	7 Lens	8 Color	9 Option
BEL	22	CP	H5	150MH	120	FG	CY	--

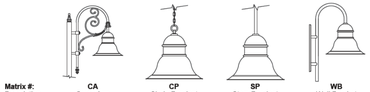
1. Fixture: BEL

2. Size



Matrix #:	22	30
Description:		
Notes:		
EPA:	Max Wattage 150W 1.3	Max Wattage 400W 2.6
Weight:	22 lbs.	30 lbs.

3. Mounting



Notes
1. Please consult factory for Poles, Wall Brackets, and other mounting options.

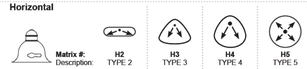
Matrix #:	CA	CP	SP	WB
Description:	Cross Arm	Chain Pendant	Stem Pendant	Wall Bracket

4. Optics

Vertical

Matrix #:		V3	V5
Description:		TYPE 3	TYPE 5

Horizontal



Matrix #:		H2	H3	H4	H5
Description:		TYPE 2	TYPE 3	TYPE 4	TYPE 5

5. Ballast

Description	Pulse Start Metal Halide (Watts / Type)	Metal Halide (Watts / Type)	High Pressure Sodium (Watts / Type)	Compact Fluorescent (Watts / Type)	Induction Bulb Type (Watts / Type)	Induction Tubular Type (Watts / Type)	Induction Circular Type (Watts / Type)
Matrix #:	50PSMH	50MH	50HPS	18CFL	35iB	40iT	40iC
	70PSMH	70MH	70HPS	26CFL	55iB	70iT	70iC
	100PSMH	T6 70MH	100HPS	32CFL	85iB	80iT	80iC
	150PSMH	100MH	150HPS	42CFL	100iB	100iT	100iC
	175PSMH	T6 150MH	200HPS *	57CFL	100iB	120iT *	120iC
	200PSMH *		250HPS *	60CFL	120iB	150iT *	150iC
	250PSMH *				165iB		200iC
	320PSMH *	Incandescent (Watts / Type) INC	LED (Watts / Type) 40LED 75LED 135LED *		200iB		250iC
	350PSMH *				250iB		
	400PSMH *						

Notes
1. Electronic ballast available for 50, 70, 100, and150 watt MH lamps.
2. Other wattages and ballasts available. Consult factory.

* Fits Bell size 30.

Stamp Applied on 02/07/2017

lewis · lighting design | fixture type: G01 G02 - Option A

functional, beautiful, sustainable visual environments

ELA Environmental Lighting for Architecture, Inc.

Ordering Matrix
Bell - BEL

6. Voltage

* Only these voltages are available with LED.

Matrix #:	120 *	208	240	277 *	347	480
Description:	120V	208V	240V	277V	347V	480V

7. Lens

Matrix #:	DSCG	DSFG
Description:	Clear Glass (Dark Skies)	Frosted Glass (Dark Skies)

Notes
1. Glass is tempered flat glass.

8. Color

Powder Coat Finish

Matrix #	Description	Matrix #	Description
AG	Augustine Green	MG	Malaga Green
GY	Architectural Grey	MN	Midnight
CC	Charcoal	PW	Pewter
CY	Clay	SS	Sand Storm
DB	Dark Bronze	SB	Statuary Bronze
HR	Harbor Blue	VL	Village Green
HP	Hammered Pewter	W	White

Hand-Applied Finish

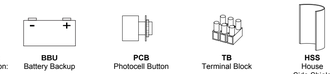
Matrix #	Description
CH	Cracked Hide
LV	Light Verde
OR	Old Iron
R	Rust
V	Verde

Notes
Consult factory for custom colors.

9. Options

Notes
1) BBU option is available for fluorescent lamp only.
2) Test button location shall have visibility for testing on site. Consult factory for placement location.

Photocell Options
Photocell is available in 120 thru 480 volts. Photocell receptacle only fits some cross arms. Consult factory. Specify when ordering.



Matrix #:	BBU	PCB	TB	HSS
Description:	Battery Backup	Photocell Button	Terminal Block	House Side Shield

Fixture Ordering Example:

BEL/22/CP/H5/150MH/120/DSFG/CY

1 Fixture	2 Size	3 Mounting	4 Optics	5 Ballast	6 Voltage	7 Lens	8 Color	9 Option
BEL	22	CP	H5	150MH	120	DSFG	CY	-
Bell Fixture	22	Chain Pendant	Horizontal Type 5	150 Watt Metal Halide	120 Volts	Dark Skies Frosted Glass	Clay	-

Fixture Ordering Form:

1 Fixture	2 Size	3 Mounting	4 Optics	5 Lamp	6 Voltage	7 Lens	8 Color	9 Option	9 Option	9 Option
1. BEL	/	/	/	/	/	/	/	/	/	/

Stamp Applied on 02/07/2017

F:\ACTIVE FILES\SDC – SARKIS\1501 TOPSFIELD\DWGS\L-1.DWG

TOWN OF TOPSFIELD, MA
SITE PLAN REVIEW
AND SPECIAL PERMIT

SITE PLAN AND SPECIAL PERMIT APPROVAL

SIGNATURE *DATE*

MASSACHUSETTS WILLIAM BROWN No. 1070 REGISTERED LANDSCAPE ARCHITECT
3.16.2017

REGISTERED LANDSCAPE ARCHITECT FOR BROWN SARDINA, INC.

REV	DATE	DESCRIPTION
3	3-16-17	REVISIONS PER TOWN REQUEST
2	2-27-17	REVISIONS PER TOWN COMMENTS
1	2-7-17	REVISED PER PEER REVIEW AND TOWN COMMENTS

APPLICANT\OWNER:
SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MA 01810

PROJECT:
RESIDENTIAL DEVELOPMENT
470 BOSTON STREET (ROUTE 1)
TOPSFIELD, MA

PROJECT NO.	2165-01A	DATE:	10-13-2016
SCALE:	NTS	DWG. NAME:	L-1.dwg
DESIGNED BY:	BDB	CHECKED BY:	WB

PREPARED BY:

Brown | Sardina
Brown Sardina, Inc.
Landscape Architecture, Planning, Urban Design
24 Roland Street Boston, MA 02129
Tel: 617.482.4703
www.brownsardina.com

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DRAWING TITLE:
LIGHTING CUT SHEETS

SHEET No.
L-3

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lewis · lighting design | fixture type: G01 G02 - Option A

functional, beautiful, sustainable visual environments

Specifications and Elevated Scale

Environmental Lighting for Architecture, Inc.

Bell - BEL

Specifications

Fixture Housing: One-piece sand-casting housing with a spun aluminum shade. The housing shall be free of any foreign materials or cosmetic fillers. For wall and arm mounts, consult factory for installation.

Optics: Units shall be hydroformed or segmented sharp cut-off optics. Specular Alzak optical segments are rigidly mounted, which attaches to the housing as a one-piece module. Reflectors are field rotatable in 90° increments. All sockets are factory prewired; an optional quick-disconnect plug for the ballast module is available when specified. The vertical optical segments are positioned so that reflected light does not pass through the lamp arc tube to achieve maximum lamp output.

Electrical Module: All electrical components are UL and CSA recognized, mounted on a single plate and factory prewired.
Reference pages 2 and 3 for lamp characteristics, ballast types and voltage technical data.

Lens: The lens options shall be tempered flat glass, factory installed with gaskets.

Finish/Color: Finish is super TGIC thermoset polyester powder coat paint. ELA offers RAL color matches along with our standard color selection. Custom and hand applied colors are available upon special request.

Certification: Fixtures shall be listed for outdoor, wet location. UL1598. IP rating 65.

CAUTION: Fixtures must be grounded in accordance with national, state, and/or local codes. Failure to do so may result in serious personal injury.

ELA RESERVES THE RIGHT TO CHANGE SPECIFICATIONS WITHOUT NOTICE.

Elevated Scale

Suggested Poles and Arms for the Bell Fixture

Fixture :	BEL/22/WB	BEL/22/CA	BEL/30/CA	BEL/22/CA	BEL/22/CA	BEL/30/CA	BEL/22/CA	BEL/22/WB
Arm :	CR-34	CR-2A	CR-170B	CR-17A	CR-21A	CR-29A	CR-19A	BR-17
Pole:		P3037B-14'	P3043H-12'	P3011B-10'	P3027D-10'	P3017E-10'	P3066D-10'	
Options :		BANNER ARM (2X)				FLAG HOLDER BANNER ARM		

Stamp Applied on 02/07/2017

Note *Modifications to the fixture and additional pole heights are available.*

17891 Arenth Ave., City of Industry, CA 91748 • (800) 423-6561 • Fax: (626) 965-9494 • www.ela-light.ing.com • info@ela-lighting.com

bell-spec • Page 4

lewis · lighting design | fixture type: G03

functional, beautiful, sustainable visual environments

Job: Approval: Type:

VISION·3 LIGHTING

Rear Mount MR16 Flood **MODEL FL1**
12V, 50W Max., MR16 Halogen
12-24V, 10W or 12V, 12.5W LED

Specifications:

Body: Machined 6061-T6 aluminum, C36000 brass, or 304 stainless steel body with 18-8 stainless steel hardware.

Knuckle: Machined 6061-T6 aluminum, C36000 brass, or 304 stainless steel mounting knuckle with a 1/2" NPS threaded male fitting allow a full range of mounting positions. Double taper design (U.S. Patent #6,966,679) allows fixture to hold position during aiming and ensures a solid lock when tightened. Integral high temperature silicone O-ring prevents leaking between housing and knuckle. LED models have a molded silicone wire seal to prevent water entry at knuckle. Available Rotate and Lock option (U.S. Patent #7,108,405 & #7,458,552) allows for full 360° horizontal aiming and locking.

Cap: Machined cap locks in place with one 18-8 stainless steel set screw, and is sealed to the body with a high temperature silicone O-ring. Round C2 & C4 caps have drain holes for water drainage from top of lens. Square caps feature removable and field interchangeable cutoffs with 'flow-through' design for 360° drainage with no light leak. 'Flush Lens' cap styles incorporate a stepped lens to reduce the collection of water and debris on the lens.

Finish: TGIC thermo set polyester powder coat paint available in 14 standard colors. On aluminum model, finish is applied over a corrosion resistant, hexavalent chromium free, RoHS compliant coating. Aluminum model available in one additional metal finish: Clear Anodized. Brass model available in three additional metal finishes: Natural, Polished, and Aged. Stainless steel model available in three additional metal finishes: Natural, Polished, and Brushed.

Socket: GY6.35 porcelain socket with 600V, 250°C, PTFE coated 18 ga leads.

Lens: Tempered, clear lens, secured to cap with a high temperature, UV curing, silicone adhesive.

Lamps:
- 12 Volt bi-pin MR16 halogen up to 50 Watts (maximum allowable wattage depends on model and application. See **Certification** heading).
- 12-24 Volt AC/DC, 10W LED with High/Low switch for 35W & 20W halogen equivalent outputs. Requires up to 13W at startup, which must be allowed for during system design.
- 12 Volt AC/DC, 12.5W LED with push button selection of 4 outputs (50W, 35W, 20W & 12W halogen equivalent). Requires up to 15W at startup, which must be allowed for during system design.

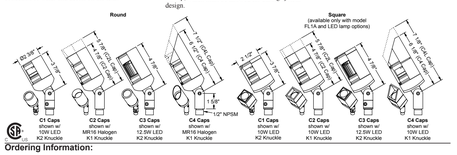
LED modules are field replaceable and feature replaceable lenses, an L70 of 60,000 hrs., dynamic transformer recognition, phase dimming (see Transformer and Dimmer Compatibility List), and patented LEDSense® thermal management.

Certification: CSA tested & certified to US and Canadian safety standards for the following applications:

Wet location landscape use (UL1838):
FL1A - 50W Max. MR16 Halogen lamp.
FL1B - 35W Max. MR16 Halogen lamp.
FL1S - 20W Max. MR16 Halogen lamp.
Wet location wall mount use (UL1598):
FL1A - 50W Max. MR16 Halogen lamp.
FL1B - 20W Max. MR16 Halogen lamp.
FL1S - 20W Max. MR16 Halogen lamp.
Wet location ceiling mount use (UL1598):
FL1A - 20W Max. MR16 Halogen lamp.
FL1B - 20W Max. MR16 Halogen lamp.
FL1S - 20W Max. MR16 Halogen lamp.

10W LED & 12.5 LED can be used in all models and applications.

All ratings subject to change without notice. See web site or contact V3 for most current info.



Ordering Information:

Model: FL1A - Aluminum; FL1B - Brass [1]; FL1S - Stainless [1]

Shape: BND - Round; SQ - Square [1]

Finish: BLT - Textured Black; BL - Black; BNT - Textured Bronze; BN - Bronze; BAT - Textured Barn; WI - White; GRT - Textured Green; SI - Silver; GMT - Textured Granite; GY - Grey; SAT - Textured Sand; BIE - Beige; PAT - Textured Patina; EAT - Textured Earth; CLA - Clear Anodized (FL1A only); NAT - Natural (FL1B & FL1S only); POL - Polished (FL1B & FL1S only); AGE - Aged (FL1B only); BRU - Brushed (FL1S only)

Cap Style: Standard Lens: C1 - Flush; C2 - Regress Lens; C2L - Regress Lens, Long; C3 - Regress Lamp; C4 - 45° Angled; C4L - 45° Angled, Long; Flush Lens: C1F - Flush; C2F - Regress Lens; C2LF - Regress Lens, Long; C3F - Regress Lamp; C4F - 45° Angled; C4LF - 45° Angled, Long

Knuckle: K1 - Standard [2]; K2 - Rotate & Lock [2]

Lamp [3]: MR16 Halogen [4]: 0 - None; 01 - ESX, 20W, 12°; 02 - BAB, 20W, 40°; 03 - FRB, 35W, 12°; 04 - FRA, 35W, 22°; 05 - FMW, 35W, 40°; 09 - EXT, 50W, 12°; 10 - EXF, 50W, 26°; 11 - EXN, 50W, 40°; 12 - FNV, 50W, 60°; LED: 115 - 10W, 3000K, 12° [5]; 117 - 10W, 3000K, 21° [5]; 119 - 10W, 3000K, 41° [5]; 123 - 10W, 3000K, 15° [5]; 125 - 12.5W, 3000K, 34° [5]; 127 - 12.5W, 3000K, 60° [5]

Lens Acry [3]: 0 - None; L1 - Spread; L2 - Linear; L3 - Softening

Filter [1]: B - None; F1 - Red; F2 - Blue; F3 - Light Blue; F4 - Green; F5 - Amber; F6 - Pink; F7 - Mercury Vapor

Louver [1]: 0 - None; MR - Honeycomb

Notes:
1. SQ shape available with model FL1A and LED lamps only.
2. Allowable wattage depends on model and application. See **Certification** heading above.
3. K1 knuckle is protected under U.S. Patent #6,966,679. K2 knuckle is further protected under U.S. Patent #7,108,405 & #7,458,552.
4. Only power LED with magnetic or V3 approved electronic transformers (contact V3 for transformer compatibility info).
5. Other color temperatures available as a special order.
6. Only two lens accessories can be used with 10W LED.
7. 12.5W LED can only be used with C2L, C2LF, C3, C3F, C4L & C4LF cap styles.
8. Specifications, certifications, and ordering information are subject to change. Please check website for latest specification sheets.

Example: **FL1B - AGE - RND - C3 - K2 - 02 - 0 - F2 - H1**

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revision 7/10/15

lewis · lighting design | fixture type: G03

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Job: Approval: Type:

VISION·3 LIGHTING

In Grade Stake Mount **MODEL MO1**
12/120/230/277 Volt, 75 Watt Max., Ø2 1/2" Stake Mount

Specifications:

Housing: Stake and Junction housings made from corrosion resistant, thermoplastic PVC. Junction housings made from integral 1/2" slip fittings allowing for conduit connection, leak proof cable entry, and feed through wiring. (Conduit and cable not included).

Cap: Cap machined from 6061-T6 aluminum, C36000 brass, or 304 stainless steel. Cap contains a 1/2" NPS threaded mounting hole, and is locked to housing with three 18-8 stainless steel set screws.

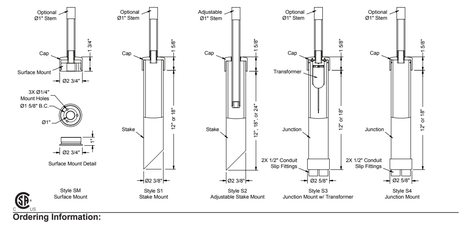
Stem: Stems are machined from 6061-T6 aluminum, C36000 brass, or 304 stainless steel; and are threaded 1/2" NPS on both ends. Stem option available in lengths of 3", 6", 12", 18", 24", 30", 36", 42", and 48".

Seals: O-ring groove on cap allows for use of an O-ring to prevent leaking between cap and fixture knuckle. (Note: All Vision3 fixtures come with a high temperature, black Viton O-ring on the knuckle for this purpose). On styles S3 and S4, a silicone O-ring between the cap and housing ensures a watertight junction housing.

Finish: TGIC thermo set polyester powder coat paint available in 14 standard colors. On aluminum model, finish is applied over a corrosion resistant, hexavalent chromium free, RoHS compliant coating. Aluminum model available in one additional metal finish: Clear Anodized. Brass model available in three additional metal finishes: Natural, Polished, and Aged. Stainless steel model available in three additional metal finishes: Natural, Polished, and Brushed.

Electrical: Style S3 transformer option includes a 75VA, 11.6V output, electronic transformer in 120V, 230V, or 277V input. Transformer mounted to cap with a 304 stainless steel bracket and 18-8 stainless steel hardware.

Certification: CSA tested & certified to US and Canadian safety standards for wet location landscape use per UL 1838 (all except 230V model).



Ordering Information:

Model: MO1A - Aluminum; MO1B - Brass; MO1S - Stainless

Finish: BL - Black; BLT - Textured Black; BN - Bronze; BNT - Textured Bronze; BAT - Textured Barn; WI - White; GRT - Textured Green; SI - Silver; GT - Grey; BE - Beige; GMT - Textured Granite; SAT - Textured Sand; PAT - Textured Patina; EAT - Textured Earth; CLA - Clear Anodized (MO1A only); NAT - Natural (MO1B & MO1S only); POL - Polished (MO1B & MO1S only); AGE - Aged (MO1B only); BRU - Brushed (MO1S only).

Style: S0 - No Mount (Cap Only); SM - Surface Mount; S1-12 - 12" Stake (Available with up to 36" stem only); S1-18 - 18" Stake (Available with up to 36" stem only); S2-12 - 12" Adjustable Stake (Available with 12" stem only); S2-18 - 18" Adjustable Stake (Available with 18" stem only); S2-24 - 24" Adjustable Stake (Available with 24" to 48" stem); S3-12 - 12" Junction with Transformer (Available with up to 36" stem only)[1]; S3-18 - 18" Junction with Transformer (Available with up to 36" stem only)[1]; S4-12 - 12" Junction (Available with up to 36" stem only); S4-18 - 18" Junction (Available with up to 36" stem only).

Transformer Input Voltage: 0 - No Transformer (Styles S1, S2, and S4 only); 120 - 120 Volt Input (Style S3 only); 230 - 277 Volt Input (Style S3 only); 277 - 277 Volt Input (Style S3 only)[1]

Stem: 0 - No Stem; 3 - 3" Stem; 6 - 6" Stem; 12 - 12" Stem; 18 - 18" Stem; 24 - 24" Stem; 30 - 30" Stem; 36 - 36" Stem; 42 - 42" Stem; 48 - 48" Stem

Notes:
1. Style S3 with 230V and 277V input options may not be completely compatible with Vision3 lighting fixtures with integral LED module. Contact V3 for transformer compatibility info if these options are being used with a V3 LED fixture.
2. Specifications, certifications, and ordering information are subject to change. Please check website for latest specification sheets.

Example: **MO1S - POL - S1-18 - 0 - 6**

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revision 9/16/13

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LUMIÈRE®

DESCRIPTION

Cambria 922 is a small dimmable LED or MR16 low voltage sign lighting luminaire. It attaches to a wall mounted straight arm and delivers full vertical adjustment for easy aiming. Optional 24", 30" or 36" straight arms are available in lieu of the standard 14-3/8" arm. Various lenses, louvers and color or dichroic filters can be combined - up to three at once - to create multiple lighting effects. Lumiere's exclusive Siphon Protection System (S.P.S.) prevents water from siphoning into the fixture through its own lead wires.

Catalog #		Type	
Project			
Comments		Date	
Prepared by			

SPECIFICATION FEATURES

A ... Material
Housing, hood, straight arm and wall mounting plate are precision-machined from corrosion-resistant billet stock 6061-T6 aluminum, C360 brass, C932 bronze, C110 copper or 303/304 stainless steel.

B ... Finish
Fixtures constructed from 6061-T6 aluminum are double protected by a chemical film undercoating and polyester powdercoat paint finish, surpassing the rigorous demands of the outdoor environment. A variety of standard colors are available.

D ... Hood
Hood is removable for easy relamping and accepts up to three internal accessories at once (lenses, louvers, filters) to achieve multiple lighting effects. Weep holes prevent water and mineral stains from collecting on the lens, even in the straight-up position.

E ... Gasket
Housing and hood are sealed with a high temperature silicone o-ring gasket to prevent water intrusion.

F ... Lens
Tempered glass lens, factory sealed with high temperature adhesive to prevent water intrusion and breakage due to thermal shock.

G ... Adjustable Mounting Arm
Standard 14-3/8" straight arm with adjustable side swivel provides 360° of vertical adjustment for easy aiming. Center rear swivel also available and has 33-1/87 straight arm as standard, providing 195° of vertical adjustment. Optional 24", 30" or 36" straight arms are available in lieu of standard length arms (specify option -SA24, -SA30 or -SA36). Stainless steel aim-locking mechanisms are standard. 4-1/4" diameter wall mounting plate attaches directly to standard J-box with provided screws. Lumiere's exclusive Siphon Protection System (S.P.S.) prevents water from siphoning into the fixture through its own lead wires.

H ... Hardware
Stainless steel hardware is standard to provide maximum corrosion-resistance.

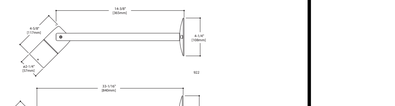
I ... Socket
Ceramic socket with 250° C Teflon® coated lead wires and GU5.3 bi-pin base.

J ... Electrical
Remote 12V transformer required (not included). Transformers used in conjunction with LED's must be magnetic only, not electronic. Available from Lumiere as an accessory - see the Accessories & Technical Data section of the catalog for details.

K ... Lamp
Halogen lamp not included. Available from Lumiere as an accessory - see reverse side for details and catalog logic. LED modules are included and are available in three color temperatures (warm, neutral and cool) and three distributions (spot, narrow and flood). Both color temperature and distribution must be specified when ordering - see reverse side for details and catalog logic. Due to the onboard thermal feedback control circuitry, LED modules are non-dimmable.

L ... Labels & Approvals
UL and cUL listed, standard wet label. IP65 rated. Manufactured to ISO 9001-2000 Quality Systems Standard. IBEW union made.

M ... Warranty
Lumiere warrants its fixtures against defects in materials & workmanship for three (3) years. Auxiliary equipment such as transformers, ballasts and lamps carry the original manufacturer's warranty.



CAMBRIA

922

10W LED
6W LED
50W (max.) MR16
LED
Halogen
Low Voltage

Sign Light

COOPER Lighting
www.cooperlighting.com

Specifications and Dimensions subject to change without notice.
Contact your representative for additional options and finishes.

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CAMBRIA 922

LAMP INFORMATION

Lamp	Watts	Beam Spread	CBCP	*K	Life (hrs.)	Base	Volts
6LED2712	6	12°	3358	2700	50000	GU5.3 bi-pin	12
6LED2721	6	21°	937	2700	50000	GU5.3 bi-pin	12
6LED2741	6	41°	472	2700	50000	GU5.3 bi-pin	12
6LED3012	6	12°	3694	3000	50000	GU5.3 bi-pin	12
6LED3021	6	21°	1019	3000	50000	GU5.3 bi-pin	12
6LED3041	6	41°	646	3000	50000	GU5.3 bi-pin	12
6LED4012	6	12°	4280	4000	50000	GU5.3 bi-pin	12
6LED4021	6	21°	1179	4000	50000	GU5.3 bi-pin	12
6LED4041	6	41°	754	4000	50000	GU5.3 bi-pin	12
6LED5712	6	12°	4496	5700	50000	GU5.3 bi-pin	12
6LED5721	6	21°	1275	5700	50000	GU5.3 bi-pin	12
6LED5741	6	41°	792	5700	50000	GU5.3 bi-pin	12
10LED2712	10	12°	5037	2700	50000	GU5.3 bi-pin	12
10LED2721	10	21°	1406	2700	50000	GU5.3 bi-pin	12
10LED2741	10	41°	708	2700	50000	GU5.3 bi-pin	12
10LED3012	10	12°	5513	3000	50000	GU5.3 bi-pin	12
10LED3021	10	21°	1521	3000	50000	GU5.3 bi-pin	12
10LED3041	10	41°	964	3000	50000	GU5.3 bi-pin	12
10LED4012	10	12°	6389	4000	50000	GU5.3 bi-pin	12
10LED4021	10	21°	1759	4000	50000	GU5.3 bi-pin	12
10LED4041	10	41°	1125	4000	50000	GU5.3 bi-pin	12
10LED5712	10	12°	6711	5700	50000	GU5.3 bi-pin	12
10LED5721	10	21°	1903	5700	50000	GU5.3 bi-pin	12
10LED5741	10	41°	1182	5700	50000	GU5.3 bi-pin	12
50MR16/NSP	50	12°	11,000	3050	4000	GU5.3 bi-pin	12
50MR16/NSL	50	25°	3200	3050	4000	GU5.3 bi-pin	12
50MR16/FL	50	40°	2000	3050	4000	GU5.3 bi-pin	12
50MR16/WFL	50	60°	1200	3050	4000	GU5.3 bi-pin	12

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PHOTOMETRIC DATA

Cambria 922 Lamp=50MR16/NSP (EXT) CBCP=11,000

Distance to Illuminated Plane	Initial Nadir Footcandles	Beam Diameter
15'0"	45	4'0"
10'0"	102	3'0"
8'0"	159	2'0"
6'0"	283	1'6"
4'0"	638	1'0"
2'0"	2550	0'6"

Lamp Wattage Multiplier 20W x 0.32

Cambria 922 Lamp=50MR16/FL (EXN) CBCP=2000

Distance to Illuminated Plane	Initial Nadir Footcandles	Beam Diameter
15'0"	7	12'0"
10'0"	17	8'0"
8'0"	27	6'6"
6'0"	48	5'0"
4'0"	106	3'0"
2'0"	431	1'6"

Lamp Wattage Multiplier 20W x 0.35 35W x 0.57

Cambria 922 Lamp=50MR16/NFL (EXZ) CBCP=3200

Distance to Illuminated Plane	Initial Nadir Footcandles	Beam Diameter
15'0"	13	10'0"
10'0"	29	6'6"
8'0"	45	5'0"
6'0"	81	4'0"
4'0"	181	2'6"
2'0"	725	1'0"

Cambria 922 Lamp=50MR16/WFL (FNV) CBCP=1200

Distance to Illuminated Plane	Initial Nadir Footcandles	Beam Diameter
15'0"	5	17'0"
10'0"	11	11'6"
8'0"	17	9'0"
6'0"	30	7'0"
4'0"	67	4'6"
2'0"	269	2'0"

NOTES AND FORMULAS

- Beam diameter is to 50% of maximum footcandles, rounded to the nearest half-foot.
- Footcandle values are initial. Apply appropriate light loss factors where necessary.
- Bare lamp data shown. Consult lamp manufacturers to obtain detailed specifications for their lamps.

Sample Number: 922-10LED2712-120-12-BK-F70

Series: 922 - LED or MR16 Cambria Sign Light, Standard 14-3/8" Straight Arm, Side Stem, Single Head; 922-CRL - LED or MR16 Cambria Sign Light, Standard 33-1/16" Straight Arm, Center Rear Swivel, Single Head

Source: 50MR16 - 50W Max Halogen MR16, GU5.3 Base; 6LED2712 - 6W 2700K, 12° Spot, GU5.3 Base; 6LED2721 - 6W 2700K, 21° Narrow, GU5.3 Base; 6LED2741 - 6W 2700K, 41° Wide, GU5.3 Base; 6LED3012 - 6W 3000K, 12° Spot, GU5.3 Base; 6LED3021 - 6W 3000K, 21° Narrow, GU5.3 Base; 6LED3041 - 6W 3000K, 41° Wide, GU5.3 Base; 6LED4012 - 6W 4000K, 12° Spot, GU5.3 Base; 6LED4021 - 6W 4000K, 21° Narrow, GU5.3 Base; 6LED4041 - 6W 4000K, 41° Wide, GU5.3 Base; 6LED5712 - 6W 5700K, 12° Spot, GU5.3 Base; 6LED5721 - 6W 5700K, 21° Narrow, GU5.3 Base; 6LED5741 - 6W 5700K, 41° Wide, GU5.3 Base; 10LED2712 - 10W 2700K, 12° Spot, GU5.3 Base; 10LED2721 - 10W 2700K, 21° Narrow, GU5.3 Base; 10LED2741 - 10W 2700K, 41° Wide, GU5.3 Base; 10LED3012 - 10W 3000K, 12° Spot, GU5.3 Base; 10LED3021 - 10W 3000K, 21° Narrow, GU5.3 Base; 10LED3041 - 10W 3000K, 41° Wide, GU5.3 Base; 10LED4012 - 10W 4000K, 12° Spot, GU5.3 Base; 10LED4021 - 10W 4000K, 21° Narrow, GU5.3 Base; 10LED4041 - 10W 4000K, 41° Wide, GU5.3 Base; 10LED5712 - 10W 5700K, 12° Spot, GU5.3 Base; 10LED5721 - 10W 5700K, 21° Narrow, GU5.3 Base; 10LED5741 - 10W 5700K, 41° Wide, GU5.3 Base

Voltage: 12 = 12 Volt Remote Transformer Required

Finish: Primer: BK - Black; BZ - Bronze; CS - City Silver; VE - Verde; WT - White

Accessories: Filters: 01 - w/Peach Dichroic Filter, 2.00" Dia; 012 - w/Amber Dichroic Filter, 2.00" Dia; 013 - w/Green Dichroic Filter, 2.00" Dia; 014 - w/Medium Blue Dichroic Filter, 2.00" Dia; 015 - w/Yellow Dichroic Filter, 2.00" Dia; 016 - w/Red Dichroic Filter, 2.00" Dia; 017 - w/Dark Blue Dichroic Filter, 2.00" Dia; 018 - w/Light Blue Dichroic Filter, 2.00" Dia; 019 - w/Neutral Density Dichroic Filter, 2.00" Dia; 020 - w/Magenta Dichroic Filter, 2.00" Dia; 021 - w/Red Color Filter, 2.00" Dia; 023 - w/Blue Color Filter, 2.00" Dia; 024 - w/Green Color Filter, 2.00" Dia; 025 - w/Yellow Color Filter, 2.00" Dia; 026 - Mercury Vapor Color Filter, 2.00" Dia

Optical Lenses: L1L - Linear Spread Lens (elongate standard beam spread), 2.00" Dia; L2L - Overall Spread Lens (increase beam spread), 2.00" Dia; L2F - Diffused Lens (provide even illumination), 2.00" Dia

Optical Louvers: LVR - Hex Cell Louver (reduce glare), 2.00" Dia

Lamps for series: ECA - 20W MR16 GU5.3 Bi-Pin/ Very Narrow Spot; BAB - 20W MR16 GU5.3 Bi-Pin Flood; FRA - 35W MR16 GU5.3 Bi-Pin Spot; EXT - 50W MR16 GU5.3 Bi-Pin Narrow Spot; EXN - 50W MR16 GU5.3 Bi-Pin Flood; EXA - 20W MR16 GU5.3 Bi-Pin Narrow Spot; FRB - 35W MR16 GU5.3 Bi-Pin Narrow Spot; FMW - 35W MR16 GU5.3 Bi-Pin Flood; EXF - 50W MR16 GU5.3 Bi-Pin Narrow Flood; FNV - 50W MR16 GU5.3 Bi-Pin Very Wide Flood

Notes:
1. Lamp not included in MR16 version.
2. See ACCESSORIES & TECHNICAL DATA section of the Lumiere catalog for Mounting Accessories.
3. Consult your Cooper Lighting representative for additional options and finishes.

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T4 Halogen

CAMINO STAR™

PROJECT:	
TYPE:	
CATALOG NUMBER:	
SOURCE:	
NOTES:	

CATALOG NUMBER LOGIC

Example: - CS - LV - 20 - BZW - C - 6 - PP12-SF - L75E-120

Material: **Blank** — Aluminum; **B** — Brass (*type D Only*)

Series: **CS** — Camino Star™ Pathlight

Source: **LV** — Low Voltage T4 Halogen

Lamp: **0** — By Others; **20** — (20W) G2GT-4CL-12V; **64** — (35W) G2GT-4CL-12V; **65** — (50W) G2GT-4CL-12V

Finish

Aluminum & Brass Finishes		
Powder Coat Color	Satin	Wrinkle
Bronze	BZP	BZW
Black	BLP	BLW
White (Gloss)	WHP	WHW
Aluminum	SAP	—
Verde	—	VER

Brass Finishes	
Machined	MAC
Polished	POL
Mitique™	MIT

Premium Finish			
ABP	Antique Brass Powder	CMG	Cascade Mountain Granite
AMG	Aleutian Mountain Granite	CRI	Cracked Ice
ACW	Antique White	CRM	Cream
BCM	Black Chrome	HUG	Hunter Green
BGE	Beige	MDS	Mojave Desert Sandstone
BPP	Brown Patina Powder	NBP	Natural Brass Powder
CAP	Clear Anodized Powder	OCP	Old Copper
RMG	Rocky Mountain Granite		
SDS	Sonoran Desert Sandstone		
SMG	Sierra Mountain Granite		
TXF	Textured Forest		
WCP	Weathered Copper		
WIR	Weathered Iron		

Also available in RAL Finishes. See submitted SUB-1238-00

Style: C, D*, E, G, G1, G2, H, K (*Also available in Brass*)

Base (Specify in inches): **6** - 6" with Anchor Base (Standard); **12** - 12" with Anchor Base; **18** - 18" with Anchor Base; **24** - 24" with Anchor Base

Mounting Options: **PP12** - 12" Power Pipe™ Stake Mounting; **PP18** - 18" Power Pipe™ Stake Mounting; **SF** - Stability Flange (*for use with Power Pipe™*)

Transformer Options: **L75E-120** - Integral 75VA Electronic 120V Transformer; **L75E-230** - Integral 75VA Electronic 230V Transformer; **L75E-277** - Integral 75VA Electronic 277V Transformer

LAMP DATA

BK No.	Lamp Watts	Description
20	20	T-4/CL-12V
64	35	T-4/CL-12V
65	50	T-4/CL-12V

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Stamp Applied on 03/15/2017

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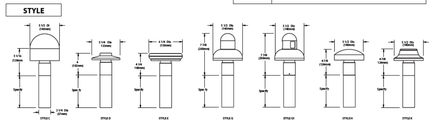
T4 Halogen

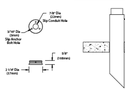
CAMINO STAR™

PROJECT:	
TYPE:	

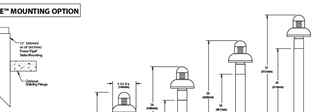
STYLE



ANCHOR BASE

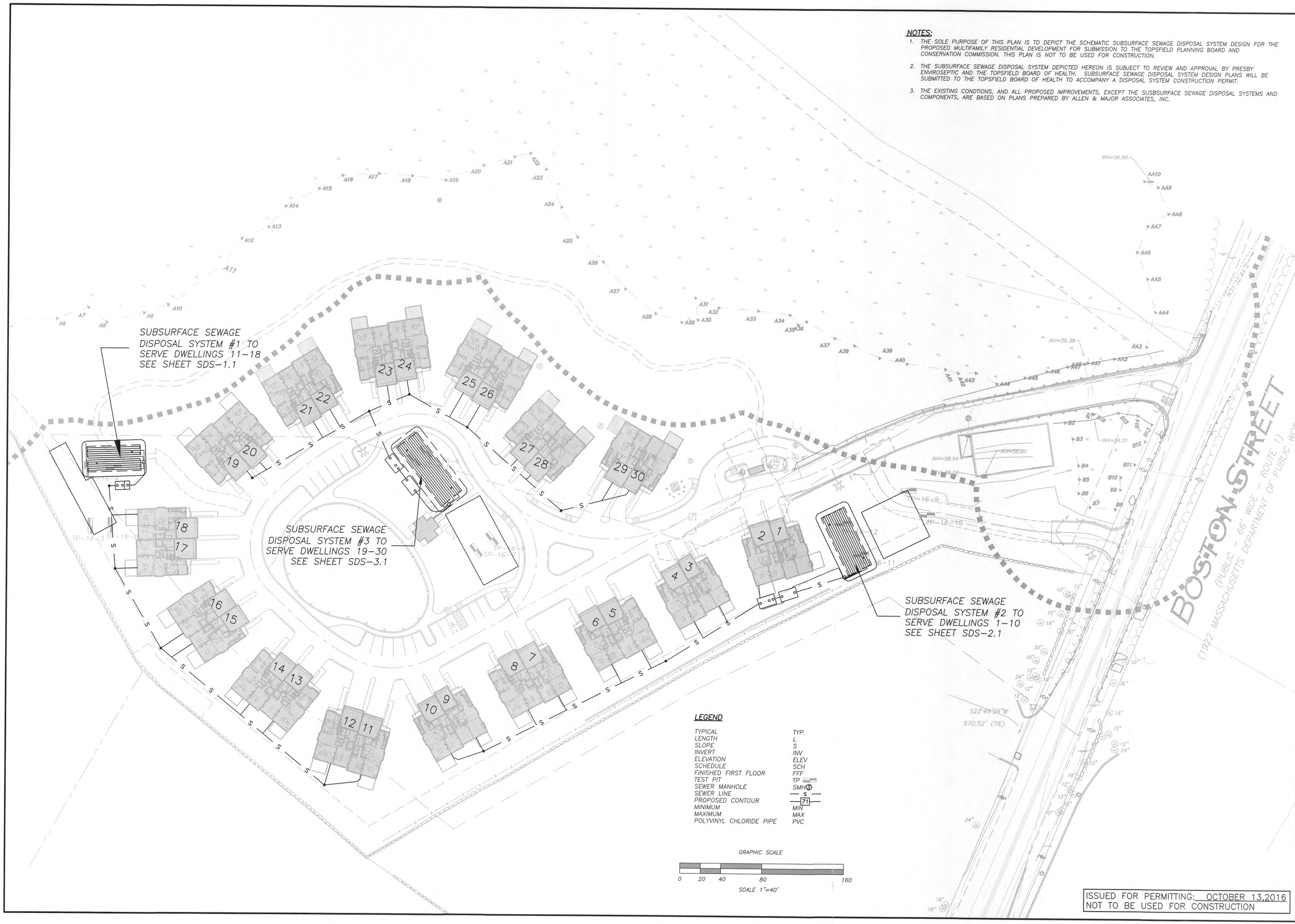


POWER PIPE™ MOUNTING OPTION


1/2" (305mm) Power Pipe™ Stake Mounting
Power Pipe™ Stake Mounting
Ø1 5/8" (41mm)
Ø1" (25mm)
Ø1 1/4 Dia +/-Holes

NOTES:

1. THE SOLE PURPOSE OF THIS PLAN IS TO DEPICT THE SCHEMATIC SUBSURFACE SEWAGE DISPOSAL SYSTEM DESIGN FOR THE PROPOSED MULTIFAMILY RESIDENTIAL DEVELOPMENT FOR SUBMISSION TO THE TOPSFIELD PLANNING BOARD AND CONSERVATION COMMISSION. THIS PLAN IS NOT TO BE USED FOR CONSTRUCTION.
2. THE SUBSURFACE SEWAGE DISPOSAL SYSTEM DEPICTED HEREON IS SUBJECT TO REVIEW AND APPROVAL BY PRESBY ENVIROSEPTIC AND THE TOPSFIELD BOARD OF HEALTH. SUBSURFACE SEWAGE DISPOSAL SYSTEM DESIGN PLANS WILL BE SUBMITTED TO THE TOPSFIELD BOARD OF HEALTH TO ACCOMPANY A DISPOSAL SYSTEM CONSTRUCTION PERMIT.
3. THE EXISTING CONDTIONS, AND ALL PROPOSED IMPROVEMENTS, EXCEPT THE SUSBSURFACE SEWAGE DISPOSAL SYSTEMS AND COMPONENTS, ARE BASED ON PLANS PREPARED BY ALLEN & MAJOR ASSOCIATES, INC.



ISSUED FOR PERMITTING: OCTOBER 13,2016
NOT TO BE USED FOR CONSTRUCTION

EAGLEBROOK

EAGLEBROOK ENGINEERING & SURVEY, LLC

491 MAPLE STREET, SUITE 304
DANVERS, MASS. 01923
TEL: (978) 777-0494

470 BOSTON STREET
LOCATED IN
TOPSFIELD, MASSACHUSETTS
PREPARED FOR
SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MASSACHUSETTS

STAMP:

COMMONWEALTH OF MASSACHUSETTS
KENNETH C. KNOWLES
CIVIL
No. 42677
REGISTERED PROFESSIONAL ENGINEER
4-26-17

DATE:
OCTOBER 13, 2016

REVISIONS:

NO.:	DESCRIPTION:	DATE:
5	MOVED SDS 1 RESERVE	4/10/17
4	REVISIONS SDS 2 & 3	3/13/17
3	REVISIONS PER TOWN COMMENTS	2/27/17
2	MOVED SDS 1 LEACH FIELD	2/1/17
1	MOVED SDS 1 LEACH FIELD	1/12/17

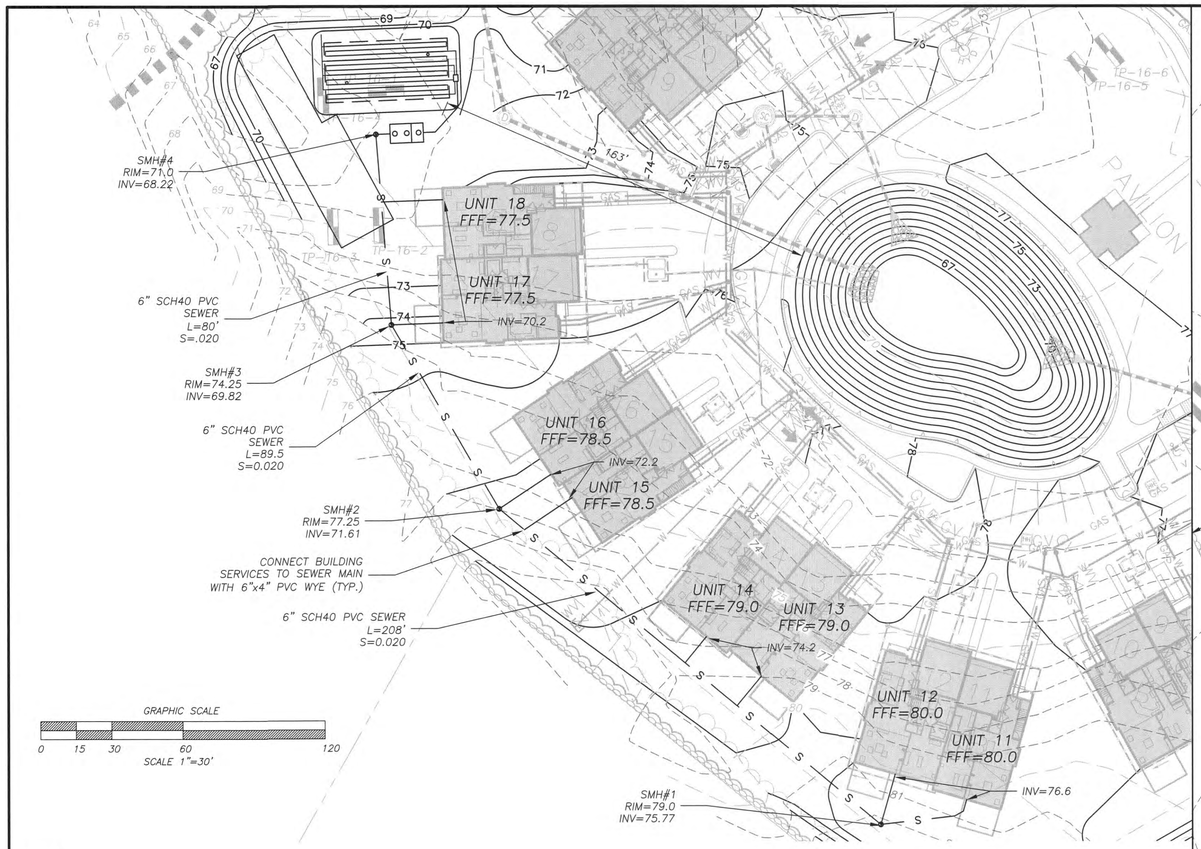
DRAWN BY: BSM
CHECKED BY: KCK
SCALE: AS NOTED

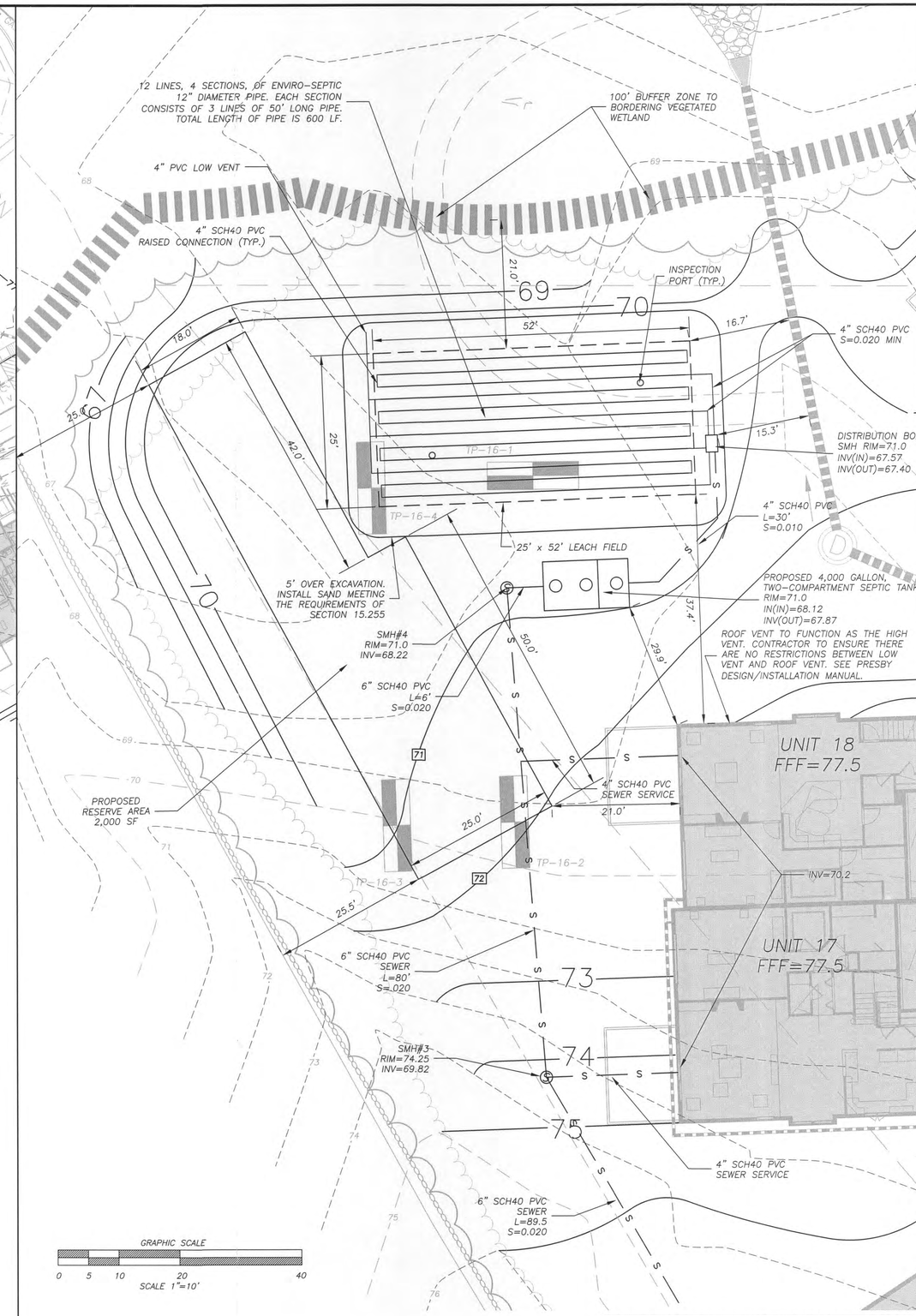
PROJECT NO. 15-023

TITLE:

SDS PLAN

SDS-1





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2. SEE SITE PLANS PREPARED BY ALLEN & MAJOR ASSOCIATES FOR ALL PROPOSED SITE IMPROVEMENTS, UTILITIES, GRADING, AND DRAINAGE DEPICTED HEREON.
3. ALL WORK PROPOSED WITHIN 100 FEET OF A PROTECTABLE RESOURCE AREA IN ACCORDANCE WITH THE MASSACHUSETTS WETLAND PROTECTION ACT SHALL REQUIRE FILING AN APPLICATION WITH THE LOCAL CONSERVATION COMMISSION.
4. ALL WORK, MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STATE ENVIRONMENTAL CODE, TITLE 5 OR THE LOCAL BOARD OF HEALTH REGULATIONS, WHICHEVER IS MORE STRINGENT.
5. ALL REVISIONS TO THE PLAN OR ANY FIELD CHANGES SHALL BE APPROVED BY THE BOARD OF HEALTH AND THE DESIGN ENGINEER.
6. THE BOARD OF HEALTH AND THE DESIGN ENGINEER SHALL BE NOTIFIED FOR INSPECTIONS PRIOR TO THE CONTRACTOR COVERING ALL COMPONENTS OR MATERIALS THAT REQUIRE INSPECTION. THE FOLLOWING MINIMUM INSPECTIONS ARE REQUIRED: BOTTOM OF BED EXCAVATION, INSPECTION OF SAND FILL, INSPECTION OF SYSTEM PRIOR TO BACKFILL.
7. THE ISSUANCE OF A DISPOSAL WORKS PERMIT OR A CERTIFICATE OF COMPLIANCE SHALL NOT GUARANTEE THAT THE SYSTEM WILL FUNCTION AS DESIGNED.
8. THE LOCATION OF UTILITIES ARE ONLY APPROXIMATE AND THIS PLAN DOES NOT DEPICT ALL THE EXISTING UTILITIES. THE CONTRACTOR SHALL CONTACT DIG-SAFE (888-344-7233) PRIOR TO ANY CONSTRUCTION ACTIVITY.
9. THE COMPONENTS OF THE ON-SITE SEWAGE DISPOSAL SYSTEM SHALL BE MAINTAINED IN ACCORDANCE WITH THE STATE ENVIRONMENTAL CODE, TITLE 5.
10. THE USE OF A GARBAGE GRINDER IS NOT RECOMMENDED. THE SYSTEM HAS NOT BEEN DESIGNED TO HANDLE A GARBAGE GRINDER.
11. USE 22.5° AND 45° FITTINGS FOR ALL BENDS ON THE SEWER PIPING. NINETY (90°) DEGREE BENDS ARE NOT ALLOWED.
12. THERE ARE NO KNOWN POTABLE DRINKING WATER WELLS WITHIN 100 FEET OF THE PROPOSED SEPTIC SYSTEM.
13. PROVIDE A MINIMUM OF FIVE (5) FEET OF OVER EXCAVATION TO REMOVE ALL TOPSOIL, SUBSOIL AND OTHER UNSUITABLE MATERIALS TO THE TOP OF THE NATURALLY OCCURRING C HORIZON AND REPLACE WITH SAND MEETING THE REQUIREMENTS OF THE STATE ENVIRONMENTAL CODE, TITLE 5 SECTION 15.255.
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21. MINIMIZE MACHINE MOVEMENT TO AVOID SOIL COMPACTION AND DESTRUCTION OF THE SOIL STRUCTURE UNDER AND AROUND THE SYSTEM. BE CAREFUL NOT TO COMPACT THE SOIL ON THE DOWN SLOPE SIDE OF THE SYSTEM.
22. USE A LASER LEVEL OR TRANSIT TO INSTALL LINES LEVEL. VARIATIONS BEYOND ¼" MAY AFFECT SYSTEM PERFORMANCE. VARIATIONS BEYOND 1" ARE NOT ACCEPTABLE.
23. SPREAD SYSTEM SAND BETWEEN THE LINES; CAREFULLY WALK BETWEEN THE LINES TO INSURE SYSTEM SAND FILLS ALL VOID SPACES BENEATH THE ENVIRO-SEPTIC PIPE. FINISH SPREADING THE SYSTEM SAND TO THE TOP OF THE LINES.
24. SPREAD A MINIMUM OF 6" OF SYSTEM SAND OVER THE PIPE. SPREAD THE REMAINING SURROUNDING SAND AND A MINIMUM OF 4" OF TOPSOIL. FINAL GRADING SHOULD SHED WATER AWAY FROM THE SYSTEM. NOTE, A TRACKED VEHICLE MAY BE USED TO SPREAD THE SYSTEM SAND AND TOPSOIL AS LONG AS IT MAINTAINS AT LEAST 12" OF COVER OVER THE PIPE.

MATERIAL SPECIFICATIONS

1. THE BUILDING SEWER SHALL BE CONSTRUCTED OF CORROSION RESISTANT MATERIAL AND EQUIPPED WITH WATER TIGHT JOINTS; DUCTILE IRON, SCH 40 PVC OR THE EQUIVALENT AND THE MINIMUM SLOPE IS 0.020.
2. ALL PIPING FROM THE SEPTIC TANK TO THE LEACH DISTRIBUTION BOX SHALL BE SCH. 40 PVC AND HAVE A MINIMUM SLOPE OF 0.010.
3. THE LEACH FIELD PIPING SYSTEM SHALL BE ENVIRO-SEPTIC PIPE AS PRODUCED BY PRESBY ENVIRONMENTAL.
4. SEPTIC TANK CONSTRUCTION SHALL MEET THE REQUIREMENTS OF 15.226 OF THE STATE ENVIRONMENTAL CODE, TITLE 5. THE TANK SHALL BE PLACED ON A BASE THAT WILL NOT SETTLE AND 6 INCHES OF 3/4" STONE SHALL BE PLACED UNDER THE TANK.
5. ALL AGGREGATE PLACED SHALL MEET THE REQUIREMENTS OF SECTION 15.247 OF THE STATE ENVIRONMENTAL CODE, TITLE 5.
6. THE FOLLOWING ARE SYSTEM SAND REQUIREMENTS FOR THE ENVIRO-SEPTIC WASTEWATER TREATMENT SYSTEM:
   - 6.1. ALL CONFIGURATIONS OF THE ENVIRO-SEPTIC REQUIRE A MINIMUM OF 6" OF SYSTEM SAND SURROUNDING THE CIRCUMFERENCE OF THE PIPE.
   - 6.2. PERCENTAGE RESTRICTIONS:
     - 6.2.1. 35% OR LESS OF THE TOTAL SAND MAY BE GRAVEL
     - 6.2.2. 40%-90% OF THE TOTAL SAND IS TO BE COARSE AND VERY COARSE SAND.
   - 6.3. GRAVEL QUALITY RESTRICTIONS:
     - 6.3.1. NO GRAVEL IS TO EXCEED ¾" IN DIAMATER
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   - 6.5. FINES QUALITY RESTRICTIONS:
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   - 6.6. ASTM STANDARD C-33 IS AN ALTERNATIVE ACCEPTABLE MATERIAL FOR USE AS SYSTEM SAND.

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2 ELM SQUARE
ANDOVER, MASSACHUSETTS

STAMP:

COMMONWEALTH OF MASSACHUSETTS
KENNETH C. KNOWLES
CIVIL
No. 46679
REGISTERED PROFESSIONAL ENGINEER
4-06-17

DATE:
OCTOBER 13, 2016

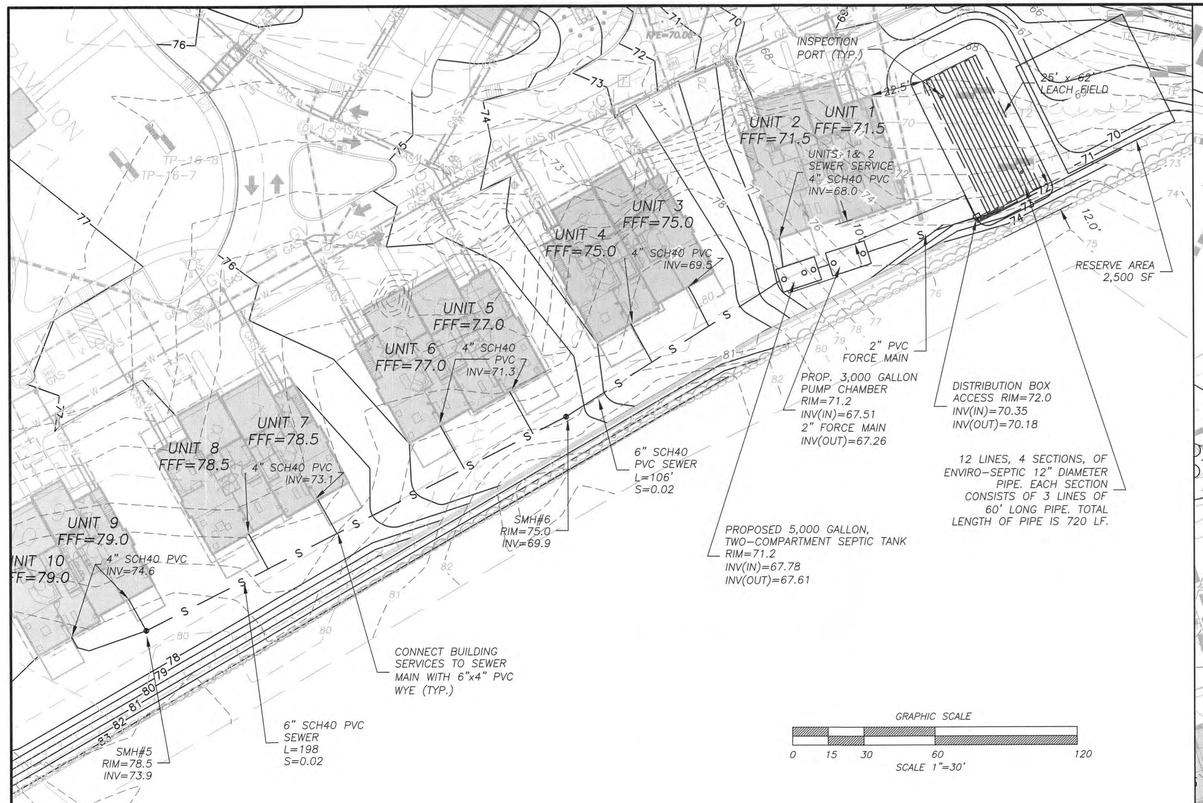
REVISIONS:

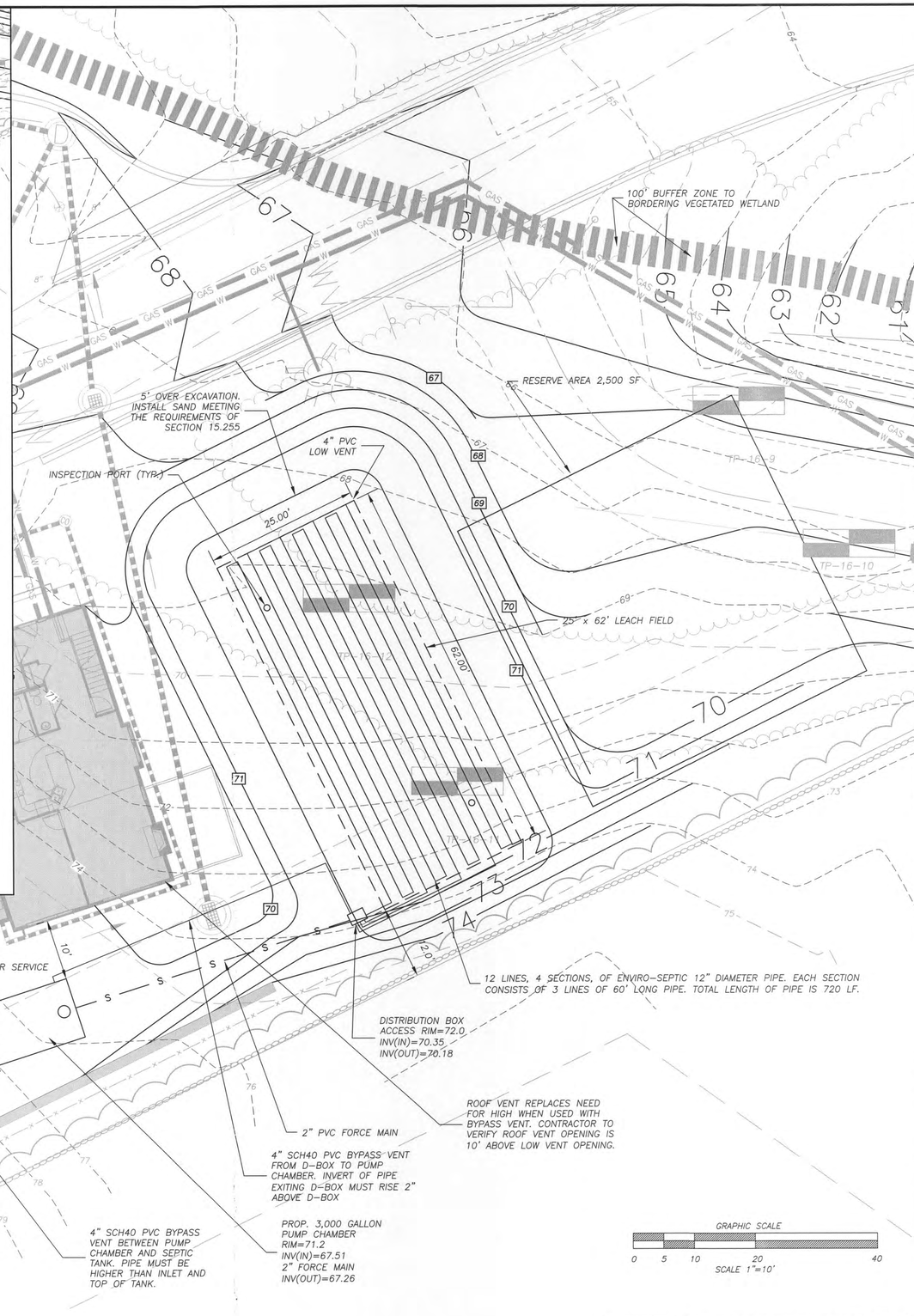
NO.:	DESCRIPTION:	DATE:
5	MOVED SDS 1 RESERVE	4/10/17
4	REVISIONS TO SDS FOR SITE GRADING NEEDS	3/13/17
3	REVISIONS PER TOWN COMMENTS	2/27/17
2	MOVED SDS 1 LEACH FIELD	2/1/17
1	MOVED SDS 1 LEACH FIELD	1/12/17

DRAWN BY: BSM
CHECKED BY: KCK
SCALE: AS NOTED

PROJECT NO. 15-023

TITLE:
SDS PLAN
SDS 1.1





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ISSUED FOR PERMITTING: OCTOBER 13,2016
NOT TO BE USED FOR CONSTRUCTION

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STAMP:

COMMONWEALTH OF MASSACHUSETTS
KENNETH C. KNOWLES
CIVIL
No. 46879
REGISTERED PROFESSIONAL ENGINEER
4-26-17

DATE:
OCTOBER 13, 2016

REVISIONS:

NO.:	DESCRIPTION:	DATE:
3	NO CHANGES THIS SHEET	4/10/17
2	GRADING, MOVED RESERVE AREA AND SDS VENTING	3/13/17
1	REVISIONS PER TOWN COMMENTS	2/27/17

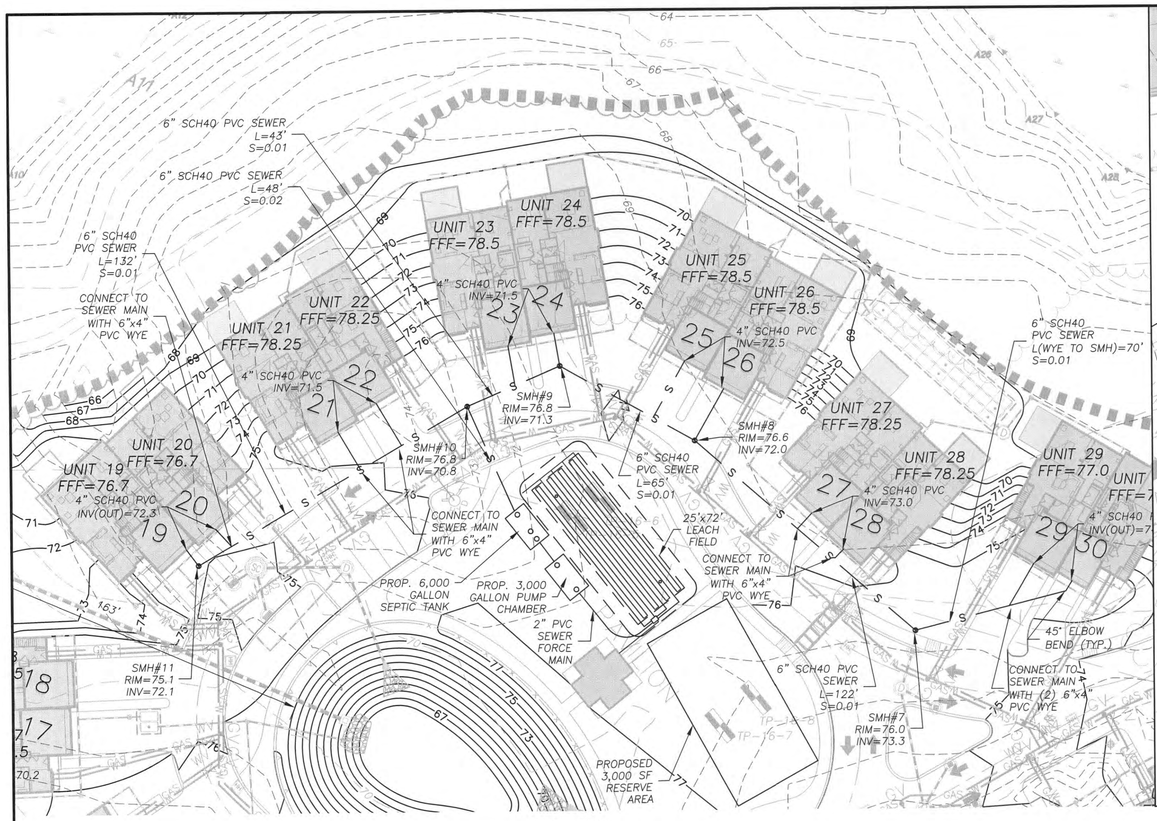
DRAWN BY: BSM
CHECKED BY: KCK
SCALE: AS NOTED

PROJECT NO. 15-023

TITLE:

SDS PLAN

SDS 2.1



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23. SPREAD SYSTEM SAND BETWEEN THE LINES; CAREFULLY WALK BETWEEN THE LINES TO INSURE SYSTEM SAND FILLS ALL VOID SPACES BENEATH THE ENVIRO-SEPTIC PIPE. FINISH SPREADING THE SYSTEM SAND TO THE TOP OF THE LINES.
24. SPREAD A MINIMUM OF 6" OF SYSTEM SAND OVER THE PIPE. SPREAD THE REMAINING SURROUNDING SAND AND A MINIMUM OF 4" OF TOPSOIL. FINAL GRADING SHOULD SHED WATER AWAY FROM THE SYSTEM. NOTE, A TRACKED VEHICLE MAY BE USED TO SPREAD THE SYSTEM SAND AND TOPSOIL AS LONG AS IT MAINTAINS AT LEAST 12" OF COVER OVER THE PIPE.

MATERIAL SPECIFICATIONS

1. THE BUILDING SEWER SHALL BE CONSTRUCTED OF CORROSION RESISTANT MATERIAL AND EQUIPPED WITH WATER TIGHT JOINTS; DUCTILE IRON, SCH 40 PVC OR THE EQUIVALENT AND THE MINIMUM SLOPE IS 0.020.
2. ALL PIPING FROM THE SEPTIC TANK TO THE LEACH DISTRIBUTION BOX SHALL BE SCH. 40 PVC AND HAVE A MINIMUM SLOPE OF 0.010.
3. THE LEACH FIELD PIPING SYSTEM SHALL BE ENVIRO-SEPTIC PIPE AS PRODUCED BY PRESBY ENVIRONMENTAL.
4. SEPTIC TANK CONSTRUCTION SHALL MEET THE REQUIREMENTS OF 15.226 OF THE STATE ENVIRONMENTAL CODE, TITLE 5. THE TANK SHALL BE PLACED ON A BASE THAT WILL NOT SETTLE AND 6 INCHES OF 3/4" STONE SHALL BE PLACED UNDER THE TANK.
5. ALL AGGREGATE PLACED SHALL MEET THE REQUIREMENTS OF SECTION 15.247 OF THE STATE ENVIRONMENTAL CODE, TITLE 5.
6. THE FOLLOWING ARE SYSTEM SAND REQUIREMENTS FOR THE ENVIRO-SEPTIC WASTEWATER TREATMENT SYSTEM:
   - 6.1. ALL CONFIGURATIONS OF THE ENVIRO-SEPTIC REQUIRE A MINIMUM OF 6" OF SYSTEM SAND SURROUNDING THE CIRCUMFERENCE OF THE PIPE.
   - 6.2. PERCENTAGE RESTRICTIONS:
     - 6.2.1. 35% OR LESS OF THE TOTAL SAND MAY BE GRAVEL
     - 6.2.2. 40%-90% OF THE TOTAL SAND IS TO BE COARSE AND VERY COARSE SAND.
   - 6.3. GRAVEL QUALITY RESTRICTIONS:
     - 6.3.1. NO GRAVEL IS TO EXCEED ¾" IN DIAMATER
     - 6.3.2. NO GRAVEL IS SMALLER THAN 2MM/0.0787" IN DIAMETER (IT MUST NOT PASS THROUGH A #10 SIEVE).
   - 6.4. COARSE SAND QUALITY RESTRICTIONS:
     - 6.4.1. NO COARSE SAND IS SMALLER THAN 0.5MM/0.0196 IN DIAMETER (IT MUST NOT PASS THROUGH A #35 SIEVE).
   - 6.5. FINES QUALITY RESTRICTIONS:
     - 6.5.1. NO MORE THAN 3% OF THE TOTAL SAND MAY PASS THROUGH A #200 SIEVE.
   - 6.6. ASTM STANDARD C-33 IS AN ALTERNATIVE ACCEPTABLE MATERIAL FOR USE AS SYSTEM SAND.

EAGLEBROOK

EAGLEBROOK ENGINEERING & SURVEY, LLC

491 MAPLE STREET, SUITE 304
DANVERS, MASS. 01923
TEL: (978) 777-0494

470 BOSTON STREET
LOCATED IN
TOPSFIELD, MASSACHUSETTS
PREPARED FOR
SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MASSACHUSETTS

STAMP:

COMMONWEALTH OF MASSACHUSETTS
KENNETH C. KNOWLES
CIVIL
No. 45679
REGISTERED PROFESSIONAL ENGINEER
4-06-17

DATE:
OCTOBER 13, 2016

REVISIONS:

NO.:	DESCRIPTION:	DATE:
3	NO CHANGES THIS SHEET	4/10/17
2	MOVED; SEWER SERVICE FOR UNITS 19-22, SEPTIC TANK, PUMP CHAMBER, RESERVE AREA	3/13/17
1	REVISIONS PER TOWN COMMENTS	2/27/17

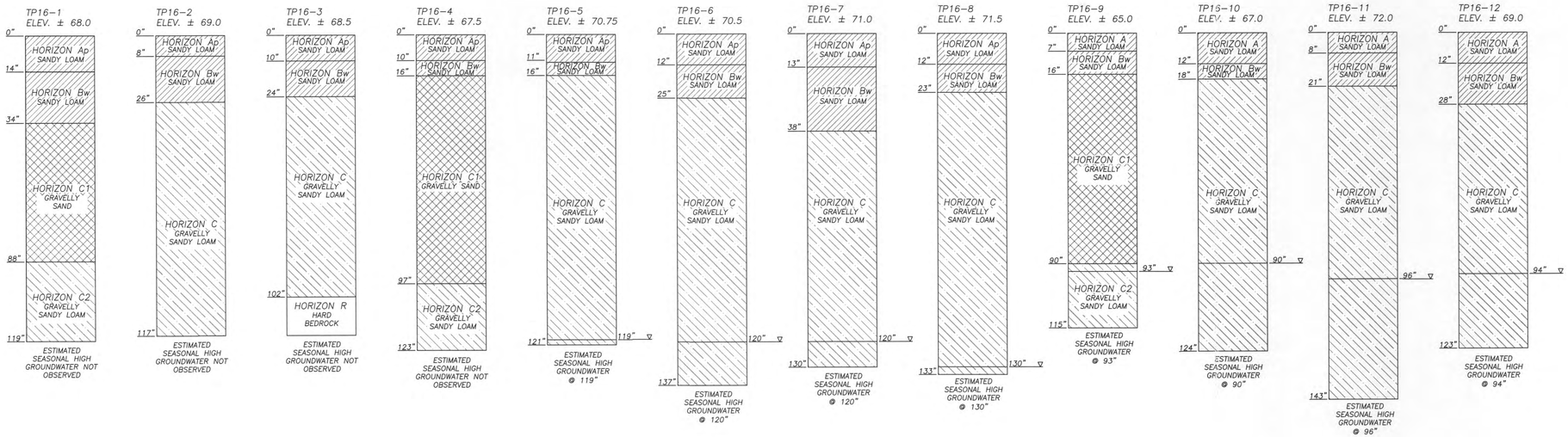
DRAWN BY: BSM
CHECKED BY: KCK
SCALE: AS NOTED

PROJECT NO. 15-023

TITLE:

SDS PLAN

SDS 3.1



PERCOLATION TEST #1
LOCATION: TP16-2
DEPTH OF PERC: 66"
PERC RATE: 1.66 MPI

PERCOLATION TEST #2
LOCATION: TP16-4
DEPTH OF PERC: 42"
PERC RATE: 1.00 MPI

PERCOLATION TEST #4
LOCATION: TP16-5
DEPTH OF PERC: 54"
PERC RATE: 1.00 MPI

PERCOLATION TEST #3
LOCATION: TP16-8
DEPTH OF PERC: 63"
PERC RATE: 4.66 MPI

PERCOLATION TEST #6
LOCATION: TP16-10
DEPTH OF PERC: 54"
PERC RATE: 7.33 MPI

PERCOLATION TEST #5
LOCATION: TP16-12
DEPTH OF PERC: 54"
PERC RATE: 2.33 MPI

TEST PIT NOTES:

1. SOIL SUITABILITY ASSESSMENT WAS PERFORMED BY ALEXANDER F. PARKER ON JULY 6, 2016. THE ASSESSMENT WAS WITNESSED BY THE TOPSFIELD DIRECTOR OF PUBLIC HEALTH, MR. JOHN COULON.

ISSUED FOR PERMITTING: OCTOBER 13,2016
NOT TO BE USED FOR CONSTRUCTION

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EAGLEBROOK ENGINEERING & SURVEY, LLC

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DANVERS, MASS. 01923
TEL: (978) 777-0494

470 BOSTON STREET
LOCATED IN
TOPSFIELD, MASSACHUSETTS
PREPARED FOR
SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MASSACHUSETTS

STAMP:

COMMONWEALTH OF MASSACHUSETTS
KENNETH C. KNOWLES
CIVIL
No. 42279
REGISTERED PROFESSIONAL ENGINEER
4-10-17

DATE:
OCTOBER 13, 2016

REVISIONS:

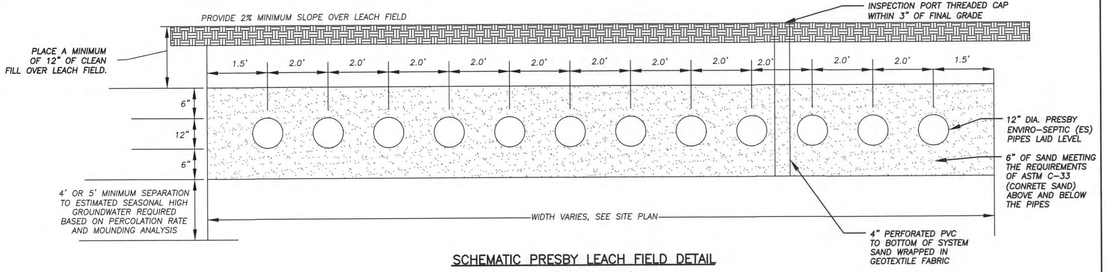
NO.:	DESCRIPTION:	DATE:
3	NO CHANGES THIS SHEET	4/10/17
1	REVISIONS PER TOWN COMMENTS	2/27/17

DRAWN BY: BSM
CHECKED BY: KCK
SCALE: AS NOTED

PROJECT NO. 15-023

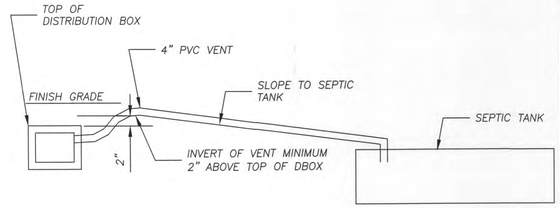
TITLE:
SDS PLAN

SDS-4



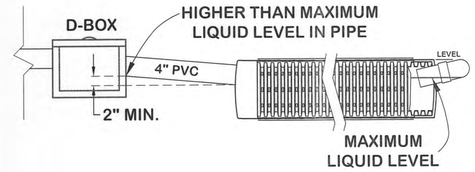
SCHEMATIC PRESBY LEACH FIELD DETAIL

(NOT TO SCALE)



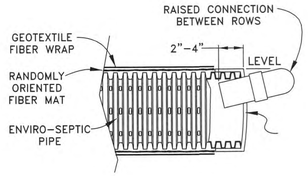
BYPASS VENT DETAIL

(NOT TO SCALE)

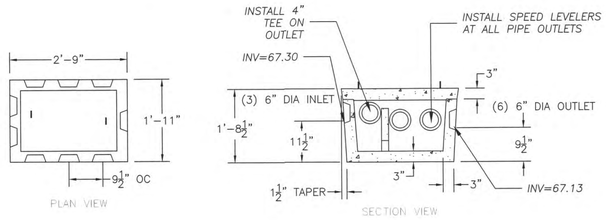


2" DBOX DROP DETAIL

NOT TO SCALE

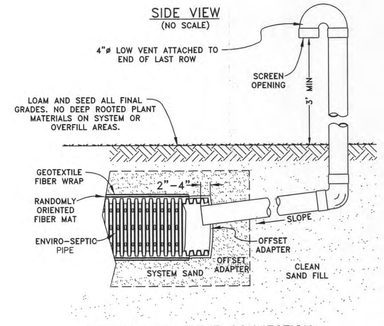


RAISED CONNECTION LEVEL BED

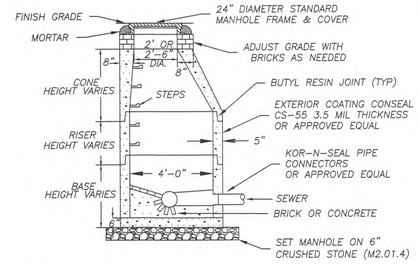


6 OUTLET BAFFLE BOX

NOT TO SCALE



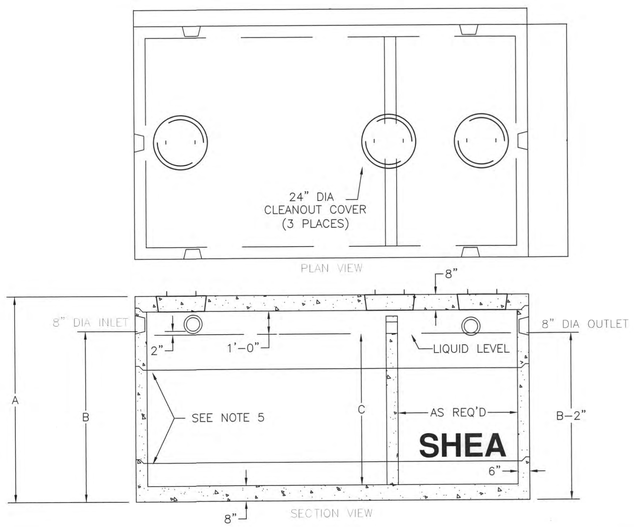
TYPICAL LOW VENT CONNECTION FOR SERIAL DISTRIBUTION



NOTES:
1. CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS
2. REINFORCED STEEL CONFORMS TO LATEST ASTM A185 SPEC. 0.12 SQ. IN/LINEAL FEET AND 0.12 SQ IN. (BOTH WAYS) BASE BOTTOM.
3. H-20 DESIGN LOADING PER AASHTO HS-20-44; ASTM C478 SPEC FOR PRECAST REINFORCED CONCRETE MANHOLE SECTIONS.
4. BUTYL RESIN SECTION JOINT CONFORMS TO LATEST ASTM C443 SPEC.
5. STEEL REINFORCED COPOLYMER POLYPROPYLENE PLASTIC STEP CONFORMS TO LATEST ASTM C478 SPEC.

SEWER MANHOLE DETAIL

(NOT TO SCALE)



GALLONS	A (HEIGHT)	B (INLET)	C (LIQUID)	WEIGHT (LBS)	ITEM NO.
5,500	92"	74"	64"	62,230	TK-5500C2C

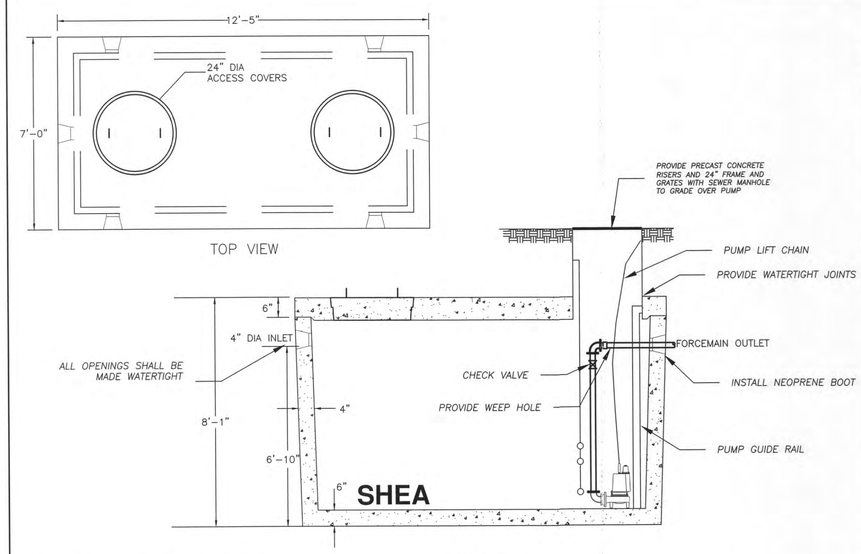
NOTES:

1. CONCRETE: 5,000 PSI MINIMUM AFTER 28 DAYS.
2. DESIGN CONFORMS WITH 310 CMR 15.00, DEP TITLE 5 REGS, FOR SEPTIC TANKS.
3. ALL REINFORCEMENT PER ASTM C1227-93.
4. DESIGNED FOR H-20 LOADING, COVER 1-5FT.
5. TONGUE AND GROOVE JOINT SEALED WITH BUTYL RESIN. INLET HEIGHT MAY INCREASE SLIGHTLY DUE TO THE BUTYL RESIN USED.
6. TEES AND BAFFLES SOLD SEPARATELY.

COMMERCIAL 2-COMPART TANK 5,500 GALLON

SEPTIC TANK DETAIL

(NOT TO SCALE)



NOTES:
1. CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS
2. ALL REINFORCEMENT PER ASTM C1227-93
3. JOINT SEALED WITH BUTYL RESIN
4. SET PUMP CHAMBER ON 6" OF CRUSHED STONE FOR A STABLE BASE.
5. EMERGENCY STORAGE PROVIDED ABOVE ALARAM "ON" IS EQUAL TO 24 HOUR DESIGN FLOW.
6. DOSING VOLUME FROM THE PUMP "ON" TO THE PUMP "OFF" IS APPROXIMATELY 4 CYCLES PER DAY.
7. THE PUMP MUST BE EQUIPPED WITH A HIGH LEVEL ALARM LOCATED IN THE DWELLING WHICH IS POWERED BY A CIRCUIT SEPARATE FROM THE CIRCUIT TO THE PUMPS.

SCHEMATIC PUMP CHAMBER DETAIL

(NOT TO SCALE)

PRELIMINARY DESIGN CALCULATIONS:

SYSTEM #1

BUILDING/FACILITY: EIGHT (8) ELDERY DWELLING UNITS
NUMBER OF BEDROOOMS: TWO (2) BEDROOMS PER UNIT, 16 TOTAL
DESIGN FLOW RATE: 150 GPD PER TWO BEDROOM ELDERLY UNIT
PERCOLATION RATE: 1.00 MPI (PERC-2 AT TP-4)
TOTAL DESIGN FLOW: 1,200 GPD
LEACHING AREA REQUIREMENTS (GPD/SF): 0.60 GPD PER SF
(1,200 GPD)/(0.6 GPD/SF)=2,000 SF PER TITLE 5 REQUIREMENT
(2,000 SF) x (40% REDUCTION FOR PRESBY SYSTEM) = 1,200 SF
MINIMUM SAND BED AREA:
(8 UNITS)x(150 GPD)/(1 GPD/SF FOR PRESBY SYSTEM) = 1,200 SF
LEACHING PROVIDED IN THE DESIGN:
PRESBY SYSTEM USE 12 ROWS, 50' LONG PIPES, WITH 2' SPACING
3 ROWS OF PIPES ARE CONNECTED AT END TO MAKE 4 TREATMENT SECTIONS
LEACH FIELD 25' x 52' = 1,300 SF (BOTTOM AREA ONLY)
REQUIRED PIPE LENGTH IS 546 L.F.; DESIGN 600 LF

SYSTEM #2

BUILDING/FACILITY: TEN (10) ELDERY DWELLING UNITS
NUMBER OF BEDROOOMS: TWO (2) BEDROOMS PER UNIT, 20 TOTAL
DESIGN FLOW RATE: 150 GPD PER TWO BEDROOM ELDERLY UNIT
PERCOLATION RATE: 2.33 MPI (PERC-5 AT TP-12)
TOTAL DESIGN FLOW: 1,500 GPD
LEACHING AREA REQUIREMENTS (GPD/SF):
(1,500 GPD)/(0.6 GPD/SF)=2,500 SF PER TITLE 5 REQUIREMENT
(2,500 SF) x (40% REDUCTION FOR PRESBY SYSTEM) = 1,500 SF
MINIMUM SAND BED AREA:
(10 UNITS)x(150 GPD)/(1 GPD/SF FOR PRESBY SYSTEM) = 1,500 SF
LEACHING PROVIDED IN THE DESIGN:
PRESBY SYSTEM USE 12 ROWS, 60' LONG PIPES, WITH 2' SPACING
3 ROWS OF PIPES ARE CONNECTED AT END TO MAKE 4 TREATMENT SECTIONS
LEACH FIELD 25' x 62' = 1,550 SF (BOTTOM AREA ONLY)
REQUIRED PIPE LENGTH IS 682 L.F.; DESIGN 720 LF

SYSTEM #3

BUILDING/FACILITY: TWELVE (12) ELDERY DWELLING UNITS
NUMBER OF BEDROOOMS: TWO (2) BEDROOMS PER UNIT, 24 TOTAL
DESIGN FLOW RATE: 150 GPD PER TWO BEDROOM ELDERLY UNIT
PERCOLATION RATE: 1.00 MPI (PERC-4 AT TP-5)
TOTAL DESIGN FLOW: 1,800 GPD
LEACHING AREA REQUIREMENTS (GPD/SF):
(1,800 GPD)/(0.6 GPD/SF)=3,000 SF PER TITLE 5 REQUIREMENT
(3,000 SF) x (40% REDUCTION FOR PRESBY SYSTEM) = 1,800 SF
MINIMUM SAND BED AREA:
(12 UNITS)x(150 GPD)/(1 GPD/SF FOR PRESBY SYSTEM) = 1,800 SF
LEACHING PROVIDED IN THE DESIGN:
PRESBY SYSTEM USE 12 ROWS, 70' LONG PIPES, WITH 2' SPACING
3 ROWS OF PIPES ARE CONNECTED AT END TO MAKE 4 TREATMENT SECTIONS
LEACH FIELD 25' x 72' = 1,800 SF (BOTTOM AREA ONLY)
REQUIRED PIPE LENGTH IS 818 L.F.; DESIGN 840 LF

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491 MAPLE STREET, SUITE 304
DANVERS, MASS. 01923
TEL: (978) 777-0494

470 BOSTON STREET
LOCATED IN
TOPSFIELD, MASSACHUSETTS
PREPARED FOR
SARKIS DEVELOPMENT COMPANY
2 ELM SQUARE
ANDOVER, MASSACHUSETTS

STAMP:

DATE:
OCTOBER 13, 2016

REVISIONS:

NO.:	DESCRIPTION:	DATE:
3	NO CHANGES THIS SHEET	4/10/17
2	SDS 1&2 DESIGN CALCS (PERC RATE) PER SDS LOCATIONS & TEST PITS	3/13/17
1	REVISIONS PER TOWN COMMENTS	2/27/17

DRAWN BY: BSM
CHECKED BY: KCK
SCALE: AS NOTED

PROJECT NO. 15-023

TITLE:
SDS DETAIL
SDS-5

Rolling Green

Topsfield, Massachusetts

January 17, 2017

Project Team: Andrew T. Zalewski, AIA

The MZO Group
Stoneham, MA

List of Drawings

A-1 Unit A Elevations I
A-2 Unit A Elevations II
A-3 Unit A First Floor
A-4 Unit A Second Floor
A-5 Unit B Elevations I
A-6 Unit B Elevations II
A-7 Unit B First Floor
A-8 Unit B Second Floor
A-9 Unit C Elevations I
A-10 Unit C Elevations II
A-11 Unit C First Floor
A-12 Unit C Second Floor

FRONT ELEVATION

1/4" = 1'-0"

LEFT SIDE ELEVATION

1/4" = 1'-0"

Unit A

Approx. 2,500 s.f. of total finished space

Rolling Green

470 Boston Street, Topsfield, MA

The MZO GROUP
DESIGNERS ■ ARCHITECTS ■ PLANNERS
IN THE *MIQUELLE* TRADITION

335 Main Street, Suite 201 ■ Stoneham, Massachusetts 02180
Voice 781-279-4446 ■ Fax 781-279-4448 ■ E-Mail: mzo@mzogroup.com ■ www.mzogroup.com

January 17, 2017

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5856

BACK ELEVATION

1/4" = 1'-0"

RIGHT SIDE ELEVATION

1/4" = 1'-0"

Unit A

Rolling Green

470 Boston Street, Topsfield, MA

The MZO GROUP
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January 17, 2017

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FIRST FLOOR

1/4" = 1'-0"

Unit A

Approx. 1,400 s.f. of finished space on first floor

Rolling Green

470 Boston Street, Topsfield, MA

January 17, 2017

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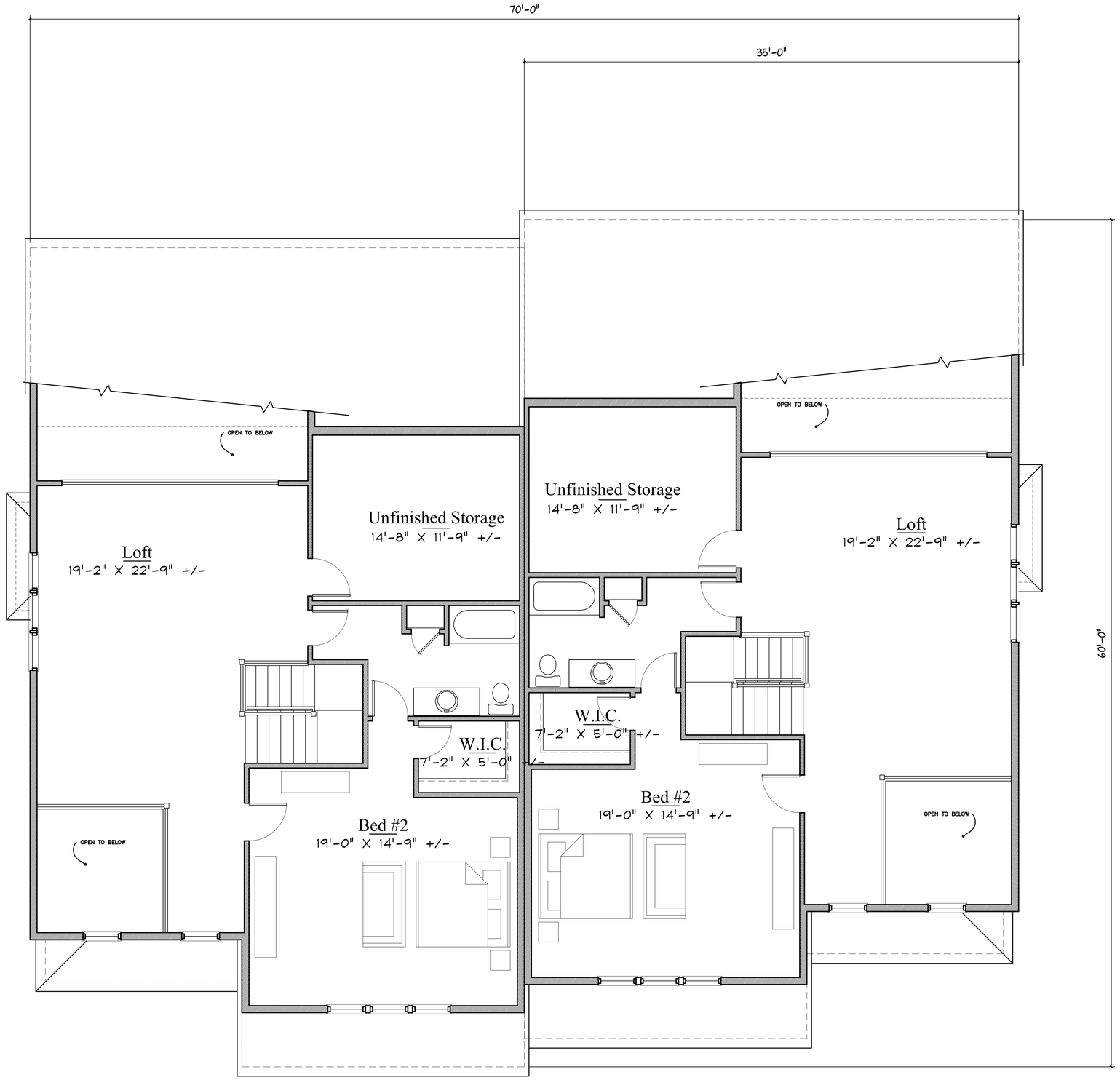

SECOND FLOOR

1/4" = 1'-0"

Unit A

Approx. 1,120 s.f. of finished space on second floor

Rolling Green

470 Boston Street, Topsfield, MA

January 17, 2017

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5856

FRONT ELEVATION

1/4" = 1'-0"

LEFT SIDE ELEVATION

1/4" = 1'-0"

Unit B

Approx. 2,100 s.f. of total finished space

Rolling Green

470 Boston Street, Topsfield, MA

January 17, 2017

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IN THE *MIQUELLE* TRADITION

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5856

BACK ELEVATION

1/4" = 1'-0"

RIGHT SIDE ELEVATION

1/4" = 1'-0"

Unit B

Rolling Green

470 Boston Street, Topsfield, MA

The MZO GROUP
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IN THE *MIQUELLE* TRADITION

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January 17, 2017

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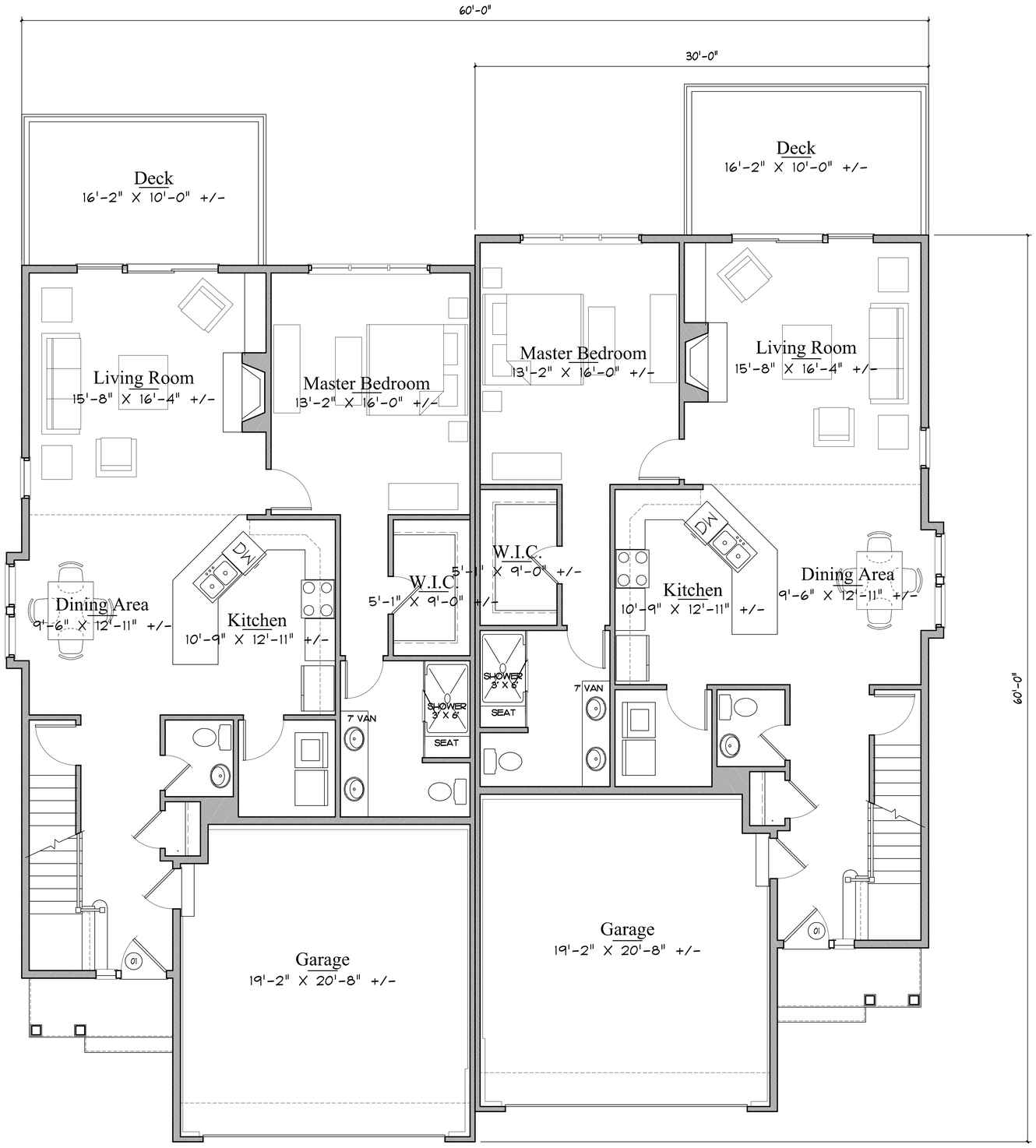

FIRST FLOOR

1/4" = 1'-0"

Unit B

Approx. 1,200 s.f. of finished space on first floor

Rolling Green

470 Boston Street, Topsfield, MA

The MZO GROUP
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January 17, 2017

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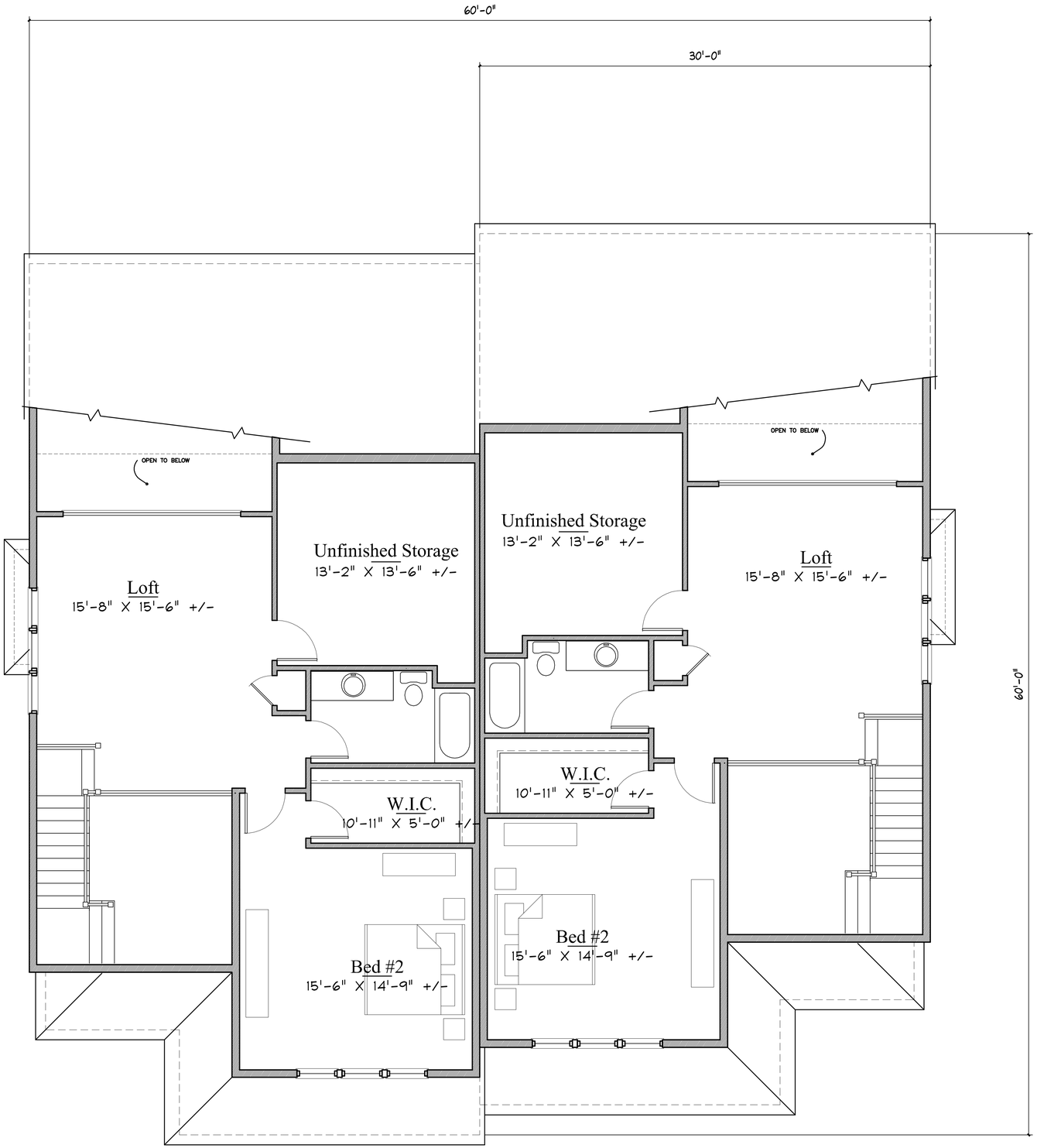

SECOND FLOOR

1/4" = 1'-0"

Unit B

Approx. 900 s.f. of finished space on second floor

Rolling Green

470 Boston Street, Topsfield, MA

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January 17, 2017

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5856

FRONT ELEVATION

1/4" = 1'-0"

LEFT SIDE ELEVATION

1/4" = 1'-0"

Unit C

Approx. 1,825 s.f. of total finished space

Rolling Green

470 Boston Street, Topsfield, MA

JAnuary 17, 2017

The MZO GROUP
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IN THE *MIQUELLE* TRADITION

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BACK ELEVATION

1/4" = 1'-0"

RIGHT SIDE ELEVATION

1/4" = 1'-0"

Unit C

Rolling Green

470 Boston Street, Topsfield, MA

JAnuary 17, 2017

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IN THE *MIQUELLE* TRADITION

335 Main Street, Suite 201 ■ Stoneham, Massachusetts 02180
Voice 781-279-4446 ■ Fax 781-279-4448 ■ E-Mail: mzo@mzogroup.com ■ www.mzogroup.com

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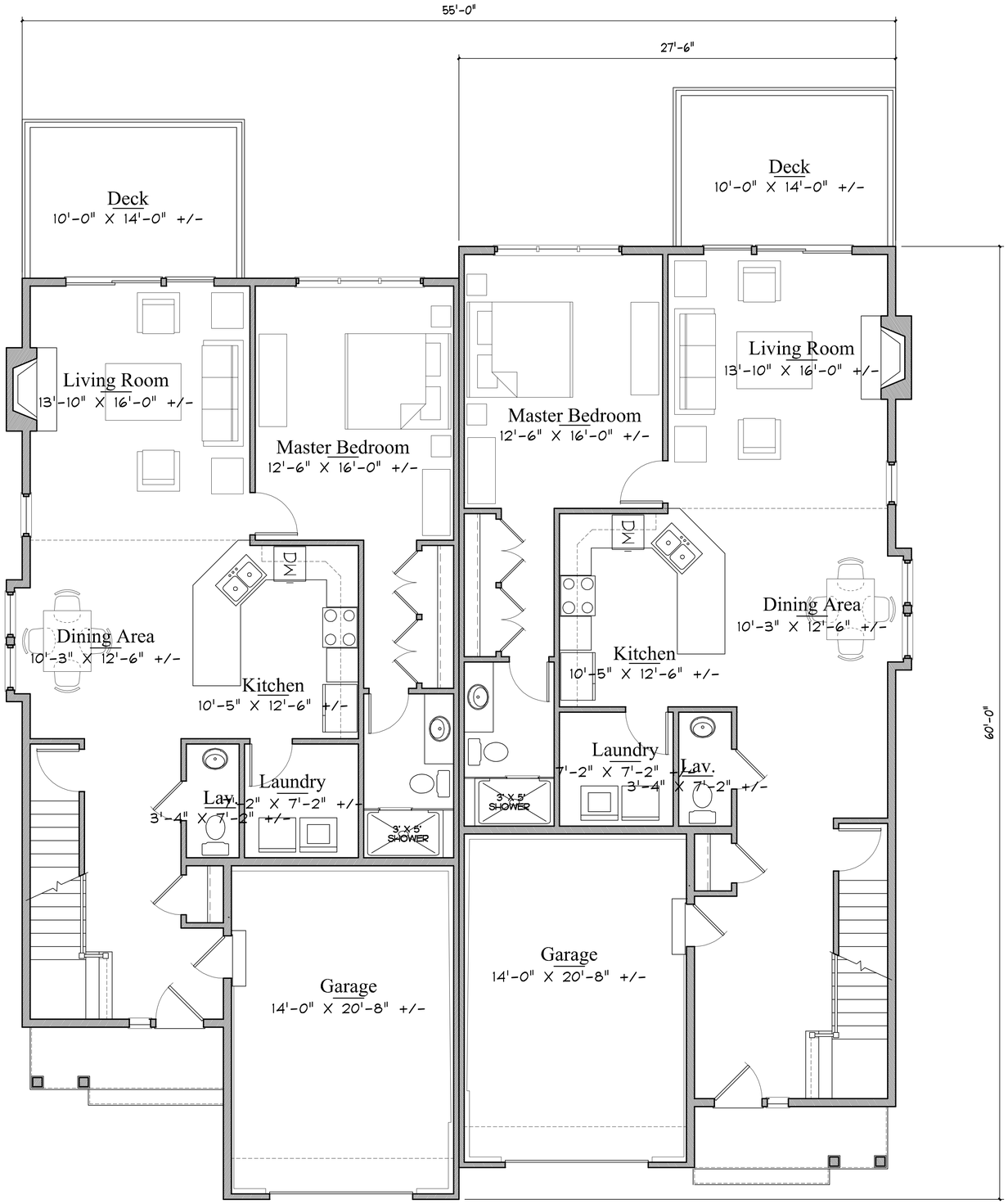

FIRST FLOOR

1/4" = 1'-0"

Unit C

Approx. 1,100 s.f. of finished space on first floor

Rolling Green

470 Boston Street, Topsfield, MA

The MZO GROUP
DESIGNERS ■ ARCHITECTS ■ PLANNERS
IN THE *MIQUELLE* TRADITION

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JAnuary 17, 2017

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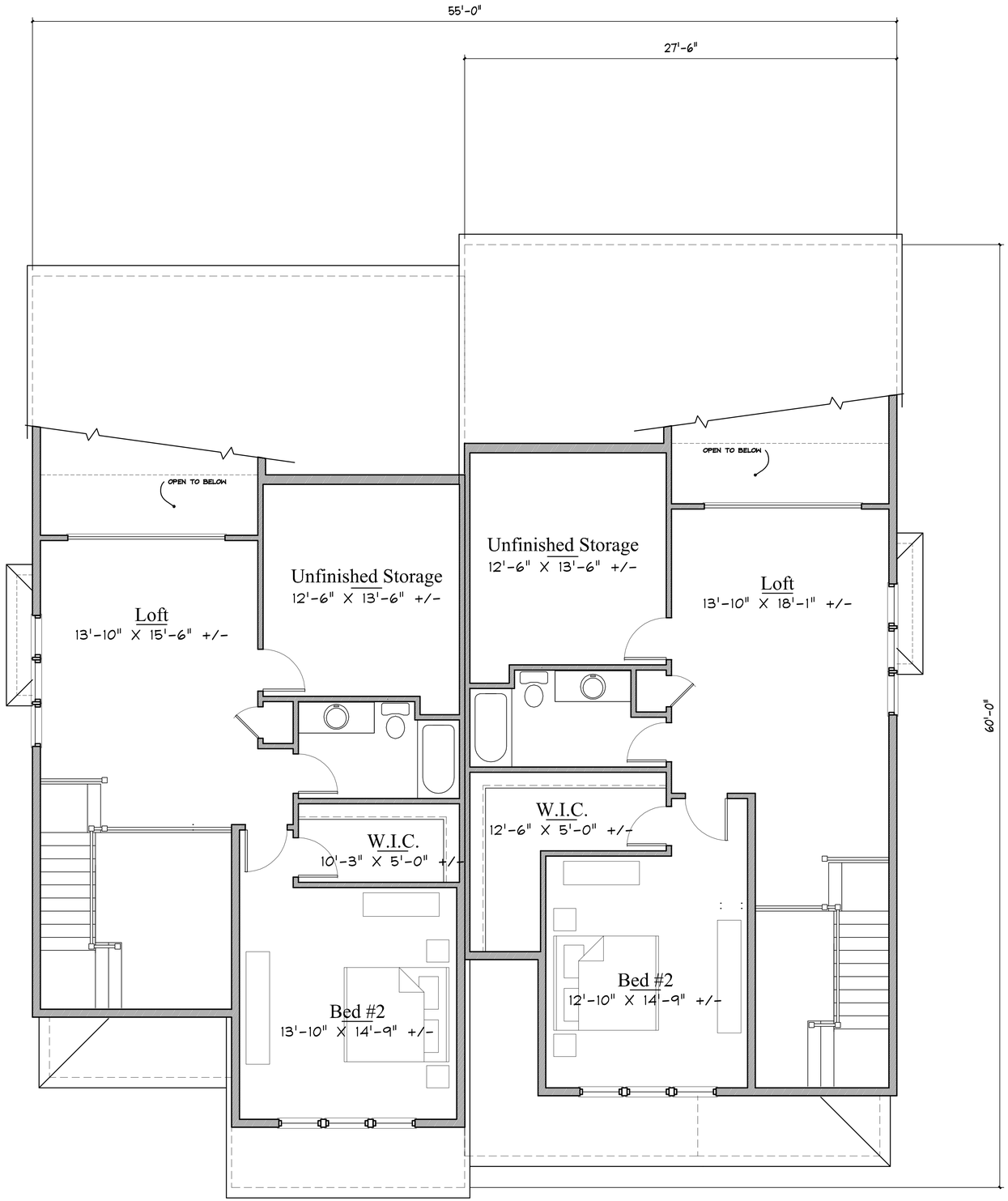

SECOND FLOOR

1/4" = 1'-0"

Unit C

Approx. 725 s.f. of finished space on second floor

Rolling Green

470 Boston Street, Topsfield, MA

JAnuary 17, 2017

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