DEFINITIVE RESIDENTIAL SUBDIVISION PLAN OF

SALISBURY PINE TREE ESTATES

Off of Salisbury Street, Pine Tree Road and Bailey Road in Holden, Massachusetts

Prepared for Holden Pine Tree, LLC

Holden Planning Board
DATE OF APPROVAL:
DATE OF ENDORSEMENT:

APPLICANT:
Holden Pine Tree, LLC
42 Zottoli Road
Holden, MA 01520

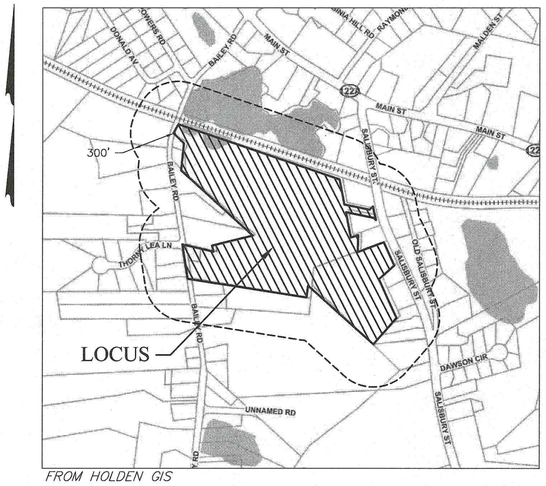
OWNERS:
Holden Pine Tree, LLC
42 Zottoli Road
Holden, MA 01520

PLANNER, LANDSCAPE ARCHITECT, CIVIL ENGINEER & SURVEYOR:
Places Associates, Inc.
256 Great Road, Suite 4
Littleton, MA 01460

HOLDEN ASSESSORS DATA
Map: 173 Parcel: 62
Map: 173 Parcel: 35
Map: 173 Parcel: 14

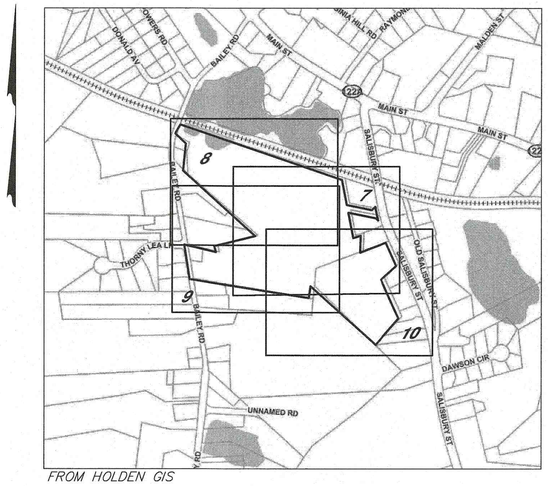
REFERENCES
Worcester District Registry of Deeds
Bk. 38704 Pg. 0065
Bk. 41303 Pg. 0164
Bk. 38729 Pg. 0219

ZONING
R–M Residential Multifamily
R–10 Residential Suburban



FROM HOLDEN GIS

LOCUS
SCALE: 1" = 500'



FROM HOLDEN GIS

SHEET KEY
SCALE: 1" = 500'

SHEET INDEX

SHEETS 1 to 4 ..... Lotting Plan
SHEET 5 ..... Notes & Legend
SHEET 6 ..... Existing Conditions Plan
SHEETS 7 to 10 ..... Site Plans
SHEETS 11 to 15 .... Roadway Layout Plan
SHEETS 16 to 18 ... 400' Wide Roadway Section in Cut
SHEET 19 ..... Erosion & Sedimentation Control Plan
SHEETS 20 to 25 .. Construction Details
SHEETS 22–A&B..... Stormwater Basin Cross Sections
SHEETS 27 & 28 ... Landscape Plans
SHEETS 28–34..... Phasing Plans

COMMONWEALTH OF MASSACHUSETTS
Susan E. Carter
CIVIL ENGINEER
NO. 41270
REGISTERED PROFESSIONAL ENGINEER
8-13-21

REVISION NOTE:
1–18–2021 GENERAL REVISION
5–25–2021 GENERAL REVISION
8–11–2021 PER PEER REVIEW COMMENTS

SALISBURY PINE TREE ESTATES
COVER

LOCATION: Salisbury St., Pine Tree & Bailey Rds
TOWN: HOLDEN, MASSACHUSETTS
PREPARED FOR:
Holden Pine Tree, LLC

SCALE: AS NOTED DATE: OCT. 2019

PLACES Associates, Inc.
· Planning
· Landscape Architecture
· Civil Engineering
· Surveying
256 Great Road, Suite 4
Littleton, MA 01460
(978) 486-0334
www.placesassociates.com

PROJECT No.: 7602 PLAN No.: COVER

LOT 17
229,264 Sq.Ft.
UPLAND AREA
170,064 Sq.Ft.

LOT 18
98,920 Sq.Ft.
UPLAND AREA
97,751 Sq.Ft.

LOT 16
20,247 Sq.Ft.

LOT 15
22,719 Sq.Ft.

LOT 24
20,192 Sq.Ft.

LOT 23
24,136 Sq.Ft.

LOT 22
24,053 Sq.Ft.

LOT 21
17,846 Sq.Ft.

LOT 20
12,601 Sq.Ft.

LOT 25
19,572 Sq.Ft.

LOT 26
13,590 Sq.Ft.

LOT 27
11,194 Sq.Ft.

LOT 28
10,564 Sq.Ft.

LOT 29
12,121 Sq.Ft.

LOT 30
10,643 Sq.Ft.

LOT 31
10,009 Sq.Ft.

LOT 32

LOT 38
15,092 Sq.Ft.

LOT 14
20,084 Sq.Ft.

LOT 13
10,004 Sq.Ft.

LOT 12
10,094 Sq.Ft.

LOT 11
10,079 Sq.Ft.

LOT 10
10,017 Sq.Ft.

LOT 9
10,059 Sq.Ft.

LOT 8
10,015 Sq.Ft.

LOT 7
10,006 Sq.Ft.

LOT 6
10,008 Sq.Ft.

LOT 5
10,065 Sq.Ft.

LOT 4
10,099 Sq.Ft.

LOT 3
20,017 Sq.Ft.

LOT 2
20,052 Sq.Ft.

LOT 1
21,494 Sq.Ft.

Road 2
113,645 Sq.Ft.

Road1
58,127 Sq.Ft.

PINE TREE ROAD (PRIVATE 50' WIDE)

HENRY WAY (50' WIDE)

SALISBURY STREET (PUBLIC VARIABLE WIDTH)

SEWER EASEMENT

15' WIDE SEWER EASEMENT

DRAINAGE EASEMENT

20' WIDE DRAINAGE EASEMENT

ZONE R-10
ZONE R-M

R-M RESIDENTIAL - MUTIFAMILY
R-10 RESIDENTIAL - SUBURBAN 3

N.A.D. 1983

FOR REGISTRY USE ONLY

HOLDEN REALTY
BK 3708 PG 112
30,854 Sq.Ft.

HOLDEN REALTY
BK 3708 PG 112
25,000 Sq.Ft.

SUSAN BERTHIAUME
&
ARTHUR POWELL
BK 56665 PG 96

60 SALISBURY REALTY TRUST
GABRIEL ALZATE, TRUSTEE
BK 56915 PG 332

MICHAEL A RALLI
BK 41677 PG 205

MICHAEL COLLINS
&
JANELL COLLINS
BK 40350 PG 211

MIGUEL A. SANTOS
BK 59259 PG 27

STEPHANIE CARELLI
BK 58709 PG 150

PROPOSED CONCRETE BOUND (EASMENT)
PROPOSED GRANITE BOUND (ROADWAY)

LOCUS REFERENCE

HOLDEN PINE TREE LLC
BOOK 41,303, PAGE 164.
BOOK 38,704, PAGE 65.
BOOK 38729, PAGE 21.

ZONING REQUIREMENTS

	DISTRICT R-M	DISTRICT R-10
AREA:	10,000 S.F.*	10,000 S.F.
FRONTAGE:	80'	64'*
FRONT YARD:	30'	30'
SIDE YARD:	15'	10'
REAR YARD:	20'	20'
LOT WIDTH:	100'	80'

NOTE:

LOCUS DOES NOT LIE WITHIN ANY FEDERALLY DESIGNATED FLOOD ZONE AS SHOWN ON FIRM MAP 250309 0015B WITH AN EFFECTIVE DATE OF JULY 2, 1981.

40 0 40 80 120 160 FEET
20 0 20 40 METERS

I, _____, CLERK OF THE TOWN OF AYER, HEREBY CERTIFY THAT THE NOTICE OF APPROVAL OF THIS PLAN HAS BEEN RECEIVED AND RECORDED AT THIS OFFICE AND THAT NO NOTICE OF APPEAL WAS RECEIVED DURING THE TWENTY DAYS AFTER SUCH RECEIPT AND RECORDING OF SAID NOTICE.

TOWN CLERK DATE

Holden Planning Board

DATE OF APPROVAL:

DATE OF ENDORSEMENT:

THIS ENDORSEMENT MAKES NO DETERMINATION AS TO ZONING COMPLIANCE OR PLAN ACCURACY.

CERTIFICATIONS

I CERTIFY THAT THE PREPARATION OF THIS PLAN CONFORMS TO THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS.

PROFESSIONAL LAND SURVEYOR

DATE:

REVISION NOTE:
1-18-2021 GENERAL REVISION
5-25-2021 GENERAL REVISION
8-11-21 PER PEER REVIEW

SALISBURY PINE TREE ESTATES

LOCATION: Salisbury St., Pine Tree & Bailey Rds
TOWN: HOLDEN, MASSACHUSETTS
OWNED BY AND PREPARED FOR:
Holden Pine Tree, LLC

SCALE: 1"=40' DATE: OCT. 2019

PLACES Associates, Inc.
· Planning
· Landscape Architecture
· Civil Engineering
· Surveying
256 Great Road, Suite 4
Littleton, MA 01460
(978) 486-0334
www.placesassociates.com

PROJECT No.: 7602

SHEET 1 OF 34

LOCUS REFERENCE

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BOOK 38,704, PAGE 65.
BOOK 38729, PAGE 21.

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- PROPOSED GRANITE BOUND (ROADWAY)

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TOWN CLERK DATE

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_____
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PROFESSIONAL LAND SURVEYOR

DATE: _____

N.A.D. 1983

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PROJECT No.: 7602 SHEET 3 OF 34

Holden Planning Board

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TOWN CLERK DATE

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R–M RESIDENTIAL – MUTIFAMILY
R–20 RESIDENTIAL – SUBURBAN 1
R–10 RESIDENTIAL – SUBURBAN 3

FOR REGISTRY USE ONLY

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PROJECT No.: 7602

GENERAL NOTES:

1. PRIOR TO THE PREPARATION OF BIDS AND/OR THE INITIATION OF CONSTRUCTION, THE CONTRACTOR SHALL OBTAIN AND CAREFULLY EXAMINE THIS PLAN SET, RELATED CONSTRUCTION PLAN SETS FROM OTHER PROFESSIONAL DISCIPLINES, CONSTRUCTION SPECIFICATIONS, MANUFACTURERS INFORMATION AND ANY APPLICABLE PERMIT REQUIREMENTS/CONDITIONS OF APPROVAL FOR THE PROJECT. SEE NOTE #4 & #6 BELOW, THEY IT RELATE TO THIS REQUIREMENT.

2. THE EXISTING UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE ONLY. DIG SAFE AND THE APPROPRIATE UTILITY COMPANIES SHALL BE CONTACTED BY THE CONTRACTOR PRIOR TO THE INITIATION OF CONSTRUCTION OR ANY EXCAVATION.

3. NOT ALL UTILITIES WERE ABLE TO BE LOCATED BY RECORD INFORMATION, SITE SURVEYS OR UTILITY LOCATOR SERVICES. THE DESIGN ENGINEER AND BASE PLAN SURVEYOR DO NOT ACCEPT ANY RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES OR SUBSURFACE STRUCTURES WHICH ARE OMITTED OR INACCURATELY SHOWN. PRIOR TO THE INITIATION OF WORK, THE CONTRACTOR SHALL VERIFY THE LOCATION/ELEVATION OF EXISTING UTILITIES SHOWN ON THE PLAN, BY MEANS OF EXPLORATORY TESTHOLES AND OTHER METHODS.

4. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY UPON THE DISCOVERY OF ANY DISCREPANCY BETWEEN THE LOCATION/ELEVATION OF ANY EXISTING UTILITIES SHOWN ON THE PLANS AND THAT WHICH IS FOUND IN THE FIELD.

5. THE CONTRACTOR SHALL RETAIN THE SERVICES OF A REGISTERED PROFESSIONAL LAND SURVEYOR TO PROVIDE LAYOUT & CONTROL FOR THE DEVELOPMENT OF THE SITE.

6. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY UPON THE DISCOVERY OF ANY CONTRADICTORY, INCOMPLETE OR MISLABELED INFORMATION SHOWN ON THE PLANS OR PLANS PREPARED BY OTHERS. THE CONTRACTOR SHALL ALLOW FOR ADEQUATE TIME FOR THE ENGINEER TO RESPOND/PROVIDE DIRECTION FOR THE PLAN DISCREPANCY.

7. ALL CONSTRUCTION UNDER AREAS SUBJECT TO VEHICULAR TRAFFIC SHALL BE CONSTRUCTED TO WITHSTAND A DIRECT AASHTO H20 DESIGN LOAD. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT ALL UTILITY/SITE IMPROVEMENT AREAS UNDER LANDSCAPED/NON-TRAFFIC BEARING AREAS FROM TEMPORARY CONSTRUCTION LOADS DURING CONSTRUCTION.

8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL ADJACENT PROPERTY FROM DAMAGE. ALL DAMAGES BY THE CONTRACTOR OR SUBCONTRACTORS SHALL BE REPAIRED AT NO COST TO THE OWNER. PRE CONSTRUCTION PHOTOS SHALL BE TAKEN AND COPIES SUPPLIED TO THE OWNER, ARCHITECT AND ENGINEER, PRIOR TO ANY SITE CONSTRUCTION AND OR DISTURBANCE.

9. THE CONTRACTOR SHALL MAINTAIN AND PROTECT ALL EXISTING SURVEY MONUMENTS (BOUNDS, PINS, PIPES, DRILL HOLES, ETC.) THROUGHOUT ALL PHASES OF CONSTRUCTION. ANY DISTURBED MONUMENTS SHALL BE REPLACED BY A REGISTERED PROFESSIONAL LAND SURVEYOR AT THE EXPENSE OF THE CONTRACTOR.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING SHOP DRAWINGS OF PRODUCTS/MATERIALS TO THE ENGINEER AND/OR THE LOCAL APPROVING AUTHORITY AS REQUIRED IN THE CONSTRUCTION DOCUMENTS OR IF REQUIRED BY THE LOCAL AUTHORITY HAVING JURISDICTION OVER THE PRODUCT. ADEQUATE TIME SHALL BE ALLOWED FOR THE SHOP DRAWINGS TO BE REVIEWED AND RETURNED TO THE CONTRACTOR PRIOR TO ORDERING THE SPECIFIED PRODUCTS/MATERIALS.

11. ALL PERMANENT BOUNDARY, SURVEY MONUMENTATION AND LANDSCAPING SHALL BE INSTALLED AFTER THE COMPLETION OF ALL HEAVY SITE WORK.

12. NO DEBRIS, JUNK, RUBBISH OR OTHER WASTE MATERIALS SHALL BE BURIED, BURNED OR OTHERWISE DISPOSED OF WITHIN THE LIMITS OF THE PROJECT. ALL WASTE, TRASH AND DEBRIS SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN ACCORDANCE WITH APPLICABLE LAWS.

13. UNLESS OTHERWISE SPECIFIED OR SHOWN, ALL CONSTRUCTION METHODS AND MATERIALS SHALL CONFORM TO THE STANDARDS DESCRIBED IN THE TOWNS SUBDIVISION CONTROL REGULATIONS. IF NOT SPECIFIED THEREIN, SUCH CONSTRUCTION SHALL THEN CONFORM TO THE REQUIREMENTS OF THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION (MDOT, FORMERLY MASS HIGHWAY) STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, LATEST VERSION AND THE MASSACHUSETTS ENGINEERING AND UTILITY STANDARDS.

SITE WORK NOTES:

1. THE LIMITS OF WORK SHALL BE FIELD ESTABLISHED PRIOR TO INITIATION OF ANY CONSTRUCTION, SITE EXPLORATIONS OR EARTHEN DISTURBANCE.

2. EROSION CONTROLS SHALL BE IMPLEMENTED PRIOR TO SITE CLEARING OR DISTURBANCE. SEE EROSION AND SEDIMENTATION CONTROL PLAN.

3. EXCEPT FOR THE SETUP FOR ENTRY TO THE SITE, NO CONSTRUCTION OR CONTRACTOR'S VEHICLES SHALL BE PARKED ON ADJACENT PUBLIC WAYS, UNLESS COORDINATED WITH ADJACENT PROPERTY OWNERS. ALL CONSTRUCTION STAGING, STOCKPILE AND PARKING AREAS SHALL BE ONSITE.

4. EXISTING LOAM SHALL BE STOCKPILED FOR RE-USE ON THE SITE TO THE EXTENT PRACTICAL, SEE EROSION AND SEDIMENTATION CONTROL PLAN.

5. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING A TRENCH OPERATIONS PERMIT PURSUANT TO THE REQUIREMENTS OF THE DPW AND 520 CMR 14.00 TRENCH SAFETY REGULATIONS.

6. NO MATERIALS, EQUIPMENT OR SUPPLIES SHALL BE STAGED OR STOCKPILED WITHIN 10 FEET OF THE AREA WHERE THE STORM WATER TREATMENT SYSTEMS WILL INFILTRATE INTO THE GROUND. THESE AREAS SHALL NOT BE USED AS TEMPORARY SEDIMENT STORAGE AREAS DURING CONSTRUCTION WITHOUT SPECIAL PROVISIONS BEING USED AS APPROVED BY THE DESIGN ENGINEER AND STORM WATER PERMIT AUTHORITY. MATERIAL BENEATH THE STORMWATER TREATMENT SYSTEMS SHALL NOT BE MINED FOR USE ELSEWHERE ONSITE.

7. DRAINAGE SYSTEMS SHALL BE BUILT FROM THE DOWN STREAM (OUTLET & BASIN) ENDS UP. ALL PIPE LENGTHS AND INVERTS ARE MEASURED FROM THE CENTERLINE OF THE STRUCTURE.

8. ALL EXISTING SEWER POINTS OF CONNECTION & INVERTS SHALL BE CONFIRMED BY EXPLORATORY EXCAVATION PRIOR TO INITIATING CONSTRUCTION.

LEGEND

	EXISTING	PROPOSED
INDEX CONTOUR	100	100
INTERMEDIATE CONTOUR	99	99
SPOT GRADE	× 100.52	× 100.52
STONE WALL		
EDGE OF WOODS		
SILTATION BARRIER		
BUILDING SETBACK LINE		
WELL		W
TREE		
FLAGPOLE		
BOUND		
DRILL HOLE		
IRON PIN		
EDGE OF GRAVEL		
EDGE OF WALK		
EXPANSION JOINT		
CONSTRUCTION JOINT		
EDGE OF PAVEMENT		
PAVEMENT WITH BERM		
STOCKADE FENCE		
CHAIN LINK FENCE		
FENCE - OTHER		X
FENCE GATE		
GUARD RAIL		
WOOD GUIDE RAIL		
ROOF BARRIER		RB
SIGN POST		
FOUNDATION DRAIN		FD
ROOF DRAIN		RD
DRAIN LINE		D
DRAIN MANHOLE		D
CATCHBASIN		CB
FLARED END IN/OUT		
CLEANOUT		CO
IRRIGATION LINE		IR
FIRE PROTECTION LINE		FP
WATER LINE		W
WATER VALVE		WV
FIRE HYDRANT		
WATER SHUTOFF		
OVERHEAD WIRES		OHW
UNDERGROUND WIRES		UTE
UG 3-PHASE WIRES		UTE-3
GUY POLE		
UTILITY POLE		
GUY ANCHOR		
UTILITY BOX		
STREETLIGHT		
LAMP POST		
ELECTRIC MANHOLE	E	E
TELEPHONE MANHOLE	T	T
SEWER LINE	S	S
SEWER FORCE MAIN	FM	FM
LOW PRESSURE SEWER	LPS	LPS
SEWER MANHOLE	S	S
GAS LINE	G	G
GAS VALVE	GV	GV
PARKING SPACE		P
SURFACE FLOW DIRECTION		

ABBREVIATIONS

ABBREVIATION	DEFINITION
AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
ABR	ABBREVIATION
AR-1	ACCESSIBLE RAMP - TYPE 1
AR-2	ACCESSIBLE RAMP - TYPE 2
AR-3	ACCESSIBLE RAMP - TYPE 3
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
B&B	BALL & BURLAP
BC	BOTTOM CURB ELEVATION
BIT. CONC.	BITUMINOUS CONCRETE
BLDG	BUILDING
BM	BENCHMARK
BR	BOTTOM RAMP ELEVATION
CAL	CALIPER
CB	CONCRETE BOUND
CF	CUBIC FOOT
CI	CAST IRON PIPE
CMP	CORRUGATED METAL PIPE
CONC.	CONCRETE
CPP	CORREGATED PLASTIC PIPE (SMOOTH INTERIOR HDPE)
CTB	CATCH BASIN
CY	CUBIC YARD
DH	DRILL HOLE
DI	DUCTILE IRON PIPE
DICL	DUCTILE IRON PIPE CEMENT LINED
DIA	DIAMETER
DMH	DRAIN MANHOLE
ELEV	ELEVATION
EMH	ELECTRIC MANHOLE
EX.	EXISTING
EXT.	EXTERIOR
FDN	FOUNDATION
FES	FLARED END SECTION
FFE	FINISH FLOOR ELEVATION
FG	FINISH GRADE
FND	FOUND
FSB	FIELD STONE BOUND
FT	FEET - LINEAR MEASURE
GAL	GALLON
GPM	GALLONS PER MINUTE
HDPE	HIGH DENSITY POLYETHYLENE PIPE
HP	HIGH POINT
HT	HEIGHT
I. PIN	IRON PIN
I. PIPE	IRON PIPE
ID	INSIDE DIAMETER
INV.	PIPE INVERT ELEVATION
LP	LOW POINT
MAX	MAXIMUM
MHB	MASS HIGHWAY BOUND
MIN	MINIMUM
MUTCD	MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES
OC	ON CENTER
OD	OUTSIDE DIAMETER
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
P&P	PLUG & PIN
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE PIPE
RCP	ROUND CONCRETE PIPE
R & S	REMOVE & STOCKPILE ITEM
REQ'D	REQUIRED
SB	STONE BOUND
SMH	SEWER MANHOLE
SPR	SPREAD
S&S	STAKE & STONE
SSHB	STANDARD SPECIFICATIONS OF HIGHWAYS & BRIDGES, THE COMMONWEALTH OF MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS.
STV	SLOPED TO VERTICAL CURB TRANSITION
TBM	TEMPORARY BENCH MARK
TC	TOP OF CURB ELEVATION
TMH	TELEPHONE MANHOLE
TOF	TOP OF CONCRETE FOUNDATION ELEVATION
TOP	TOP OF PIPE ELEVATION
TYP	TYPICAL FOR ALL ITEMS SHOWN
UP	UTILITY POLE
VGTS	VERTICAL GRANITE CURB TRANSITION SEGMENT

Holden Planning Board

DATE OF APPROVAL:

DATE OF ENDORSEMENT:

Susan E. Carter
COMMONWEALTH OF MASSACHUSETTS
CIVIL ENGINEER
NO. 41270
REGISTERED PROFESSIONAL ENGINEER
8-13-21

REVISIONS:

1-18-21 GENERAL REVISION
5-25-21 NO REVISIONS THIS SHEET
8-11-21 PER PEER REVIEW COMMENTS

SALISBURY PINE TREE ESTATES
NOTES AND LEGEND

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TOWN: HOLDEN, MASSACHUSETTS
PREPARED FOR:

Holden Pine Tree, LLC

SCALE: AS NOTED DATE: OCT. 2019

PLACES Associates, Inc.
· Planning
· Landscape Architecture
· Civil Engineering
· Surveying
256 Great Road, Suite 4
Littleton, MA 01460
(978) 486-0334
www.placesassociates.com

PROJECT No.: 7602

Holden Planning Board
DATE OF APPROVAL:
DATE OF ENDORSEMENT:

NOTES:

1. THE WETLANDS DEPICTED HAVE BEEN FIELD DELINEATED AND SURVEY LOCATED. THE WETLANDS LINE AND RELATED JURISDICTIONAL AREAS ARE NOT "SET" UNTIL CONFIRMED BY THE HOLDEN CONSERVATION COMMISSION.
2. DCR WATERSHED PROTECTION ZONES ARE TAKEN FROM MASS GIS INFORMATION.
3. THE TOPOGRAPHY AND SITE COORDINATES ARE BASED ON "MASS GRID" INFORMATION.
4. THE ENTIRETY OF THE SITE IS LOCATED IN THE ASIAN LONG-HORNED BEETLE QUARANTINE. ALL CLEARING, WOOD PROCESSING AND WOOD WASTE MUST MEET APPLICABLE REGULATIONS.

REVISIONS:

1-18-21 GENERAL REVISION
5-25-21 NO REVISIONS THIS SHEET
8-11-21 PER PEER REVIEW COMMENTS

80' 0 80' 160'

BAR SCALE
1"=80'
CHECK GRAPHIC SCALE BEFORE USING

SALISBURY PINE TREE ESTATES
EXISTING CONDITIONS PLAN

LOCATION: Salisbury St., Pine Tree and Bailey Rds
TOWN: HOLDEN, MASSACHUSETTS
PREPARED FOR:

Holden Pine Tree, LLC

SCALE: 1"=80' DATE: OCT. 2019

Susan E. Carter CIVIL ENGINEER NO. 41270 REGISTERED PROFESSIONAL ENGINEER COMMONWEALTH OF MASSACHUSETTS
8-13-21

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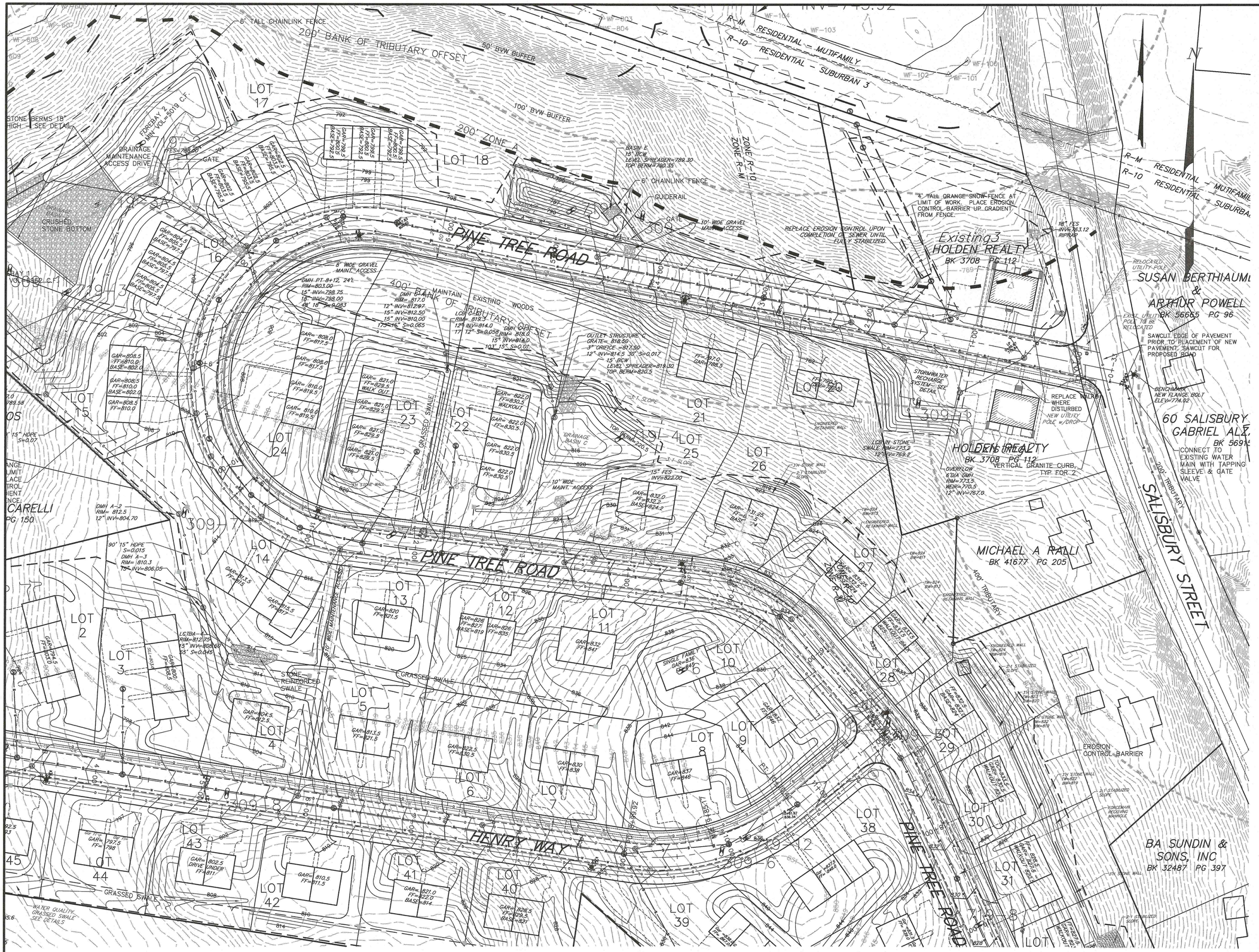
PROJECT No.: 7602



Holden Planning Board
DATE OF APPROVAL:
DATE OF ENDORSEMENT:

40' 0 40' 80'

BAR SCALE 1"=40'

CHECK GRAPHIC SCALE BEFORE USING

NOTE:
1. ALL SLOPES 3:1 OR STEEPER TO BE REINFORCED SLOPES, SEE DETAIL
2. SEE "SITE WORK NOTES" NO.6 FOR PROTECTIVE MEASURES TO BE USED DURING CONSTRUCTION.
3. INDIVIDUAL SEWER AND WATER CONNECTIONS TO BE SHOWN AS PART OF SEWER/WATER CONNECTION PERMIT PROCESS FOR EACH LOT.
4. ALL HEADWALLS AND RETAINING WALLS TO BE FULL LOCATED OUTSIDE OF ROADWAY RIGHT-OF-WAY.

Susan E. Carter CIVIL ENGINEER NO. 41270 REGISTERED PROFESSIONAL ENGINEER
8-13-21

REVISIONS:

1-18-21 GENERAL REVISION
5-25-21 GENERAL REVISION
8-11-21 GENERAL REVISION

SALISBURY PINE TREE ESTATES SITE PLAN

Sheet 1 of 4

LOCATION: Salisbury St., Pine Tree and Bailey Rds
TOWN: HOLDEN, MASSACHUSETTS

PREPARED FOR:

HOLDEN PINE TREE, LLC

SCALE: 1"=40' DATE: OCT. 2019

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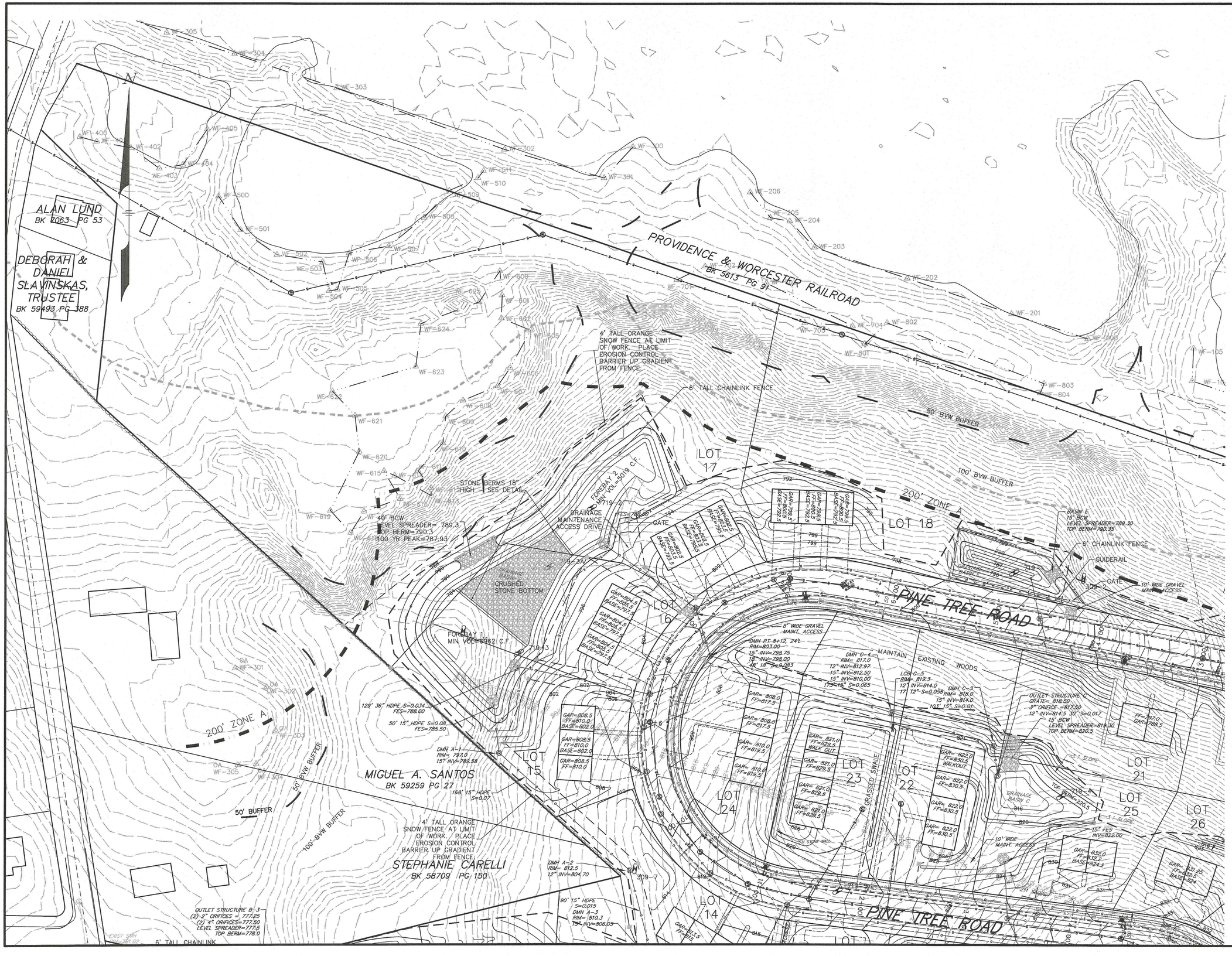
PROJECT No.: 7602

SHEET 7 OF 34



Holden Planning Board

DATE OF APPROVAL:

DATE OF ENDORSEMENT:

40' 0 40' 80'

BAR SCALE 1"=40'

CHECK GRAPHIC SCALE BEFORE USING

NOTE:
1. SEE NOTES SHEET 8 OF 28.

REVISIONS:

1-18-21 GENERAL REVISION
5-25-21 GENERAL REVISION
8-11-21 GENERAL REVISION

COMMONWEALTH OF MASSACHUSETTS
Susan E. Carter
CIVIL ENGINEER
NO. 41270
REGISTERED PROFESSIONAL ENGINEER
8-13-21

SALISBURY PINE TREE ESTATES SITE PLAN

Sheet 2 of 4

LOCATION: Salisbury St., Pine Tree and Bailey Rds
TOWN: HOLDEN, MASSACHUSETTS

PREPARED FOR:

HOLDEN PINE TREE, LLC

SCALE: AS NOTED DATE: OCT. 2019

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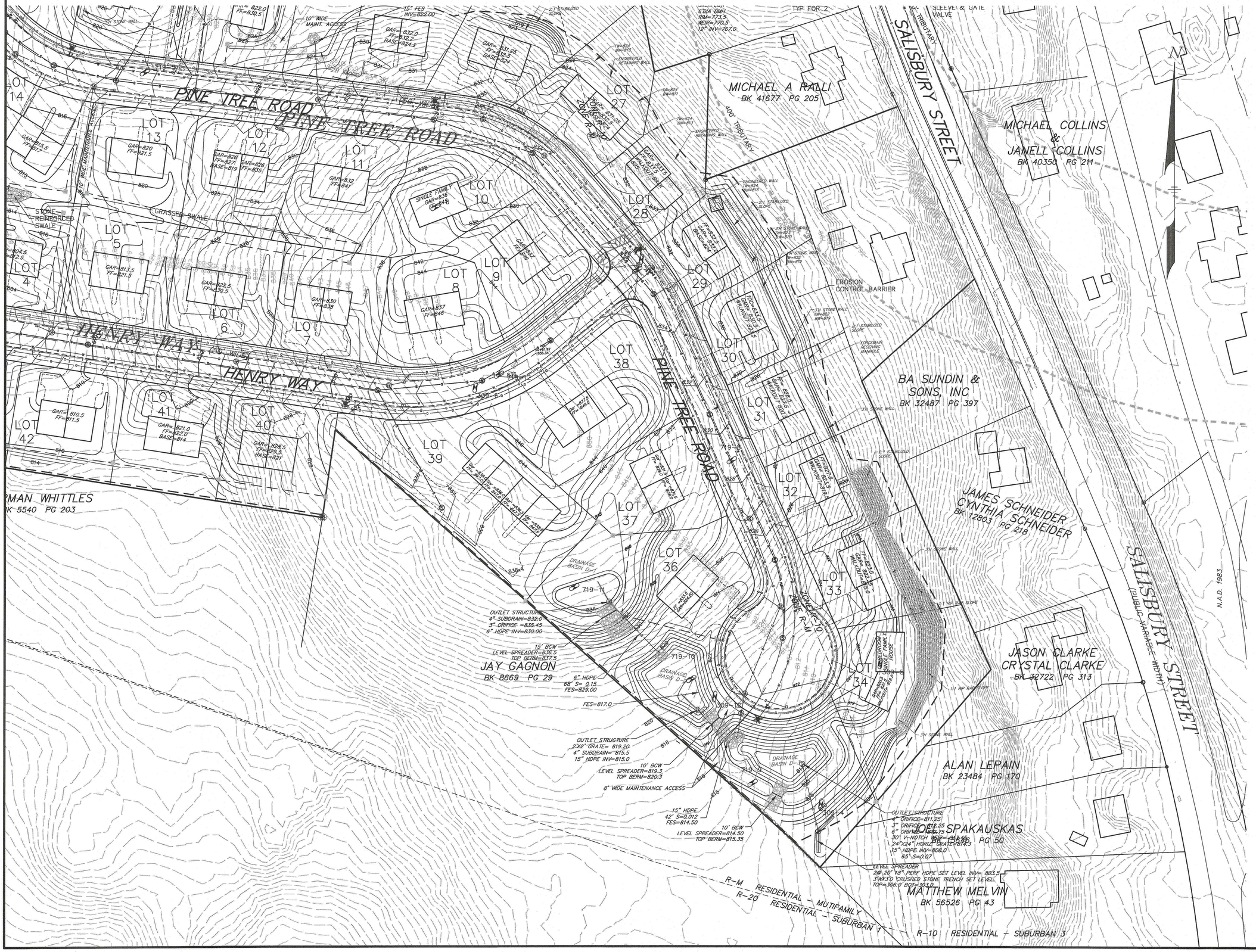
SHEET 8 OF 34


PINE TREE ROAD
HENRY WAY
SALISBURY STREET
PINE TREE ROAD
MICHAEL A RALLI
BK 41677 PG 205
MICHAEL COLLINS
&
JANELL COLLINS
BK 40350 PG 211
BA SUNDIN &
SONS, INC
BK 32487 PG 397
JAMES SCHNEIDER
CYNTHIA SCHNEIDER
BK 12803 PG 218
JASON CLARKE
CRYSTAL CLARKE
BK 32722 PG 313
ALAN LEPAIN
BK 23484 PG 170
JOEL SPAKAUSKAS
BK 11990 PG 50
MATTHEW MELVIN
BK 56526 PG 43
JAY GAGNON
BK 8669 PG 29
SALISBURY STREET
(PUBLIC VARIABLE WIDTH)
N.A.D. 1983
R-M RESIDENTIAL - MUTIFAMILY
R-20 RESIDENTIAL - SUBURBAN 1
R-10 RESIDENTIAL - SUBURBAN 3
EROSION CONTROL BARRIER
STONE REINFORCED SWALE
GRASSED SWALE
400' TRIBUTARY
LOT 4
LOT 5
LOT 6
LOT 7
LOT 8
LOT 9
LOT 10
LOT 11
LOT 12
LOT 13
LOT 14
LOT 27
LOT 28
LOT 29
LOT 30
LOT 31
LOT 32
LOT 33
LOT 34
LOT 36
LOT 37
LOT 38
LOT 39
LOT 40
LOT 41
LOT 42
OUTLET STRUCTURE
4" SUBDRAIN=832.0
3" ORIFICE =835.45
6" HDPE INV=830.00
15' BCW
LEVEL SPREADER=836.5
TOP BERM=837.5
6" HDPE
68' S= 0.15
FES=829.00
FES=817.0
OUTLET STRUCTURE
2'X2' GRATE= 819.20
4" SUBDRAIN="815.5
15" HDPE INV=815.0
10' BCW
LEVEL SPREADER=819.3
TOP BERM=820.3
8" WIDE MAINTENANCE ACCESS
15" HDPE
42' S=0.012
FES=814.50
10' BCW
LEVEL SPREADER=814.50
TOP BERM=815.35
OUTLET STRUCTURE
4" ORIFICE=811.25
3" ORIFICE=812.25
6" ORIFICE=812.75
30° V-NOTCH WEIR =814.45
24"X24" HORIZ. GRATE=814.3
15" HDPE INV=808.0
65' S=0.07
LEVEL SPREADER
20' 20' V8" PERF HDPE SET LEVEL INV= 803.5
3'WX3'D CRUSHED STONE TRENCH SET LEVEL
TOP=806.0 BOT=803.5
15" FES INV=822.00
10" WIDE MAINT. ACCESS
6" WIDE MAINTENANCE ACCESS
2'DIA DMH
RIM=773.5
WEIR=770.5
12" INV=767.0
SLEEVE & GATE VALVE
TYP. FOR 2
2:1 STABILIZED SLOPE
ENGINEERED RETAINING WALL
3H STONE WALL
TRANSFORMER
SINGLE FAMILY
DRAINAGE BASIN D-1
DRAINAGE BASIN D-2
DRAINAGE BASIN D-3
719-11
719-10
719-9
308-1
308-2
308-3
308-4
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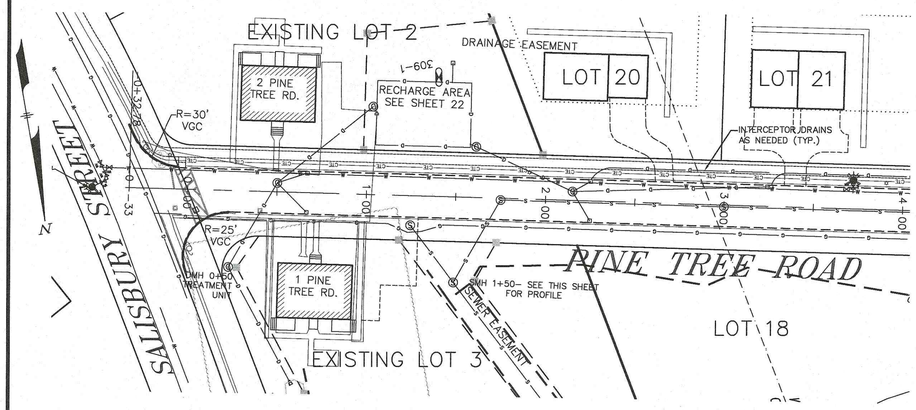
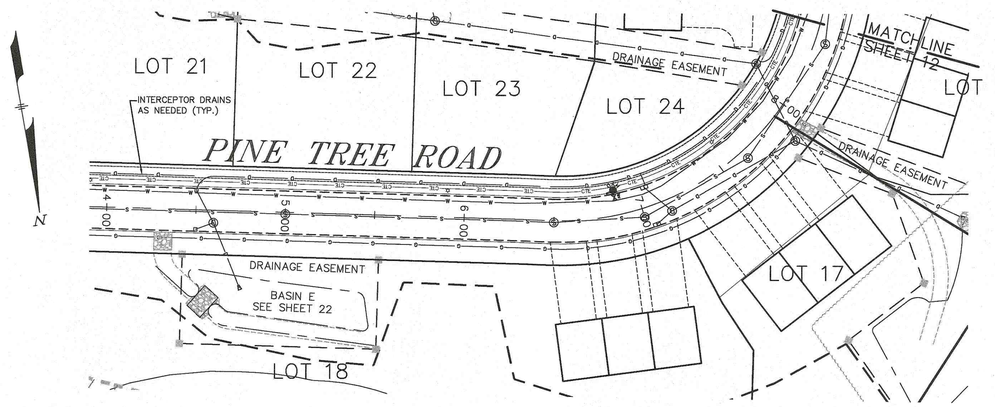
GAR=67.5
FF=68.25
WALKOUT BASE=63.5
GAR=63.5
FF=64.25
WALKOUT BASE=59.5
GAR=59.5
FF=60.25
WALKOUT BASE=55.5
GAR=55.5
FF=56.25
WALKOUT BASE=51.5
GAR=51.5
FF=52.25
WALKOUT BASE=47.5
GAR=47.5
FF=48.25
WALKOUT BASE=43.5
GAR=43.5
FF=44.25
WALKOUT BASE=39.5
GAR=39.5
FF=40.25
WALKOUT BASE=35.5
GAR=35.5
FF=36.25
WALKOUT BASE=31.5
GAR=31.5
FF=32.25
WALKOUT BASE=27.5
GAR=27.5
FF=28.25
WALKOUT BASE=23.5
GAR=23.5
FF=24.25
WALKOUT BASE=19.5
GAR=19.5
FF=20.25
WALKOUT BASE=15.5
GAR=15.5
FF=16.25
WALKOUT BASE=11.5
GAR=11.5
FF=12.25
WALKOUT BASE=7.5
GAR=7.5
FF=8.25
WALKOUT BASE=3.5
GAR=3.5
FF=4.25
WALKOUT BASE=-0.5
GAR=-0.5
FF=0.25
WALKOUT BASE=-4.5
GAR=-4.5
FF=-3.75
WALKOUT BASE=-8.5
GAR=-8.5
FF=-7.75
WALKOUT BASE=-12.5
GAR=-12.5
FF=-11.75
WALKOUT BASE=-16.5
GAR=-16.5
FF=-15.75
WALKOUT BASE=-20.5
GAR=-20.5
FF=-19.75
WALKOUT BASE=-24.5
GAR=-24.5
FF=-23.75
WALKOUT BASE=-28.5
GAR=-28.5
FF=-27.75
WALKOUT BASE=-32.5
GAR=-32.5
FF=-31.75
WALKOUT BASE=-36.5
GAR=-36.5
FF=-35.75
WALKOUT BASE=-40.5
GAR=-40.5
FF=-39.75
WALKOUT

N
PINE TREE ROAD
PINE TREE ROAD
HENRY WAY
BAILEY ROAD (PUBLIC)
200' ZONE A
100-BVW BUFFER
50' BUFFER
50' BVW BUFFER
R-M RESIDENTIAL - MULTIFAMILY
R-20 RESIDENTIAL - SUBURBAN 1
LOT 1
LOT 2
LOT 3
LOT 4
LOT 5
LOT 6
LOT 7
LOT 8
LOT 9
LOT 10
LOT 11
LOT 12
LOT 13
LOT 14
LOT 15
LOT 16
LOT 18
LOT 21
LOT 22
LOT 23
LOT 24
LOT 25
LOT 26
LOT 39
LOT 40
LOT 41
LOT 42
LOT 43
LOT 44
LOT 45
40' BCW
LEVEL SPREADER= 789.3
TOP BERM=790.3
100 YR PEAK=787.93
FOREBAY 1
MIN VOL=5962 C.F.
CRUSHED STONE BOTTOM
DRAINAGE MAINTENANCE ACCESS DRIVE
6' CHAINLINK FENCE
GUIDERAIL
GATE
10' WIDE GRAVEL MAINT. ACCESS
8' WIDE GRAVEL MAINT. ACCESS
400' DMH BANK MAINTAIN EXISTING WOODS TRIBUTARY OFFSET
DMH P.T. 8+12, 24'L
RIM=803.00
15" INV=798.75
18" INV=798.00
48" S=0.083
DMH A
RIM= 791.0
15" INV=789.58
DMH A-2
RIM= 812.5
12" INV=804.70
DMH 1-3
RIM= 810.3
15" INV=806.05
129' 36" HDPE S=0.034 FES=788.00
50' 15" HDPE S=0.08 FES=785.50
168' 15" HDPE S=0.07
90' 15" HDPE S=0.015
LCTBA=812.75
15" INV=808.68
15" S=0.045
4' TALL ORANGE SNOW FENCE AT LIMIT OF WORK. PLACE EROSION CONTROL BARRIER UP GRADIENT FROM FENCE.
OUTLET STRUCTURE B-3
(2)-3" ORIFICES = 777.25
(2) 4" ORIFICES=777.50
LEVEL SPREADER=777.5
TOP BERM=778.0
6' TALL CHAINLINK FENCE
2.5:1 RIPRAP SLOPE
BENCHMARK
X CUT, FLANGE BOLT
ELEV=794.84
NEW UTILITY POLE w/DROP
DOGHOUSE SEWER MANHOLE
EXIST. UTILITY POLE TO BE RELOCATED
CONNECT TO EXISTING WATER MAIN WITH TAPPING SLEEVE & GATE VALVE
VERTICAL GRANITE CURB, TYP FOR 2
RELOCATED UTILITY POLE
EXISTING TREES TO REMAIN
EXIST SMH
RIM=794.86
8"INV=775.63
8"INV=775.92
OUTLET STRUCTURE B-2
2' X2' GRATE= 780.20
(2) 3" ORIFICES=779.00
12" INV=778.0 30' S=0.01
10' BCW
LEVEL SPREADER=780.5
TOP BERM=781.7
OUTLET STRUCTURE B-1
TOP 47"x 47" GRATE=785.6
4 6" ORIFICE=784.5
15" INV=782.0
10' BCW
LEVEL SPREADER=785.65
TOP BERM=786.85
34' S=0.058 FES=780.0
WATER QUALITY GRASSED SWALE SEE DETAILS
STONE REINFORCED SWALE
GRASSED SWALE
OUTLET STRUCTURE
4' SUBDRAIN=832.0
12" ORIFICE =835.45
15" BCW
LEVEL SPREADER=789.30
TOP BERM=790.35
OUTLET STRUCTURE
GRATE= 818.50
3" ORIFICE =817.50
12" INV=814.5 30' S=0.017
15" BCW
LEVEL SPREADER=819.50
TOP BERM=820.5
15" FES
INV=822.00
10' WIDE MAINT. ACCESS
DRAINAGE BASIN C
DRAINAGE BASIN D
SINGLE FAMILY
GAR=836
FF=846
GAR=808.5
FF=810.0
BASE=802.0
GAR=804.5
FF=805.5
BASE=795.5
GAR=808.0
FF=817.5
GAR= 821.0
FF=829.5
WALK OUT
GAR= 822.0
FF=830.5
WALKOUT
GAR= 832.0
FF=832.2
BASE=824.2
GAR=831.25
FF=832.5
BASE=824
GAR=826
FF=827
BASE=819
GAR=826
FF=835
GAR=832
FF=841
GAR=830
FF=838
GAR=837
FF=846
GAR=822.5
FF=823.5
GAR=813.5
FF=821.5
GAR=804.5
FF=812.5
GAR=802.5
FF=793
GAR=797.5
FF=799
GAR=802.5
DRIVE UNDER
FF=811
GAR=810.5
FF=811.5
GAR=821.0
FF=822.0
BASE=814
GAR=826.5
FF=829.5
BASE=821
GAR=835.5
FF=836.5
BASE=827
GAR=835.5
FF=836.5
BASE=827
GAR=835.5
FF=836.5
BASE=827

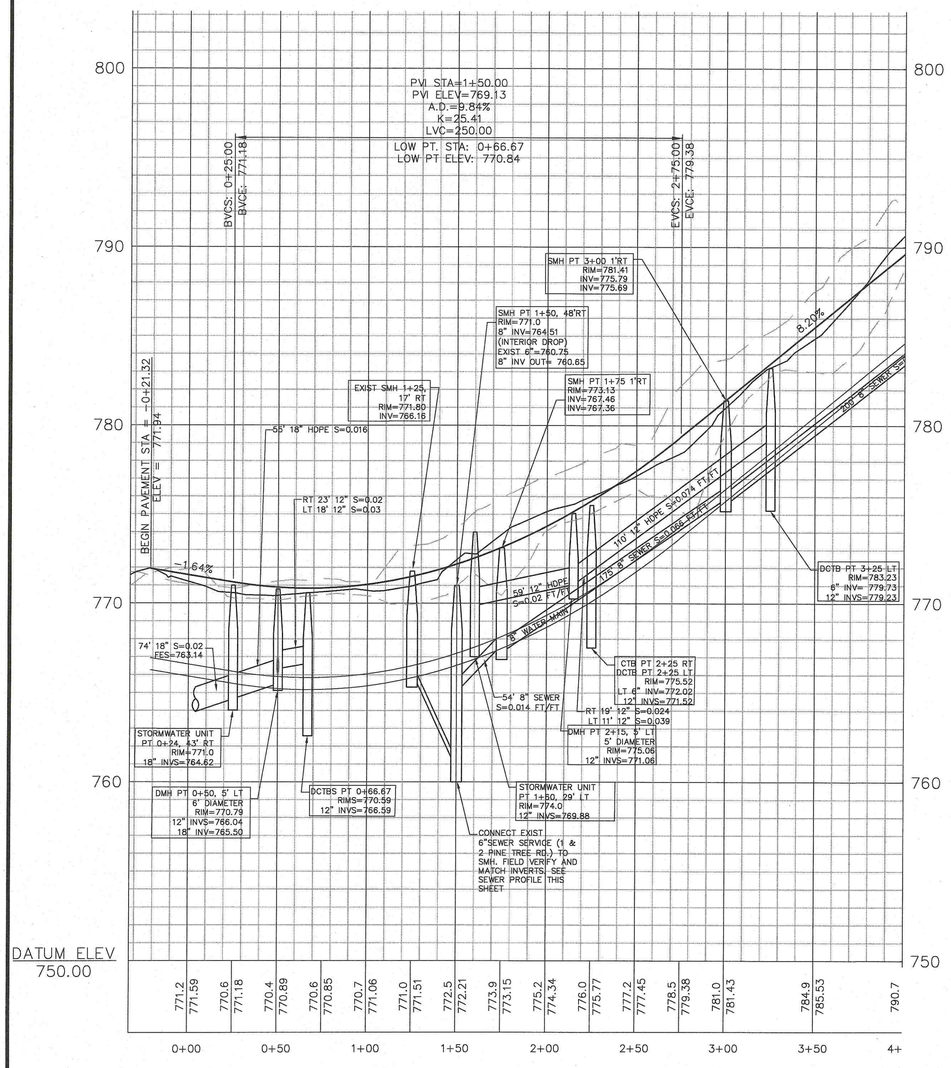


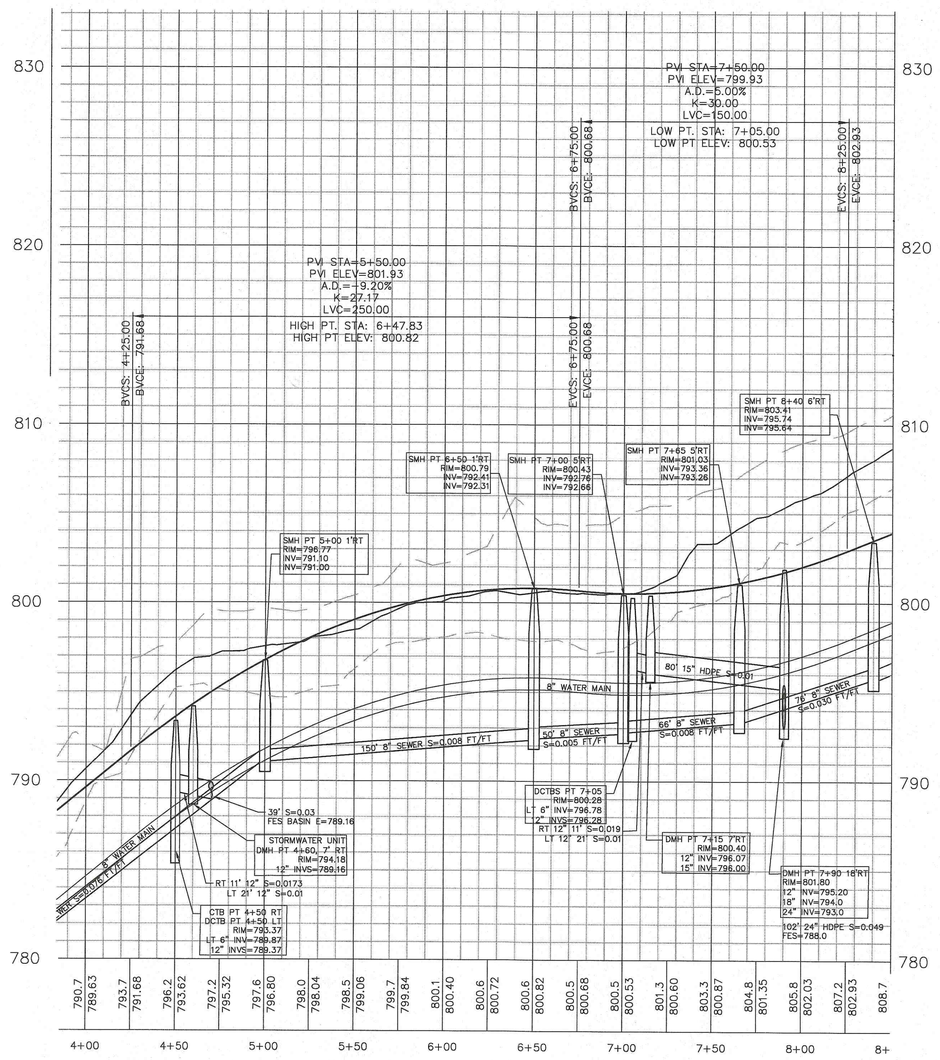


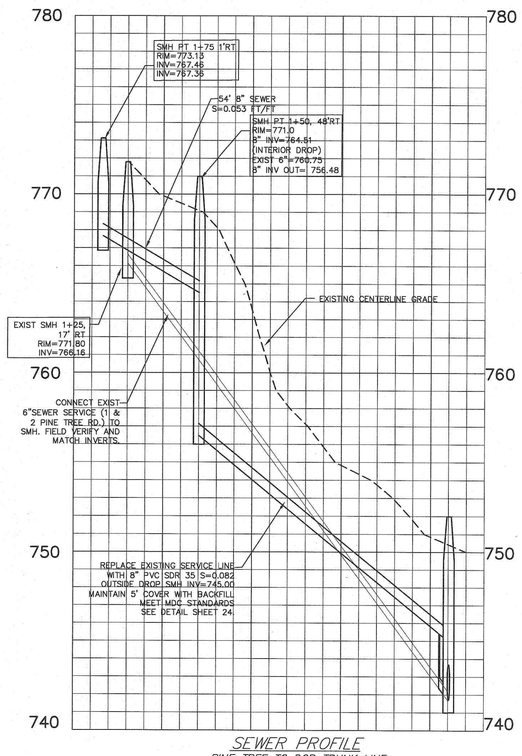
PROPOSED CENTERLINE GRADE
EXISTING CENTERLINE GRADE
EXISTING 25' RIGHT
EXISTING 25' LEFT

PLAN AND PROFILE

SCALE: 1"=4' VERT.
1"=40' HORIZ.







SEWER PROFILE

PINE TREE TO DCR TRUNK LINE

NOTE:
WATER AND SEWER CONNECTION LOCATIONS AND NUMBERS (BASED ON THE NUMBER OF UNITS TO BE CONSTRUCTED) SHALL BE ESTABLISHED FOR EACH PHASE PRIOR TO CONSTRUCTION OF THE ROADWAY. THE LATERALS FOR THE SERVICES WITHIN THE ROW WILL BE INSTALLED PRIOR TO OBTAINING BUILDING PERMITS AND THE INSTALLATION OF EXTRA SERVICES SHALL NOT BE PERMITTED (I.E. IF A TRIPLEX IS REPLACED WITH A DUPLEX). NO NEW CUTS WILL BE ALLOWED ONCE THE FINISH PAVEMENT IS INSTALLED IN THE ROADWAY.

Holden Planning Board

DATE OF APPROVAL:

DATE OF ENDORSEMENT:

PINE TREE ROAD BEGIN TO STA 8+50

SALISBURY PINE TREE ESTATES
PINE TREE ROAD
ROADWAY LAYOUT PLAN
BEGIN TO STA 8+50

LOCATION: Salisbury St., Pine Tree and Bailey Rds
TOWN: HOLDEN, MASSACHUSETTS

PREPARED FOR:

Holden Pine Tree, LLC

SCALE: AS NOTED DATE: DEC. 2020

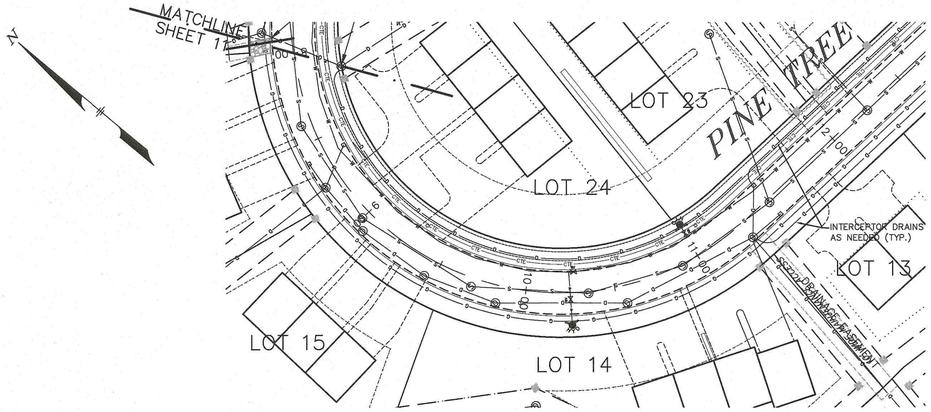
Susan E. Carter
COMMONWEALTH OF MASSACHUSETTS
CIVIL ENGINEER
NO. 41279
REGISTERED
PROFESSIONAL ENGINEER
8-13-21

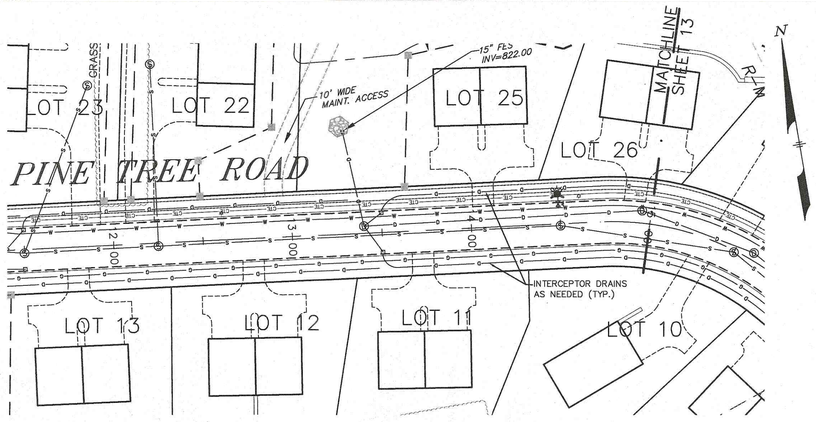
REVISIONS:

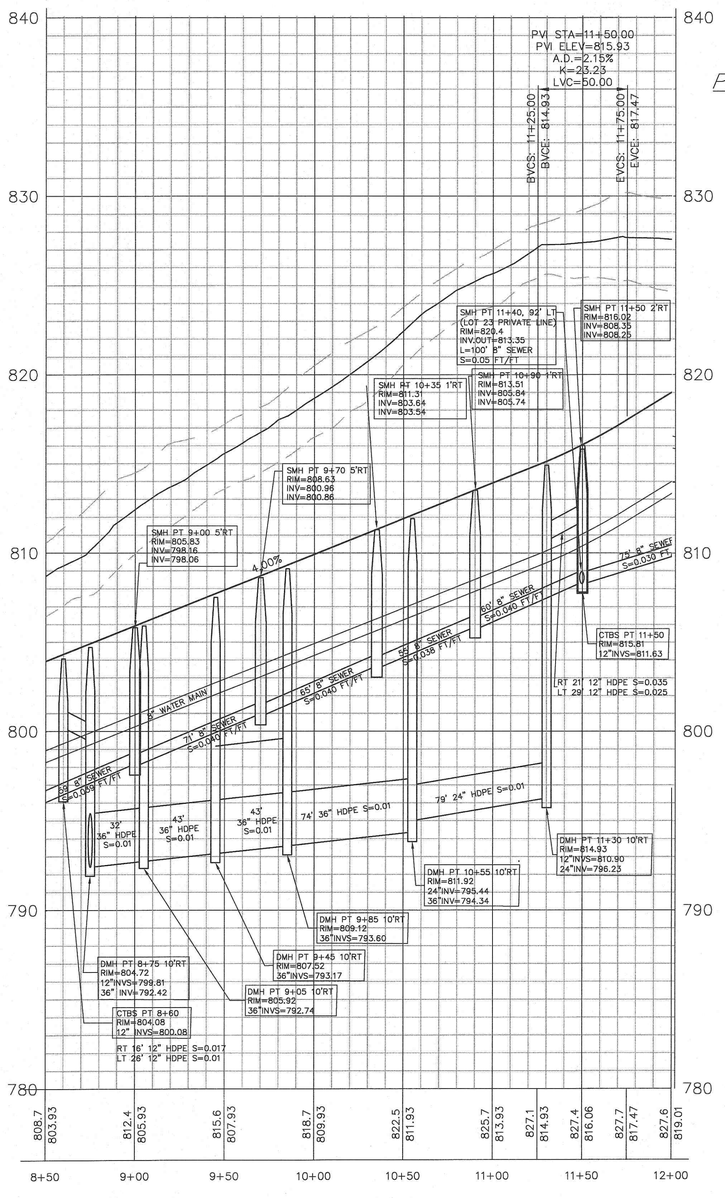
1-18-21 GENERAL REVISION
5-25-21 NO REVISIONS THIS SHEET
8-11-21 PER PEER REVIEW COMMENTS

PLACES Associates, Inc.
· Planning
· Landscape Architecture
· Civil Engineering
· Surveying
256 Great Road, Suite 4
Littleton, MA 01460
(978) 486-0334
www.placesassociates.com

PROJECT No.: 7602



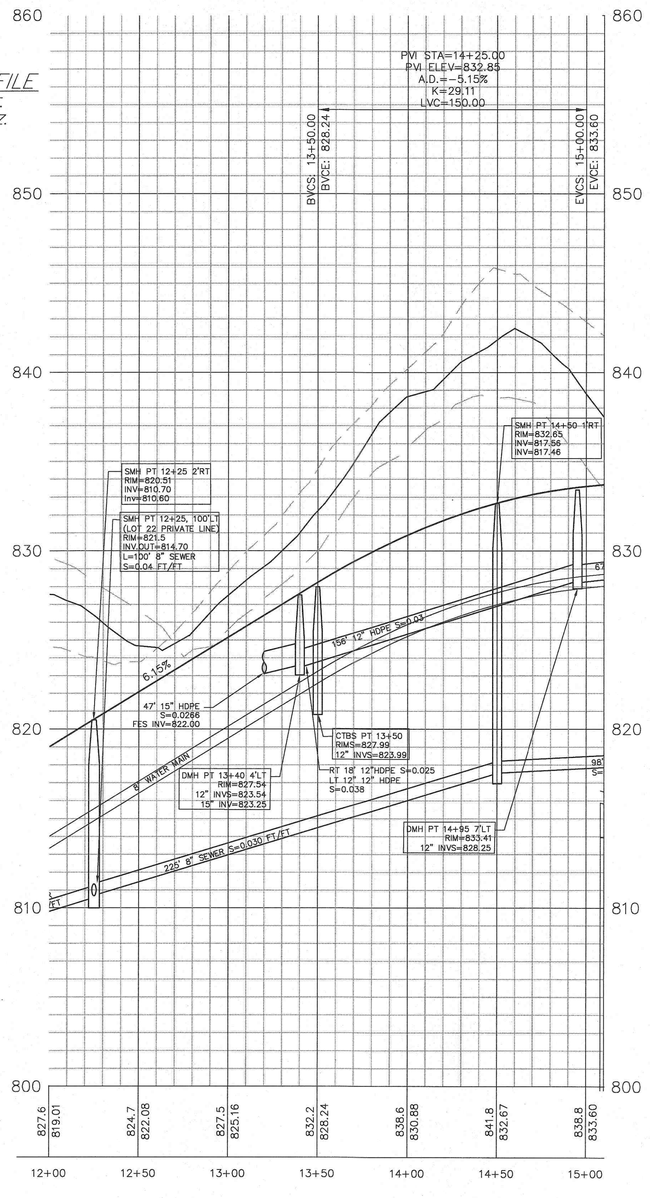




PLAN AND PROFILE

SCALE: 1"=4' VERT.
1"=40'HORIZ.

NOTE:
MANHOLES GREATER THAN 10' DEPTH TO BE SPECIAL CASTINGS



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PROPOSED CENTERLINE GRADE
EXISTING CENTERLINE GRADE
EXISTING 25' RIGHT
EXISTING 25' LEFT

REVISIONS:

1-18-21 GENERAL REVISION
5-25-21 NO REVISIONS THIS SHEET
8-11-21 PER PEER REVIEW COMMENTS

Holden Planning Board

DATE OF APPROVAL:

DATE OF ENDORSEMENT:

PINE TREE ROAD STA 8+50 TO 15+00

SALISBURY PINE TREE ESTATES
PINE TREE ROAD
ROADWAY LAYOUT PLAN
STA 8+50 TO 15+00

LOCATION: Salisbury St., Pine Tree and Bailey Rds
TOWN: HOLDEN, MASSACHUSETTS

PREPARED FOR:

Holden Pine Tree, LLC

SCALE: AS NOTED DATE: DEC. 2020

COMMONWEALTH OF MASSACHUSETTS
Susan E. Carter
CIVIL ENGINEER
NO. 41270
REGISTERED
PROFESSIONAL ENGINEER
8-13-21

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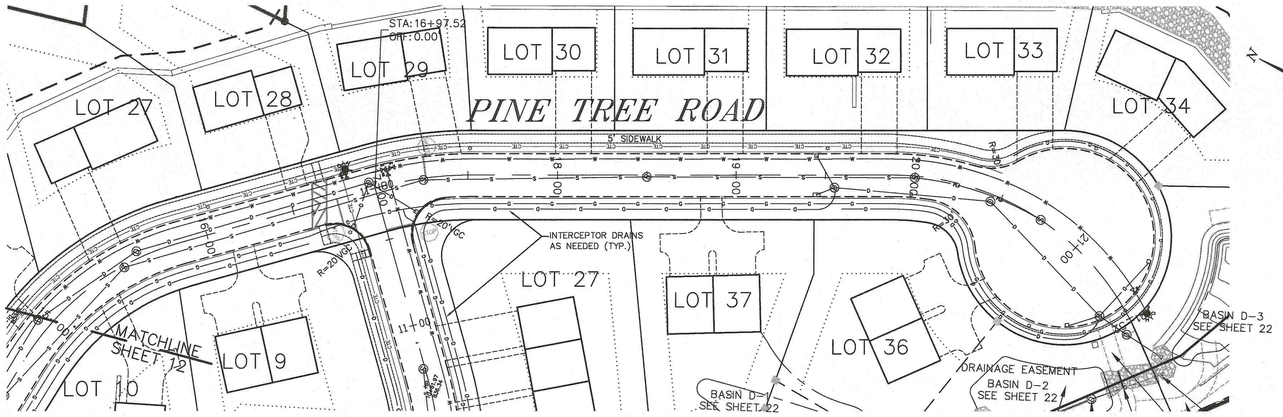
· Surveying
256 Great Road, Suite 4
Littleton, MA 01460
(978) 486-0334
www.placesassociates.com

PROJECT No.: 7602



NOTE:
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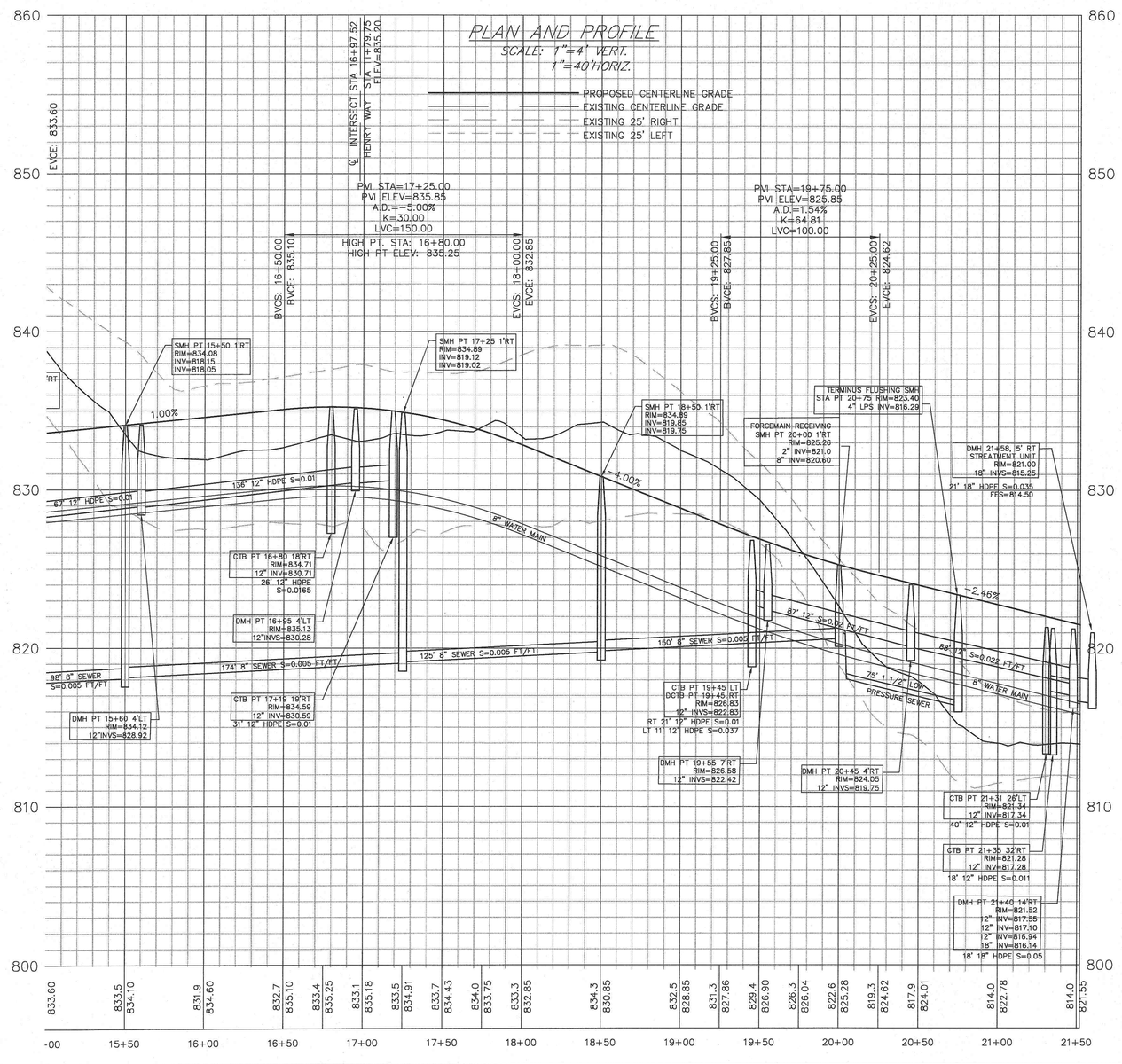
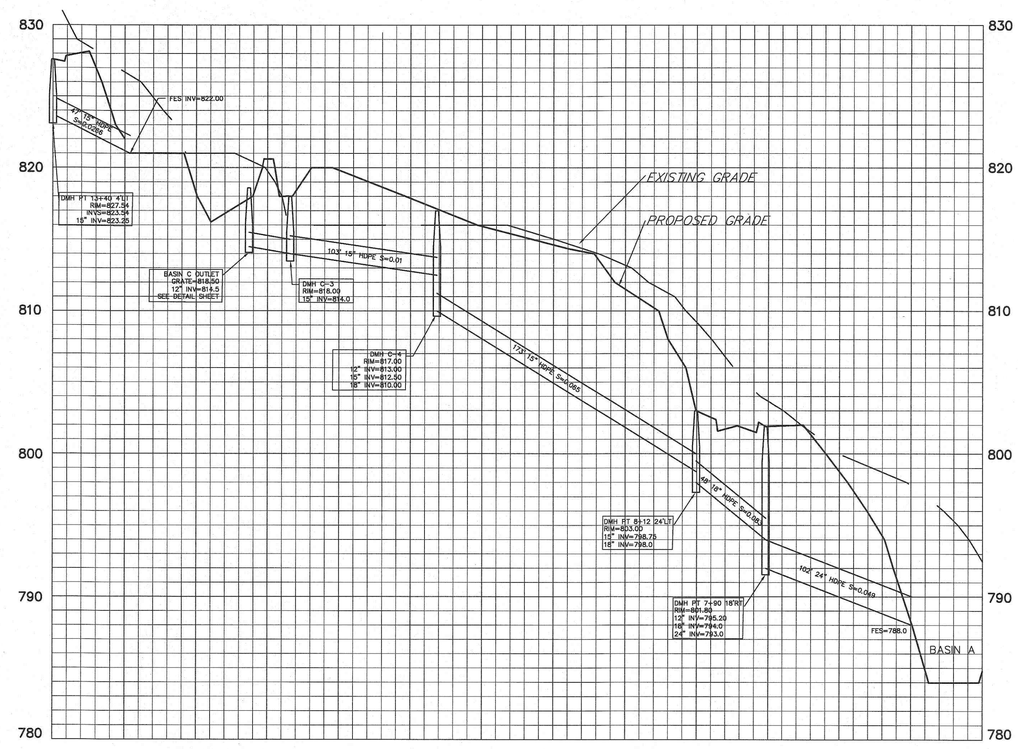
Holden Planning Board
DATE OF APPROVAL:
DATE OF ENDORSEMENT:

PINE TREE ROAD STA 15+00 TO END





CROSS COUNTRY
DRAINAGE PROFILE
DMH PINE TREE 13+40 TO BASIN A

PLAN AND PROFILE
SCALE: 1"=4' VERT.
1"=40'HORIZ.

PROPOSED CENTERLINE GRADE
EXISTING CENTERLINE GRADE
EXISTING 25' RIGHT
EXISTING 25' LEFT

NOTE:
MANHOLES
GREATER THAN 10'
DEPTH TO BE
SPECIAL CASTINGS

SALISBURY PINE TREE ESTATES
PINE TREE ROAD
ROADWAY LAYOUT PLAN
STA 15+00 TO END

LOCATION: Salisbury St., Pine Tree and Bailey Rds
TOWN: HOLDEN, MASSACHUSETTS
PREPARED FOR:

Holden Pine Tree, LLC

SCALE: AS NOTED DATE: DEC. 2020

Susan E. Carter
COMMONWEALTH OF MASSACHUSETTS
CIVIL ENGINEER
NO. 41270
REGISTERED
PROFESSIONAL ENGINEER
8-13-21

REVISIONS:

1-18-21 GENERAL REVISION
5-25-21 NO REVISIONS THIS SHEET
8-11-21 PER PEER REVIEW COMMENTS

PLACES Associates, Inc.
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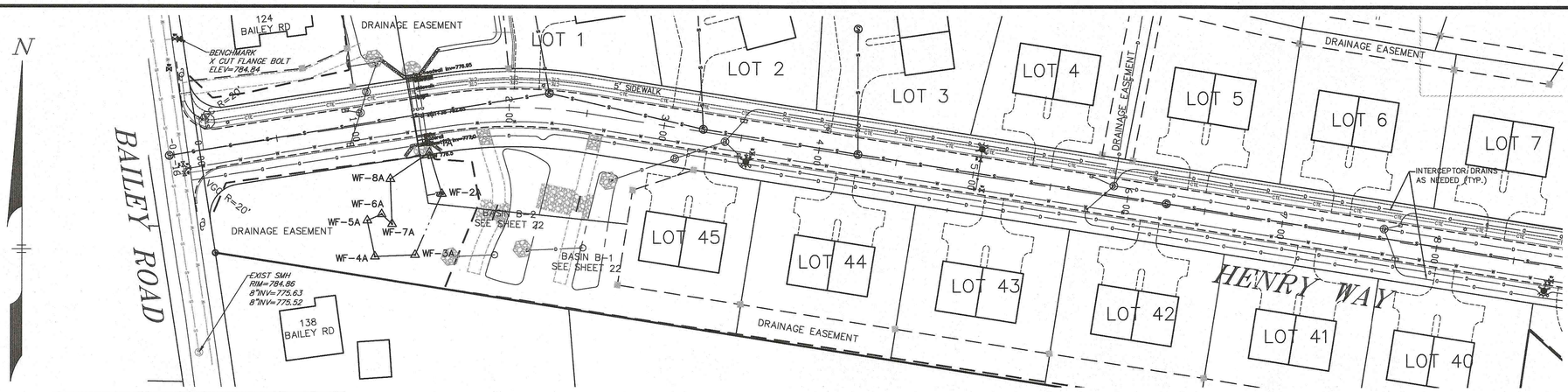
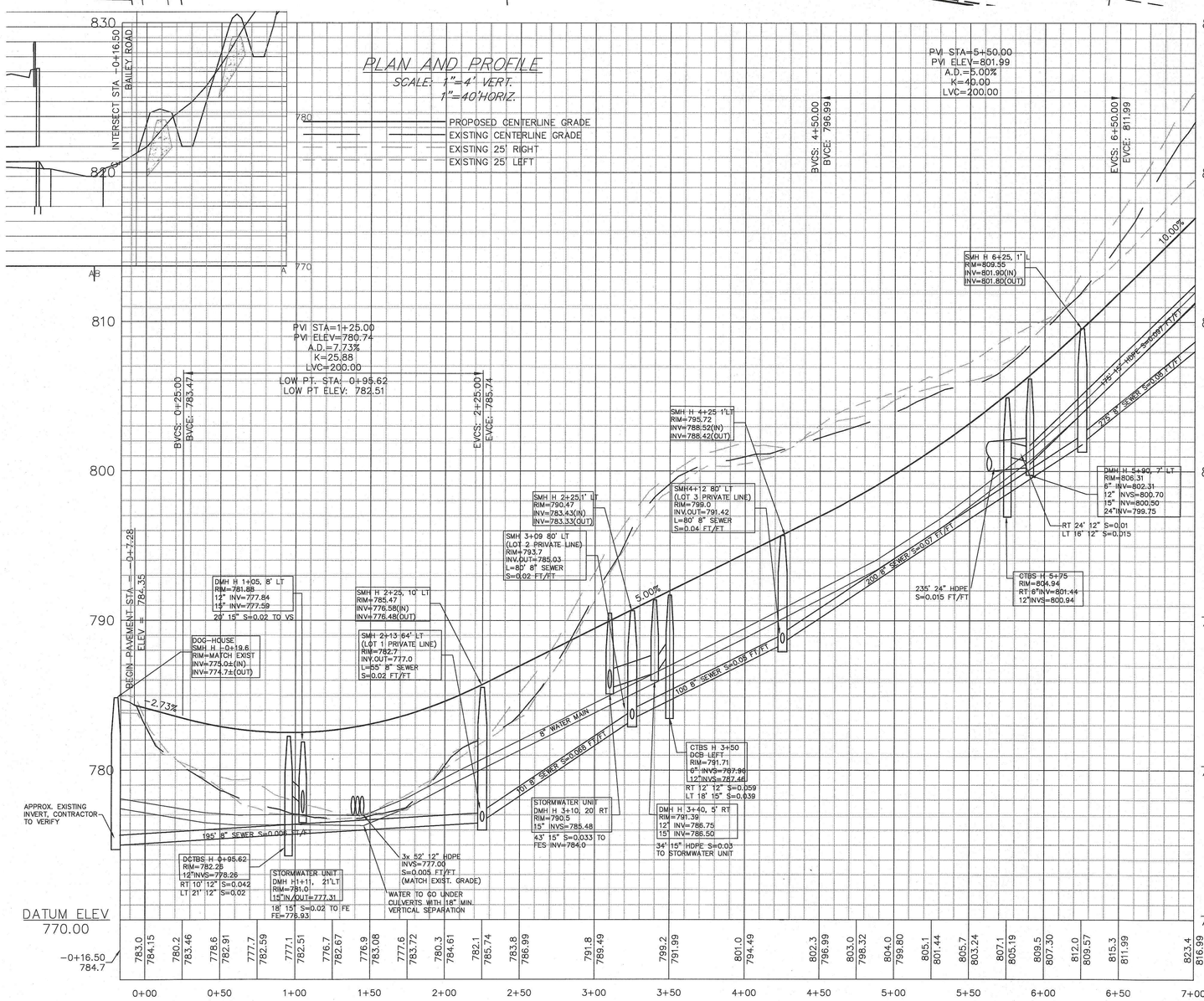
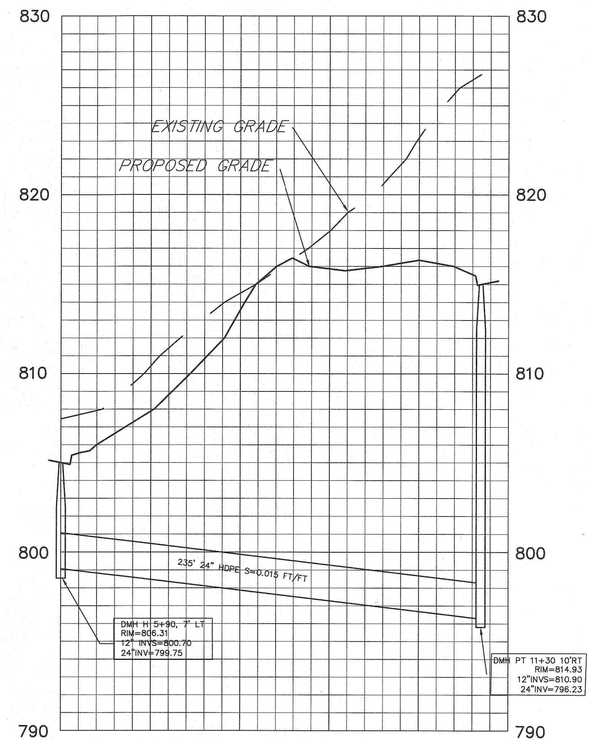
· Civil Engineering
· Surveying
256 Great Road, Suite 4
Littleton, MA 01460
(978) 486-0334
www.placesassociates.com

PROJECT No.: 7602







CROSS COUNTRY
DRAINAGE PROFILE
DMH HENRY 5+75 TO PINE TREE 11+30

NOTE:
WATER AND SEWER CONNECTION LOCATIONS AND NUMBERS (BASED ON THE NUMBER OF UNITS TO BE CONSTRUCTED) SHALL BE ESTABLISHED FOR EACH PHASE PRIOR TO CONSTRUCTION OF THE ROADWAY. THE LATERALS FOR THE SERVICES WITHIN THE ROW WILL BE INSTALLED PRIOR TO OBTAINING BUILDING PERMITS AND THE INSTALLATION OF EXTRA SERVICES SHALL NOT BE PERMITTED (I.E. IF A TRIPLEX IS REPLACED WITH A DUPLEX). NO NEW CUTS WILL BE ALLOWED ONCE THE FINISH PAVEMENT IS INSTALLED IN THE ROADWAY.

REVISIONS:

1-18-21 GENERAL REVISION
5-25-21 NO REVISIONS THIS SHEET
8-11-21 PER PEER REVIEW COMMENTS

Holden Planning Board
DATE OF APPROVAL:
DATE OF ENDORSEMENT:

HENRY WAY BEGIN TO STA 7+00

SALISBURY PINE TREE ESTATES
HENRY WAY
ROADWAY LAYOUT PLAN
BEGIN TO STA 7+00

LOCATION: Salisbury St., Pine Tree and Bailey Rds
TOWN: HOLDEN, MASSACHUSETTS
PREPARED FOR:
Holden Pine Tree, LLC
SCALE: AS NOTED DATE: OCT. 2019

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Littleton, MA 01460
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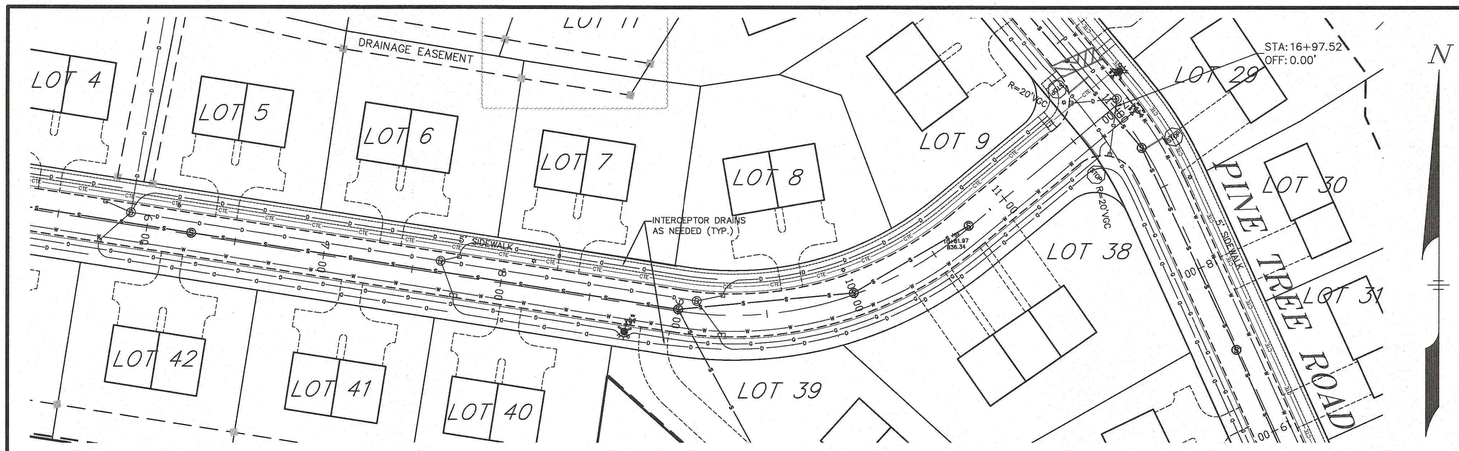
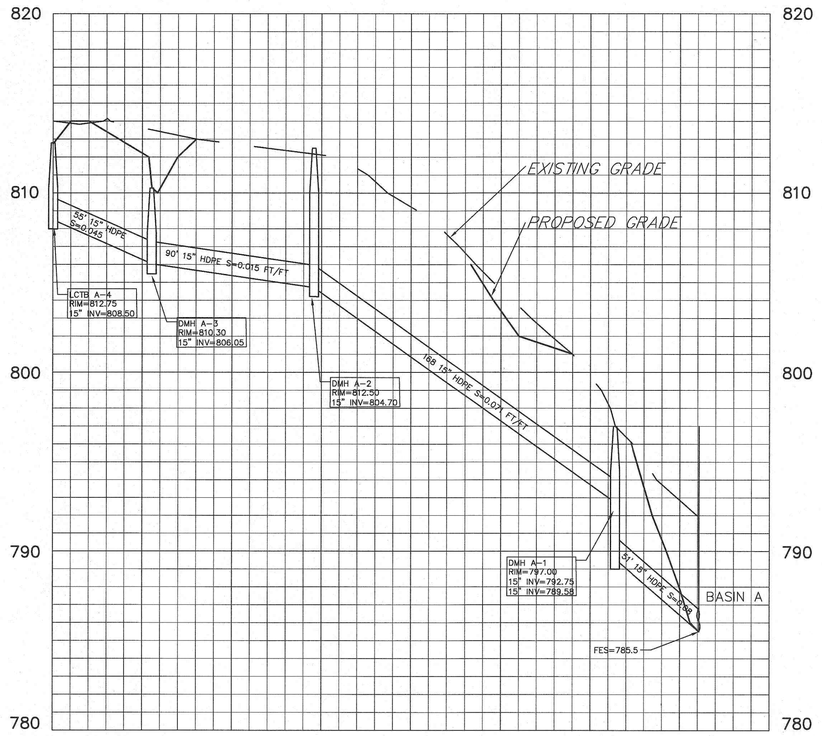
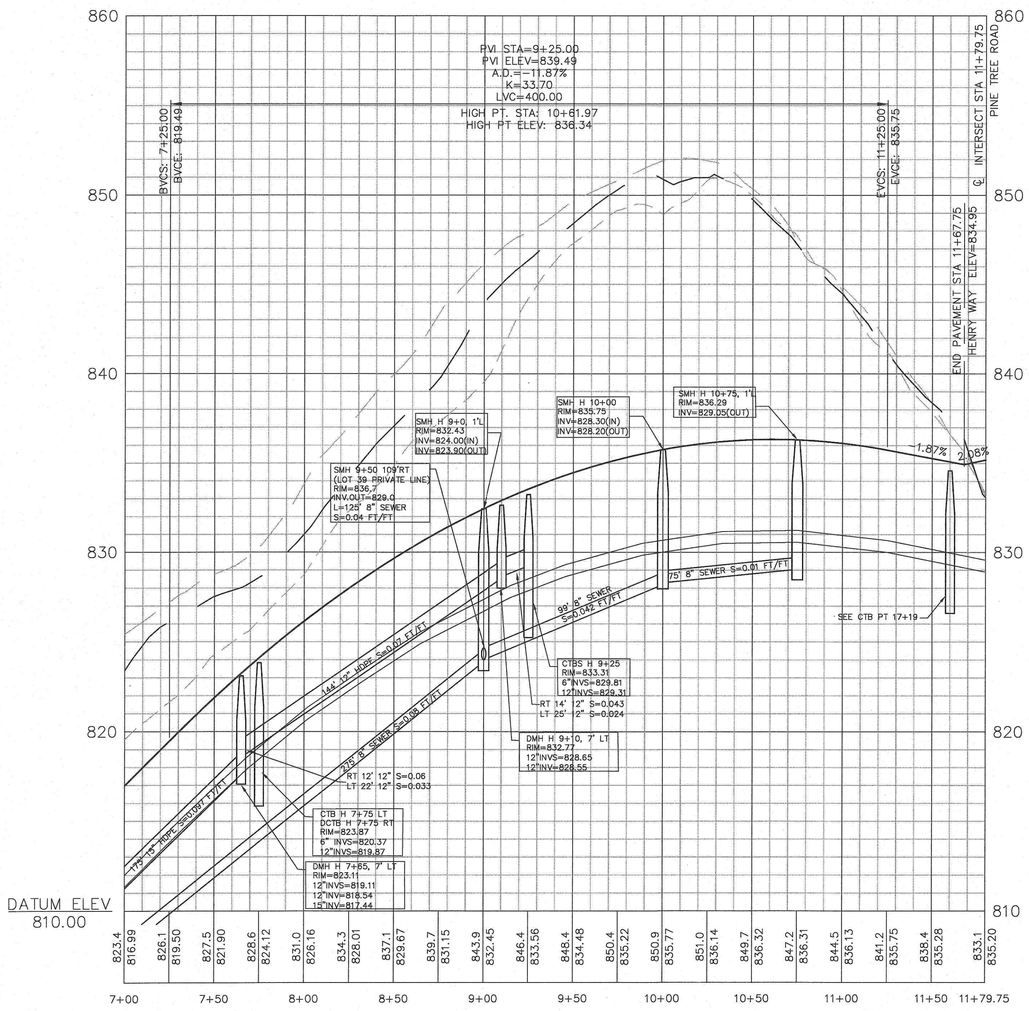




CROSS COUNTRY DRAINAGE PROFILE
LCTB A-4 TO BASIN A



PLAN AND PROFILE
SCALE: 1"=4' VERT.
1"=40'HORIZ.

NOTE:
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Holden Planning Board

DATE OF APPROVAL:
DATE OF ENDORSEMENT:

HENRY WAY STA 7+00 TO END

Susan E. Carter
COMMONWEALTH OF MASSACHUSETTS
CIVIL ENGINEER NO. 41270
REGISTERED PROFESSIONAL ENGINEER
8-13-21

REVISIONS:

1-18-21 GENERAL REVISION
5-25-21 NO REVISIONS THIS SHEET
8-11-21 PER PEER REVIEW COMMENTS

SALISBURY PINE TREE ESTATES
HENRY WAY
ROADWAY LAYOUT PLAN
STA 7+00 TO END

LOCATION: Salisbury St., Pine Tree and Bailey Rds
TOWN: HOLDEN, MASSACHUSETTS

PREPARED FOR:

Holden Pine Tree, LLC

SCALE: AS NOTED DATE: OCT. 2019

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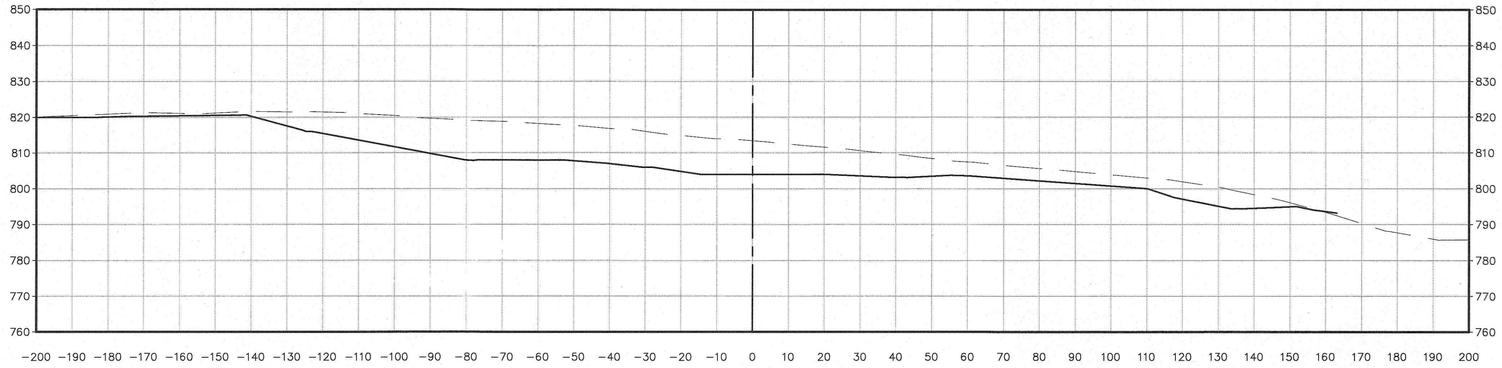
(978) 486-0334
www.placesassociates.com

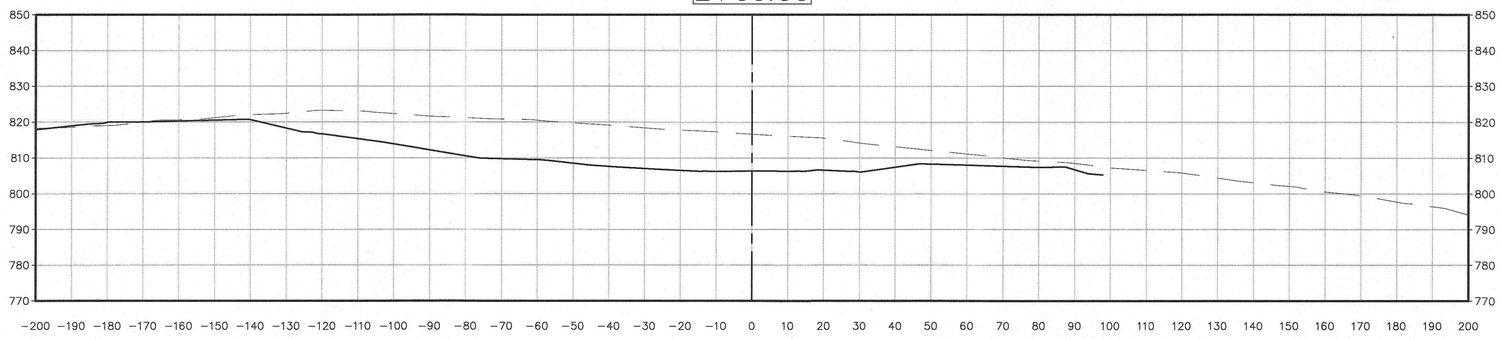
PROJECT No.: 7602

Holden Planning Board
DATE OF APPROVAL:
DATE OF ENDORSEMENT:

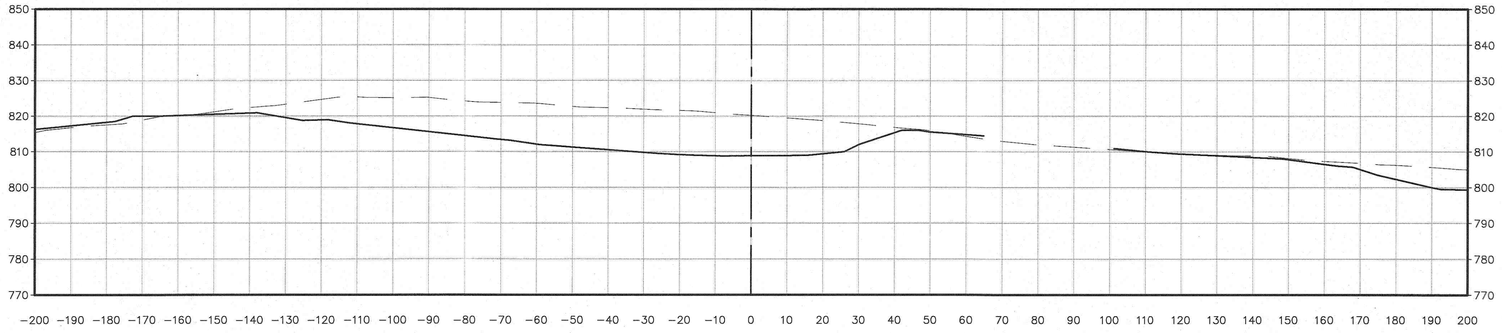
1+50.00



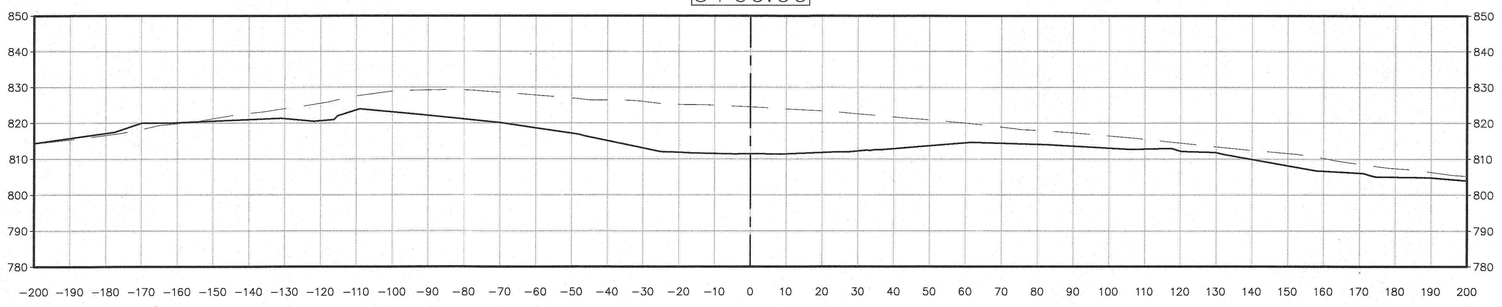
2+00.00



2+50.00



3+00.00



EXISTING SURFACE GRADE
PROPOSED SURFACE GRADE

CROSS SECTIONS
SCALE: 1"=5' VERT.
1"=100' HORIZ.

100' 0 100' 200'
BAR SCALE
1"=100'
CHECK GRAPHIC SCALE BEFORE USING

PINE TREE ROAD
STA 1+50 TO 3+00
CUT IN EXCESS OF 8 FEET

Commonwealth of Massachusetts
Susan E. Carter
CIVIL ENGINEER
NO. 41270
REGISTERED
PROFESSIONAL ENGINEER
8-13-21

REVISIONS:

1-18-21 GENERAL REVISION
5-25-21 NO REVISIONS THIS SHEET
8-11-21 NO REVISIONS THIS SHEET

SALISBURY PINE TREE ESTATES
CROSS-SECTIONS
CUT/FILL IN EXCESS OF 8'

LOCATION: Salisbury St., Pine Tree and Bailey Rds
TOWN: HOLDEN, MASSACHUSETTS
PREPARED FOR:

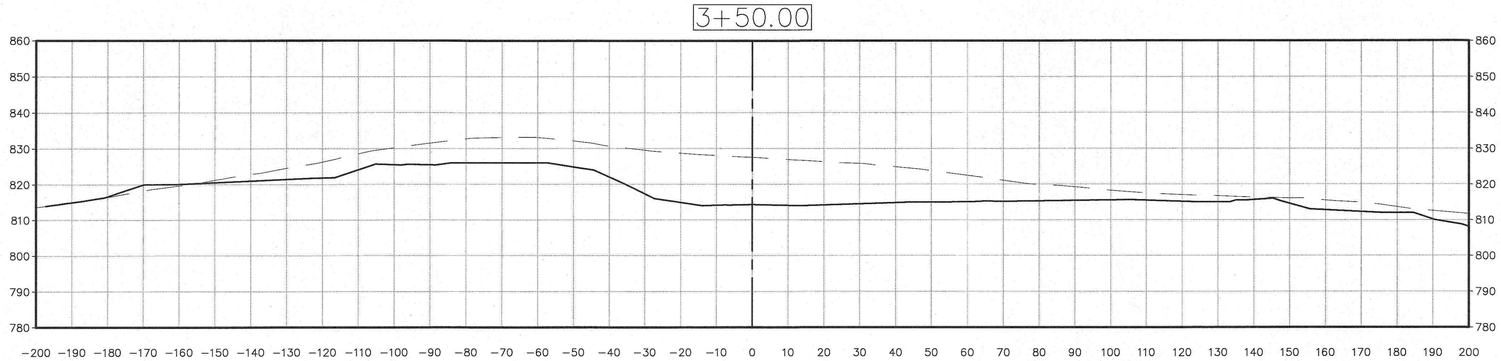
Holden Pine Tree, LLC

SCALE: AS SHOWN DATE: OCT. 2019

PLACES Associates, Inc.
· Planning
· Landscape Architecture
· Civil Engineering
· Surveying
256 Great Road, Suite 4
Littleton, MA 01460
(978) 486-0334
www.placesassociates.com

PROJECT No.: 7602

3+50.00



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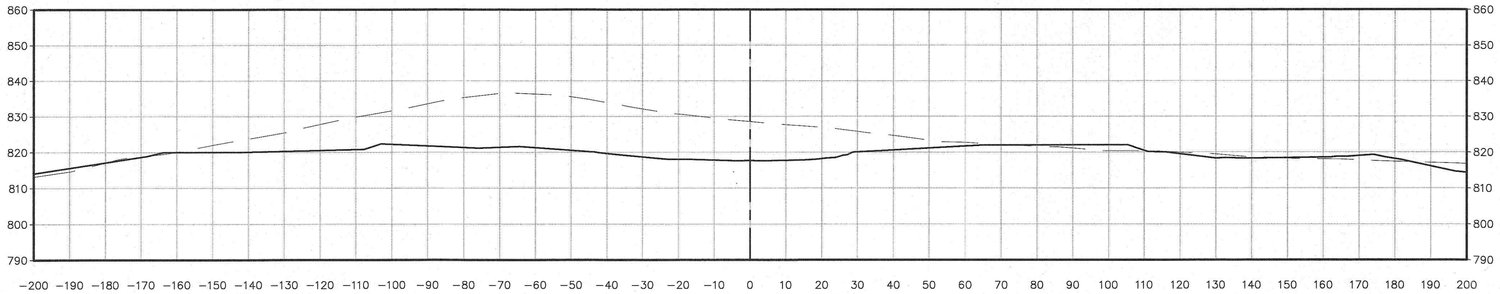

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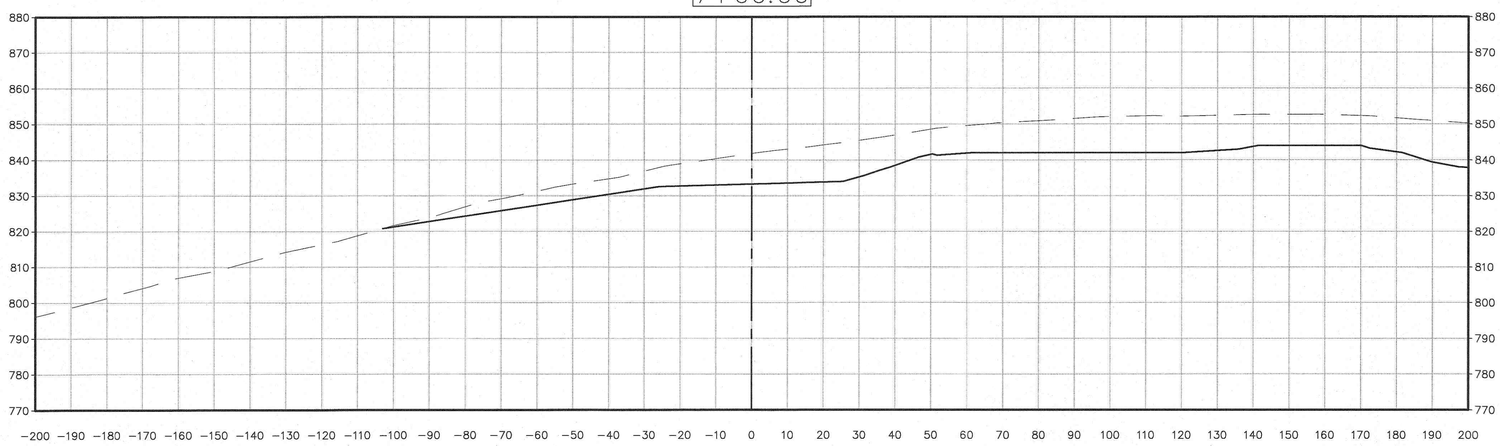

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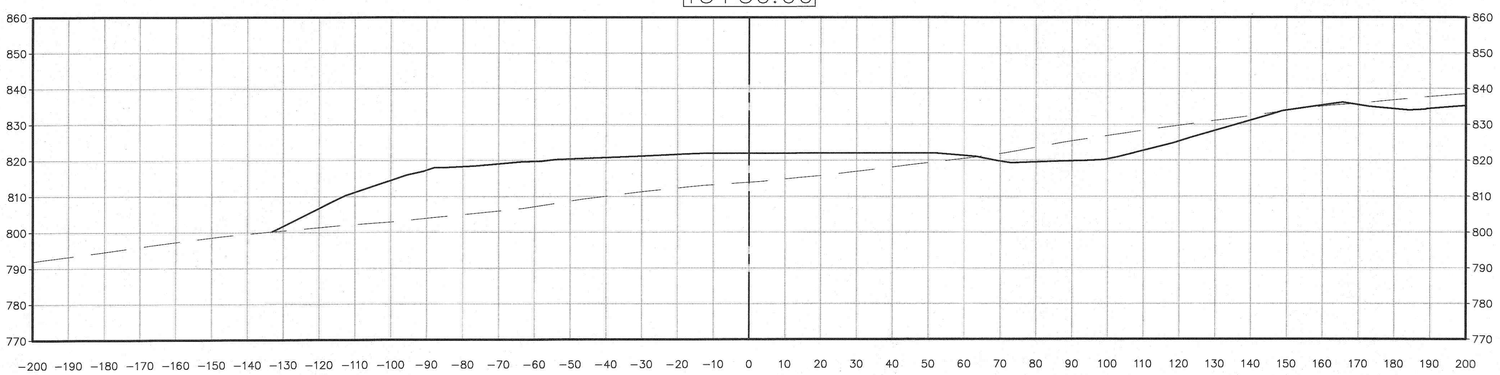

Holden Planning Board

DATE OF APPROVAL:

DATE OF ENDORSEMENT:

EXISTING SURFACE GRADE

PROPOSED SURFACE GRADE

CROSS SECTIONS

SCALE: 1"=5' VERT..
1"=100' HORIZ.

100' 0 100' 200'

BAR SCALE
1"=100'
CHECK GRAPHIC SCALE BEFORE USING

PINE TREE ROAD
STA 3+50, 4+00, 7+00
& 13+50
CUT IN EXCESS OF 8 FEET

SALISBURY PINE TREE ESTATES CROSS-SECTIONS CUT/FILL IN EXCESS OF 8'

LOCATION: Salisbury Rd., Pine Tree and Bailey Rds
TOWN: HOLDEN, MASSACHUSETTS

PREPARED FOR:

Holden Pine Tree, LLC

SCALE: 1"=AS SHOWN DATE: OCT. 2019

COMMONWEALTH OF MASSACHUSETTS
Susan E. Carter
CIVIL ENGINEER
NO. 41270
REGISTERED PROFESSIONAL ENGINEER

8-13-21

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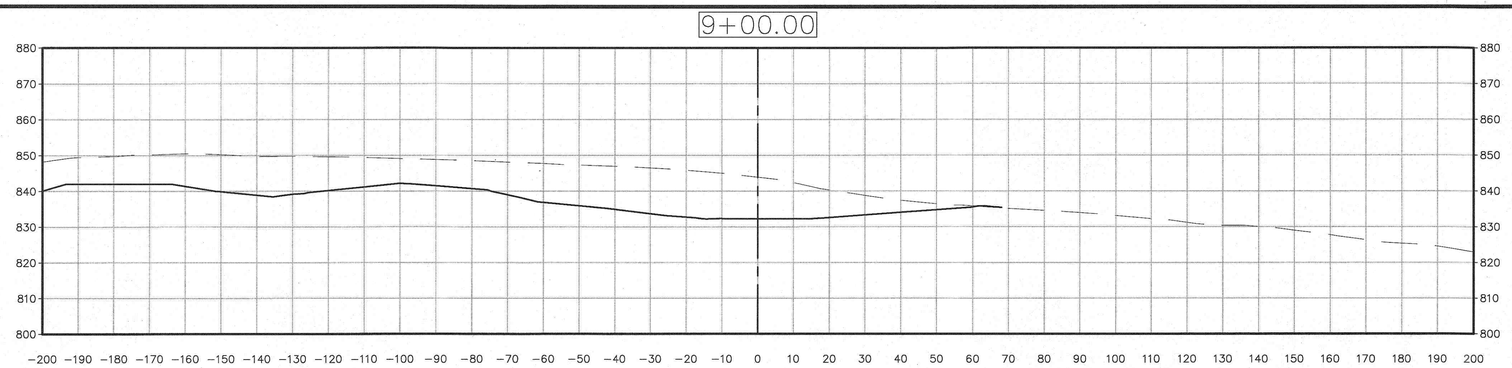

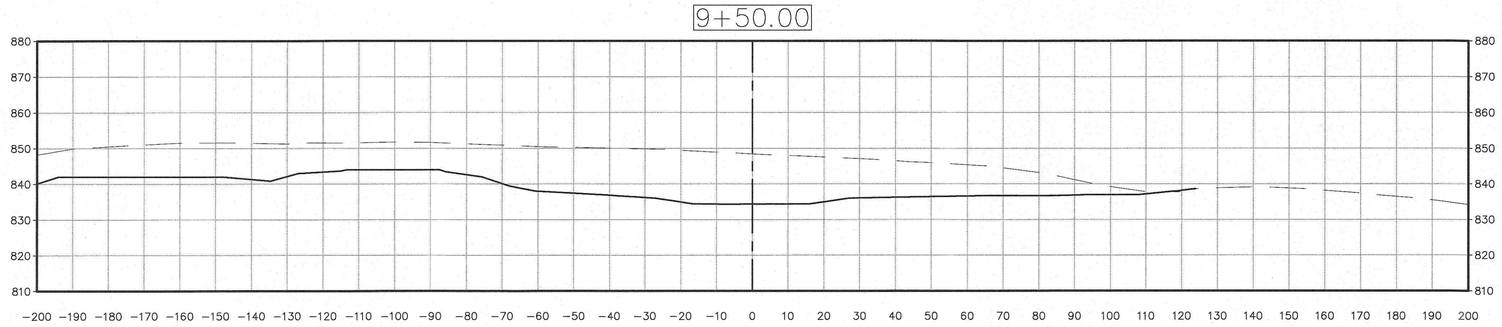

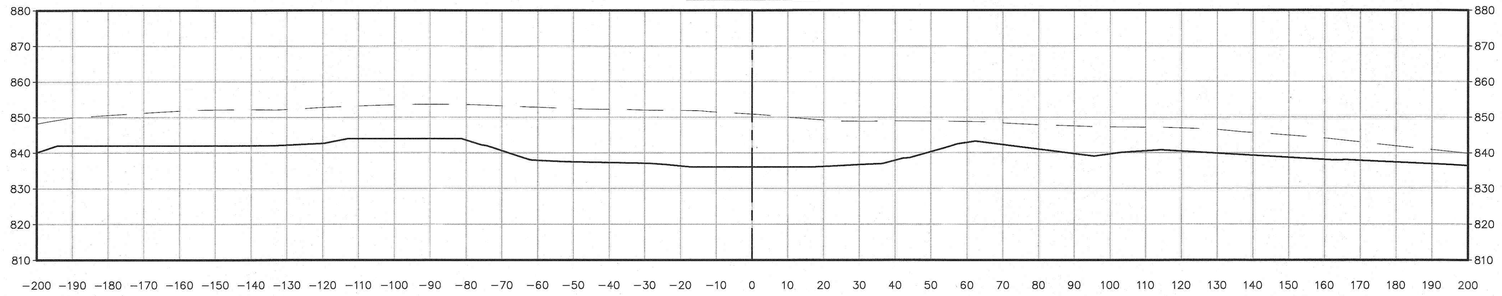

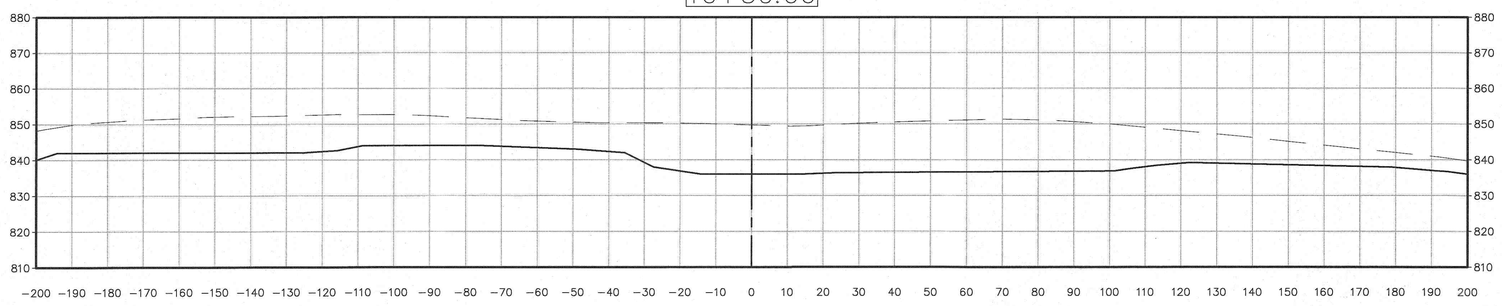

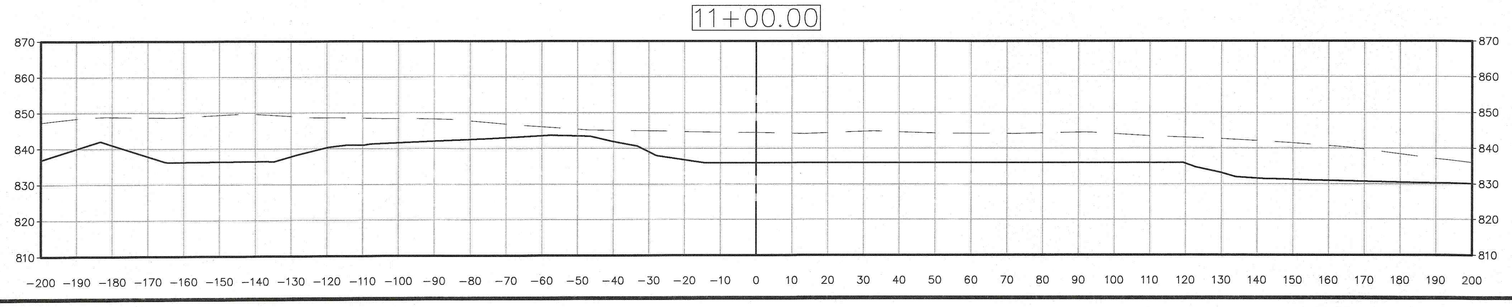

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SALISBURY PINE TREE ESTATES
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LOCATION: Salisbury St., Pine Tree and Bailey Rds
TOWN: HOLDEN, MASSACHUSETTS

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COMMONWEALTH OF MASSACHUSETTS
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PROJECT No.: 7602 SHEET 18 OF 34

DRAINAGE SYSTEM OPERATIONS & MAINTENANCE PLAN

STORM WATER COLLECTION SYSTEM:

THE STORMWATER COLLECTION SYSTEM SERVING THIS SITE IS INTENDED TO BOTH COLLECT STORM WATER RUNOFF AND TO PROVIDE TREATMENT OF THE STORMWATER PRIOR TO ITS DISCHARGE. THIS SYSTEM COLLECTS RUNOFF GENERATED FROM THE SITE THROUGH THE USE OF STORMWATER BEST MANAGEMENT PRACTICES (BMP'S). WHEN THESE BASIC CONTROL MECHANISMS ARE FUNCTIONING PROPERLY THEY PROVIDE FOR A REDUCTION OF CONTAMINANTS AND DEBRIS ENTERING THE STORMWATER COLLECTION SYSTEMS, AND THEREFORE DOWNSTREAM RECEIVING WATERS/WETLANDS.

STORMWATER SYSTEMS RELY UPON PROPER MONITORING, OPERATIONS AND MAINTENANCE TO FUNCTION AS DESIGNED AND INTENDED. A PROGRAM OF MONITORING, OPERATIONS AND MAINTENANCE MUST BE ONGOING THROUGHOUT THE LIFE AND USE OF THE SITE, AND IS THE OWNER'S RESPONSIBILITY SOLELY. THESE ACTIVITIES, AS DESCRIBED BELOW, ARE TO BE INITIATED AFTER COMPLETION OF THE PROJECT AND ARE NOT RELATED TO THE CONSTRUCTION OF THE SITE, EXCEPT AS SPECIFICALLY PROVIDED. THIS PLAN IS SPECIFICALLY FOR SITE-RELATED ACTIVITIES, NOT ACTIVITIES WHICH ARE INTERIOR TO BUILDINGS, THOUGH THERE ARE NECESSARY IMPLICATIONS AND CORRELATION'S BETWEEN THE TWO.

MONITORING:

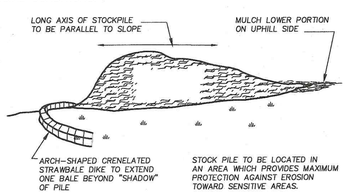
THE DRAINAGE SYSTEMS ARE REQUIRED TO BE MONITORED BY THE DESIGNATED SYSTEM MANAGER. THE NAME, ADDRESS AND DAY AND NIGHT (OR EMERGENCY) TELEPHONE NUMBER OF THIS PERSON OR ENTITY SHALL BE PROVIDED TO THE TOWN PRIOR TO THE ISSUANCE OF A CERTIFICATE OF COMPLIANCE OF CONSTRUCTION. THIS INDIVIDUAL SHALL BE REQUIRED TO KEEP A LOG OF ALL REQUIRED INSPECTIONS, OBSERVATIONS AND MAINTENANCE ACTIVITIES DRAINAGE SYSTEM COMPONENTS SHALL BE REFERRED TO BY SPECIFIC LOCATION OR THE DESIGN PLAN DESIGNATION, (E.G. CTB # 10) TO AVOID CONFUSION OR MISIDENTIFICATION THE LOG SHALL BE MADE AVAILABLE TO ANY MUNICIPAL OR STATE AGENCY HAVING JURISDICTION WITHIN TEN (10) DAYS OF A WRITTEN REQUEST BY THAT AGENCY.

MONITORING FOR THIS SITE SHALL CONSIST OF THE FOLLOWING:

1. ALL CATCHBASINS SHALL BE INSPECTED TO ENSURE THEY ARE WATER-TIGHT (HOLDING WATER), HAVE ADEQUATE SUMP CAPACITY, ALL OIL/GAS TRAPS ARE IN-PLACE, ALL GRATES AND FRAMES ARE FREE FROM STRUCTURAL DAMAGE, AND ARE DRAINING FREELY. THIS MONITORING SHALL OCCUR AT A MINIMUM OF FOUR (4) MONTH INTERVALS (QUARTERLY).
2. ALL DRAINAGE MANHOLES SHALL BE INSPECTED TO ENSURE THAT THEY ARE WATER-TIGHT, ALL LIDS AND FRAMES ARE FREE FROM STRUCTURAL DAMAGE, ARE DRAINING FREELY AND ARE NOT PONDING WATER. THIS MONITORING SHALL OCCUR A MINIMUM OF ONCE PER YEAR.
3. OTHER DRAINAGE SYSTEMS SHALL BE INSPECTED TO ENSURE THAT NO EROSION IS OCCURRING AT OUTLETS, ALL OUTLETS ARE FREE-FLOWING AND NO DAMAGE HAS OCCURRED AS PART OF SITE MAINTENANCE OR ACTIVITIES.
4. PROVIDE MAINTENANCE AND MONITORING OF THESE AND OTHER COMPONENTS AS SPECIFIED IN THE OPERATION AND MAINTENANCE MANUAL (O&M).

OPERATIONS:

1. GOOD HOUSE KEEPING AND MATERIAL MANAGEMENT REDUCE THE RISK OF SPILLS OR OTHER ACCIDENTAL EXPOSURE OF MATERIALS AND SUBSTANCES TO STORMWATER RUNOFF. A POLLUTION PREVENTION PLAN SHALL BE DEVELOPED WHICH SHALL INCLUDE THE FOLLOWING AT A MINIMUM:
   - 1.1. ALL MATERIALS STORED ON-SITE WILL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR APPROPRIATE CONTAINERS AND, IF POSSIBLE, UNDER A ROOF OR OTHER ENCLOSURE.
   - 1.2. PRODUCTS SHALL BE KEPT IN THEIR ORIGINAL CONTAINERS WITH THE ORIGINAL MANUFACTURER'S LABEL.
   - 1.3. SUBSTANCES SHOULD NOT BE MIXED WITH ONE ANOTHER, UNLESS RECOMMENDED BY THE MANUFACTURER.
   - 1.4. WHENEVER POSSIBLE, ALL OF A PRODUCT WILL BE USED UP BEFORE DISPOSING OF A CONTAINER.
   - 1.5. THE SYSTEM'S MANAGER SHALL INSPECT THE SITE DAILY TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS ONSITE, DURING ALL CONSTRUCTION PHASES.
   - 1.6. ORIGINAL MATERIALS LABELS AND MATERIAL SAFETY DATA SHEETS SHALL BE KEPT; THEY RETAIN IMPORTANT INFORMATION.
   - 1.7. ALL ONSITE VEHICLES AND PARKING AREAS SHALL BE REGULARLY MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTIVE MAINTENANCE TO PREVENT LEAKAGE.
   - 1.8. PETROLEUM PRODUCTS SHALL BE STORED UNDER COVER AND SHALL BE IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED.
   - 1.9. FERTILIZERS SHALL ONLY BE USED IN THE MINIMUM AMOUNTS AS RECOMMENDED BY THE MANUFACTURER.
   - 1.10. THE CONTENTS OF ANY UNUSED FERTILIZER SHALL BE TRANSFERRED TO A CLEARLY LABELED, SEALABLE PLASTIC BIN, TO AVOID SPILLAGE.
   - 1.11. ALL PAINTS AND SOLVENTS SHALL BE STORED IN ORIGINAL MANUFACTURER'S CONTAINERS IN A COVERED LOCATION.
   - 1.12. THE USE OF PAINTS AND SOLVENTS SHALL, WHENEVER POSSIBLE, BE LIMITED TO SERVICE OR STORAGE BAYS AND NOT IN PARKING OR ACCESS WAYS THAT ARE TRIBUTARY TO THE DRAINAGE SYSTEM.
2. SPILL CONTROL PRACTICES:
   - 2.1. MANUFACTURER'S RECOMMENDED METHODS SHALL BE CLEARLY POSTED FOR SPILL CLEANUP AND SITE PERSONNEL SHALL BE MADE AWARE OF THE PROCEDURES AND THE LOCATIONS OF CLEANUP INFORMATION AND SUPPLIES.
   - 2.2. MATERIAL AND EQUIPMENT NECESSARY FOR SPILL CLEANUP WILL BE KEPT ON-SITE IN A DESIGNATED MATERIAL STORAGE AREA. EQUIPMENT WILL INCLUDE, BUT NOT BE LIMITED TO, BROOMS, DUST PANS, MOPS, RAGS, GLOVES, GOGGLES, ABSORBENT MATERIALS, SAND, SAWDUST AND PLASTIC & METAL TRASH CONTAINERS SPECIFICALLY KEPT AND LABELED FOR THIS PURPOSE.
   - 2.3. ALL SPILLS WILL BE CLEANED-UP IMMEDIATELY AFTER DISCOVERY.
   - 2.4. SPILLS OF TOXIC OR HAZARDOUS MATERIAL OR NATURE WILL BE REPORTED TO THE APPROPRIATE STATE, LOCAL OR FEDERAL AGENCY, AS REQUIRED BY-LAW.
   - 2.5. THE SPILL PREVENTION PLAN WILL INCLUDE PROVISIONS TO ADAPT THE PLAN TO ENSURE THAT SPILLS WILL NOT REOCCUR, AND HOW TO CLEANUP THE SPILL IF THERE IS ANOTHER ONE.
3. SITE OPERATIONS AND DAILY USE SHALL CONSIDER THE ULTIMATE DISPOSITION OF STORMWATER AND OTHER SITE-GENERATED FORMS OF RUNOFF. THE WASHING OF VEHICLES SHALL BE LIMITED AREAS WITHIN THE BUILDING, AS THEY ARE SERVED BY THE FLOOR DRAIN SYSTEM. WASH WATER WITH ITS COMBINATION OF SOLVENTS, DETERGENTS AND OIL/GREASES SHOULD NOT BE ALLOWED TO ENTER ANY PART OF THE ON-SITE DRAINAGE SYSTEM.
4. SNOW PLOWING - SNOW PLOWING OPERATIONS SHALL STOCKPILE SNOW, ICE AND ACCUMULATED MATERIALS IN AREAS WHERE SNOW MELT WILL FLOW INTO THE ON-SITE DRAINAGE SYSTEMS. NO PLOWING OR STORAGE OF SNOW INTO WETLANDS.
5. SALT USE SITE-WIDE SHALL BE APPLIED TO THE MINIMUM EXTENT POSSIBLE TO MAINTAIN SAFE CONDITIONS, AND ONLY IF NOT SPECIFICALLY EXCLUDED BY ANY SPECIAL CONDITIONS.



TEMPORARY STOCKPILE

NOT TO SCALE

MAINTENANCE:

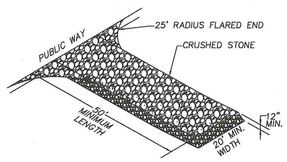
1. PARKING AREAS, ROAD AND ACCESS WAYS AND GUTTERS SHALL BE SWEPT CLEAN OF DEBRIS AND ACCUMULATION ON A REGULAR BASIS. AT A MINIMUM, A SPRING AND FALL CLEANING SCHEDULE IS RECOMMENDED.
2. ALL CATCHBASINS SHALL HAVE THE SUMPS CLEANED AT ANY TIME OF THE YEAR WHEN 2' OR LESS SPACE EXISTS BELOW THE OUTLET INVERT, OR A MINIMUM OF ONCE PER YEAR, REGARDLESS OF SUMP ACCUMULATION. ALL DEBRIS FROM THE CLEANING SHALL BE DISPOSED OF OFF-SITE AND IN A MANNER AS PROSCRIBED BY LAW.
3. ALL HYDROCARBON TRAPS SHALL BE CHECKED FOR PHYSICAL INTEGRITY AND SEALED IMMEDIATELY AFTER EACH CATCHBASIN CLEANING.
4. OIL ABSORBING "PILLOWS" OR OTHER MEANS SHALL BE USED TO REMOVE ACCUMULATIONS OF HYDROCARBONS (OIL/GREASE) IN CATCHBASINS THAT ARE REGULARLY OBSERVED TO CONTAIN HYDROCARBONS, WHICH DO NOT EVAPORATE BETWEEN INSPECTIONS.
5. ALL BROKEN, LEAKING OR OTHERWISE DAMAGED STRUCTURES SHALL BE REPAIRED PROMPTLY UPON DISCOVERY. CATCHBASIN GRATES OR MANHOLE LIDS SHALL BE REPLACED WITH SIMILAR WEIGHT AND LOADING CHARACTERISTIC REPLACEMENT PARTS.
6. ALL EROSION SHALL BE REPAIRED.
7. THE REPLACEMENT OF ANY PIPE OR DRAINAGE STRUCTURE SHALL MATCH THE ORIGINAL DESIGN SPECIFICATIONS.
4. PROVIDE MAINTENANCE AND MONITORING AS SPECIFIED IN THE OPERATION AND MAINTENANCE MANUAL (O&M).

NPDES GENERAL NOTES:

1. THIS PLAN IS INTENDED TO BE UTILIZED AS PART OF THE INFORMATION REQUIRED TOWARD MEETING THE NATIONAL STORM WATER POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) OF SECTION 402 OF THE FEDERAL CLEAN WATER ACT. THE CONSTRUCTION OF DRIVEWAYS, PARKING AREAS, BUILDINGS AND APPURTENANT STRUCTURES WILL RESULT IN MORE THAN 1 ACRE OF TOTAL DISTURBED AREA, REQUIRING THE SUBMITTAL OF A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) FOR THIS SITE.
2. IT IS ANTICIPATED THAT THE SITE AS DESIGNED WILL MEET THE CRITERIA FOR A NPDES GENERAL PERMIT. THE SUBMISSION OF THE NPDES NOTICE OF INTENT (NPDES NOI), THIS PLAN AND SUPPORTING DOCUMENTATION MUST BE POSTMARKED A MINIMUM OF TWO (2) WEEKS PRIOR TO THE INITIATION OF ANY SITE DISTURBANCE OR CONSTRUCTION, WHICH SHALL NOT COMMENCE UNTIL AN ORDER OF CONDITIONS HAS BEEN ISSUED.
3. A COPY OF THE NPDES SUBMITTAL AND THIS PLAN MUST BE KEPT ON-SITE AT ALL TIMES DURING CONSTRUCTION AND SHALL BE MADE AVAILABLE TO ALL INTERESTED PARTIES.
4. RECORDS MUST BE MAINTAINED BY THE PERMITEE FOR A PERIOD OF THREE (3) YEARS FROM THE DATE OF STABILIZATION OF THE SITE. STABILIZATION OCCURS WHEN THE SITE HAS OVER 70% VEGETATIVE GROWTH AND/OR MECHANICAL STABILIZATION THROUGHOUT FOR ONE COMPLETE GROWING SEASON.
5. ALL INSPECTIONS SHALL BE CONDUCTED BY QUALIFIED PERSONNEL, WHO SHALL PRODUCE WRITTEN QUANTITATIVE AND QUALITATIVE REPORTS ON THE METHODS, SUITABILITY OF STRUCTURES AND THE GENERAL CONSTRUCTION.
6. INSPECTIONS ARE REQUIRED DURING SITE ALTERATIONS A MINIMUM OF ONCE EVERY SEVEN (7) DAYS WHILE SURFACES ARE UNSTABILIZED.
7. INSPECTIONS ARE REQUIRED WITHIN 24 HOURS OF STORMS WHICH PRODUCE 0.25" OF PRECIPITATION OR GREATER.
8. WHEN THE SITE IS FULLY STABILIZED, INSPECTIONS SHALL BE CONDUCTED AT MONTHLY INTERVALS FOR A PERIOD OF 3 YEARS OR AS SPECIFIED IN THE O&M AND OR SWPPP.

LOCAL PERMITTING:

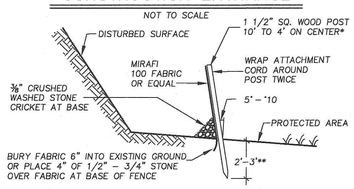
1. THIS PLAN IS PART OF A SET OF DOCUMENTS WHICH INCLUDE LOCAL PERMITS, LOCAL REVIEW AND MODIFICATIONS TO PROPOSED SWPPP'S CREATED BY THE ABOVE LISTED CRITERIA.
2. CONTRACTORS SHALL ACCOMMODATE LOCAL REVIEW TIMELINES AS PART OF ALL SUBMISSIONS FOR SWPPP'S.
3. IF CONSTRUCTION OCCURS DURING WINTER CONDITIONS, A WINTER EROSION AND SEDIMENTATION CONTROL PLAN SHALL BE PREPARED AND SUBMITTED TO THE CONSERVATION COMMISSION.



NOTES:
1. REPLACE STONE & ACCUMULATED DEBRIS, MUD & ENTRAPPED MATERIALS AS IS NECESSARY TO PREVENT TRACKING ON PUBLIC ROADWAYS.
2. REPLACE MONTHLY AS A MINIMUM REQUIREMENT.
3. DISPOSE OF STONE & ENTRAPPED MATERIALS IN A NON SENSITIVE AREA ON-SITE.
4. DO NOT REUSE STONE FOR SAME PURPOSE.
5. ALL TRAFFIC ENTERING / EXISTING SITE TO CROSS TEMPORARY CONSTRUCTION ENTRANCE TO REMOVE MUD FROM TIRES

TEMPORARY CONSTRUCTION ENTRANCE

NOT TO SCALE



* STEEL POST MAY BE SUBSTITUTED. DISTANCE BETWEEN POSTS TO VARY AS REQUIRED BY TRIBUTARY AREA: 10' FOR 100 SF/LF FENCE
6' FOR 500 SF/LF FENCE

** DEPTH TO VARY WITH TRIBUTARY AREA: 2' FOR 100 SF ETC.
IF POST IS TO BE SET IN PEAT OR UNSTABLE SOILS, THEN 3' OR DEPTH NECESSARY TO PROVIDE A STABLE POST FOR LOADED FENCE CONDITIONS

SILT FENCE DETAIL

NOT TO SCALE

EROSION & SEDIMENTATION CONTROL PLAN

GENERAL:

1. THIS PLAN IS PART OF A SET OF DOCUMENTS THAT ARE TO BE VIEWED AND REVIEWED IN THEIR ENTIRETY, SUCH DOCUMENTS INCLUDE THE CONSTRUCTION SPECIFICATIONS, CONSTRUCTION PLANS AND ANY PERMITS ISSUED BY THE TOWN OR OTHER REGULATORY AGENCIES.
2. THIS IS A PERFORMANCE SPECIFICATION WHICH THE CONTRACTOR SHALL APPLY APPROPRIATE MEANS AND METHODS TO ACHIEVE.
3. EROSION CONTROL MEASURES DESCRIBED HEREIN SHALL ALSO BE APPLICABLE TO INDIVIDUAL LOT DEVELOPMENT.

EROSION CONTROL MEASURES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT EROSION AND SEDIMENTATION ARE CONTROLLED. THIS PLAN SHALL BE ADAPTED TO FIT THE CONTRACTOR'S EQUIPMENT, WEATHER CONDITIONS, AND ANY ORDERS OF CONDITIONS ISSUED BY THE TOWN OR ANY OTHER REGULATORY AGENCY.
2. THE MOST IMPORTANT ASPECTS OF CONTROLLING EROSION AND SEDIMENTATION ARE LIMITING THE EXTENT OF DISTURBANCE AND STABILIZING SURFACES AS SOON AS POSSIBLE. OF SECONDARY IMPORTANCE IN EROSION CONTROL IS THE LIMITING THE SIZE AND LENGTH OF THE TRIBUTARY DRAINAGE AREA WITHIN THE WORK SITE AND DRAINAGE STRUCTURES. THESE FUNDAMENTAL PRINCIPLES SHALL BE THE KEY FACTOR IN THE CONTRACTOR'S CONTROL OF EROSION ON THE SITE.
3. THE EXISTING SOIL CONDITIONS PROVIDE THE POTENTIAL OF RUNOFF TO OFF-SITE AREAS WITH EROSION POTENTIAL.
4. THE CONTRACTOR SHALL CONSTRUCT TEMPORARY DIVERSION SWALES AND SETTLING BASINS IN AREAS OF FUTURE CONSTRUCTION. CONSTRUCTION IS PERMITTED BEYOND THE LIMIT OF DISTURBANCE ONLY WHEN ADDITIONAL DRAINAGE MEASURES OR STABILIZATION MEASURES ARE NEEDED, AND SHALL BE SUBJECT TO APPROVAL BY THE TOWN. PRIOR TO WORK OUTSIDE OF DESIGNATED LIMIT OF DISTURBANCE LINE. THE LIMIT OF DISTURBANCE LINE SHALL BE THE EROSION CONTROL BARRIER.
5. ALL DISTURBED SURFACES SHALL BE STABILIZED A MINIMUM OF 14 DAYS AFTER CONSTRUCTION IN ANY PORTION OF THE SITE HAS CEASED OR IS TEMPORARILY HALTED UNLESS ADDITIONAL CONSTRUCTION IS INTENDED TO BE INITIATED WITHIN 21 DAYS.
6. THE CONTRACTOR IS RESPONSIBLE FOR THE MAINTENANCE AND REPAIR OF ALL EROSION CONTROL DEVICES ON-SITE. ALL EROSION CONTROL DEVICES SHALL BE REGULARLY INSPECTED. ANY SEDIMENTS REMOVED FROM THE CONTROL DEVICES SHALL BE DISPOSED OF OUTSIDE OF THE 100' WETLANDS BUFFER ZONE.
7. AT NO TIME SHALL SILT-LADEN WATER BE ALLOWED TO ENTER SENSITIVE AREAS (WETLANDS, OFF-SITE AREAS AND DRAINAGE SYSTEMS). ANY RUNOFF FROM DISTURBED SURFACES SHALL BE DIRECTED THROUGH SETTLING BASINS AND EROSION CONTROL BARRIERS PRIOR TO ENTERING ANY SENSITIVE AREAS.

PRELIMINARY SITE WORK:

1. MATERIAL REMOVED SHOULD BE STOCKPILED, SEPARATING THE TOPSOIL FOR FUTURE USE ON THE SITE. EROSION CONTROLS SHALL BE UTILIZED ALONG THE DOWNSLOPE SIDE OF THE PILES IF THE PILES ARE TO REMAIN MORE THAN THREE WEEKS OR SUBJECT TO EROSIVE CONDITIONS SUCH AS INTENSE RAIN, WIND OR OTHER EXPOSURE.
2. STOCKPILES SHALL BE LOCATED AS SPECIFIED HEREIN AND AS REQUIRED. SHOULD ADDITIONAL AREAS BE NEEDED THEY SHALL BE LOCATED WITHIN THE LIMITS OF DISTURBANCE, IN AREAS OF MINIMAL IMPACT. IF A STOCKPILE IS LOCATED ON A SLOPE, THE RUNOFF SHALL BE DIRECTED AWAY FROM THE PILE.
3. IF INTENSE RAINFALL IS ANTICIPATED, THE INSTALLATION OF SUPPLEMENTAL STRAWBALE DIKES, SILT FENCES, OR ARMORED DIKES SHALL BE UTILIZED.
4. IF THE SITE CONSTRUCTION OCCURS AT ANY TIME OTHER THAN THE MAY - NOVEMBER CONSTRUCTION SEASON, THE SITE DRAINAGE SYSTEM SHALL BE INSTALLED MAINTAINING HYDRAULIC CAPACITY, PRIOR TO ANY ROUGH GRADING IN THE BUFFER ZONE.
5. INLET SEDIMENT CONTROL DEVICES SHALL BE INSTALLED ON ALL CATCHBASINS ADJACENT TO THE LIMIT OF WORK, EVEN IF OUTSIDE THE DELINEATED LIMIT OF WORK. THE GENERAL CONTRACTOR SHALL MONITOR AND EMPTY AND/OR REPLACE ON AN AS NEEDED BASIS.

DRAINAGE SYSTEM:

1. THE DRAINAGE SYSTEM SHALL BE INSTALLED FROM THE DOWNSTREAM END UP.
2. A SILT FENCE SHALL BE INSTALLED AT THE OUTFALL OF ALL TEMPORARY BASINS AND SWALES. IT SHALL REMAIN IN PLACE UNTIL ALL TRIBUTARY AREAS ARE STABILIZED.
3. WATER SHALL NOT BE ALLOWED TO ENTER PIPES FROM UN-STABILIZED SURFACES. SILT FENCE SHALL BE MONITORED, CLEANED & REPLACED AS NEEDED ON A REGULAR BASIS. SEE NPDES SWPPP REQUIREMENTS, IF APPLICABLE.
4. TRENCH EXCAVATIONS SHALL BE LIMITED TO THE MINIMUM LENGTH REQUIRED FOR DAILY PIPE INSTALLATION. ALL TRENCHES SHALL BE BACKFILLED AS SOON AS POSSIBLE. THE ENDS OF PIPES SHALL BE CLOSED NIGHTLY WITH PLYWOOD AND BACKER BOARD.
5. IF UNSTABLE AREAS ARE ENCOUNTERED DUE TO NATURAL SPRINGS OR GROUNDWATER BREAKOUT, INTERCEPTOR DRAINS SHALL BE INSTALLED TO DIRECT THE RUNOFF INTO THE DRAINAGE SYSTEM, SEE DETAILS.
6. IT IS IMPORTANT THAT THE BINDER COURSE, WITH BERMS, BE INSTALLED ON THE LIMITS OF THE PARKING LOT AND ACCESS ROADS AS SOON AS FEASIBLE AS THESE AREAS WILL FUNCTION AS A CONDUIT FOR RUNOFF.

INTENSE WEATHER PREPARATIONS:

1. THIS SECTION SPECIFICALLY APPLIES TO ANY RAINFALL EVENTS PREDICTED TO PRODUCE 2" OR MORE OF RAINFALL IN A 24 HOUR PERIOD OR MULTIPLE HIGH INTENSITY BACK TO BACK STORMS OR THE ISSUANCE OF A FLASH FLOOD WATCH.
2. THE CONTRACTOR SHALL HAVE ADDITIONAL EROSION CONTROL BARRIERS, STONE AND SAND BAGS OR SIMILAR MATERIALS TO CONTAIN AND DIRECT HIGH VELOCITY RAINFALL.
3. WHEN INTENSE RAINFALL IS PREDICTED, THE INLET SEDIMENT DEVICES (SILT-SAC OR SIMILAR), SHALL BE REMOVED FROM LOW POINTS IN THE ROAD OR CRITICAL CATCHBASINS NEEDED TO DIRECT RUNOFF TO THE APPROPRIATE STORMWATER BASIN. CLEAN INLET SEDIMENT DEVISES SHALL BE RE-INSTALLED IN THE CATCHBASINS AT THE END OF THE STORM EVENT AFTER ANY SEDIMENT HAS BEEN REMOVED FROM THE ROADWAY.
4. SAND BAGS OR EQUIVALENT SHALL BE INSTALLED IN AN ARC SHAPE, ADJACENT TO CATCHBASINS ON THE DOWN-GRADIENT SIDE TO CONTAIN RUNOFF AND MINIMIZE BYPASS FLOWS. ADDITIONAL SAND BAGS SHALL BE AVAILABLE ON SITE TO ALLOW MODIFICATIONS AS NEEDED DURING THE STORM EVENT TO CONTROL AND CONTAIN RUNOFF.
5. CONSIDERATION SHALL BE GIVEN TO THE INSTALLATION OF CHECK DAMS ALONG SWALES OR ROADWAY SHOULDERS TO MINIMIZE EROSION VELOCITIES.
6. 6. IF EXPOSED SOILS ARE DIRECTLY ADJACENT TO PAVEMENT ON STEEP SLOPES, A 3' WIDE 3-6"STONE STRIP SHALL BE INSTALLED ON THE SHOULDERS TO MINIMIZE EROSION POTENTIAL OF THE SLOPES. WHERE THE ROADWAY IS IN FILL WITH SOFT SHOULDERS, SAND BAGS SHALL BE INSTALLED TO CONTAIN RUNOFF WITHIN THE ROADWAY AND DIRECT IT TO CATCHBASINS.
7. IF RILLS OR GULLIES HAVE OCCURRED DURING PREVIOUS RAINFALL EVENTS, CONSIDERATION SHALL BE GIVEN TO THE INSTALLATION OF RIP RAP IN THESE AREAS PRIOR TO THE INTENSE RAINFALL.
8. ALL STORMWATER BASINS SHALL BE EVALUATED FOR STABILITY AND VOLUME. IF THE PRE-STORM VOLUME OF WATER IN THE BASIN EXCEEDS ONE-HALF THE TOTAL DEPTH OF THE POND, THE WATER LEVEL SHALL BE REDUCED VIA PUMPING. PUMPING SHALL DISCHARGE TO A FILTER FABRIC BAG WHICH SHALL BE LOCATED IN A CONTROLLED AREA, PREFERABLY PAVED AREA FLOWING TO A CATCHBASIN WHICH IS NOT TRIBUTARY TO THE BASIN.
9. A HIGH INTENSITY RAINFALL EVENT MAY REQUIRE THE CONTRACTOR TO BE PRESENT THROUGHOUT THE STORM TO ADJUST AND CONTROL ANY UNCONTROLLED EROSION TO MINIMIZE ANY BREAKTHROUGH FLOW.

INSTALLATION OF UTILITIES:

1. CARE SHALL BE TAKEN TO ASSURE THAT THE UTILITY TRENCHES DO NOT CHANNELIZE RUNOFF TOWARDS EXISTING STREETS OR OTHER OFF-SITE AREAS.
2. THE INSTALLATION OF SUBSURFACE UTILITIES AND APPURTENANCES SHALL BE IN ACCORDANCE WITH THE APPLICABLE UTILITY COMPANY SPECIFICATIONS.
3. TRENCH EXCAVATIONS SHALL BE LIMITED TO THE MINIMUM LENGTH REQUIRED FOR DAILY UTILITY INSTALLATION. ALL TRENCHES SHALL BE BACKFILLED AS SOON AS POSSIBLE.

LANDSCAPING:

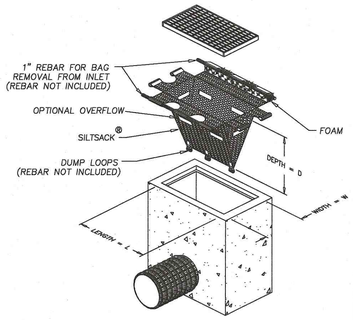
4. LANDSCAPING SHALL OCCUR AS SOON AS POSSIBLE TO PROVIDE PERMANENT STABILIZATION OF DISTURBED SURFACES.
5. CONTRACTOR SHALL UTILIZE A VARIETY OF SLOPE STABILIZATION METHODS AND MATERIALS WHICH SHALL BE ADJUSTED TO THE SITE CONDITIONS. EROSION CONTROL BLANKETS OR MIRAFI MIRAMAT (OR SIMILAR PRODUCTS) SHALL BE AVAILABLE ON SITE, AND USED ON ANY SLOPES 3:1 OR STEEPER.
6. IF THE SEASON OR ADVERSE WEATHER CONDITIONS DO NOT ALLOW THE ESTABLISHMENT OF VEGETATION, TEMPORARY MULCHING WITH STRAW, TACKIFIED WOOD CHIPS OR OTHER METHODS SHALL BE PROVIDED.
7. A MINIMUM OF 6" TOPSOIL SHALL BE PLACED AND ITS SURFACE SMOOTHED TO THE SPECIFIED GRADES.
8. SEED APPLICATIONS SHALL BE IN ACCORDANCE WITH THE GRASS AND SLOPE COVER SPECIFICATIONS.

PRE-CONSTRUCTION:

1. AN EROSION CONTROL BARRIER SHALL BE INSTALLED AS DEPICTED ON THE SITE PLAN, BETWEEN THE AREAS TO BE DISTURBED AND WETLAND AREAS. THIS BARRIER SHALL REMAIN IN PLACE UNTIL ALL TRIBUTARY SURFACES HAVE BEEN FULLY STABILIZED. THE EROSION CONTROL BARRIERS AS SHOWN ON THE SITE PLAN ARE THE MINIMUM REQUIRED TO PROTECT THE ON & OFF SITE DRAINAGE SYSTEMS.
2. PHOTOGRAPHS AND/OR VIDEO IMAGES OF THE PRE-CONSTRUCTION CONDITION OF THE SITE AND SURROUNDING AREAS, ESPECIALLY THE ADJACENT STREETS SHALL BE TAKEN, DEVELOPED AND DATED. A COPY OF THESE MATERIALS SHALL BE SUBMITTED TO THE PERMIT GRANTING AUTHORITY AND OWNER FOR THEIR FILES. THESE PICTURES AND IMAGES SHALL REFERENCE EXISTING SITE CONDITIONS AND PERMANENT REFERENCE MARKS TO ENABLE RECOGNITION OF THE AREA BEING PHOTOGRAPHED, AND SHALL REPRESENT A COMPREHENSIVE VIEW OF THE SITE PRIOR TO DEVELOPMENT.
3. THE CONTRACTOR SHALL ESTABLISH A STAGING AREA ON A PORTION OF THE AREA TO BE DISTURBED FOR THE OVERNIGHT STORAGE OF EQUIPMENT AND STOCKPILING OF MATERIALS. THE STAGING AREA SHALL BE OUTSIDE OF THE 100' WETLANDS BUFFER ZONE.
4. IN THE STAGING AREA, THE CONTRACTOR SHALL HAVE A STOCKPILE OF MATERIALS REQUIRED TO CONTROL EROSION ON-SITE TO BE USED TO SUPPLEMENT OR REPAIR EROSION CONTROL DEVICES. THESE MATERIALS SHALL INCLUDE, BUT ARE NOT LIMITED TO: STRAWBALES, SILT FENCE AND CRUSHED STONE.
5. A TEMPORARY STONE CONSTRUCTION ENTRANCE IS REQUIRED TO PREVENT TRACKING OF SILT, MUD, ETC. ONTO EXISTING ROADS. THE STONE SHALL BE REPLACED REGULARLY AS WELL AS WHEN THE STONE IS SILT LADEN OR EQUIPMENT IS OBSERVED TO BE TRACKING SOIL ONTO THE ROADWAYS.
6. THE CONTRACTOR IS RESPONSIBLE FOR EROSION CONTROL ON SITE AND SHALL UTILIZE EROSION CONTROL MEASURES WHERE NEEDED, REGARDLESS OF WHETHER THE MEASURES ARE SPECIFIED HEREIN, ON THE PLAN OR IN ANY ORDER OF CONDITIONS.

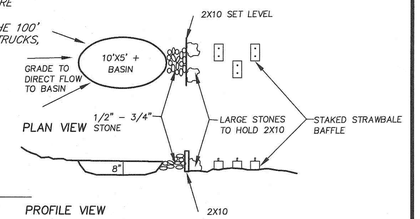
GENERAL CONSTRUCTION REQUIREMENTS:

1. ANY REFUELING OF CONSTRUCTION VEHICLES AND EQUIPMENT SHALL TAKE PLACE OUTSIDE OF THE 100 FOOT BUFFER ZONE TO THE ENTRANCE TO THE DRAINAGE SYSTEM AND SHALL NOT BE CONDUCTED IN PROXIMITY TO SEDIMENTATION BASINS OR DIVERSION SWALES, AND BE PERFORMED OFF-SITE IF POSSIBLE.
2. NO ON-SITE DISPOSAL OF SOLID WASTE, INCLUDING BUILDING MATERIALS IS ALLOWED IN THE 100 FOOT BUFFER ZONE. THE BURIAL OF STUMPS, CONSTRUCTION DEBRIS OR OTHER MATERIALS SHALL NOT BE ALLOWED ANYWHERE ON-SITE.
3. NO MATERIALS SHALL BE DISPOSED OF INTO THE WETLANDS OR EXISTING OR PROPOSED DRAINAGE SYSTEMS. ALL CONTRACTORS INCLUDING: CONCRETE SUPPLIERS, PAINTERS AND PLASTERERS, SHALL BE INFORMED THAT THE CLEANING OF EQUIPMENT IS PROHIBITED IN AREAS WHERE THE WASH-WATER WILL DRAIN DIRECTLY TO THE SITE DRAINAGE SYSTEMS.
4. CONTRACTOR IS RESPONSIBLE FOR DUST CONTROL WHICH SHALL INCLUDE STREET SWEEPING OF ALL PAVED SURFACES WITHIN THE SITE AND OFF-SITE AREAS THAT ARE IMPACTED BY SITE CONSTRUCTION ON A REGULAR BASIS, AS NEEDED.
5. ALL SUBCONTRACTORS SHALL BE NOTIFIED THAT CLEANING OF EQUIPMENT WITHIN THE 100' WETLAND BUFFER IS NOT PERMITTED. INCLUDING, BUT NOT LIMITED TO, CONCRETE TRUCKS, PAINTERS, PLASTERERS, ETC.



INLET SEDIMENT CONTROL DEVICE

NOT TO SCALE



TEMPORARY DEWATERING AREA

NOT TO SCALE

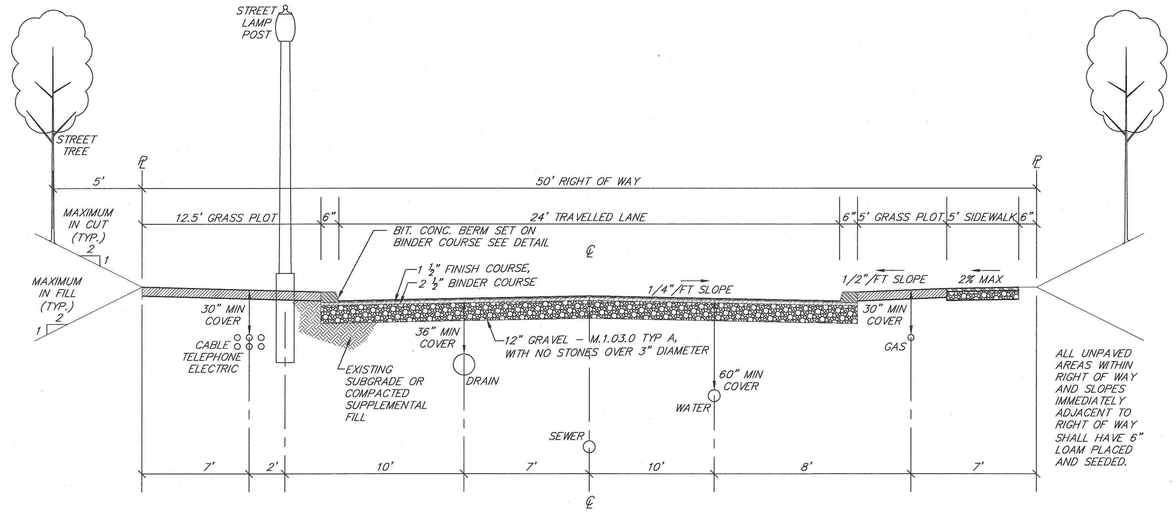
REVISIONS:

1-18-21 GENERAL REVISION
5-25-21 NO REVISIONS THIS SHEET
8-11-21 PER PEER REVIEW COMMENTS

COMMONWEALTH OF MASSACHUSETTS
Susan E. Carter
CIVIL ENGINEER
NO. 41270
REGISTERED PROFESSIONAL ENGINEER
8-13-21

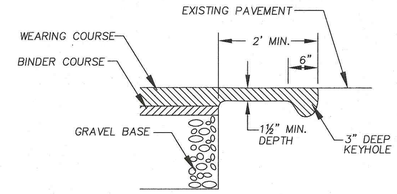
Holden Planning Board

D



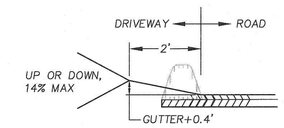
TYPICAL STREET 24' WIDE PAVEMENT

NOT TO SCALE



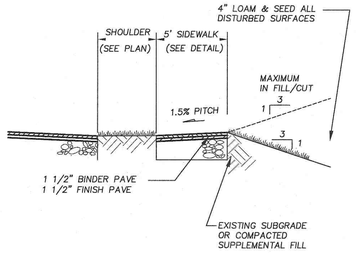
TRANSITION TO EXISTING PAVEMENT

NOT TO SCALE



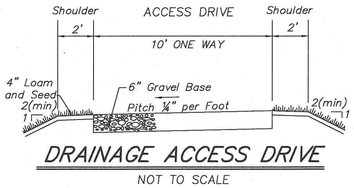
DRIVEWAY CONNECTION DETAIL

NOT TO SCALE



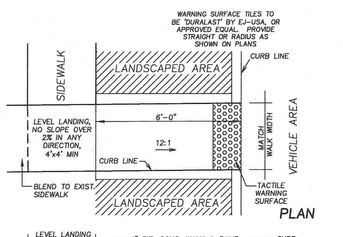
TYPICAL SIDEWALK CROSS SECTION

NOT TO SCALE



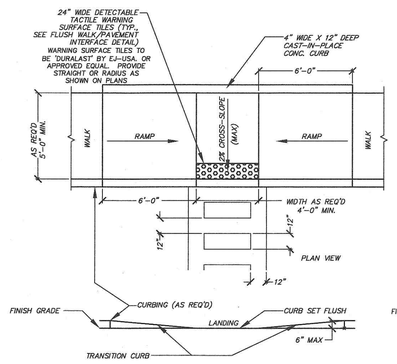
DRAINAGE ACCESS DRIVE

NOT TO SCALE



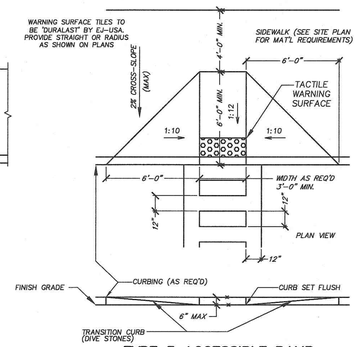
TYPE 1 ACCESSIBLE RAMP

NOT TO SCALE



TYPE 2 ACCESSIBLE RAMP

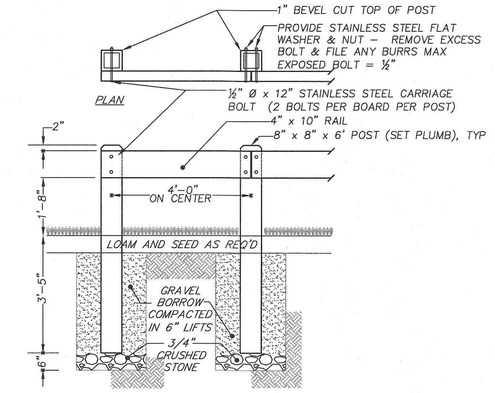
NOT TO SCALE



TYPE 3 ACCESSIBLE RAMP

NOT TO SCALE

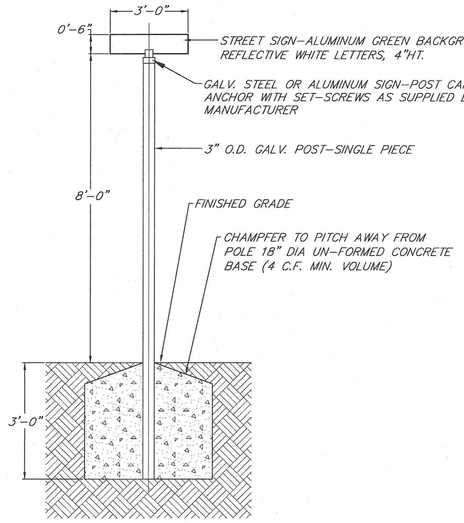
RAMPS SHALL CONFORM TO 521 CMR: MASS. ARCHITECTURAL ACCESS BOARD REQUIREMENTS– SECTIONS 21.8.



NOTE:
ALL POSTS AND RAILS SHALL BE PRESSURE TREATED DOUGLAS FIR OR SOUTHERN YELLOW PINE TREATED TO A MINIMUM OF 0.40 CCA

WOOD GUIDE RAIL

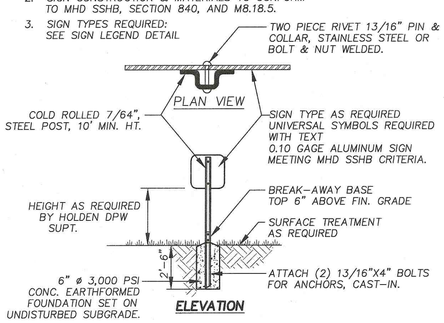
NOT TO SCALE



STREET NAME SIGN

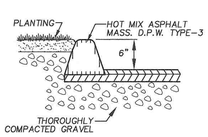
NOT TO SCALE

1. ALL SURFACES TO BE PRIMED & PAINTED MEETING MASS. HIGHWAY DEPT. STANDARDS
2. SIGN CONSTRUCTION & MATERIALS TO CONFORM TO MHD SSHB, SECTION 840, AND M8.18.5.
3. SIGN TYPES REQUIRED: SEE SIGN LEGEND DETAIL



TYPICAL SITE SIGN

NOT TO SCALE



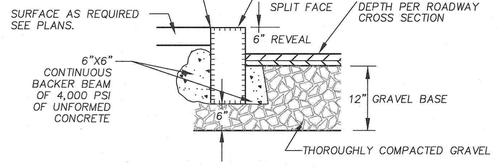
NOTE: TACK COAT REQUIRED ON BASE COURSE PRIOR TO CURB PLACEMENT

BITUMINOUS CONCRETE CURB

NOT TO SCALE

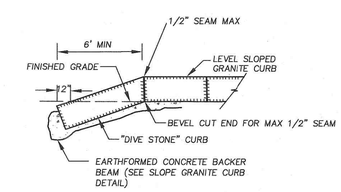
TYPE VA–4

VERT. GRANITE CURB TO BE USED FOR THE ENTIRE LENGTH OF THE ARC OF THE PAVEMENT AT STREET INTERSECTIONS & AS SHOWN ON PLAN.



VERTICAL GRANITE CURB

NOT TO SCALE



TRANSITION SLOPED GRANITE CURB

NOT TO SCALE

REVISIONS:

1–18–21 GENERAL REVISION
5–25–21 NO REVISIONS THIS SHEET
8–11–21 PER PEER REVIEW COMMENTS

Holden Planning Board

DATE OF APPROVAL:

DATE OF ENDORSEMENT:

SALISBURY PINE TREE ESTATES CONSTRUCTION DETAILS

LOCATION: Salisbury St., Pine Tree and Bailey Rds
TOWN: HOLDEN, MASSACHUSETTS

PREPARED FOR:

Holden Pine Tree, LLC

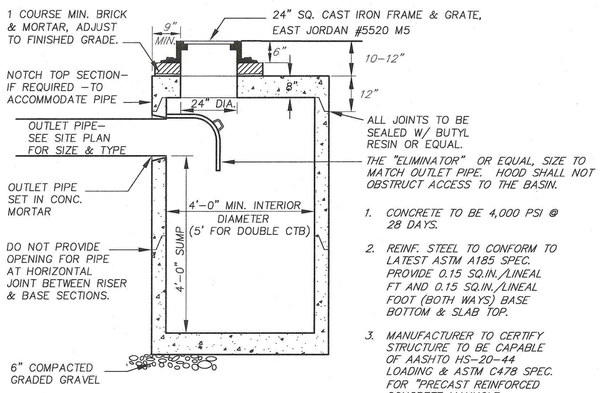
SCALE: AS NOTED

DATE: OCT. 2019

PLACES Associates, Inc.
· Planning
· Landscape Architecture
· Civil Engineering
· Surveying
256 Great Road, Suite 4
Littleton, MA 01460
(978) 486-0334
www.placesassociates.com

PROJECT No.: 7602

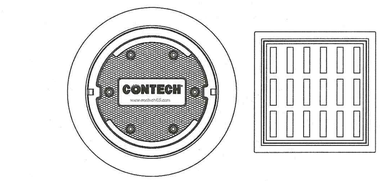
ALL CATCHBASINS REQUIRE GRANITE CURB INLET

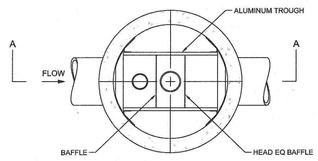


1. CONCRETE TO BE 4,000 PSI @ 28 DAYS.
2. REINF. STEEL TO CONFORM TO LATEST ASTM A185 SPEC. PROVIDE 0.15 SQ.IN./LINEAL FT AND 0.15 SQ.IN./LINEAL FOOT (BOTH WAYS) BASE BOTTOM & SLAB TOP.
3. MANUFACTURER TO CERTIFY STRUCTURE TO BE CAPABLE OF AASHTO HS–20–44 LOADING & ASTM C478 SPEC. FOR "PRECAST REINFORCED CONCRETE MANHOLE SECTIONS."
4. ECCENTRIC CONE TOP MAY BE USED WERE DEPTH PERMITS.

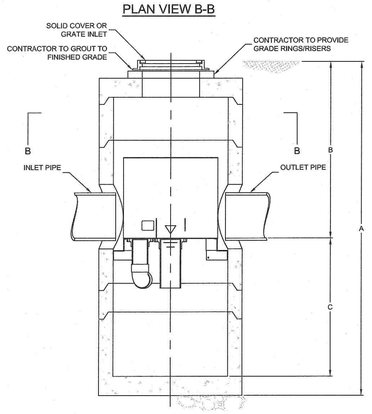
PRECAST FLAT TOP CATCHBASIN

NOT TO SCALE – FOR USE WHERE COVER OVER TOP PIPE IS LESS THAN 2'





PLAN VIEW B-B

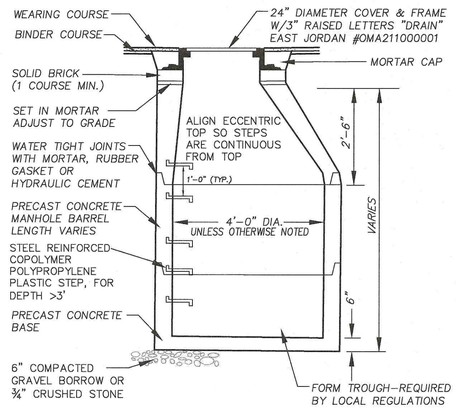


SECTION A-A

VORTSENTRY HS GENERAL INFORMATION														
Model	Manhole Diameter (ID)		Total Treatment Flow Rate		Typical Total Distance Rim to Outside Bottom A		Typical Distance Rim to Invert B		Typical Depth Below Invert (inside) C		Approximate Minimum Distance Rim to Invert		Maximum Pipe Diameter (ID)	
	FT	mm	CFS	L/S	FT	m	FT	m	FT	mm	FT	m	IN	mm
HS36	3	900	0.55	15.6	10.16	3.10	4.08	1.24	5.58	1702	3.00	0.91	18	450
HS48	4	1200	1.20	34.0	13.25	4.04	6.00	1.83	6.75	2057	4.00	1.22	24	600
HS60	5	1500	2.20	62.3	15.13	4.61	6.50	1.98	7.96	2426	4.82	1.47	30	750
HS72	6	1800	3.70	104.8	16.56	5.05	6.75	2.06	9.15	2788	5.59	1.70	36	900
HS84	7	2100	5.60	158.6	18.85	5.75	7.75	2.36	10.35	3156	5.00	1.52	42	1050
HS96	8	2400	8.10	229.4	20.87	6.36	8.50	2.59	11.54	3518	6.91	2.11	48	1200

VortSentry

MODEL HS36 : DMH PT 0+24, DMH PT 4+60 MODEL HS60 : DMH H 0+24
MODEL HS48 : DMH PT 0+60, DMH H 3+10 MODEL HS72 : DMH PT 21+48

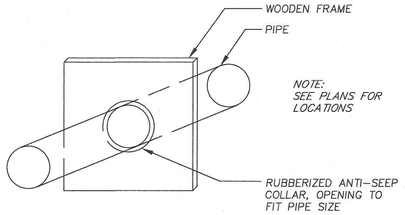


DRAIN MANHOLE DETAIL

NOT TO SCALE

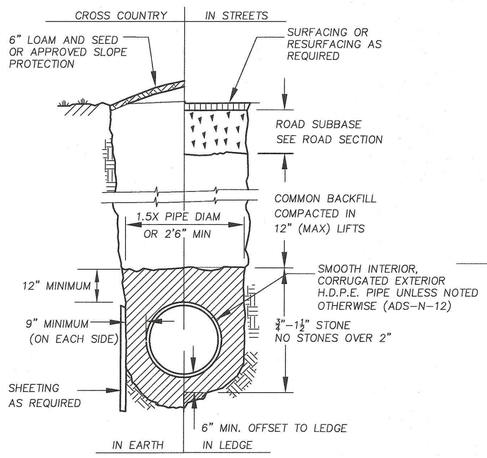
NOTE:

ALL CASTINGS AND FITTINGS SHALL BE NORTH AMERICAN MANUFACTURED.



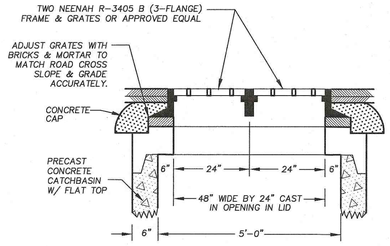
ANTI–SEEP COLLAR

NOT TO SCALE



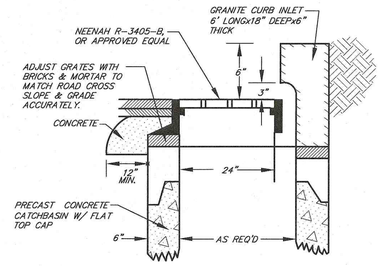
DRAINAGE TRENCH

NOT TO SCALE



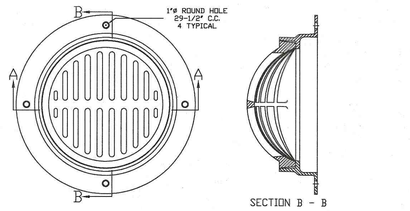
DOUBLE CATCHBASIN DETAIL

NOT TO SCALE



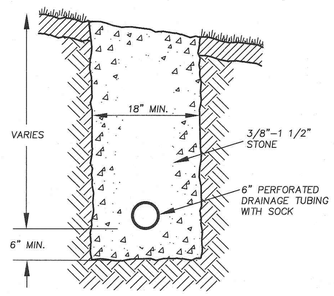
CATCHBASIN WITH GRANITE CURB DETAIL

NOT TO SCALE



LANDSCAPE CATCHBASIN GRATE

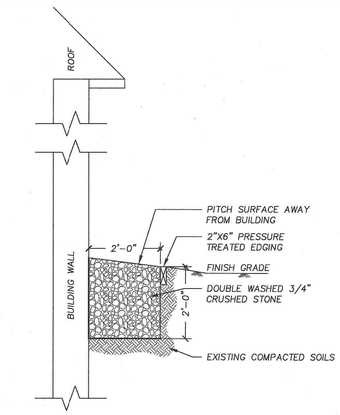
NOT TO SCALE



INTERCEPTOR DRAIN DETAIL

NOT TO SCALE

INTERCEPTOR DRAINS TO BE 3' BELOW ROAD GRADE, 8' OFF EDGE OF PAVEMENT AS SHOWN ON PLAN AND PROFILE SHEETS.



DRIP–LINE TRENCH DRAIN

NOTE: AREA IN FRONT OF HEADWALL TO BE RIP–RAPPED, SEE RIP–RAP DETAIL & PLAN.

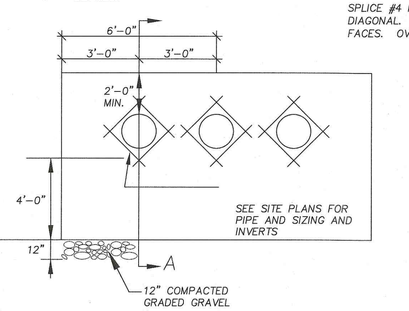
RIP–RAP TO BE DURABLE STONE ANGULAR IN SHAPE. RIP–RAP ON SLOPE SHALL BE UNDERLAID WITH A WOVEN GEOTECHNICAL FABRIC & LAID SUCH THAT A SMOOTH FACE WITH LIMITED VOIDS RESULTS.

THE FOLLOWING GRADUATION REQUIREMENTS SHALL BE MET

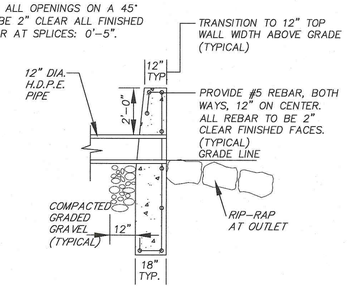
STONE SIZE IN POUNDS	% OF TOTAL WEIGHT SMALLER THAN GIVEN SIZE
500	100
200	80
100	50
20	10

CONCRETE TO BE 4,000 PSI MIX WITH AIR ENTRAINMENT. CONCRETE TO BE FURNISHED & INSTALLED ACCORDING TO A.C.I. CODES & RECOMMENDATIONS AND MASS D.P.W. SPECIFICATIONS UNLESS OTHERWISE NOTED. ALL POURS TO BE MONOLITHIC. PIPE BEDDING TO BE PER MANUFACTURER'S REQUIREMENTS, SEE DETAILS.

SPLICE #4 REBAR OVER ALL OPENINGS ON A 45° DIAGONAL. REBAR TO BE 2" CLEAR ALL FINISHED FACES. OVERLAP REBAR AT SPLICES: 0'–5".



ELEVATION



SECTION A–A

CONCRETE HEADWALL

NOT TO SCALE

Holden Planning Board

DATE OF APPROVAL:

DATE OF ENDORSEMENT:

COMMONWEALTH OF MASSACHUSETTS
Susan E. Carter
CIVIL ENGINEER
NO. 41270
REGISTERED PROFESSIONAL ENGINEER
8-13-21

REVISIONS:

1–18–21 GENERAL REVISION
5–25–21 NO REVISIONS THIS SHEET
8–11–21 PER PEER REVIEW COMMENTS

SALISBURY PINE TREE ESTATES CONSTRUCTION DETAILS

LOCATION: Salisbury St., Pine Tree and Bailey Rds
TOWN: HOLDEN, MASSACHUSETTS

PREPARED FOR:

Holden Pine Tree, LLC

SCALE: AS NOTED DATE: OCT. 2019

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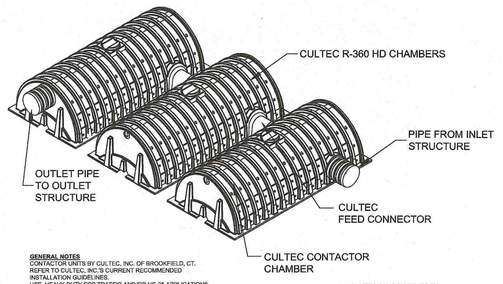
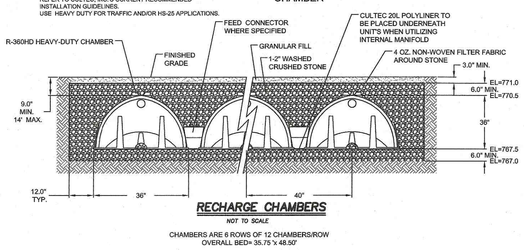
PROJECT No.: 7602

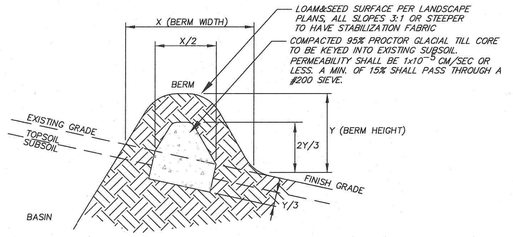




RECHARGE CHAMBERS

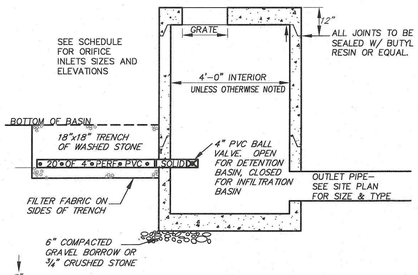
NOT TO SCALE

CHAMBERS ARE 6 ROWS OF 12 CHAMBERS/ROW
OVERALL BED= 35.75'x 48.50'



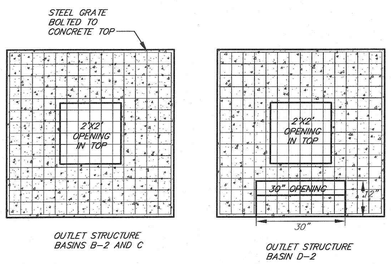
BASIN BERM CROSS SECTION

NOT TO SCALE



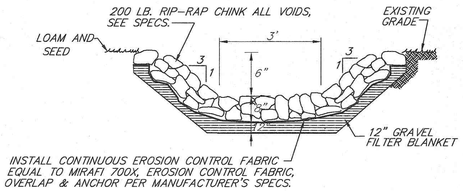
STORMWATER OUTLET STRUCTURE

NOT TO SCALE



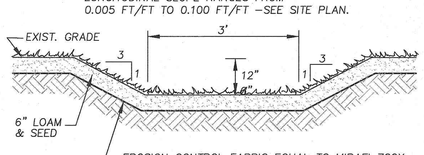
PLAN VIEW OUTLET STRUCTURE

NOT TO SCALE



REINFORCED RIP RAP SWALE

NOT TO SCALE

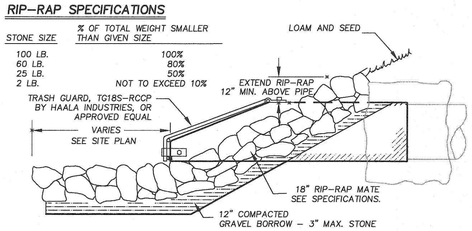


GRASSED SWALE

NOT TO SCALE

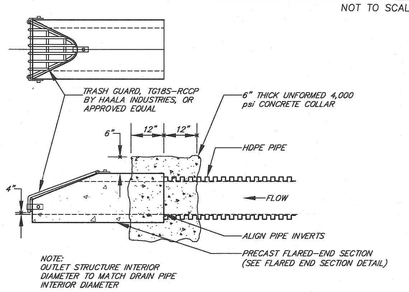
RIP–RAP SPECIFICATIONS

STONE SIZE	% OF TOTAL WEIGHT SMALLER THAN GIVEN SIZE
100 LB.	100%
60 LB.	80%
25 LB.	50%
2 LB.	NOT TO EXCEED 10%



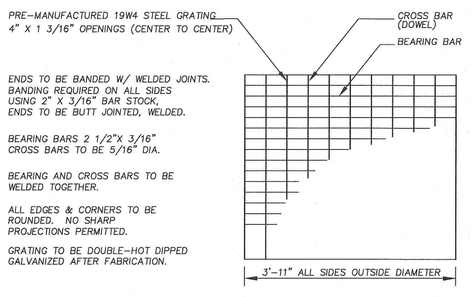
FLARED END RIP–RAP INLET/OUTLET

NOT TO SCALE



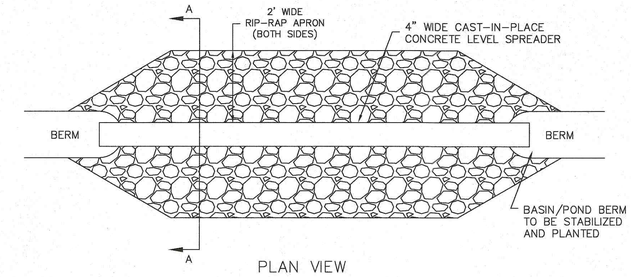
FLARED END SECTION/HDPE PIPE CONNECTION

NOT TO SCALE

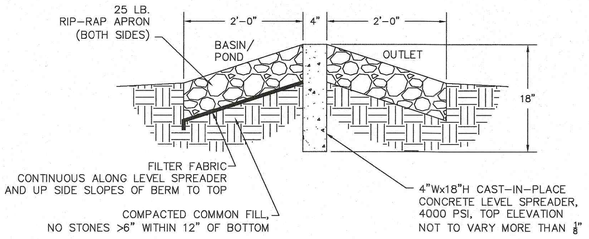


STEEL GRATE – OUTLET STRUCTURES

NOT TO SCALE



PLAN VIEW



SECTION A–A

LEVEL SPREADER

NOT TO SCALE

RIP–RAP APRON DIMENSIONS

	WIDTH @FES	WIDTH @LOW PT.	LENGTH
TYPICAL	4 FT	13 FT	13 FT
DMH PT 7+90	6 FT	15 FT	12 FT
DMH PT 8+75	9 FT	21 FT	17 FT

Stone for Pipe Ends M2.02.3 Massachusetts Highway Department Standard Specifications for Highways and Bridges

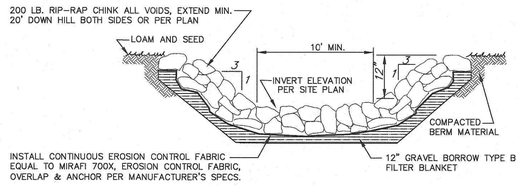
1. ALL STONE SHALL BE CLEAN DURABLE ANGULAR STONE MEETING THE FOLLOWING SPECIFICATIONS:

STONE SIZE	% OF WEIGHT SMALLER THAN GIVEN SIZE
200 LB.	100%
100 LB.	75%
75 LB.	50%
50 LB.	25%
10 LB.	10%

ROUNDED STONES, BOULDERS, SANDSTONE OR SIMILAR STONE OR RELATIVELY THIN SLAB SHALL NOT BE ACCEPTABLE.

2. THE RIP–RAP SHALL BE UNDERLAIN WITH A FILTER BLANKET CONSISTING OF CLEAN, COARSE GRAVEL WITH NO STONES OVER 4" IN LONGEST DIMENSION AND NO FEWER THAN 10% OF TOTAL VOLUME PASSING A 200# SIEVE.
3. THE FILTER BLANKET NEED NOT BE COMPACTED, BUT SHALL BE GRADED TO A UNIFORM THICKNESS OF 12".
4. THE FILTER BLANKET SHALL BE OVERLAYED WITH A

SUCH FABRIC SHALL BE CONTINUOUS IN LENGTHS, EITHER PARALLEL OR PERPENDICULAR TO THE SLOPE AND MUST BE UNDER ALL RIP–RAPPED SURFACES.



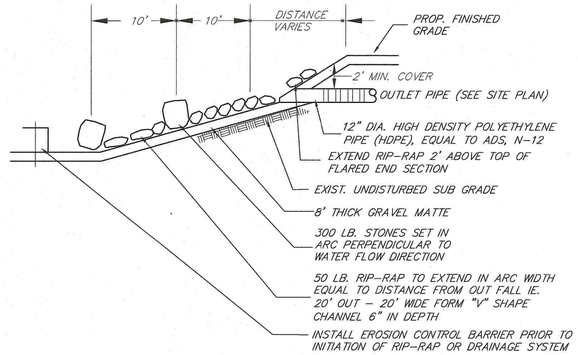
REINFORCED OVERFLOW BROAD–CRESTED WEIR

NOT TO SCALE

SCHEDULE OF STORMWATER OUTLETS

BASIN NO.	TOP BERM	TOP CONC.	OUTLET STRUCTURE ORIFICE SIZE	ELEV	HORIZ /VERT	OUTLET SIZE	OUTLET INLET	OUTLET FES	OUTLET LENGTH/SLOPE	OVERFLOW WEIR LEVEL SPREADER ELEV	WIDTH
A	790.3									789.30	40
B–1	786.85	785.60	2@ 6"	784.50	V	15"	782.00	780.00	34' S=0.059	785.65	10'
			GRATE 47"x47" NO CONC TOP	785.60	H						
B–2	781.70	780.20	2@ 3"	235.00	V	12"	778.00	777.70	30' S=0.01	780.5	10'
			GRATE 24"x24"	780.20	H						
C	820.50	818.5	3"	817.5	V	12"	814.50	814.00	30' S=0.017	819.3	15'
			GRATE 24"x24"	818.5	H						
D–1	837.5	836.7	3"	835.45	V	6"	830.00	829.00	68' S=0.15	836.50	15'
			4" SUB	832.00	V						
D–2	820.35	819.20	4" SUB	815.5	V	15"	815.00	814.50	25' S=0.02	819.3	10'
			GRATE 24"x24"	819.20	H						
D–3	815.35	814.20	4"	811.90	V	15"	808.50	807.90*	65' S=0.07	814.50	10'
			3"	812.25	V						
			5"	812.50	V						
			30° V–NOTCH	313.45							
			GRATE 24"x24"	814.30	H						
E	790.3									789.30	10'

** DISCHARGES TO A DMH WITH 18" PERF HDPE SET LEVEL EMBEDDED IN WASHED STONE SEE SITE PLAN SHEET 9*



OUTFALL & ENERGY DISSIPATER

NOT TO SCALE

REVISIONS:

1–18–21 GENERAL REVISION
5–25–21 NO REVISIONS THIS SHEET
8–11–21 PER PEER REVIEW COMMENTS

Holden Planning Board

DATE OF APPROVAL:

DATE OF ENDORSEMENT:

SALISBURY PINE TREE ESTATES CONSTRUCTION DETAILS

LOCATION: Salisbury St., Pine Tree and Bailey Rds
TOWN: HOLDEN, MASSACHUSETTS
PREPARED FOR:

Holden Pine Tree, LLC

SCALE: AS NOTED
DATE: OCT. 2019

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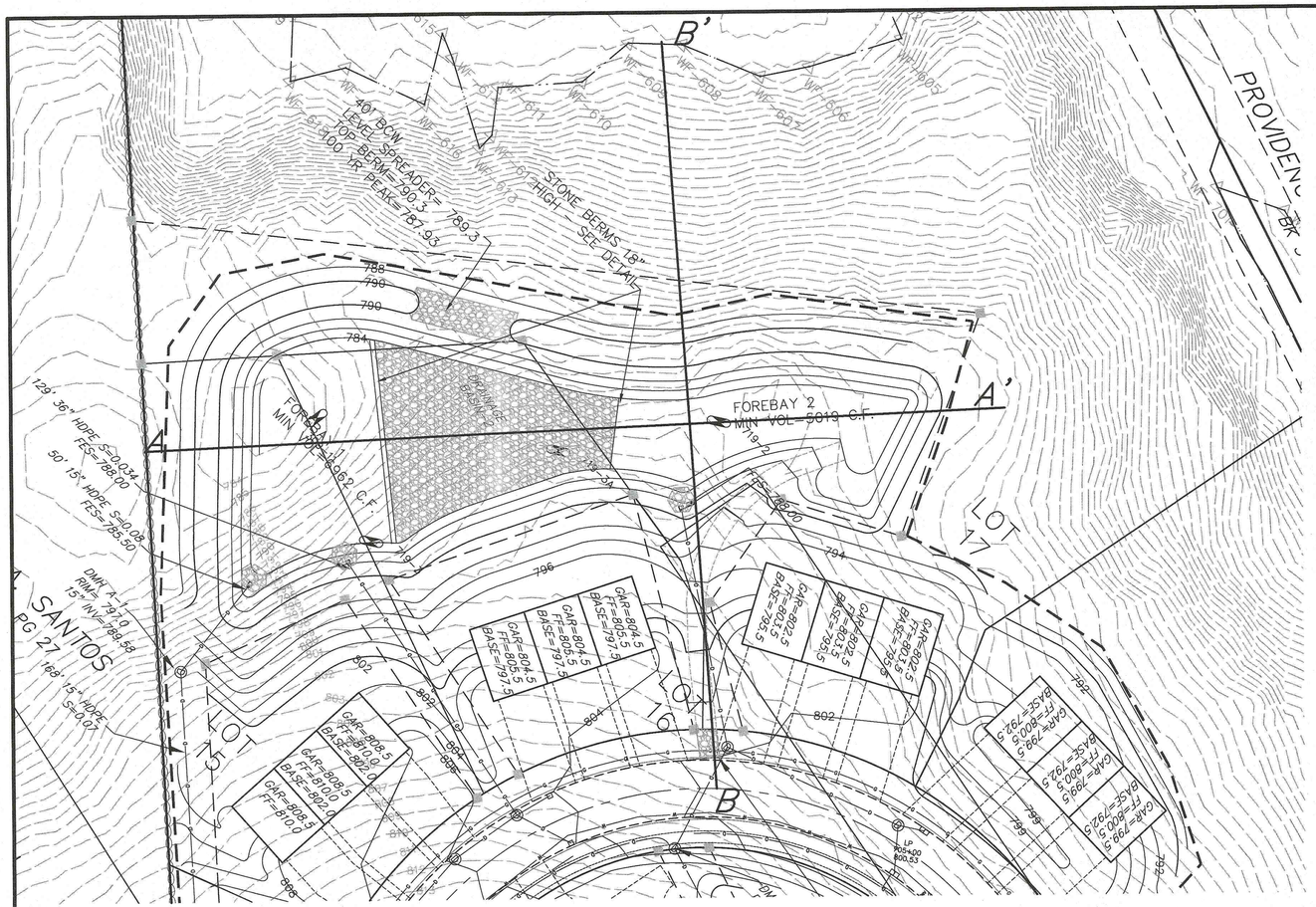
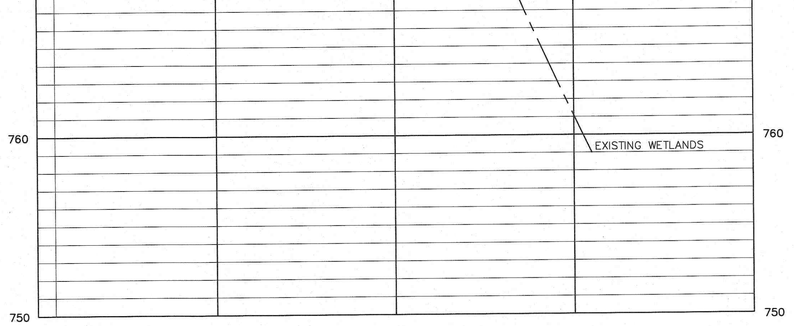
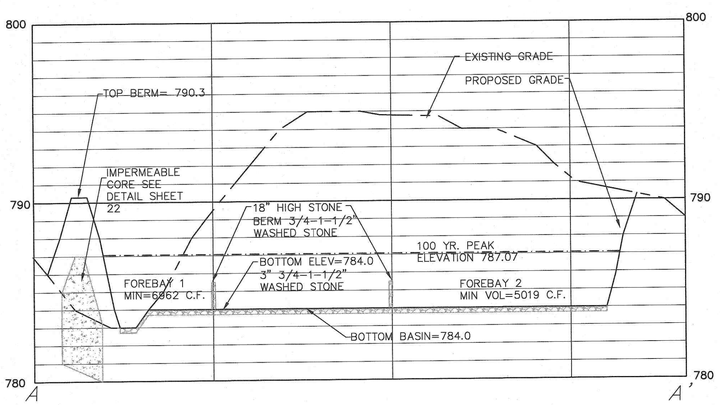
PROJECT No.: 7602



PLAN AND PROFILE
SCALE: 1"=4' VERT.
1"=40' HORIZ.



CROSS SECTION B–B'



CROSS SECTION A–A'

Holden Planning Board

DATE OF APPROVAL:

DATE OF ENDORSEMENT:

40' 0 40' 80'
BAR SCALE
1"=40'
CHECK GRAPHIC SCALE BEFORE USING

SALISBURY PINE TREE ESTATES DRAINAGE BASIN CROSS-SECTIONS

LOCATION: Salisbury St., Pine Tree and Bailey Rds
TOWN: HOLDEN, MASSACHUSETTS

PREPARED FOR:
HOLDEN PINE TREE, LLC

SCALE: 1"=40' DATE: OCT. 2019

Susan E. Carter CIVIL ENGINEER NO. 41270 REGISTERED PROFESSIONAL ENGINEER COMMONWEALTH OF MASSACHUSETTS
8-13-21

REVISIONS:
1–18–21 GENERAL REVISION
5–25–21 GENERAL REVISION
8–11–21 GENERAL REVISION

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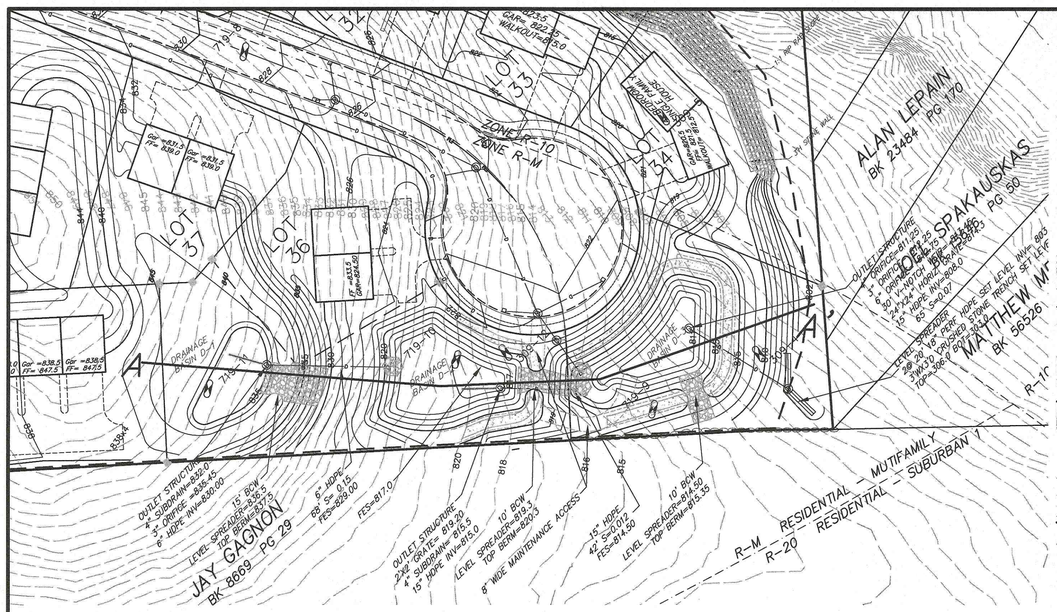
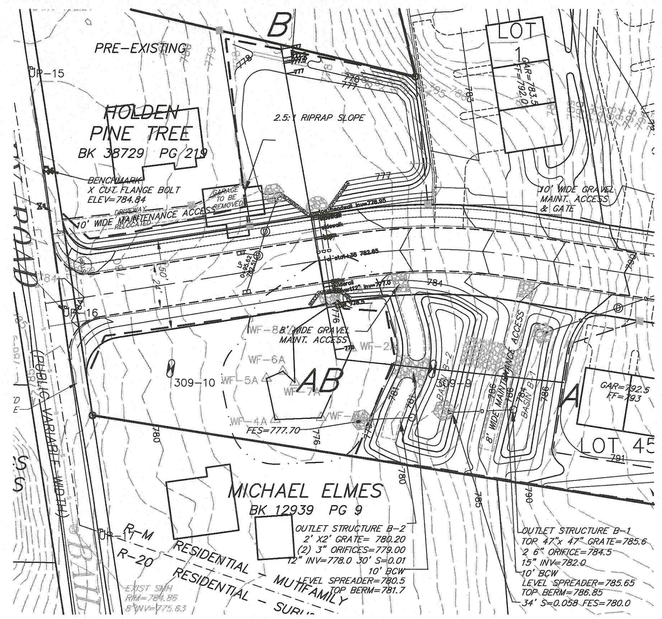
PROJECT No.: 7602 SHEET 22A



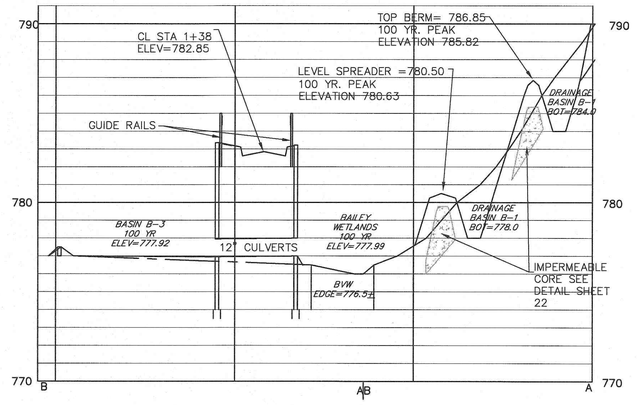
BASIN CONTOURS FOR GRAVEL FILL

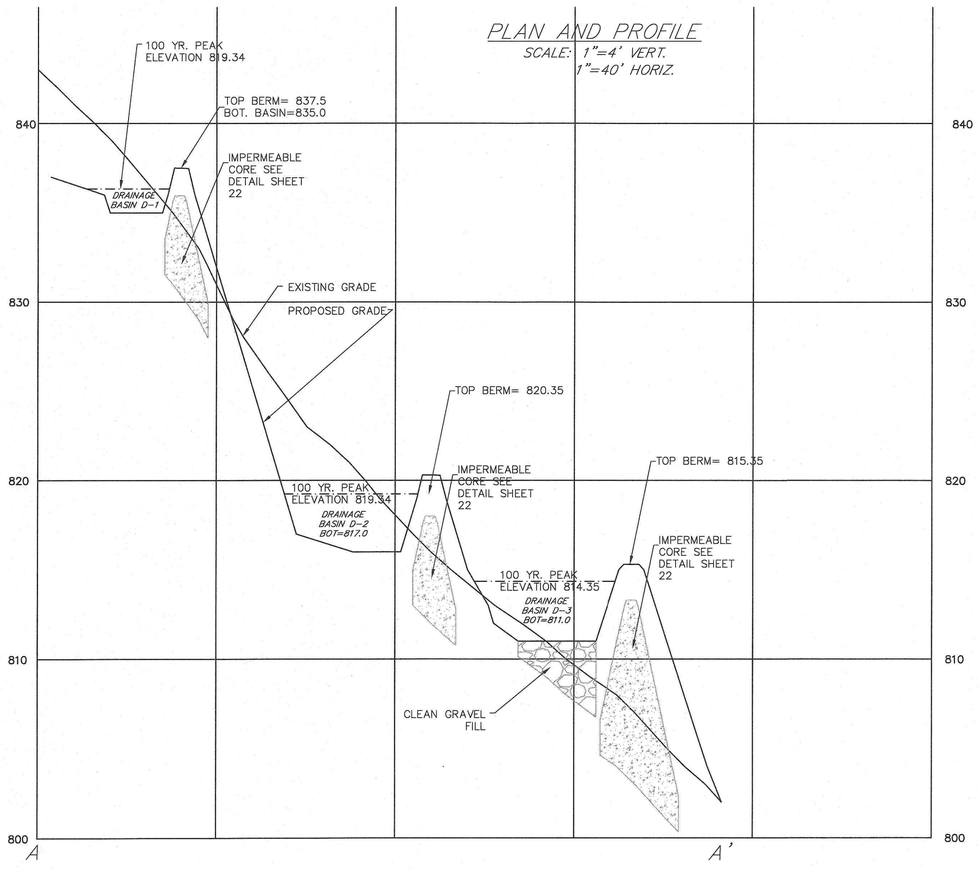
SCALE: 1"=40'



BASIN B-1 TO B-3 CROSS SECTIONS

SCALE: 1"=40'





CROSS SECTION A-A'

PLAN AND PROFILE

SCALE: 1"=4' VERT.
1"=40' HORIZ.

40' 0 40' 80'

BAR SCALE
1"=40'

CHECK GRAPHIC SCALE BEFORE USING

SALISBURY PINE TREE ESTATES DRAINAGE BASIN CROSS-SECTIONS

LOCATION: Salisbury St., Pine Tree and Bailey Rds
TOWN: HOLDEN, MASSACHUSETTS
PREPARED FOR:
HOLDEN PINE TREE, LLC

SCALE: 1"=40' DATE: OCT. 2019

Holden Planning Board

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COMMONWEALTH OF MASSACHUSETTS
Susan E. Carter
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REVISIONS:

1-18-21 GENERAL REVISION
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PROJECT No.: 7602

SHEET 22B

Holden Sewerage Specifications:

Sewer pipes and related equipment, such as manholes and connecting Y's shall be constructed in conformity with the specifications of the Town of Holden Public Works Department.

The installation of water and sewer pipes and related equipment shall not be backfilled until inspected by the proper authority.

Sewer mains shall be minimum 8" SDR 35 PVC laid to a minimum slope of one-half (1/2) foot per 100 feet. All sewer laterals shall be 6" SDR 35 PVC laid at a minimum pitch of one-quarter (1 /4) inch per foot. All sewers, including house services, shall be laid in on envelope of three-quarter (3/4) inch washed gravel. Deflections in line or grade in excess of one-half (1/2) inch will be cause for rejection.

Line and grade shall be controlled by the use of laser instruments.

All castings and fitting shall be manufactured in North America.

All sewer manholes shall be vacuum tested in accordance with ASTM C1244.

EXFILTRATION/INFILTRATION, AIR TESTS AND TV INSPECTION
Time for Making Tests: After the pipe has been laid and backfilled, an infiltration, exfiltration or low pressure air test shall be made on each section of pipeline between manholes. When no groundwater exists at the time of the test, the pipeline shall be subjected to an exfiltration test or an air test. Testing shall be completed based upon DEP Requirements below.

TV Inspection: When the pipe lines pass an exfiltration/infiltration or air test, they shall be subject to a TV inspection performed under the supervision of the Engineer. A recording of the TV inspection shall be provided to the Town Engineer. Any sections found to be damaged or blocked shall be repaired to the satisfaction of the Town Engineer or retested

Minimum Standards for Watertight construction for Sewer Piping

Allowable infiltration or exfiltration should not exceed 100 gpd/inch-diam/mile of sewer. Leakage test shall be specified in the specification and may include water or low pressure air testing.
Watertight construction consists of the use of ductile iron, mechanical joint pipe, prestressed concrete cylinder pipe, and solvent welded joint PVC pipe and any combination of the above.
Pressure testing should be performed by the owner after completion of construction, prior to startup and after on year of natural settling in order to ensure the watertightness of the affected collection systems, manholes and pump station wet wells.

Acceptable air testing procedures are presented in American Society of Testing and Material Standard C828-90T "Standard Test Method for Low-Pressure Air Test of Vitrified Clay Pipe". In Lieu of that Standard the following test procedure is acceptable:
Plug all openings in the section of sewer piping to be tested
Pressurize the system to be tested to an air pressure of 5 psig. Shut off the pressurized air source.
Allow the pressure to stabilize for a minimum of 5 minutes
Record the stabilized pressure in the test section. Record the test start time. The minimum test pressure is 4 psig. The minimum test time is 5 minutes. At the end of the pressure testing time period record the test pressure and the test termination time. If the pressure drop is greater than 2 psig during the duration of the test, the tested section has failed the test.
If the testes are failed, repairs must be made to the affected sewer pipe and restested.

INSPECTIONS WILL ONLY BE MADE DURING THE HOURS OF 8:00 AM TO 4:00 PM MONDAYS THROUGHT THURSDAYS AND 8:00 AM TO NOON ON FRIDAYS EXCEPT HOLIDAYS. PLEASE NOTE: A minimum two (2) hour notification shall be given by the contractor for requested inspections.

The following is a list of requirements for house connections to the sanitary sewer lines:

1. A valid permit must be issued prior to the start of work to install a particular sewer connection. Lack of an approved permit may result in suspension or revocation of your drainlayers license.

2. Proper notification to all required agencies must be made within required time periods. Notification to Dig-safe (888-344-7233) must be made 72 hours prior to the start of work. The Holden Water Deportment (508-210-5550) must be notified 48 hours prior to the start of work for information and location marking of water lines.

3. The contractor is responsible to comply with all applicable OSHA open trench safety requirements. It is not the Town's responsibility to inspect each site for compliance.

4. Each particular sewer shall be laid directly to the building sewered. Not more than one building can be connected with a particular sewer through the same pipe.

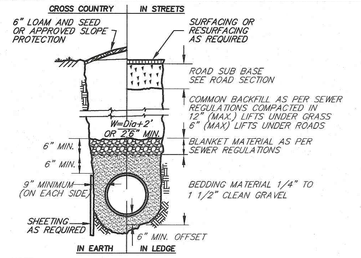
5. Six inch (6") Schedule 35 PVC pipe as approved by the DPW Director will be used to make connections of all particular sewers to within five feet of the foundation wall of the building to be sewered. A four-inch (4") heavy cast iron pipe or equivalent PVC pipe (Schedule 40) shall be used through the foundation wall.

6. Minimum allowable slope is 2% or 1/4 inch per foot.

7. Cleanouts shall be provided every three (3) bends or 100 feet.

8. All pipes shall be laid with the bell end toward the outlet at the foundation (bell end uphill). Pipes shall not be reversed to eliminate fittings.

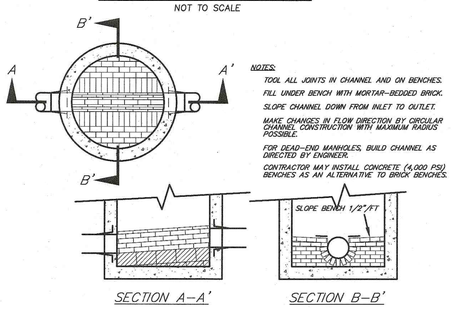
9. All joints shall be push on rubber type fittings. No glued PVC joints will be allowed outside the Foundation walls. The connection to be made from the six-inch (6") PVC pipe to the four-inch (4") heavy cast iron pipe shall be made with o rubber boot adapter. This adapter shall be of an approved type with stainless steel compression rings designed to create a water-tight seal.



NOTE:
1. BOTH THE BEDDING AND BLANKET MATERIAL SHALL BE COMPACTED IN 6" LOOSE LIFTS TO 90% MAXIMUM DRY DENSITY PER THE MODIFIED PROCTOR TEST.
2. ALL UNSUITABLE MATERIAL SHALL BE REMOVED AND REPLACED WITH GRAVEL OR OTHER SUITABLE MATERIAL COMPACTED TO 90% MAXIMUM DENSITY (MODIFIED PROCTOR).

TYPICAL SEWER TRENCH

NOT TO SCALE

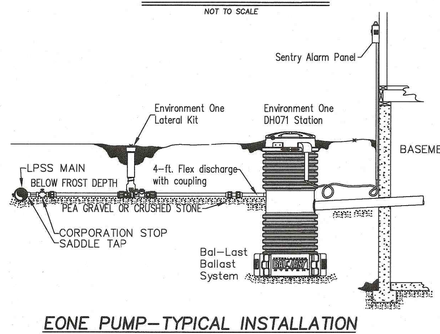


NOTES:
- TOOL ALL JOINTS IN CHANNEL AND ON BENCHES.
- FILL UNDER BENCH WITH MORTAR-BEDDED BRICK.
- SLOPE CHANNEL DOWN FROM INLET TO OUTLET.
- MAKE CHANGES IN FLOW DIRECTION BY CIRCULAR CHANNEL CONSTRUCTION WITH MAXIMUM RADIUS POSSIBLE.
- FOR DEAD-END MANHOLES, BUILD CHANNEL AS DIRECTED BY ENGINEER.
- CONTRACTOR MAY INSTALL CONCRETE (4,000 PSI) BENCHES AS AN ALTERNATIVE TO BRICK BENCHES.

SECTION A-A' SECTION B-B'

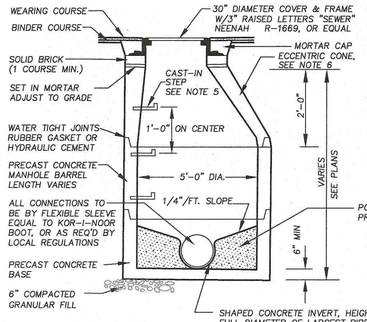
BRICK INVERT DETAIL

NOT TO SCALE



EONE PUMP-TYPICAL INSTALLATION

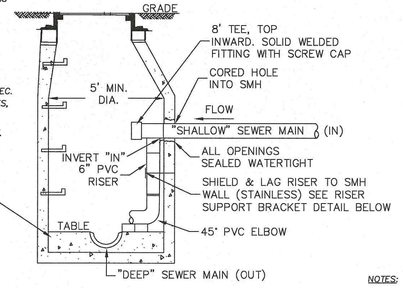
NOT TO SCALE



NOTES FOR ALL SEWER MANHOLES:
1. CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS.
2. REINFORCED STEEL CONFORMS TO LATEST ASTM A185 SPEC. 0.12 SQ. IN./LINEAL FT. 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.
6. IN AREAS WHERE COVER IS 3' OR LESS ABOVE PIPES, USE FLAT TOP SLAB IN LIEU OF ECCENTRIC CONE SECTION.
7. EXTERIOR OF MANHOLE TO BE SEALED WATER TIGHT.

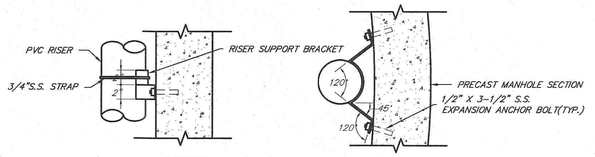
SEWER MANHOLE DETAIL

NOT TO SCALE



INTERIOR DROP SEWER MANHOLE

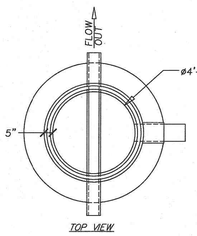
NOT TO SCALE



NOTES:
1. BRACKET SHALL BE FABRICATED FROM TYPE 304, 10 GAUGE, NO 3 FINISH STAINLESS STEEL SHEET.
2. RISER SHALL BE FASTENED TO BRACKET WITH ADJUSTABLE S.S. STRAPS.
3. VERTICAL SPACING OF RISER SUPPORTS NOT TO EXCEED 36" WITH A MINIMUM TWO BRACKETS & STRAPS PER DROP.

RISER SUPPORT BRACKET DETAIL

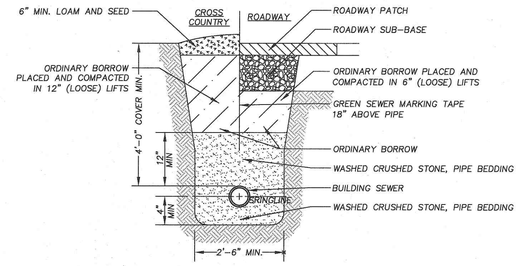
NOT TO SCALE



PRECAST CONCRETE DOGHOUSE MANHOLE

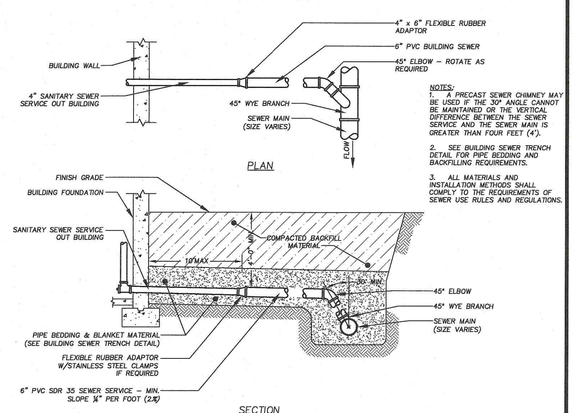
NOT TO SCALE

NOTES:
1. ROADWAY PATCH AND BASE/SUB-BASE SHALL BE INSTALLED AS DIRECTED BY THE HIGHWAY SUPERINTENDENT.
2. BEDDING, BLANKET, & BACKFILL MATERIALS SHALL BE COMPACTED TO 95% MAXIMUM DENSITY (MODIFIED PROCTOR) AT OPTIMUM MOISTURE CONTENT FOR BOTH CROSS COUNTRY AND ROADWAY INSTALLATION.
3. ALL MATERIALS, INSTALLATION TECHNIQUES, PROCEDURES, INSPECTIONS, AND TESTING SHALL BE IN COMPLIANCE WITH THE REQUIREMENTS OF THE TOWNS SEWER RULES AND REGULATIONS UNLESS OTHERWISE APPROVED BY THE SEWER COMMISSION IN WRITING.



BUILDING SEWER TRENCH

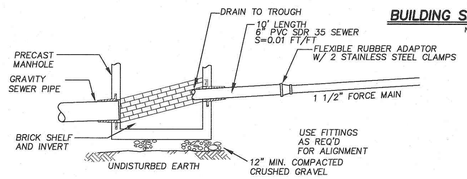
NOT TO SCALE



NOTES:
1. A PRECAST SEWER CHIMNEY MAY BE USED IF THE 30° ANGLE CANNOT BE MAINTAINED OR THE VERTICAL DIFFERENCE BETWEEN THE SEWER SERVICE AND THE SEWER MAIN IS GREATER THAN FOUR FEET (4').
2. SEE BUILDING SEWER TRENCH DETAIL FOR PIPE BEDDING AND BACKFILLING REQUIREMENTS.
3. ALL MATERIALS AND INSTALLATION METHODS SHALL COMPLY TO THE REQUIREMENTS OF SEWER USE RULES AND REGULATIONS.

BUILDING SEWER CONNECTION

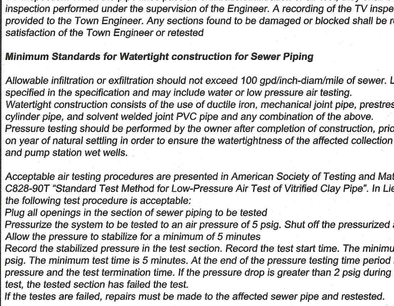
NOT TO SCALE



FORCE MAIN DISCHARGE MANHOLE

NOT TO SCALE

NOTE:
1. THE TOWN OF HOLDEN REQUIRES INDIVIDUAL LOT DEVELOPMENT PLANS AT THE TIME OF BUILDING PERMIT APPLICATIONS. ALL UTILITY CONNECTIONS SHALL BE DESIGNED AND SHOWN ON THOSE PLANS
2. CROSS COUNTRY SEWER PROFILE IS SHOWN ON SHEET 11



TYPICAL ELEV. VIEW

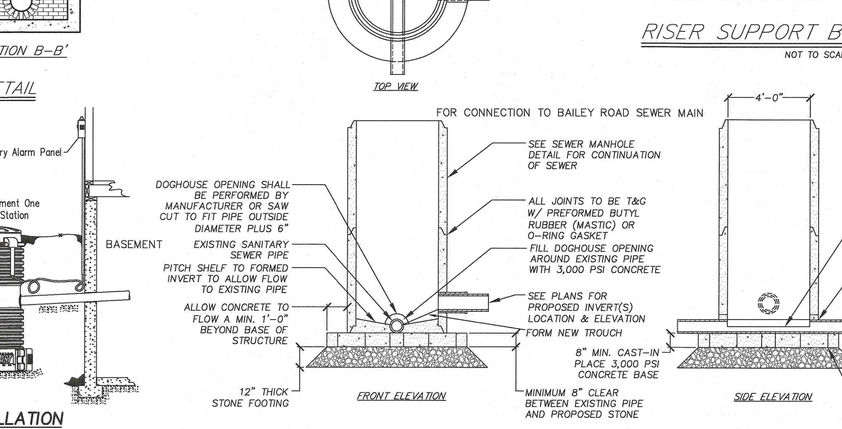
OPTIONAL ELEV. VIEW
AIR & VACUUM VALVE MTG. DETAIL

REV.#	DESCRIPTION	BY:	DATE
3	Added note in upper right corner	mac	08/15/16
2	Added 2 valves	mac	11/8/14
1	Modified for ARI Air Relief Valve	arm	02/11/10

THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO F. R. MAHONY & ASSOCIATES, INC. AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION

F R MAHONY & associates, Inc. — 273 WEYMOUTH STREET, ROCKLAND, MASSACHUSETTS 02370 (781) 982-9300 Fax: (781) 982-1056

CUSTOMER/ENGINEER:
PROJECT NAME: PROJECT NO.:
DESCRIPTION: IN-LINE FLUSHING M.H. DETAIL- SCHED 80PVC PIPING
SCALE: NONE DRAWN BY: DRAWING NO. FRM-3B
DATE: CHK'D BY:



TYPICAL ELEV. VIEW

OPTIONAL ELEV. VIEW
AIR & VACUUM VALVE MTG. DETAIL

INDIVIDUAL E-ONE PUMPS REQUIRED FOR LOTS 31-36. DUPLEX UNITS SHALL HAVE INDIVIDUAL PUMP STATIONS

REV.#	DESCRIPTION	BY:	DATE
3	Added note in upper right corner	mac	08/15/16
2	Added 2 valves	mac	11/8/14
1	Modified for ARI Air Relief Valve	arm	02/11/10

THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO F. R. MAHONY & ASSOCIATES, INC. AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION

F R MAHONY & associates, Inc. — 273 WEYMOUTH STREET, ROCKLAND, MASSACHUSETTS 02370 (781) 982-9300 Fax: (781) 982-1056

CUSTOMER/ENGINEER:
PROJECT NAME: PROJECT NO.:
DESCRIPTION: TERMINAL FLUSHING M.H. DETAIL- SCHED 80 PIPING
SCALE: NONE DRAWN BY: DRAWING NO. FRM-3A
DATE: CHK'D BY:

REVISIONS:

1-18-21 GENERAL REVISION
5-25-21 NO REVISIONS THIS SHEET
8-11-21 PER PEER REVIEW COMMENTS

COMMONWEALTH OF MASSACHUSETTS — Susan E. Carter — CIVIL ENGINEER NO. 41270 — REGISTERED PROFESSIONAL ENGINEER — 8-13-21

Holden Planning Board

DATE OF APPROVAL:

DATE OF ENDORSEMENT:

SALISBURY PINE TREE ESTATES CONSTRUCTION DETAILS

LOCATION: Salisbury St., Pine Tree and Bailey Rds
TOWN: HOLDEN, MASSACHUSETTS

PREPARED FOR:

Holden Pine Tree, LLC

SCALE: AS NOTED DATE: OCT. 2019

PLACES Associates, Inc.
· Planning
· Landscape Architecture
· Civil Engineering
· Surveying
256 Great Road, Suite 4
Littleton, MA 01460
(978) 486-0334
www.placesassociates.com

PROJECT No.: 7602 SHEET 23 OF 34

Holden Water Main Specifications:
Water mains shall be ductile iron pipe to be a minimum of 8 inches in diameter.

Water mains shall be laid to provide a minimum cover of five (5) feet from the finished grade, and shall not be deeper than eight (8) feet. All piping shall be Class 52 Ductile-Iron pipe designed for on internal working pressure. All fittings and hydrants shall have properly designed concrete thrust blocks installed behind them.

Gate valves shall be installed on each outlet of all tees and crosses, every 500 feet of main, on hydrant branches, and at dead ends. Gate valves shall be resilient wedge, open left meeting all AWWA standards.

Hydrants shall be located every 500 feet on one side of each street unless a greater distance is approved, and shall have a one (1) inch washed stone drainage sump one-half (1/2) cubic yard in volume at its base.

Gate valves, road boxes and hydrants shall be equal in quality to those presently being purchased by the Town's Water Department.

Water service shall be minimum 1" copper type K at a burial depth of six (6) feet. Clean sand shall fully encompass the copper tubing (12" all sides).

Upon completion of the water main construction and prior to putting into service a pressure and leakage test will be mode. Any defects found shall be corrected immediately. Once a successful test has been run, the lines shall be chlorinated before they are put into service. The developer shall be responsible for providing all necessary equipment and labor to conduct the tests and chlorination which must be witnessed by a representative of the Department of Public Works.

Prior to the construction of buildings in a subdivision, or in any phase of a subdivision approved by the Planning Board, the water supply and hydrants for fire protection shall be installed and maintained by the Applicant in a manner acceptable to the Fire Chief and the Department of Public Works until acceptance of the water lines by the Town of Holden

Town of Holden List of Approved Materials for Water System Infrastructure January 2006:

Castings: All castings and fittings shall be manufactured In North American as required by Holden DPW.

Water Mains: shall be ductile iron centrifugally cast with push-on joints conforming to AWWA/ANSI C151. Pipe shall be Class 52, double cement lined and bituminous coated conforming to AWWA/ANSI C104. No Manufacturer Specified.

Gate Valve: (12-inch diameter or less): Shall be 200 psi working pressure, non-rising stem, "O" ring, open left, mechanical joint, two-inch ductile iron operating nut with stainless steel bolt, resilient seated (resilient wedge) gate valve conforming to ANSI/AWWA C509 - Kennedy, Clow or Mueller. Valves shall be epoxy coated and supplied with mechanical joint accessories, high strength alloy steel bolts and heavy hexagon nuts conforming to ANSI/AWWA C111.

Gate Valve Boxes: shall be cast iron, two piece, sliding type with a non-flange top section, no inside stops, and an outside shaft diameter of six inches. Bottom section shall be belled base. Length of top section shall be minimum of 24 inches. Middle and bottom section length as needed. Boxes shall have the word "WATER" cast into cover. No Manufacturer Specified.

Ductile Iron Fittings: Pipe fittings shall have mechanical joint ends conforming to ANSI/AWWA C1/A21.11, double cement lining and bituminous coating conforming to ANSI/AWWA C104.A21.4. fittings shall be supplied with mechanical joint accessories unless specified others, with high strength low alloy steel bolts and heavy hexagon nuts conforming to ANSI/AWWA C111.A21.11. Long body fittings shall be Class 350 ductile iron conforming to ANSI/AWWA C110/A21.10. Compact body fittings shall be Class 350 ductile iron conforming to ANSI/AWWA C153/A21.53.

Hydrants: All Hydrants must be Eddy Model F-2640, open left, with break flange. Hydrants are to be factory painted yellow with reflective white on bonnet and cops with oil based paint.

Service Line from Main to Curb: Type K Copper (ASTM B88), minimum size 1".

Service Line from Curb to House: Type K Copper (ASTM B88) or plastic with minimum pressure rating of 200 psi.

Corporation: Ball valve type construction with inlet CC thread and compression pock joint on the outlet, heavy patterns, and conforming to AWWA/ANSI C8OO - McDonald, Ford or approved equal. Inlet iron pipe threads ore required for 1-1/2" and larger corporations. Brass shall have minimum lead content; Town may request lead content of any brass or copper materials.

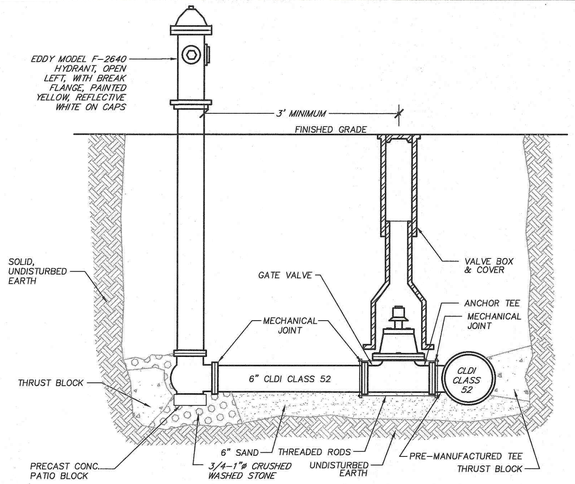
Curb Stop: McDonald ball valve type construction with inlet compression and compression pack joint on the outlet, heavy patterns, and conforming to AWWA/ANSI C800 - Brass shall have minimum lead content, Town may request lead content of any brass or copper materials.

Curb Box: Shall be Erie style with arch pattern, one-inch in diameter, constructed from SCH40 Block Steel, adjustable in length from five feet to six feet, and have 5/8-diameter stainless steel rod 36-inches in length with heavy brass pins.
One-inch caps shall be extra heavy with brass pentagon plug and coarse "rope" thread to fit a one- inch Erie style box.
Two-inch caps shall be a #3 cover, cast iron with brass bushing and bras pentagon plug to fit a two-inch Erie style box.
All caps shall be constructed of magnetic material and have the word "WATER" cast into cover - Made in North America.

Meters: Badger Meter with Itron ERT purchased through the Town and installed by the Town for standard (5/8") size.

Non-standard larger meters installed by contractor.

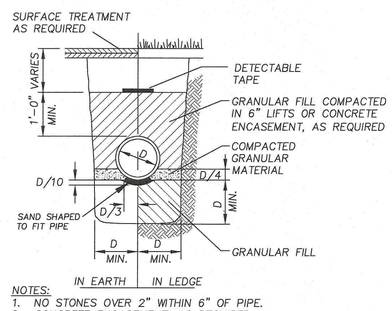
Meter Setters: Meter setters shall have compression pack Joint connections on the Inlet and outlet ends suitable for 3/4-inch copper tubing. Meter setters for one-inch meters shall have female iron pipe thread connections on the inlet and outlet ends. Two meter gaskets shall be supplied with each horn - No Manufacturer Specified.



NOTES:
1. ALL CONCRETE TO BE CAST-IN-PLACE (3,000 PSI)
2. ALL MECHANICAL JOINTS SHALL HAVE RETAINER GLANDS
3. CARE SHALL BE TAKEN TO SHIELD HYDRANT BASE DRAIN HOLES DURING PLACEMENT OF THE CONCRETE THRUST BLOCK. DRAIN HOLES SHALL BE VERIFIED AS OPEN AND FREE OF OBSTRUCTIONS PRIOR TO BACKFILLING
4. CARE SHALL BE TAKEN TO SHIELD ALL MECHANICAL JOINT GLANDS AND BOLTS DURING PLACEMENT OF CONCRETE THRUST BLOCK. ALL BOLTS AND GLANDS SHALL BE FREE AND UNOBSTRUCTED BEFORE BACKFILLING
5. HYDRANT SHALL BE SET PLUMB. VERTICAL HYDRANT EXTENSIONS SHALL BE USED AS NECESSARY TO PROPERLY LOCATE THE BREAKAWAY FLANGE PER MANUFACTURERS RECOMMENDATIONS
6. POLYETHYLENE SHEETING SHALL BE PLACED OVER THE FITTING AND/OR HYDRANT BASE TO PREVENT DIRECT CONTACT OF CONCRETE WITH THE FITTING
7. HYDRANT SHALL BE FACTORY PAINTED

HYDRANT ASSEMBLY
THREE-WAY GATED ANCHOR TEE WITH ADAPTER

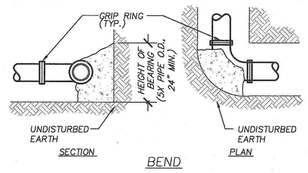
NOT TO SCALE



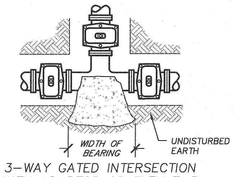
NOTES:
1. NO STONES OVER 2" WITHIN 6" OF PIPE.
2. CONCRETE ENCASEMENT, AS REQUIRED

UTILITY TRENCH DETAIL

NOT TO SCALE



BEND

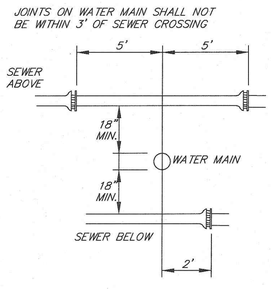


3-WAY GATED INTERSECTION WITH ADAPTOR OR FLEX T-3

NOTES:
1. THRUST BLOCKS ARE TO BE MADE OF CAST-IN-PLACE CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI @ t=28 DAYS.
2. THRUST BLOCKS ARE TO BEAR DIRECTLY ON PIPE OR FITTING AND EXISTING UNDISTURBED EARTH AT EXCAVATION SIDEWALL.
3. BAGS OF CONCRETE OR OTHER UNFORMED CONCRETE OR MATERIALS MAY NOT BE USED AS THRUST BLOCKS.

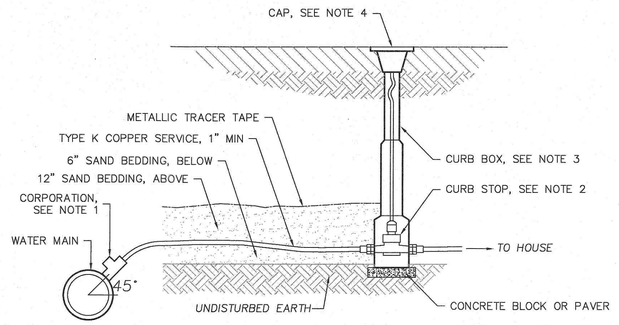
THRUST BLOCK DETAILS

NOT TO SCALE



SEWER LINE CROSSING— WATER LINE

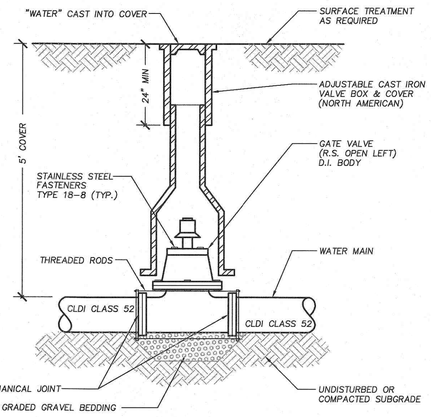
NOT TO SCALE



NOTES:
1. CORPORATION—BALL VALVE WITH INLET CC THREAD & COMP PACK JOINT OUTLET
2. CURB STOP—BALL VALVE WITH INLET CC THREAD & COMP PACK JOINT OUTLET
3. CURB BOX—ERIE STYLE, 1" DIA., SC #40 BLACK STEEL, ADJUSTABLE 5'—6', 5/8"DIA STAINLESS ROD 36" LONG WITH HEAVY BRASS PINS
4. CAP—1" EXTRA HEAVY WITH BRASS PENTAGON PLUG AND COARSE "ROPE" THREAD 2" #3 COVER, CAST IRON WITH BRASS BUSHING AND BRASS PENTAGON PLUG ALL CAPS CONSTRUCTED OF MAGNETIC MATERIAL AND HAVE THE WORD "WATER" CAST INTO COVER
5. ALL SERVICE LINES TO HAVE 5' MIN COVER

WATER SERVICE CONNECTION

NOT TO SCALE



GATE VALVE AND BOX

NOT TO SCALE

FOR BOTH MANHOLE TYPES NOTES:

1. CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS.

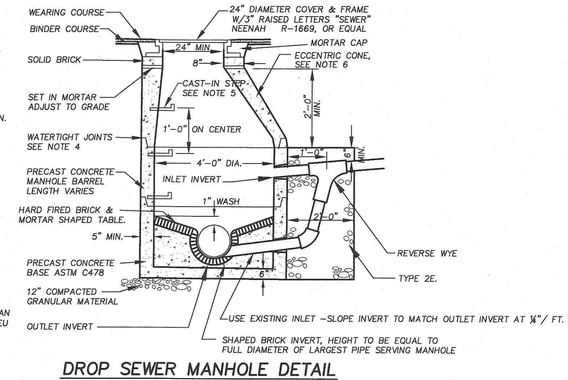
2. REINFORCED STEEL CONFORMS TO LATEST ASTM A185 SPEC. 0.12 SQ. IN./LINEAL FT. AND 0.12 SQ. IN. (BOTH WAYS) BASE BOTTOM.

3. H-20 DESIGN LOADING PER AASHTO HS-20-44; ASTM C478 SPEC FOR "PRECAST REINFORCED CONCRETE MANHOLE SECTIONS."

4. WATERTIGHT JOINT USING AN APPROVED MASTIC TYPE SEALANT OR O-RING GASKET (EXTERIOR OF ALL JOINTS SHALL BE RECOATED WITH ASPHALTIC WATER PROOFING AFTER SETTING)

5. STEEL REINFORCED COPOLYMER POLYPROPYLENE PLASTIC STEP CONFORMS TO LATEST ASTM C478 SPEC.

6. WHEN MANHOLES ARE LESS THAN 6' DEEP USE FLAT TOP SLAB IN LIEU OF ECCENTRIC CONE SECTION.

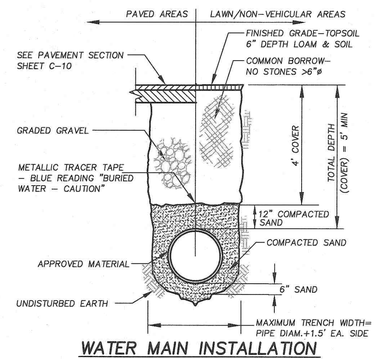


DROP SEWER MANHOLE DETAIL

NOT TO SCALE

FOR CONNECTION TO EXISTING DCR SEWER MANHOLE

FITTING RESTRAINT LENGTHS			
FITTING TYPE	PIPE SIZE(S)	BEND ANGLE	RESTRAINT LENGTH
BEND	8"	11.25°	2'
BEND	8"	22.5°	3'
BEND	8"	45°	6'
BEND	8"	90°	14
TEE	6"/8"	--	16'
TEE	8"/8"	--	11'
DEAD END	8"	--	31'



WATER MAIN INSTALLATION

NOT TO SCALE

REVISIONS:

1-18-21 GENERAL REVISION
5-25-21 NO REVISIONS THIS SHEET
8-11-21 PER PEER REVIEW COMMENTS

Susan E. Carter CIVIL ENGINEER NO. 41270 REGISTERED PROFESSIONAL ENGINEER COMMONWEALTH OF MASSACHUSETTS
8-13-21

Holden Planning Board

DATE OF APPROVAL:

DATE OF ENDORSEMENT:

SALISBURY PINE TREE ESTATES
CONSTRUCTION DETAILS

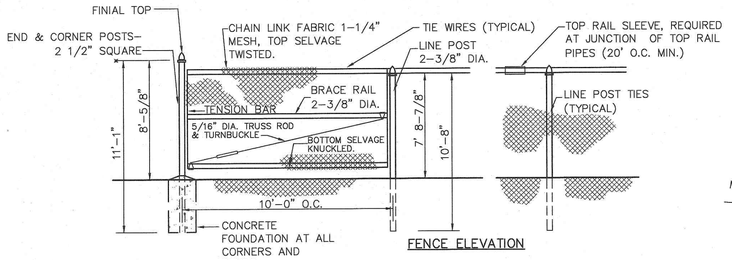
LOCATION: Salisbury St., Pine Tree and Bailey Rds
TOWN: HOLDEN, MASSACHUSETTS
PREPARED FOR:

Holden Pine Tree, LLC

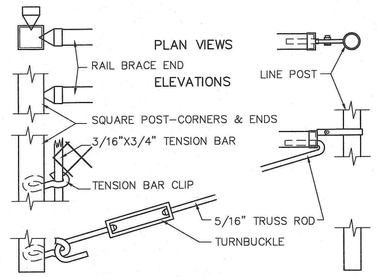
SCALE: AS NOTED DATE: OCT. 2019

PLACES Associates, Inc.
· Planning
· Landscape Architecture
· Civil Engineering
· Surveying
256 Great Road, Suite 4
Littleton, MA 01460
(978) 486-0334
www.placesassociates.com

PROJECT No.: 7602

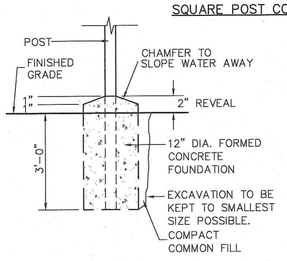


FENCE ELEVATION

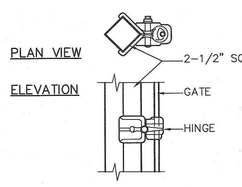


SQUARE POST CONNECTION

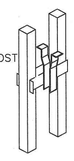
LINE POST CONNECTION



CONCRETE FOUNDATION



SQUARE POST HINGE



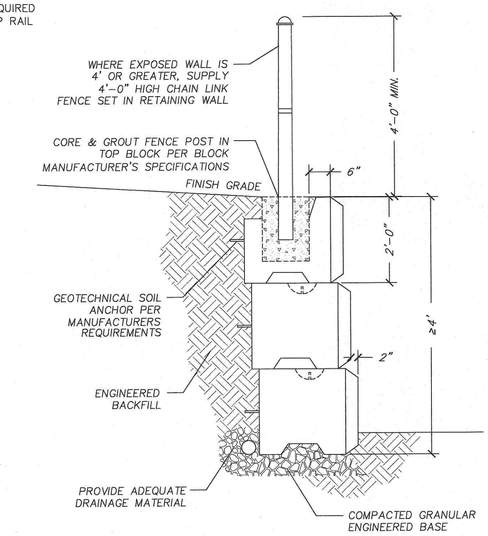
SINGLE GATE LATCH

CHAIN LINK FENCE

NOT TO SCALE

NOTE

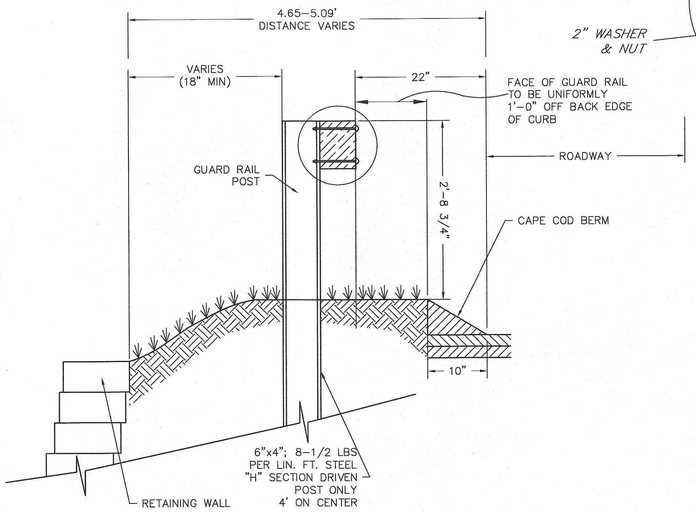
THIS DETAIL IS FOR ILLUSTRATIVE PURPOSES ONLY. EXACT DIMENSIONS AND OTHER DESIGN CRITERIA SHALL BE BY THE SEGMENTAL UNIT RETAINING WALL MANUFACTURER AND ENDORSED BY A REGISTERED PROFESSIONAL STRUCTURAL ENGINEER.



RETAINING WALL

NOT TO SCALE

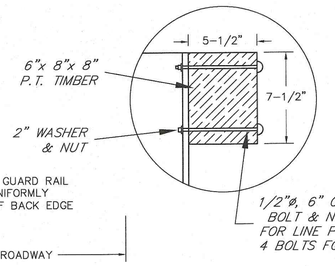
SECTION AT ENTRANCE FOR RETAINING WALL GUARDRAIL INSTALLATION

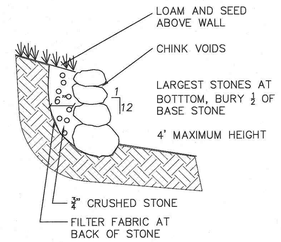


RETAINING WALL WITH GUARDRAIL

NOT TO SCALE

ALL HARDWARE, STEEL TO BE GALVANIZED

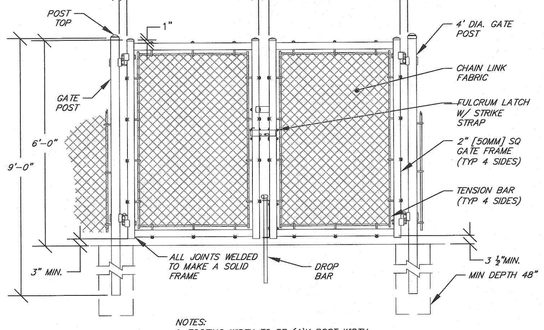




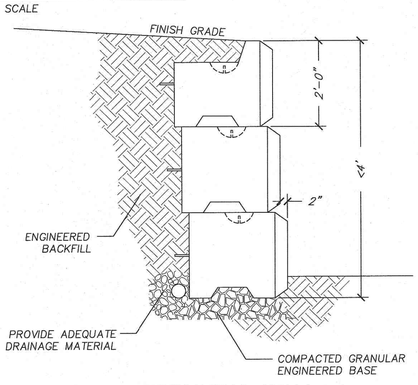
NOTES:
1. LARGEST STONES TO BE PLACES ON BOTTOM LAYER, SMALLER STONES ON TOP.
2. ONCE PLACED NO STONE SHALL BE ABLE TO BE MOVED, EXCEPT WITH HEAVY EQUIPMENT.
3. MINIMUM SIZED STONES TO BE 200LBS.
4. DO NOT USE FRACTURED LEDGE OF DECOMPOSING OR UNSTABLE ROCK OR BOULDERS.
5. MAXIMUM EXPOSED HEIGHT TO BE 4' OR LESS.

STONE WALL / LANDSCAPE GRADE BREAK

NOT TO SCALE

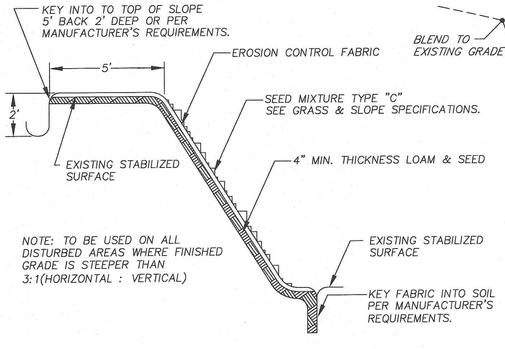


NOTES:
1. FOOTING WIDTH TO BE (4)X POST WIDTH.
2. NOT FOR TENNIS COURT OPENINGS.



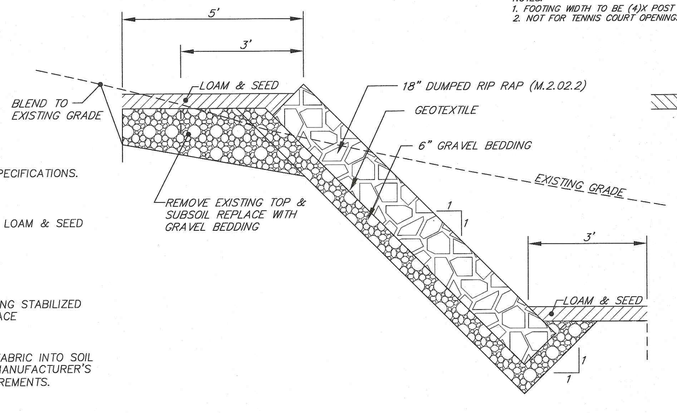
RETAINING WALL

NOT TO SCALE



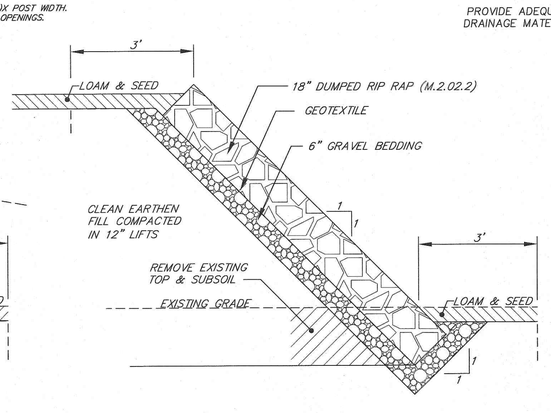
SLOPE STABILIZATION DETAIL

NOT TO SCALE



RIP RAP STABILIZED SLOPE IN CUT

NOT TO SCALE



RIP RAP STABILIZED SLOPE IN FILL

NOT TO SCALE

Holden Planning Board

DATE OF APPROVAL:

DATE OF ENDORSEMENT:

SALISBURY PINE TREE ESTATES CONSTRUCTION DETAILS

LOCATION: Salisbury St., Pine Tree and Bailey Rds
TOWN: HOLDEN, MASSACHUSETTS
PREPARED FOR:

Holden Pine Tree, LLC

SCALE: AS NOTED DATE: OCT. 2019

Susan E. Carter CIVIL ENGINEER NO. 41270 REGISTERED PROFESSIONAL ENGINEER
COMMONWEALTH OF MASSACHUSETTS
8-13-21

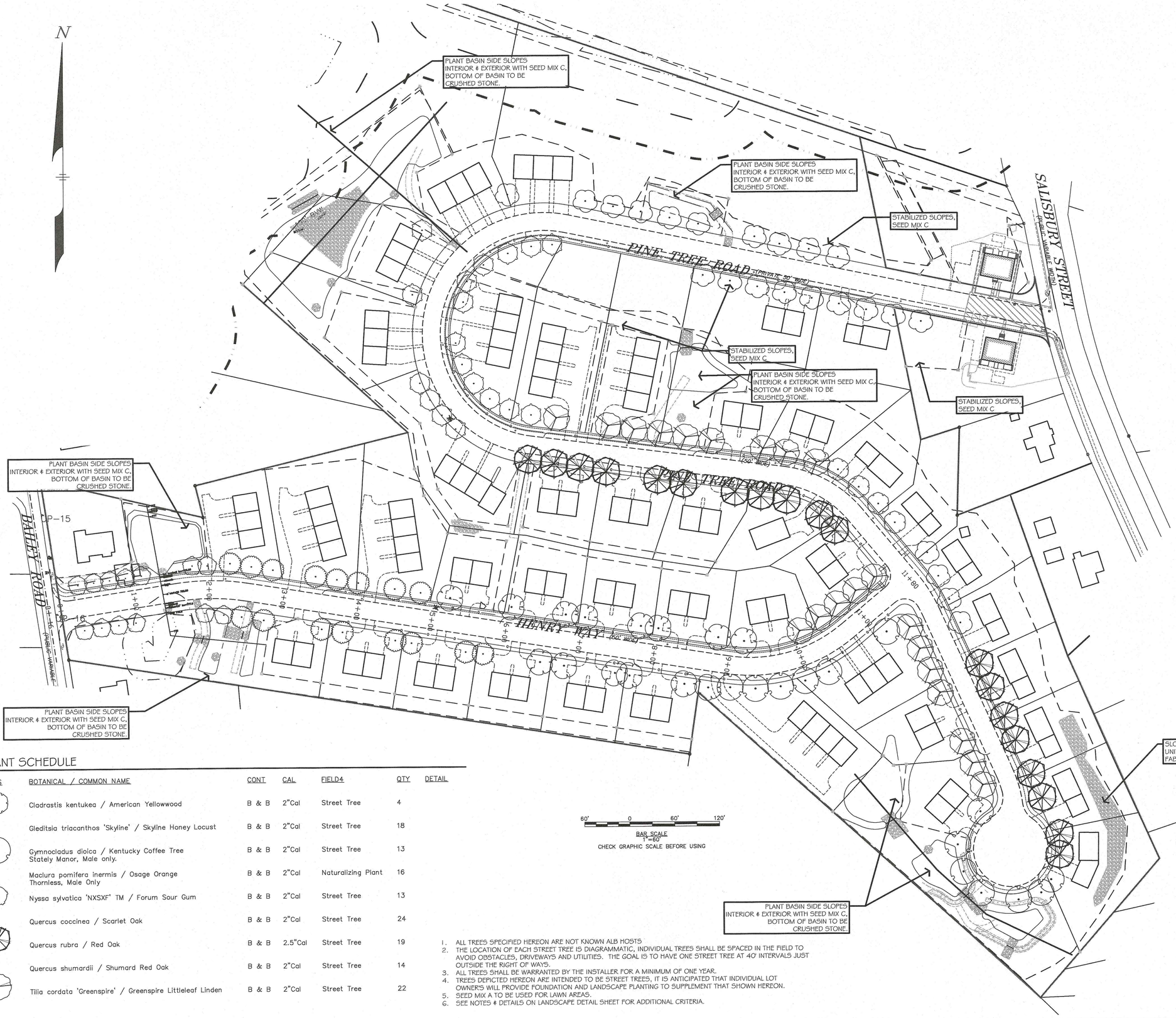
REVISIONS:

1–18–21 GENERAL REVISION
5–25–21 NO REVISIONS THIS SHEET
8–11–21 PER PEER REVIEW COMMENTS

PLACES Associates, Inc.
· Planning
· Landscape Architecture
· Civil Engineering
· Surveying
256 Great Road, Suite 4
Littleton, MA. 01460
(978) 486-0334
www.placesassociates.com

PROJECT No.: 7602 SHEET 25 OF 34

Holden Planning Board
DATE OF APPROVAL:
DATE OF ENDORSEMENT:



PLANT SCHEDULE

TREES	BOTANICAL / COMMON NAME	CONT	CAL	FIELD4	QTY	DETAIL
	Cladrastis kentukea / American Yellowwood	B & B	2"Cal	Street Tree	4	
	Gleditsia triacanthos 'Skyline' / Skyline Honey Locust	B & B	2"Cal	Street Tree	18	
	Gymnocladus dioica / Kentucky Coffee Tree Stately Manor, Male only.	B & B	2"Cal	Street Tree	13	
	Maclura pomifera inermis / Osage Orange Thornless, Male Only	B & B	2"Cal	Naturalizing Plant	16	
	Nyssa sylvatica 'NXSXF' TM / Forum Sour Gum	B & B	2"Cal	Street Tree	13	
	Quercus coccinea / Scarlet Oak	B & B	2"Cal	Street Tree	24	
	Quercus rubra / Red Oak	B & B	2.5"Cal	Street Tree	19	
	Quercus shumardii / Shumard Red Oak	B & B	2"Cal	Street Tree	14	
	Tilia cordata 'Greenspire' / Greenspire Littleleaf Linden	B & B	2"Cal	Street Tree	22	

60' 0 60' 120'

BAR SCALE
1"=60'
CHECK GRAPHIC SCALE BEFORE USING

1. ALL TREES SPECIFIED HEREON ARE NOT KNOWN ALB HOSTS
2. THE LOCATION OF EACH STREET TREE IS DIAGRAMMATIC, INDIVIDUAL TREES SHALL BE SPACED IN THE FIELD TO AVOID OBSTACLES, DRIVEWAYS AND UTILITIES. THE GOAL IS TO HAVE ONE STREET TREE AT 40' INTERVALS JUST OUTSIDE THE RIGHT OF WAYS.
3. ALL TREES SHALL BE WARRANTED BY THE INSTALLER FOR A MINIMUM OF ONE YEAR.
4. TREES DEPICTED HEREON ARE INTENDED TO BE STREET TREES, IT IS ANTICIPATED THAT INDIVIDUAL LOT OWNERS WILL PROVIDE FOUNDATION AND LANDSCAPE PLANTING TO SUPPLEMENT THAT SHOWN HEREON.
5. SEED MIX A TO BE USED FOR LAWN AREAS.
6. SEE NOTES & DETAILS ON LANDSCAPE DETAIL SHEET FOR ADDITIONAL CRITERIA.

MASSACHUSETTS
William E. Mulvey
NO. 1107
REGISTERED LANDSCAPE ARCHITECT
8-13-21

REVISION NOTE:
1-18-2021 GENERAL REVISION
5-25-2021 GENERAL REVISION
8-11-2021 PER PEER REVIEW COMMENTS

SALISBURY PINE TREE ESTATES LANDSCAPE PLAN

LOCATION: Salisbury St., Pine Tree & Bailey Rds
TOWN: HOLDEN, MASSACHUSETTS

PREPARED FOR:

Holden Pine Tree, LLC

SCALE: 1"=80' DATE: OCT. 2019

PLACES Associates, Inc.
· Planning
· Landscape Architecture
· Civil Engineering
· Surveying
256 Great Road, Suite 4
Littleton, MA 01460
(978) 486-0334
www.placesassociates.com

PROJECT No.: 7602 SHEET 27 OF 34

LANDSCAPE NOTES:

1. THE SPECIES AND VARIETIES LISTED SHALL BE ADHERED TO IN ALL CASES. WHERE A SUBSTITUTION IS PROPOSED, THE CONTRACTOR SHALL PROVIDE THE OWNER A LISTING OF COST DIFFERENTIALS AND ALL SUBSTITUTIONS SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT.

2. SEE SITE PLANS AND PLANS WHICH DEPICT WORK OF OTHER TRADES FOR THE LOCATIONS OF BURIED UTILITIES, UNDERGROUND STRUCTURES AND OTHER OBSTACLES THAT MAY IMPACT THE PLANTING SHOWN HEREON.

3. PLANTING PLAN IS DIAGRAMMATIC IN NATURE. FINAL PLACEMENT OF PLANTS TO BE APPROVED BY THE LANDSCAPE ARCHITECT IN THE FIELD, CONTRACTOR SHALL ACCOMMODATE THIS IN BASE BID.

4. IN CASE OF CONFLICT BETWEEN LANDSCAPE PLAN AND PLANTING SCHEDULE, THE GREATER NUMBER OR LARGER QUANTITY SHALL BE PROVIDED.

5. NO PLANT MATERIAL SHALL BE INSTALLED UNTIL ALL GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA, ANY TREES NOTED AS "SEAL OR SELECTED SPECIMEN" SHALL BE TAGGED AND SEALED BY THE LANDSCAPE ARCHITECT.

6. ALL TREES SHALL BE BALLED AND BURLAPPED (B&B) UNLESS OTHERWISE NOTED OR APPROVED BY THE OWNER'S REPRESENTATIVE AND LANDSCAPE ARCHITECT.

7. ALL PLANTS AND PLANTING METHODS SHALL BE IN ACCORDANCE WITH THE LATEST VERSION OF "RECOMMENDED STANDARD SPECIFICATION FOR PLANTINGS" AS COMPILED AND ISSUED BY THE ASSOCIATED LANDSCAPE CONTRACTORS OF MASSACHUSETTS. ALL PLANT BEDS AND TREE SAUCERS TO RECEIVE 4" OF PINE BARK MULCH. GROUND COVER AREAS SHALL RECEIVE 1" OF PINE BARK MULCH.

8. ANY FALL TRANSPLANTING HAZARD PLANTS SHALL BE DUG IN THE SPRING AND STORED FOR FALL PLANTING, UNLESS OTHERWISE APPROVED BY LANDSCAPE ARCHITECT.

9. TREES SHALL HAVE A MINIMUM CALIPER AS INDICATED ON THE PLANTING SCHEDULE TAKEN ONE FOOT ABOVE THE ROOT CROWN.

10. ALL PLANTS SHALL BE WARRANTED FOR A MINIMUM OF ONE (1) YEAR FROM THE DATE OF ACCEPTANCE BY THE LANDSCAPE ARCHITECT. SHOULD ANY PLANTS DIE, EXHIBIT UNDESIRABLE DIE-BACK OR DISEASE DAMAGE, THEY SHALL BE REPLACED AT NO ADDITIONAL COST TO THE OWNER WITH PLANTS MEETING THE ORIGINAL SPECIFICATIONS.

11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROVISION OF ADEQUATE WATER SUPPLIES TO THE PLANT MATERIALS UNTIL ACCEPTANCE OF THE LANDSCAPE BY THE LANDSCAPE ARCHITECT HAS OCCURRED.

12. THE CALIPER OF ALL TREES SHALL BE MEASURED FOUR (4') FEET ABOVE THE ROOT BALL OR GROUND LINE, WHICHEVER IS HIGHER.

13. ALL DECIDUOUS TREES ADJACENT TO WALKWAYS AND ROADWAYS SHALL HAVE A BRANCHING PATTERN TO ALLOW FOR A MINIMUM OF 7' OF CLEARANCE BETWEEN THE GROUND AND THE LOWEST BRANCH.

14. ALL PARKING ISLANDS PLANTED WITH SHRUBS SHALL HAVE 18" OF TOP SOIL. FINISH GRADE SHALL BE EQUAL TO THE TOP OF CURB.

15. PLANTING SEASONS:
    SPRING SEASON:
    FOR ALL PLANTING IS FROM APRIL 1ST TO JULY 15TH
    FALL SEASON:
    FOR ALL EVERGREEN MATERIALS IS FROM AUGUST 15TH TO NOVEMBER 15TH
    FOR ALL DECIDUOUS TREES, SHRUBS AND GROUND COVERS IS FROM AUGUST 15TH TO NOVEMBER 1ST.

16. FERTILIZER USE & APPLICATION SHALL CONFORM TO 330 CMR 31.00 FOR NON-AGRICULTURAL APPLICATION OF NITROGEN FERTILIZERS. SOIL SAMPLES, TESTS, AND SHOP DRAWINGS SHALL BE PROVIDED TO THE LANDSCAPE ARCHITECT OR THE OWNER FOR APPROVAL PRIOR TO CONSTRUCTION.

17. CONTRACTOR RESPONSIBLE FOR ALL LAWN AND PLANTED GROUND COVER AREAS AND WATERING, AND RESEEDING OF BARE SPOTS UNTIL A UNIFORM STAND OF VEGETATION IS ESTABLISHED AND ACCEPTED.

18. ALL SLOPES IN EXCESS OF 3:1 (HORIZONTAL TO VERTICAL) SHALL BE STABILIZED SLOPES, SEE THE PROVISIONS OF SPECIFICATION SECTION-EROSION AND SEDIMENTATION CONTROL AND RELATED SECTIONS.

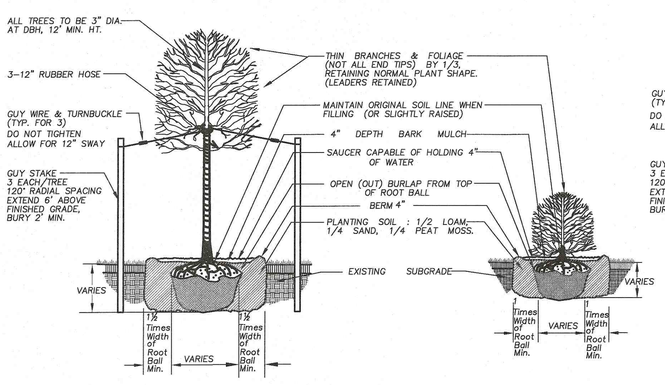
19. A MINIMUM 18" WIDE BARRIER OF 1" GRAY OR TAN PEASTONE SHALL BE INSTALLED IN ALL PLANT BED WHICH ABUT THE BUILDINGS. NO MULCH IS ALLOWED WITHIN 18" OF ALL BUILDINGS PER THE LATEST EXECUTIVE OFFICE OF PUBLIC SAFETY AND SECURITY DEPARTMENT OF FIRE SERVICES REGULATION (527 CMR 17.00). INSTALL 6" DEEP OF PEASTONE WITH MIRAFI WEED FABRIC BENEATH AND STEEL EDGING BETWEEN THE PEASTONE AND ADJACENT MULCH BED.
    EXCEPTION: ANY BUILDING, REGARDLESS OF THE EXISTENCE OF FIRE SEPARATIONS, CONTAINING SIX DWELLING UNITS OR LESS.

SEEDING NOTES:

1. ALL DISTURBED AREAS, INCLUDING SLOPES AND THE DETENTION BASIN, SHALL BE GRADED AND STABILIZED BY PLANTING OR OTHER METHOD AS SHOWN OR SPECIFIED ON THE PLANS.
2. A MINIMUM OF 6" OF LOAM SHALL BE APPLIED TO ALL SURFACES TO BE SEEDED. LOAM SHALL BE UNIFORMLY APPLIED, SHAPED AND SMOOTHED.
3. LOAM ACIDITY SHALL BE CHECKED AND ADJUSTED TO A PH OF 6.5, APPLY LIME AT A MINIMUM RATE OF 50 LBS PER 1,000 SQUARE FEET, IF NECESSARY. (IF PERMITTED BY THE ORDERS OF CONDITIONS ONLY).
4. ORGANIC-SLOW RELEASE FERTILIZER OF A TYPE 5-2-2 APPLIED AT A RATE OF 50 LBS PER 500 SQUARE FEET. (IF PERMITTED BY THE ORDERS OF CONDITIONS ONLY).
5. RAKE A SEED BED USING A YORK RAKE OR HAND RAKING TO A MINIMUM DEPTH OF 3" THOROUGHLY INCORPORATING LIME AND FERTILIZER.
6. SEEDING MAY BE PERFORMED BY HAND, MECHANICAL OR TRACTOR MOUNTED SPREADER. HYDROSEEDING IS RECOMMENDED.
7. SEEDING BEFORE APRIL 15 OR AFTER OCTOBER 15, SHALL BE REAPPLIED BETWEEN THESE DATES IF A MINIMUM GERMINATION OF 90%, DETERMINED BY SURFACE AREA COVERAGE, HAS NOT OCCURRED OR IF THE SURFACE AREA HAS ERODED OR BECOME UN-STABILIZED.
8. SEEDING
   - 8.1. HAND SEEDING:
     - 8.1.1. SEED SHALL BE APPLIED BY HAND OR BROADCAST SPREADER TO PROVIDE A UNIFORM DISTRIBUTION OF SEED.
     - 8.1.2. SEED SHALL BE LIGHTLY RAKED INTO A DEPTH OF 1/2"-1", WITH ALL RAKING TO BE PERPENDICULAR TO THE SLOPE.
     - 8.1.3. SEED IS TO BE ROLLED WITH A WATER BALLAST ROLLER TO INSURE CONTACT OF SEED WITH SOIL, DO NOT COMPACT SOIL.
     - 8.1.4. AREA SHALL BE MULCHED USING SEED-FREE STRAW TO ADEQUATELY COVER THE AREA TO A DEPTH OF 1/2"-1", INSURING A UNIFORM COVER OF 75% OF THE SURFACE AREA.
     - 8.1.5. MULCH SHALL BE SECURED BY MEANS OF SECURED LANDSCAPE FABRIC, EROSION CONTROL NETTING (3/4" - 1" MESH), OR OTHER BIODEGRADABLE MATERIAL WHICH WILL INSURE ADEQUATE COVER UNTIL THE SURFACE HAS GROWN TO 90% GERMINATION, OR ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.
   - 8.2. HYDROSEEDING
     - 8.2.1. HYDROSEEDING IS ENCOURAGED FOR ALL AREAS, ESPECIALLY FOR LARGE AREAS AND STEEP SLOPES.
     - 8.2.2. HYDROSEEDING SHALL BE PERFORMED IN A SINGLE UNIFORM LAYER.
     - 8.2.3. A TRACK EQUIPPED MACHINE SHALL TRAVEL PERPENDICULAR TO ANY SLOPE TO PROVIDE SMALL COMPACTED SURFACE DEPRESSIONS FOR HYDROSEEDING TO CATCH. SUCH TRACKS SHALL BE A MINIMUM OF THREE (3') FEET ON CENTER FOR THE TOTAL LENGTH OF THE SLOPE.
     - 8.2.4. APPLICATION RATES ON SLOPES GREATER THAN 3:1 (HORIZONTAL TO VERTICAL) OR GREATER SHALL HAVE A MINIMUM SEEDING RATE OF 4LBS/1000SF.
     - 8.2.5. A LATEX OR FIBER TACKIFIER SHALL BE USED ON ALL AREAS AT THE RATE RECOMMENDED BY THE MANUFACTURER AND ON ALL SLOPES IDENTIFIED ABOVE (NO. 4), A MINIMUM RATE OF 50LBS OF TACKIFIER PER 500GALS OF WATER SHALL BE USED.
     - 8.2.6. FERTILIZER AND LIME MAY BE INCORPORATED INTO THE HYDROSEED MIXTURE IN THE QUANTITIES AND TYPE IDENTIFIED PREVIOUSLY. (IF PERMITTED BY THE ORDERS OF CONDITIONS ONLY).
9. SEED MIXTURE
   - 9.1. ALL SEED SHALL BE OF THE PREVIOUS YEAR'S CROP AND SHALL HAVE A QUANTIFIED MIXTURE ANALYSIS ATTACHED. NO MORE THAN 10% OF TOTAL MIXTURE SHALL CONSIST OF WEED SEED SPECIES.
   - 9.2. SEED MIXTURE TYPE "A": SEED MIXTURES FOR LAWN AREAS SHALL CONSIST OF A STANDARD LAWN MIX CONTAINING A MINIMUM OF 80% PERENNIAL SPECIES, AND SHALL CONFORM TO THE FOLLOWING STANDARDS:
     MINIMUMS (BY TOTAL WEIGHT OF MIX):
     40% KENTUCKY BLUEGRASS
     20% CHEWINGS FESCUE
     20% PERENNIAL RYEGRASS
     20% ANNUAL RYE OR OTHER ANNUAL SPECIES*

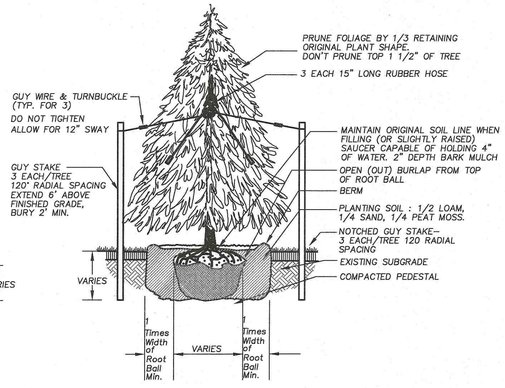
     * NO MORE THAN 20% OF THE TOTAL MIX, BY WEIGHT, SHALL CONSIST OF ANNUAL RYE OR OTHER ANNUAL SPECIES. APPLY AT A RATE OF 4 LBS PER 1,000 SQUARE FEET, OR 170 LBS. PER ACRE.
   - 9.3. SOD: SEE SPECIFICATIONS
   - 9.4. SEED MIXTURE TYPE "C". SEED MIXTURES FOR SLOPED AREAS SHALL CONSIST OF A STANDARD CONSERVATION MIX CONFORMING TO THE RECOMMENDATIONS OF THE U.S. NATURAL RESOURCES SERVICES GUIDELINES (FORMERLY THE SOIL CONSERVATION SERVICE, SCS) AND SHALL CONFORM TO THE FOLLOWING STANDARDS:
     MINIMUMS (BY TOTAL WEIGHT OF MIX):
     20% ANNUAL RYE*
     15% RED TOP FESCUE
     10% WHITE CLOVER .
     5% LADINO CLOVER

     *NO MORE THAN 40% OF THE TOTAL MIX, BY WEIGHT, SHALL CONSIST OF ANNUAL RYE OR OTHER ANNUAL SPECIES. APPLY AT A RATE OF 4 LBS PER 1,000 SQUARE FEET.
   - 9.5. SEED MIXTURE TYPE "D": BASIN MIX SHALL BE AS MANUFACTURED BY NEW ENGLAND WETLANDS PLANTS, INC., AMHERST, MA, "WET MIX".
   - 9.6. WILDFLOWER MEADOW MIX SHALL BE "NEW ENGLAND WILDFLOWER MIX" BY NEW ENGLAND WETLANDS PLANTS, INC, AMHERST, MA, OR "NATIVE NORTHEAST WILDFLOWER SEED MIX" BY AMERICAN MEADOWS, WILLISTON, VT



DECIDUOUS TREE PLANTING
NOT TO SCALE

SHRUB PLANTING
NOT TO SCALE



EVERGREEN TREE PLANTING
NOT TO SCALE

Holden Planning Board
DATE OF APPROVAL:
DATE OF ENDORSEMENT:

MASSACHUSETTS William E. Murray NO. 1107 REGISTERED LANDSCAPE ARCHITECT
8-13-21

REVISION NOTE:
1-18-2021 GENERAL REVISION
5-25-2021 GENERAL REVISION
8-11-2021 NO REVISIONS THIS SHEET

SALISBURY PINE TREE ESTATES LANDSCAPE DETAILS

LOCATION: Salisbury St., Pine Tree & Bailey Rds
TOWN: HOLDEN, MASSACHUSETTS
PREPARED FOR:

Holden Pine Tree, LLC

SCALE: 1"=80' DATE: OCT. 2019

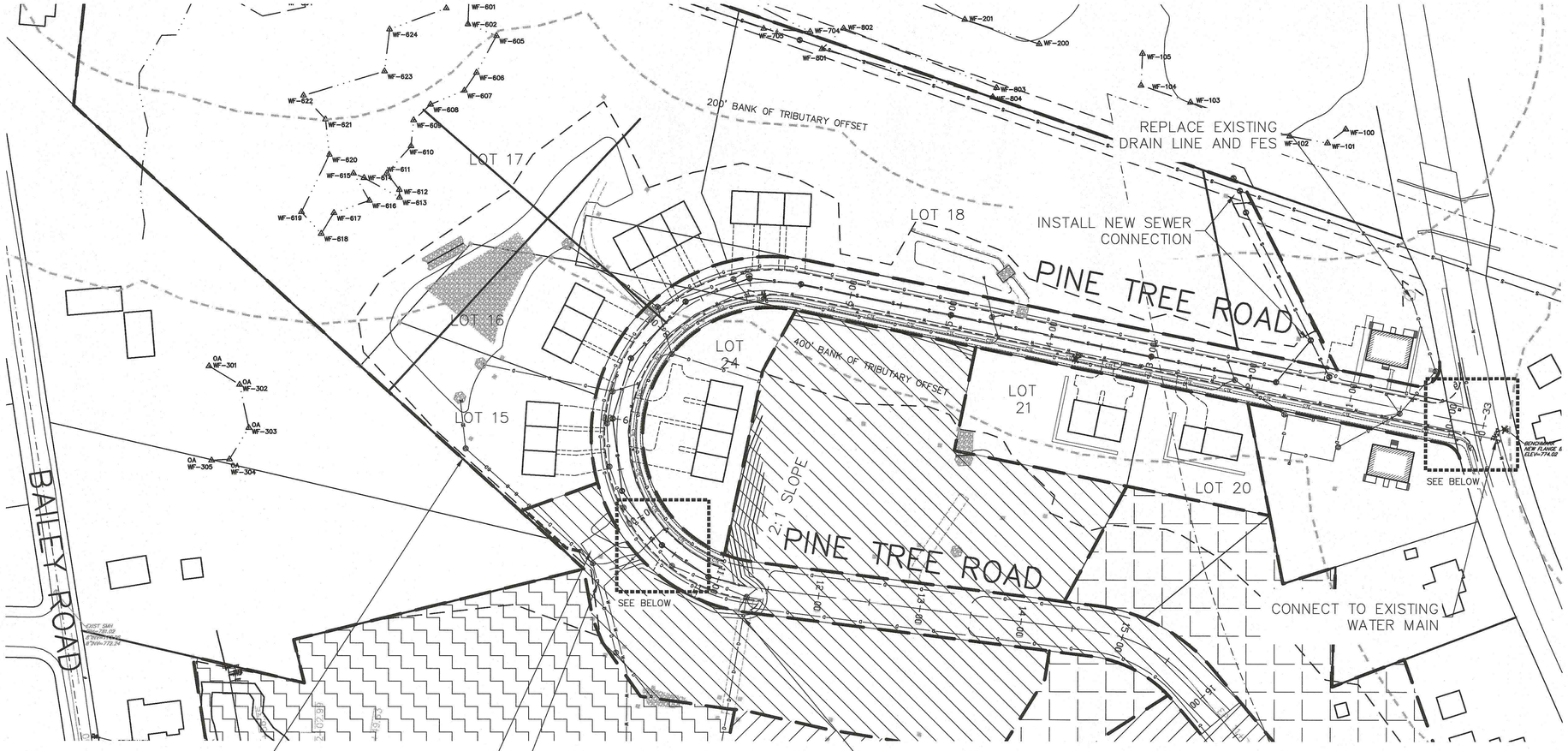
PLACES Associates, Inc.
·Planning
·Landscape Architecture
·Civil Engineering
·Surveying
256 Great Road, Suite 4
Littleton, MA 01460
(978) 486-0334
www.placesassociates.com

PROJECT No.: 7602

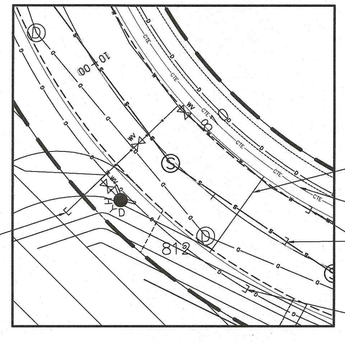
FOR REGISTRY USE ONLY

PHASE 1 NOTES:

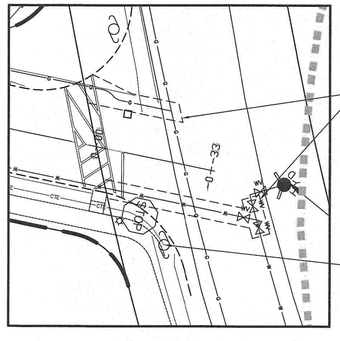
1. NO FILL OR CUT SLOPES STEEPER THAN 2:1
2. CONNECT TO EXISTING WATER, GAS AND CTE UTILITIES IN SALISBURY STREET
3. ALL UTILITIES (GAS, WATER, SEWER, DRAINAGE AND CTE) SHALL BE PROPERLY CAPPED, STUBBED OR PLUGGED FOR FUTURE EXTENSION ALONG PINE TREE ROAD AND CROSS COUNTRY. SURVEY LOCATE PRIOR TO BACKFILLING.
4. EROSION CONTROLS SHALL REMAIN IN PLACE UNTIL ALL PHASES HAVE BEEN COMPLETED AND STABILIZED. REGULAR MAINTENANCE SHALL BE PERFORMED.
5. CONSTRUCT PHASE I TEMPORARY TEE TURNAROUND.
6. ALL CATCH BASIN GRATES SHALL BE SET TO BINDER ELEVATIONS AND HAVE SILT SAC INSTALLED WHEN GRADE IS SET.



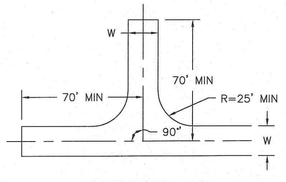
60' 0 60' 120'
BAR SCALE 1"=60'
CHECK GRAPHIC SCALE BEFORE USING



20' 0 20' 40'
BAR SCALE 1"=20'
CHECK GRAPHIC SCALE BEFORE USING



20' 0 20' 40'
BAR SCALE 1"=20'
CHECK GRAPHIC SCALE BEFORE USING



TEMPORARY TEE TURNAROUND DETAIL
NOT TO SCALE

Holden Planning Board

DATE OF APPROVAL:

DATE OF ENDORSEMENT:

NOTES:

1. THIS PLAN IS INTENDED TO DEFINE THE LIMITS OF SPECIFIC PHASES OF CONSTRUCTION TO COMPLY WITH THE PHASED DEVELOPMENT BYLAW PROVISIONS.
2. SHOWN HEREON IS THE LIMIT OF DISTURBANCE OF THE PROJECT DEVELOPMENT DIVIDED INTO FIVE PHASES OF CONSTRUCTION.
3. ALTHOUGH THE PHASED GROWTH PERTAINS TO UNIT OCCUPANCY, HAVING CONSTRUCTION CONTROLS COINCIDENT ENVIRONMENTAL EROSION IMPACTS IS REQUIRED.
4. EACH PHASED WORK AREA SHALL CONTAIN LOCATIONS FOR TEMPORARY SILTATION BASINS THAT ARE TO BE MAINTAINED UNTIL ESTABLISHMENT OF VEGETATION, PERMANENT DRAINAGE INFRASTRUCTURE PLACEMENT AND HARDSCAPE (PAVING, WALKS & BUILDINGS.
5. FOR ADDITIONAL NOTES AND DETAILS REGARDING EROSION AND SEDIMENTATION CONTROLS REFER TO THE SET OF PLANS GOVERNING THE SUBDIVISION CONSTRUCTION AND SPECIFIC APPROVALS FROM THE TOWN OF HOLDEN.
6. NO WORK SHALL TAKE PLACE UNTIL THE CONTRACTOR HAS FILED A NOI TO OBTAINE A NPDES GENERAL CONSTRUCTION PERMIT.
7. NO WORK SHALL TAKE PLACE UNTIL THE CONTRACTOR HAS REQUESTED AND OBTAINED A DIG-SAFE PERMIT NUMBER FOR THE SITE.
8. THE CONTRACTOR SHALL STATE IN WRITING HIS UNDERSTANDING OF THE PHASING CRITERIA PRIOR TO TO DISTURBING BEYOND THE LIMITS OF PHASE ONE.

LEGEND:

- DEVELOPMENT PHASE 1
- DEVELOPMENT PHASE 2
- DEVELOPMENT PHASE 3
- DEVELOPMENT PHASE 4
- DEVELOPMENT PHASE 5

Susan E. Carter CIVIL ENGINEER NO. 41270 REGISTERED PROFESSIONAL ENGINEER COMMONWEALTH OF MASSACHUSETTS
8-13-21

REVISION NOTE:
1-18-2021 GENERAL REVISION
5-25-2021 GENERAL REVISION
8-11-2021 PER PEER REVIEW COMMENTS

SALISBURY PINE TREE ESTATES PHASE 1 PLAN

LOCATION: Salisbury St., Pine Tree & Bailey Rds
TOWN: HOLDEN, MASSACHUSETTS
PREPARED FOR:

Holden Pine Tree, LLC

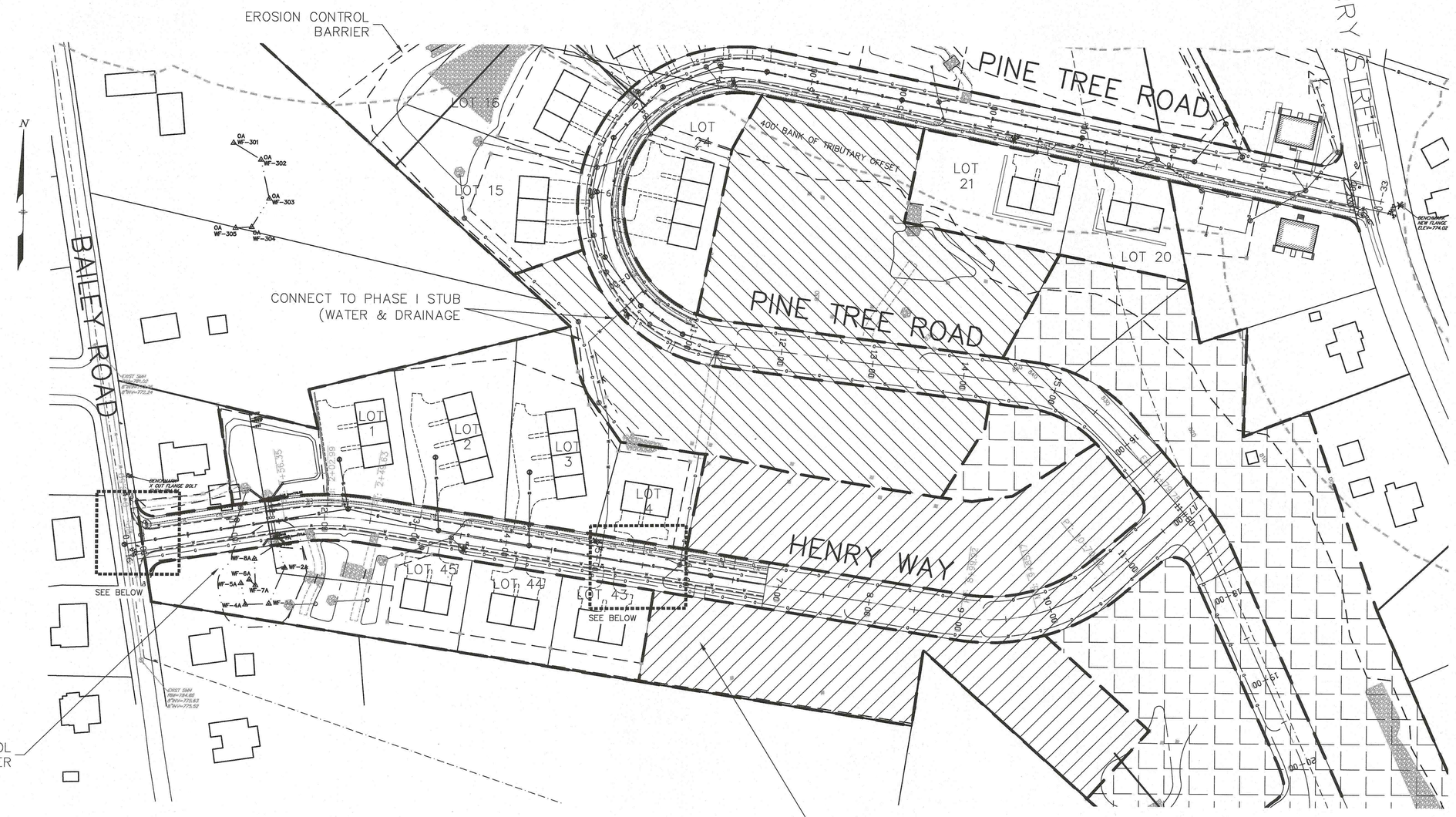
SCALE: 1"=60' DATE: JAN. 2020

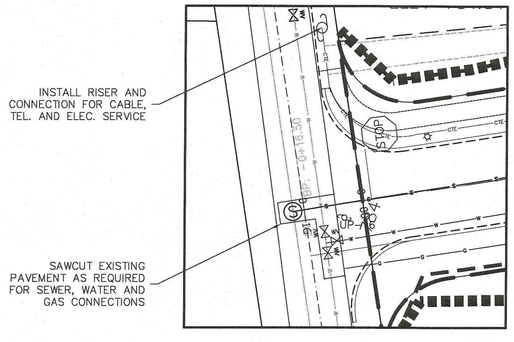
PLACES Associates, Inc.
· Planning
· Landscape Architecture
· Civil Engineering
· Surveying
256 Great Road, Suite 4
Littleton, MA 01460
(978) 486-0334
www.placesassociates.com

PROJECT No.: 7602

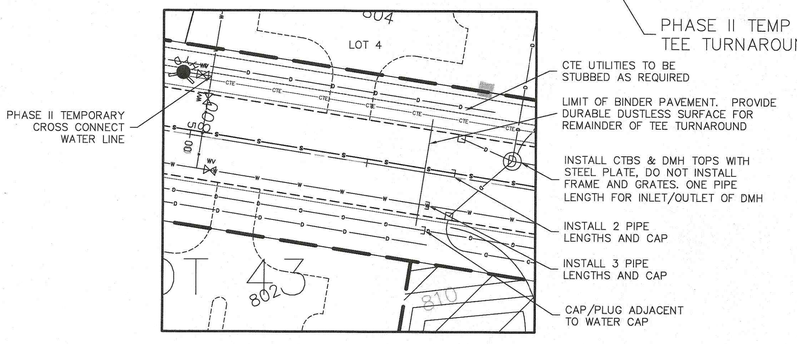
PHASE 2 NOTES:

1. NO FILL OR CUT SLOPES STEEPER THAN 2:1
2. CONNECT TO EXISTING WATER, SEWER, GAS AND CTE UTILITIES IN BAILEY ROAD
3. ALL UTILITIES (GAS, WATER, SEWER, DRAINAGE AND CTE) SHALL BE PROPERLY CAPPED, STUBBED OR PLUGGED FOR FUTURE EXTENSION ALONG HENRY WAY. SURVEY LOCATE PRIOR TO BACKFILLING.
4. EROSION CONTROLS SHALL REMAIN IN PLACE UNTIL ALL PHASES HAVE BEEN COMPLETED AND STABILIZED. REGULAR MAINTENANCE SHALL BE PERFORMED.
5. CONSTRUCT PHASE II TEMPORARY TEE TURNAROUND.
6. INSTALL PHASE II TEMPORARY CROSS CONNECT WATER LINE.
7. ALL CATCH BASIN GRATES SHALL BE SET TO BINDER ELEVATIONS AND HAVE SILT SAC INSTALLED WHEN GRADE IS SET.





20' 0 20' 40'
BAR SCALE 1"=20'
CHECK GRAPHIC SCALE BEFORE USING



20' 0 20' 40'
BAR SCALE 1"=20'
CHECK GRAPHIC SCALE BEFORE USING

60' 0 60' 120'
BAR SCALE 1"=60'
CHECK GRAPHIC SCALE BEFORE USING

Holden Planning Board

DATE OF APPROVAL:

DATE OF ENDORSEMENT:

NOTES:

1. THIS PLAN IS INTENDED TO DEFINE THE LIMITS OF SPECIFIC PHASES OF CONSTRUCTION TO COMPLY WITH THE PHASED DEVELOPMENT BYLAW PROVISIONS.
2. SHOWN HEREON IS THE LIMIT OF DISTURBANCE OF THE PROJECT DEVELOPMENT DIVIDED INTO FIVE PHASES OF CONSTRUCTION.
3. ALTHOUGH THE PHASED GROWTH PERTAINS TO UNIT OCCUPANCY, HAVING CONSTRUCTION CONTROLS COINCIDENT ENVIRONMENTAL EROSION IMPACTS IS REQUIRED.
4. EACH PHASED WORK AREA SHALL CONTAIN LOCATIONS FOR TEMPORARY SILTATION BASINS THAT ARE TO BE MAINTAINED UNTIL ESTABLISHMENT OF VEGETATION, PERMANENT DRAINAGE INFRASTRUCTURE PLACEMENT AND HARDSCAPE (PAVING, WALKS & BUILDINGS.
5. FOR ADDITIONAL NOTES AND DETAILS REGARDING EROSION AND SEDIMENTATION CONTROLS REFER TO THE SET OF PLANS GOVERNING THE SUBDIVISION CONSTRUCTION AND SPECIFIC APPROVALS FROM THE TOWN OF HOLDEN.
6. NO WORK SHALL TAKE PLACE UNTIL THE CONTRACTOR HAS FILED A NOI TO OBTAINE A NPDES GENERAL CONSTRUCTION PERMIT.
7. NO WORK SHALL TAKE PLACE UNTIL THE CONTRACTOR HAS REQUESTED AND OBTAINED A DIG-SAFE PERMIT NUMBER FOR THE SITE.
8. THE CONTRACTOR SHALL STATE IN WRITING HIS UNDERSTANDING OF THE PHASING CRITERIA PRIOR TO TO DISTURBING BEYOND THE LIMITS OF PHASE ONE.

LEGEND:

- DEVELOPMENT PHASE 1
- DEVELOPMENT PHASE 2
- DEVELOPMENT PHASE 3
- DEVELOPMENT PHASE 4
- DEVELOPMENT PHASE 5

COMMONWEALTH OF MASSACHUSETTS
Susan E. Carter
CIVIL ENGINEER
NO. 41270
REGISTERED PROFESSIONAL ENGINEER
8-13-21

REVISION NOTE:
1-18-2021 GENERAL REVISION
5-25-2021 GENERAL REVISION
8-11-2021 PER PEER REVIEW COMMENTS

SALISBURY PINE TREE ESTATES PHASE 2 PLAN

LOCATION: Salisbury St., Pine Tree & Bailey Rds
TOWN: HOLDEN, MASSACHUSETTS

PREPARED FOR:

Holden Pine Tree, LLC

SCALE: 1"=60' DATE: JAN. 2020

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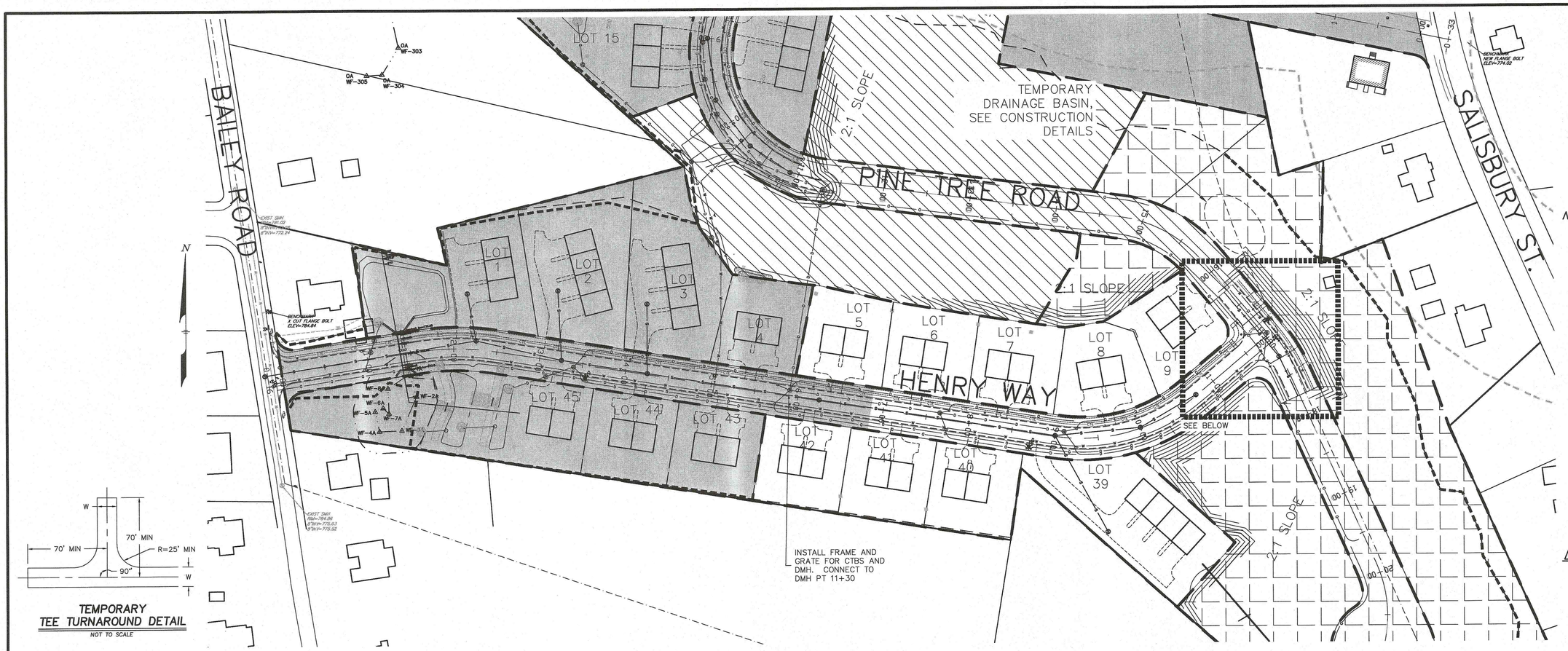
PROJECT No.: 7602

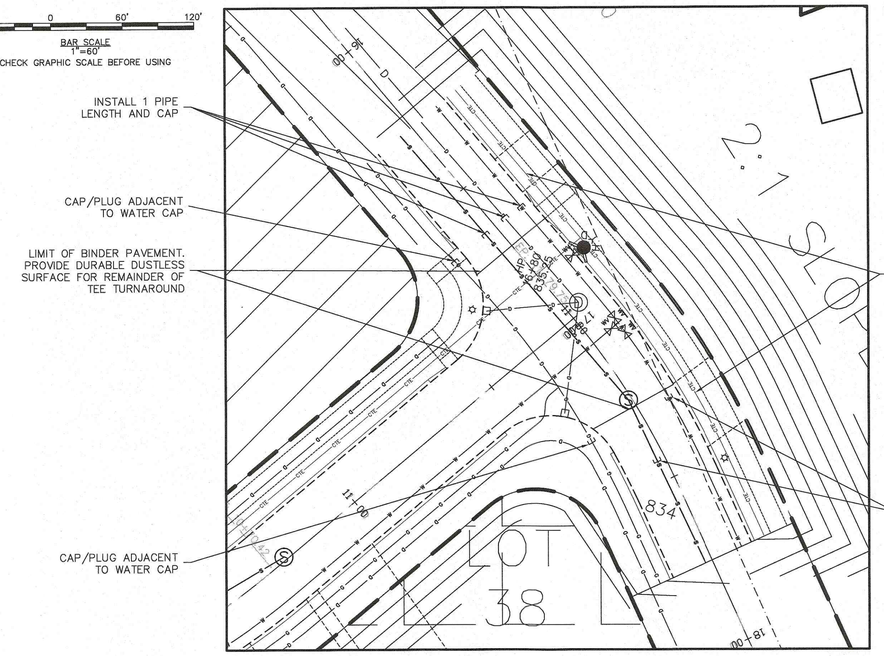


TEMPORARY
TEE TURNAROUND DETAIL
NOT TO SCALE

PHASE 3 NOTES:

1. NO FILL OR CUT SLOPES STEEPER THAN 2:1
2. ALL UTILITIES (GAS, WATER, SEWER, DRAINAGE AND CTE) SHALL BE PROPERLY CAPPED, STUBBED OR PLUGGED FOR FUTURE EXTENSION ALONG PINE TREE ROAD. SURVEY LOCATE PRIOR TO BACKFILLING.
3. EROSION CONTROLS SHALL REMAIN IN PLACE UNTIL ALL PHASES HAVE BEEN COMPLETED AND STABILIZED. REGULAR MAINTENANCE SHALL BE PERFORMED.
4. REMOVE PHASE II TEMPORARY TEE TURNAROUND AND CONSTRUCT A PORTION OF PINE TREE ROAD TO PROVIDE FOR PHASE III TEE TURNAROUND.
5. EXCAVATE TEMPORARY DRAINAGE BASIN TO RECEIVE OUTLET PIPE FROM DMH PT 16+95.
6. REMOVE TEMPORARY TEE ON HENRY RD. FURNISH AND INSTALL FRAMES AND GRATES FOR CATCH BASIN AND MANHOLE AT TEE.
7. CONNECT DMH H 5+90 TO DMH PT 11+30
8. ALL CATCH BASIN GRATES SHALL BE SET TO BINDER ELEVATIONS AND HAVE SILT SAC INSTALLED WHEN GRADE IS SET.

60' 0 60' 120'
BAR SCALE
1"=60'
CHECK GRAPHIC SCALE BEFORE USING



20' 0 20' 40'
BAR SCALE
1"=20'
CHECK GRAPHIC SCALE BEFORE USING

Holden Planning Board

DATE OF APPROVAL:

DATE OF ENDORSEMENT:

NOTES:

1. THIS PLAN IS INTENDED TO DEFINE THE LIMITS OF SPECIFIC PHASES OF CONSTRUCTION TO COMPLY WITH THE PHASED DEVELOPMENT BYLAW PROVISIONS.
2. SHOWN HEREON IS THE LIMIT OF DISTURBANCE OF THE PROJECT DEVELOPMENT DIVIDED INTO FIVE PHASES OF CONSTRUCTION.
3. ALTHOUGH THE PHASED GROWTH PERTAINS TO UNIT OCCUPANCY, HAVING CONSTRUCTION CONTROLS COINCIDENT ENVIRONMENTAL EROSION IMPACTS IS REQUIRED.
4. EACH PHASED WORK AREA SHALL CONTAIN LOCATIONS FOR TEMPORARY SILTATION BASINS THAT ARE TO BE MAINTAINED UNTIL ESTABLISHMENT OF VEGETATION, PERMANENT DRAINAGE INFRASTRUCTURE PLACEMENT AND HARDSCAPE (PAVING, WALKS & BUILDINGS.
5. FOR ADDITIONAL NOTES AND DETAILS REGARDING EROSION AND SEDIMENTATION CONTROLS REFER TO THE SET OF PLANS GOVERNING THE SUBDIVISION CONSTRUCTION AND SPECIFIC APPROVALS FROM THE TOWN OF HOLDEN.
6. NO WORK SHALL TAKE PLACE UNTIL THE CONTRACTOR HAS FILED A NOI TO OBTAINE A NPDES GENERAL CONSTRUCTION PERMIT.
7. NO WORK SHALL TAKE PLACE UNTIL THE CONTRACTOR HAS REQUESTED AND OBTAINED A DIG-SAFE PERMIT NUMBER FOR THE SITE.
8. THE CONTRACTOR SHALL STATE IN WRITING HIS UNDERSTANDING OF THE PHASING CRITERIA PRIOR TO TO DISTURBING BEYOND THE LIMITS OF PHASE ONE.

LEGEND:

- DEVELOPMENT PHASE 1
- DEVELOPMENT PHASE 2
- DEVELOPMENT PHASE 3
- DEVELOPMENT PHASE 4
- DEVELOPMENT PHASE 5

Susan E. Carter
COMMONWEALTH OF MASSACHUSETTS
CIVIL ENGINEER
NO. 41270
REGISTERED
PROFESSIONAL ENGINEER
8-13-21

REVISION NOTE:
1-18-2021 GENERAL REVISION
5-25-2021 GENERAL REVISION
8-11-2021 PER PEER REVIEW COMMENTS

SALISBURY PINE TREE ESTATES
PHASE 3 PLAN

LOCATION: Salisbury St., Pine Tree & Bailey Rds
TOWN: HOLDEN, MASSACHUSETTS
PREPARED FOR:

Holden Pine Tree, LLC

SCALE: 1"=60' DATE: JAN. 2020

PLACES Associates, Inc.
· Planning
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· Civil Engineering
· Surveying
256 Great Road, Suite 4
Littleton, MA 01460
(978) 486-0334
www.placesassociates.com

PROJECT No.: 7602

PHASE 4 NOTES:

1. NO FILL OR CUT SLOPES STEEPER THAN 2:1
2. EROSION CONTROLS SHALL REMAIN IN PLACE UNTIL ALL PHASES HAVE BEEN COMPLETED AND STABILIZED. REGULAR MAINTENANCE SHALL BE PERFORMED.
3. REMOVE PHASE I TEMPORARY TEE TURNAROUND.
4. REMOVE TEMPORARY CROSS CONNECT WATER LINE AND RESET HYDRANTS TO FINAL LOCATIONS.
5. REMOVE PHASE III TEMPORARY DRAINAGE BASIN.
6. ALL CATCH BASIN GRATES SHALL BE SET TO BINDER ELEVATIONS AND HAVE SILT SAC INSTALLED WHEN GRADE IS SET.

Holden Planning Board
DATE OF APPROVAL:
DATE OF ENDORSEMENT:

NOTES:

1. THIS PLAN IS INTENDED TO DEFINE THE LIMITS OF SPECIFIC PHASES OF CONSTRUCTION TO COMPLY WITH THE PHASED DEVELOPMENT BYLAW PROVISIONS.
2. SHOWN HEREON IS THE LIMIT OF DISTURBANCE OF THE PROJECT DEVELOPMENT DIVIDED INTO FIVE PHASES OF CONSTRUCTION.
3. ALTHOUGH THE PHASED GROWTH PERTAINS TO UNIT OCCUPANCY, HAVING CONSTRUCTION CONTROLS COINCIDENT ENVIRONMENTAL EROSION IMPACTS IS REQUIRED.
4. EACH PHASED WORK AREA SHALL CONTAIN LOCATIONS FOR TEMPORARY SILTATION BASINS THAT ARE TO BE MAINTAINED UNTIL ESTABLISHMENT OF VEGETATION, PERMANENT DRAINAGE INFRASTRUCTURE PLACEMENT AND HARDSCAPE (PAVING, WALKS & BUILDINGS.
5. FOR ADDITIONAL NOTES AND DETAILS REGARDING EROSION AND SEDIMENTATION CONTROLS REFER TO THE SET OF PLANS GOVERNING THE SUBDIVISION CONSTRUCTION AND SPECIFIC APPROVALS FROM THE TOWN OF HOLDEN.
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7. NO WORK SHALL TAKE PLACE UNTIL THE CONTRACTOR HAS REQUESTED AND OBTAINED A DIG-SAFE PERMIT NUMBER FOR THE SITE.
8. THE CONTRACTOR SHALL STATE IN WRITING HIS UNDERSTANDING OF THE PHASING CRITERIA PRIOR TO TO DISTURBING BEYOND THE LIMITS OF PHASE ONE.

LEGEND:

- DEVELOPMENT PHASE 1
- DEVELOPMENT PHASE 2
- DEVELOPMENT PHASE 3
- DEVELOPMENT PHASE 4
- DEVELOPMENT PHASE 5

SALISBURY PINE TREE ESTATES
PHASE 4 PLAN

LOCATION: Salisbury St., Pine Tree & Bailey Rds
TOWN: HOLDEN, MASSACHUSETTS
PREPARED FOR:

Holden Pine Tree, LLC

SCALE: 1"=60' DATE: JAN. 2020

COMMONWEALTH OF MASSACHUSETTS
Susan E. Carter
CIVIL ENGINEER
NO. 41270
REGISTERED PROFESSIONAL ENGINEER
8-13-21

REVISION NOTE:
1-18-2021 GENERAL REVISION
5-25-2021 GENERAL REVISION
8-11-2021 PER PEER REVIEW COMMENTS

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Littleton, MA 01460
(978) 486-0334
www.placesassociates.com

PROJECT No.: 7602

PHASE 5 NOTES:

1. NO FILL OR CUT SLOPES STEEPER THAN 2:1
2. EROSION CONTROLS SHALL REMAIN IN PLACE UNTIL ALL PHASES HAVE BEEN COMPLETED AND STABILIZED. REGULAR MAINTENANCE SHALL BE PERFORMED.
3. ALL CATCH BASIN GRATES SHALL BE SET TO BINDER ELEVATIONS AND HAVE SILT SAC INSTALLED WHEN GRADE IS SET.

Holden Planning Board

DATE OF APPROVAL:

DATE OF ENDORSEMENT:

NOTES:

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LEGEND:

- DEVELOPMENT PHASE 1
- DEVELOPMENT PHASE 2
- DEVELOPMENT PHASE 3
- DEVELOPMENT PHASE 4
- DEVELOPMENT PHASE 5

COMMONWEALTH OF MASSACHUSETTS
Susan E. Carter
CIVIL ENGINEER
NO. 41270
REGISTERED PROFESSIONAL ENGINEER
8-13-21

REVISION NOTE:
1-18-2021 GENERAL REVISION
5-25-2021 GENERAL REVISION
8-11-2021 PER PEER REVIEW COMMENTS

SALISBURY PINE TREE ESTATES PHASE 5 PLAN

LOCATION: Salisbury St., Pine Tree & Bailey Rds
TOWN: HOLDEN, MASSACHUSETTS
PREPARED FOR:

Holden Pine Tree, LLC

SCALE: 1"=60' DATE: JAN. 2020

PLACES Associates, Inc.
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· Surveying
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Littleton, MA 01460
(978) 486-0334
www.placesassociates.com

PROJECT No.: 7602

FOR REGISTRY USE ONLY

NOTES:

1. THIS PLAN IS INTENDED TO DEFINE THE LIMITS OF SPECIFIC PHASES OF CONSTRUCTION TO COMPLY WITH THE PHASED DEVELOPMENT BYLAW PROVISIONS.

2. SHOWN HEREON IS THE LIMIT OF DISTURBANCE OF THE PROJECT DEVELOPMENT DIVIDED INTO FIVE PHASES OF CONSTRUCTION.

3. ALTHOUGH THE PHASED GROWTH PERTAINS TO UNIT OCCUPANCY, HAVING CONSTRUCTION CONTROLS COINCIDENT ENVIRONMENTAL EROSION IMPACTS IS REQUIRED.

4. EACH PHASED WORK AREA SHALL CONTAIN LOCATIONS FOR TEMPORARY SILTATION BASINS THAT ARE TO BE MAINTAINED UNTIL ESTABLISHMENT OF VEGETATION, PERMANENT DRAINAGE INFRASTRUCTURE PLACEMENT AND HARDSCAPE (PAVING, WALKS & BUILDINGS

5. FOR ADDITIONAL NOTES AND DETAILS REGARDING EROSION AND SEDIMENTATION CONTROLS REFER TO THE SET OF PLANS GOVERNING THE SUBDIVISION CONSTRUCTION AND SPECIFIC APPROVALS FROM THE TOWN OF HOLDEN.

6. NO WORK SHALL TAKE PLACE UNTILL THE CONTRACTOR HAS FILED A NOI TO OBTAINED A NPDES GNERAL CONSTRUCTION PERMIT.

7. NO WORK SHALL TAKE PLACE UNTILL THE CONTRACTOR HAS REQUESTED AND OBTAINED A DIG-SAFE PERMIT NUMBER FOR THE SITE.

8. THE CONTRACTOR SHALL STATE IN WRITING HIS UNDERSTANDING OF THE PHASING CRITERIA PRIOR TO TO DISTURBING BEYOND THE LIMITS OF PHASE ONE.

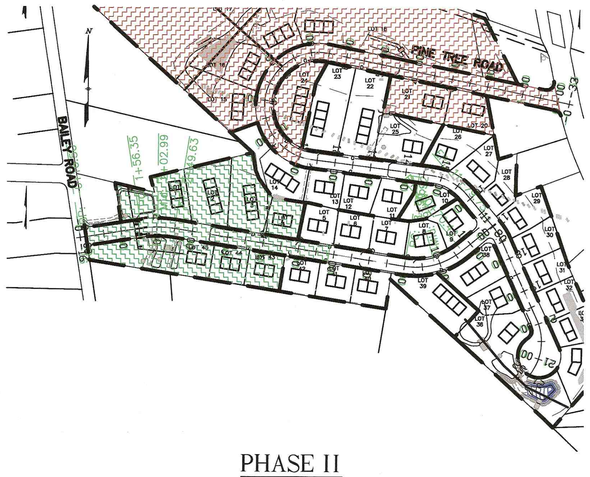
Holden Planning Board

DATE OF APPROVAL:

DATE OF ENDORSEMENT:

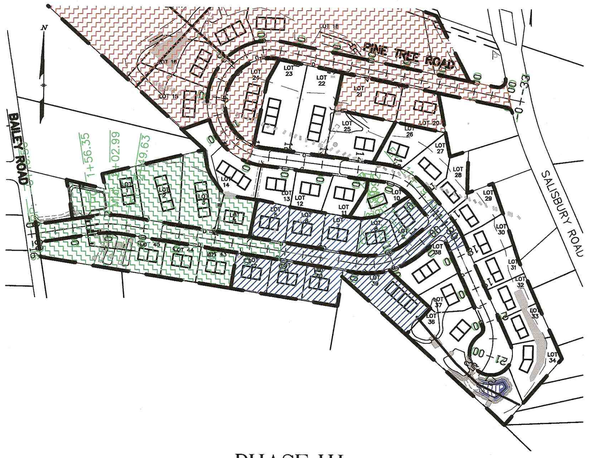
PHASE I

SCALE: 1"=200'



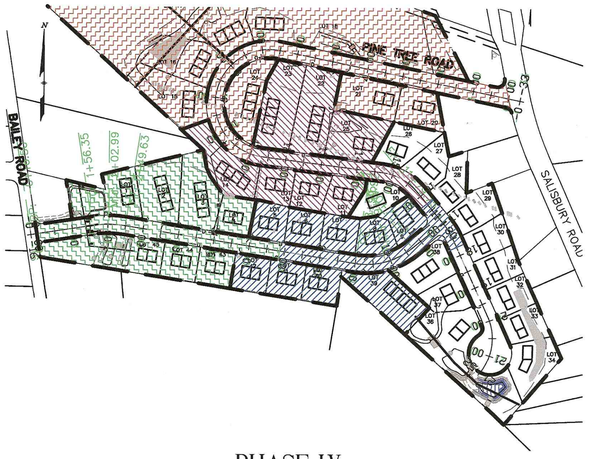
PHASE II

SCALE: 1"=200'



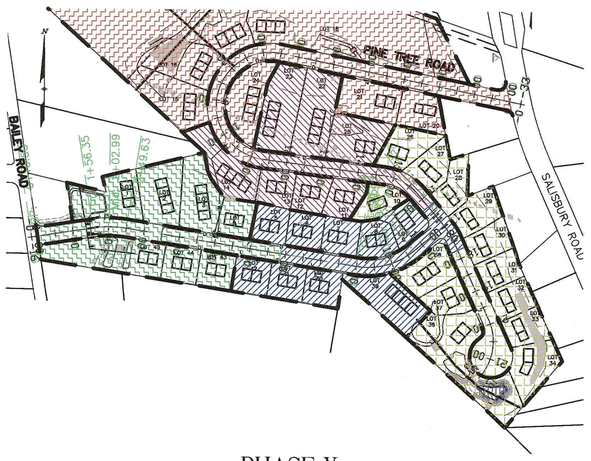
PHASE III

SCALE: 1"=200'



PHASE IV

SCALE: 1"=200'



PHASE V

SCALE: 1"=200'

OVERALL PROJECT

SCALE: 1"=100'

100' 0 100' 200'

BAR SCALE
1"=100'
CHECK GRAPHIC SCALE BEFORE USING

LEGEND:

- DEVELOPMENT PHASE 1
- DEVELOPMENT PHASE 2
- DEVELOPMENT PHASE 3
- DEVELOPMENT PHASE 4
- DEVELOPMENT PHASE 5

REVISION NOTE:
1-18-2021 GENERAL REVISION
5-25-2021 GENERAL REVISION
8-11-2021 PER PEER REVIEW COMMENTS

SALISBURY PINE TREE ESTATES PHASING PLAN

LOCATION: Salisbury St., Pine Tree & Bailey Rds
TOWN: HOLDEN, MASSACHUSETTS
PREPARED FOR:

Holden Pine Tree, LLC

SCALE: AS NOTED DATE: OCT. 2019

PLACES Associates, Inc.
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