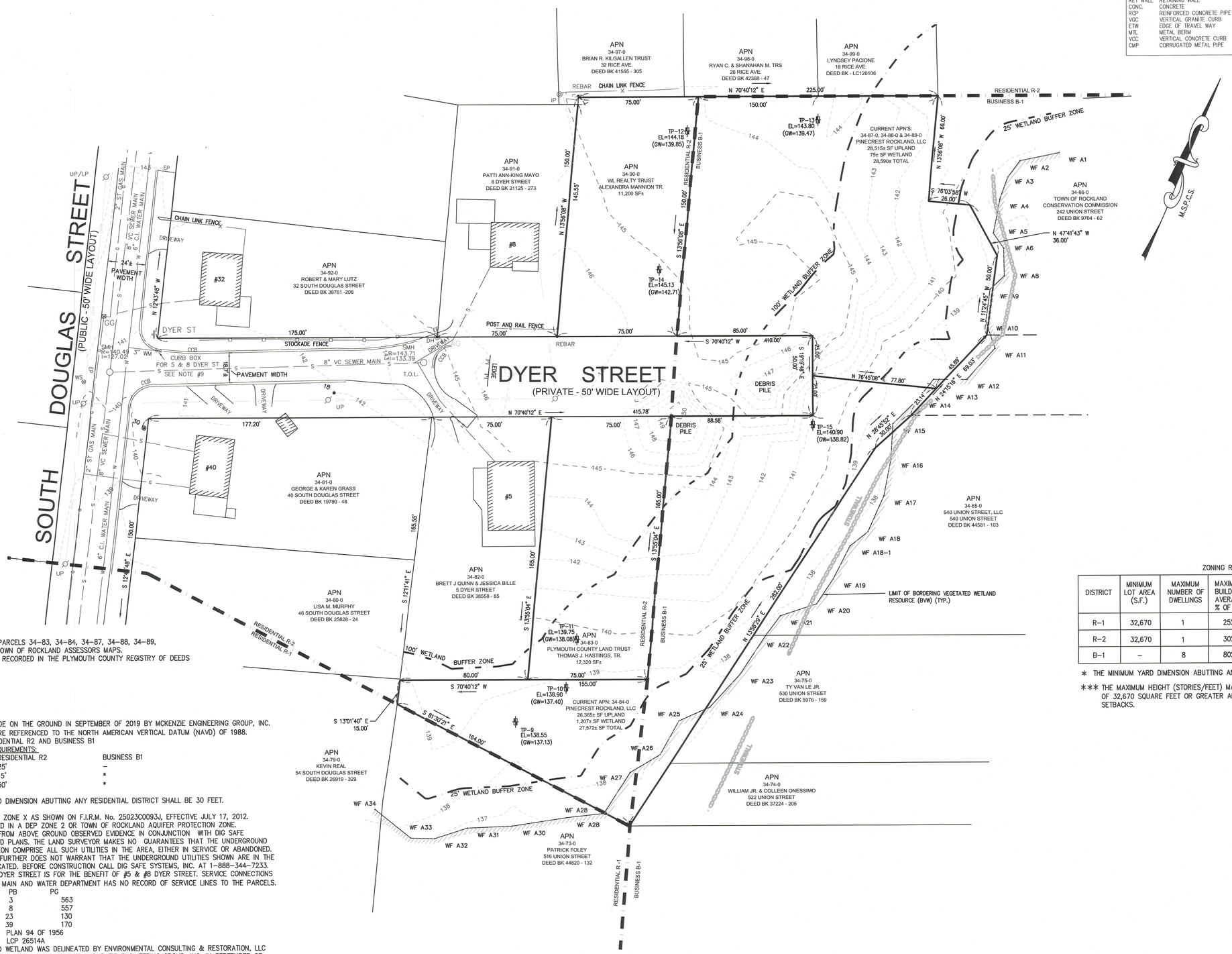


ABBREVIATIONS

FFE	FIRST FLOOR ELEVATION
BIT CONC.	BITUMINOUS CONCRETE PAVEMENT
CCB	CAPE COD BERM
EP	EDGE OF PAVEMENT
BC	BITUMINOUS CONCRETE CURB
(AM)	AS MEASURED
RET WALL	RETAINING WALL
CONC.	CONCRETE
RCP	REINFORCED CONCRETE PIPE
VGC	VERTICAL GRANITE CURB
ETW	EDGE OF TRAVEL WAY
MTL	METAL BERM
VCC	VERTICAL CONCRETE CURB
CMP	CORRUGATED METAL PIPE

LEGEND

SURVEY SYMBOLS

- REBAR
- ANGLE IRON
- CB/DH — CONCRETE BOUND WITH DRILL HOLE
- SB — STONE BOUND
- SB/DH — STONE BOUND

UTILITY SYMBOLS

- CHIMNEY
- ELECTRIC HAND HOLE
- GUY POLE
- GW — GUY WIRE
- HVAC UNIT
- BUILDING LIGHT W/MAST
- BUILDING LIGHT
- TRANSFORMER
- WATER GATE
- EXH — EXHAUST VENT
- AIR VENT
- DRAINAGE SUMP
- EMH — ELECTRIC MANHOLE
- SMH — SEWER MANHOLE
- DMH — DRAIN MANHOLE
- TMH — TELEPHONE MANHOLE
- CBN — DRAINAGE CATCH BASIN
- DOOR WAY THRESHOLD
- HYDRANT
- POST INDICATER VALVE
- UTILITY POLE
- YARD LIGHT
- RIP RAP
- B — BOLLARD
- SIGN
- FA — FIRE ALARM
- DECIDUOUS TREE
- CONIFEROUS TREE

LINE DESIGNATORS

- W — WATER MAIN
- HANDRAIL
- JERSEY BARRIER
- GUARD RAIL
- OHW — OVERHEAD WIRES
- G — GAS LINE
- WS — WATER SERVICE
- E — UNDERGROUND ELECTRIC
- D — STORM DRAIN LINE
- S — SANITARY SEWER LINE
- X — CHAIN LINK FENCE

SURVEY NOTES:

1. LOCUS IS SHOWN AS PARCELS 34–83, 34–84, 34–87, 34–88, 34–89, AND 34–90 ON THE TOWN OF ROCKLAND ASSESSORS MAPS.
2. DEEDS TO LOCUS ARE RECORDED IN THE PLYMOUTH COUNTY REGISTRY OF DEEDS

AT BOOK	PAGE
5647	277
49968	234
49365	333
34528	215
6042	252
49968	232

3. THIS SURVEY WAS MADE ON THE GROUND IN SEPTEMBER OF 2019 BY MCKENZIE ENGINEERING GROUP, INC.
4. ELEVATIONS SHOWN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.
5. LOCUS IS ZONED RESIDENTIAL R2 AND BUSINESS B1

MINIMUM SETBACK REQUIREMENTS:

	RESIDENTIAL R2	BUSINESS B1
FRONT YARD	25'	–
SIDE YARD	15'	*
REAR YARD	50'	*

* THE MINIMUM YARD DIMENSION ABUTTING ANY RESIDENTIAL DISTRICT SHALL BE 30 FEET.

6. LOCUS IS SITUATED IN ZONE X AS SHOWN ON F.I.R.M. No. 25023C0093J, EFFECTIVE JULY 17, 2012.
7. LOCUS IS NOT LOCATED IN A DEP ZONE 2 OR TOWN OF ROCKLAND AQUIFER PROTECTION ZONE.
8. UTILITY INFORMATION FROM ABOVE GROUND OBSERVED EVIDENCE IN CONJUNCTION WITH DIG SAFE MARKINGS AND RECORD PLANS. THE LAND SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN HEREON COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE LAND SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. BEFORE CONSTRUCTION CALL DIG SAFE SYSTEMS, INC. AT 1–888–344–7233.
9. WATER CURB BOX IN DYER STREET IS FOR THE BENEFIT OF #5 & #8 DYER STREET. SERVICE CONNECTIONS EXTEND FROM THE 3" MAIN AND WATER DEPARTMENT HAS NO RECORD OF SERVICE LINES TO THE PARCELS.
10. PLAN REFERENCES:

PB	PG
3	563
8	557
23	130
39	170

PLAN 94 OF 1956
LCP 26514A

11. BORDERING VEGETATED WETLAND WAS DELINEATED BY ENVIRONMENTAL CONSULTING & RESTORATION, LLC ON SEPTEMBER 4, 2019 AND FIELD LOCATED BY MCKENZIE ENGINEERING GROUP, INC. IN SEPTEMBER OF 2019.
12. ASSESSOR'S PARCELS 34–87, 34–88, 34–89 AND PORTION OF DYER STREET RIGHT OF WAY WERE RECENTLY COMBINED BY ANR PLAN AND RECORDED AT THE PLYMOUTH COUNTY REGISTRY OF DEEDS AS PLAN BOOK 63 PAGE 1082.
13. ASSESSOR'S PARCEL 34–84 AND PORTION OF DYER STREET RIGHT OF WAY WERE RECENTLY COMBINED BY ANR PLAN AND RECORDED AT THE PLYMOUTH COUNTY REGISTRY OF DEEDS AS PLAN BOOK 63 PAGE 1083.

ZONING REQUIRMENTS

DISTRICT	MINIMUM LOT AREA (S.F.)	MAXIMUM NUMBER OF DWELLINGS	MAXIMUM BUILDING AVERAGE % OF LOT	MAXIMUM HEIGHT (STORIES/ FEET)	BUILDING SETBACKS		
					FRONT	REAR	SIDE
R–1	32,670	1	25%	2.5/30***	25	50	15
R–2	32,670	1	30%	2.5/30***	25	50	15
B–1	–	8	80%	3.0/36	––	*	*

* THE MINIMUM YARD DIMENSION ABUTTING ANY RESIDENTIAL DISTRICT SHALL BE 30 FEET.

*** THE MAXIMUM HEIGHT (STORIES/FEET) MAY BE INCREASED TO 3.0/36 ON LOTS WITH AN AREA OF 32,670 SQUARE FEET OR GREATER AND THAT THE STRUCTURE MEETS ALL THE CURRENT SETBACKS.

REV	DATE	DESCRIPTION	BY	APP

MCKENZIE ENGINEERING GROUP
Assinippi Office Park
150 Longwater Drive, Suite 101
Norwell, MA 02061
P: 781.792.3900
F: 781.792.0333
www.mckeng.com

EXISTING CONDITIONS PLAN

ASSESSOR'S MAP 34, LOTS 83, 84, 87, 88, 89 & 90
DYER STREET
ROCKLAND, MASSACHUSETTS

PROFESSIONAL SURVEYOR:
COMMONWEALTH OF MASSACHUSETTS
RICHARD J. HOOD
No. 35031
REGISTERED PROFESSIONAL LAND SURVEYOR
Richard J. Hood
15 MAR 21

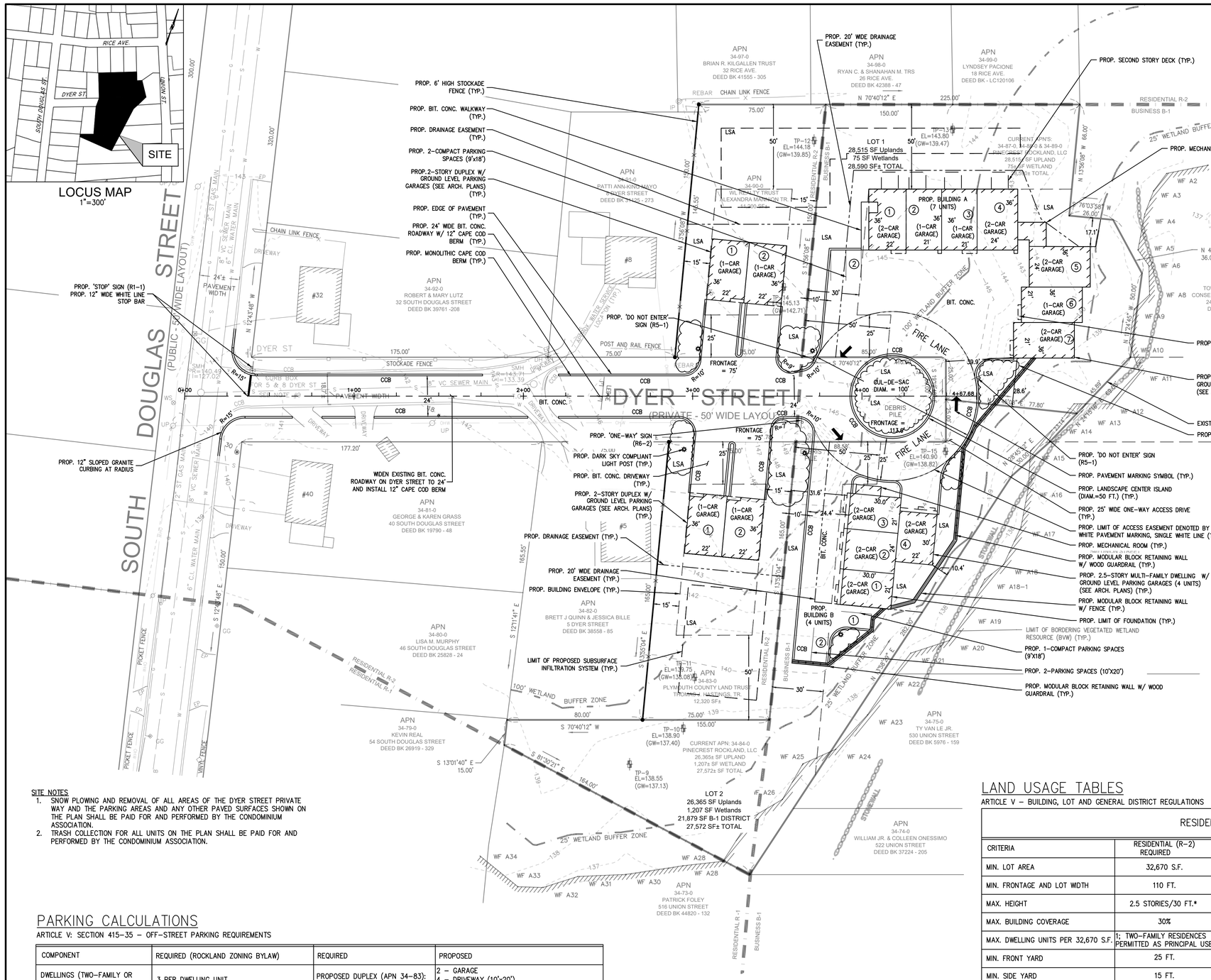
APPLICANT:
GASPAR INVESTMENT INC.
265 WILLIS AVE.
MEDFORD, MASSACHUSETTS 02155

NOT FOR CONSTRUCTION

DRAWN BY:	ESS
DESIGNED BY:	ESS
CHECKED BY:	RTLS
APPROVED BY:	RJH
DATE:	OCTOBER 23, 2020
SCALE:	1"=30'
PROJECT NO.:	220–163

DWG. TITLE:
EXISTING CONDITIONS PLAN

DWG. NO:
EX-1



ABBREVIATIONS

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BIT CONC.	BITUMINOUS CONCRETE PAVEMENT
CCB	CAPE COD BERM
CEM. CONC.	CEMENT CONCRETE
C.I.	CAST IRON
C.L.	CEMENT LINED
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RET. WALL	RETAINING WALL
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VGC	VERTICAL GRANITE CURB
ETW	EDGE OF TRAVEL WAY
MTL	METAL BERM
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CMP	CORRUGATED METAL PIPE
LSA	LANDSCAPED AREA
TRANS.	TRANSFORMER
GEN.	GENERATOR
HDPE	HIGH-DENSITY POLYETHYLENE

LEGEND

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- D — STORM DRAIN LINE
- S — SANITARY SEWER LINE
- DRAINAGE SWALE
- X — CHAIN LINK FENCE

SITE NOTES
1. SNOW PLOWING AND REMOVAL OF ALL AREAS OF THE DYER STREET PRIVATE WAY AND THE PARKING AREAS AND ANY OTHER PAVED SURFACES SHOWN ON THE PLAN SHALL BE PAID FOR AND PERFORMED BY THE CONDOMINIUM ASSOCIATION.
2. TRASH COLLECTION FOR ALL UNITS ON THE PLAN SHALL BE PAID FOR AND PERFORMED BY THE CONDOMINIUM ASSOCIATION.

PARKING CALCULATIONS

ARTICLE V: SECTION 415-35 - OFF-STREET PARKING REQUIREMENTS

COMPONENT	REQUIRED (ROCKLAND ZONING BYLAW)	REQUIRED	PROPOSED
DWELLINGS (TWO-FAMILY OR MULTI-FAMILY RESIDENCE)	3 PER DWELLING UNIT (30% ALLOWABLE COMPACT VEHICLE SPACES)	PROPOSED DUPLEX (APN 34-83): 2 UNITS X 3 SPACES = 6 SPACES	2 - GARAGE 4 - DRIVEWAY (10'x20') TOTAL: 6
		PROPOSED DUPLEX (APN 34-90): 2 UNITS X 3 SPACES = 6 SPACES	2 - GARAGE 4 - DRIVEWAY (10'x20') TOTAL: 6
		PROPOSED BUILDING A (LOT 1): 7 UNITS X 3 SPACES = 21 SPACES	11 - GARAGE 10 - DRIVEWAY (10'x20') 2 - STRIPED COMPACT SPACES (9'x18') TOTAL: 23 (2 COMPACT)
		PROPOSED BUILDING B (LOT 2): 4 UNITS X 3 SPACES = 12 SPACES	8 - GARAGE 2 - DRIVEWAY (10'X20') 1 - STRIPED COMPACT SPACE (9'x18') 2 - STRIPED PARKING SPACES (10'x20') TOTAL: 13 (1 COMPACT)

LAND USAGE TABLES

ARTICLE V - BUILDING, LOT AND GENERAL DISTRICT REGULATIONS

RESIDENTIAL (R-2) & BUSINESS (B-1) ZONING DISTRICT

CRITERIA	RESIDENTIAL (R-2) REQUIRED	BUSINESS (B-1) REQUIRED	LOT 1 (BUILDING A) PROPOSED	LOT 2 (BUILDING B) PROPOSED	APN 34-83 PROPOSED	APN 34-90 PROPOSED
MIN. LOT AREA	32,670 S.F.	-	28,590 S.F.	27,572 S.F.	12,320 S.F.	11,200 S.F.
MIN. FRONTAGE AND LOT WIDTH	110 FT.	110 FT.	110 FT.	113.6 FT.	75 FT.	75 FT.
MAX. HEIGHT	2.5 STORIES/30 FT.*	3 STORIES/36 FT.	33 FT.	33 FT.	22 FT.	22 FT.
MAX. BUILDING COVERAGE	30%	80%	21.6%	13.4%	12.8%	14.1%
MAX. DWELLING UNITS PER 32,670 S.F.	1; TWO-FAMILY RESIDENCES PERMITTED AS PRINCIPAL USE	8	7 PROPOSED UNITS, 7 UNITS ALLOWED	4 PROPOSED UNITS, 6.75 UNITS ALLOWED	2 PROPOSED UNITS	2 PROPOSED UNITS
MIN. FRONT YARD	25 FT.	-	39.9 FT.	25.2 FT.	30.0 FT.	30.0 FT.
MIN. SIDE YARD	15 FT.	**	28.6 FT.	31.6 FT.	15.3 FT.	15.3 FT.
MIN. REAR YARD	50 FT.	**	17.1 FT.	10.4 FT.	94.3 FT.	79.4 FT.

* THE MAXIMUM HEIGHT (STORIES/FEET) MAY BE INCREASED TO 3.0/36 ON LOTS WITH AN AREA OF 32,670 S.F. OR GREATER AND THAT THE STRUCTURE MEETS ALL THE CURRENT SETBACKS.
** THE MINIMUM YARD DIMENSION ABUTTING ANY RESIDENTIAL DISTRICT SHALL BE 30 FT.

NOTES
1. TRANSITION YARD REQUIREMENTS, FRONT YARD. WHERE A RESIDENCE DISTRICT ABUTS A NON-RESIDENCE DISTRICT, THERE SHALL BE PROVIDED IN THE NON-RESIDENCE DISTRICT FOR A DISTANCE OF 50 FT. FROM THE DISTRICT BOUNDARY LINE, A FRONT YARD AT LEAST EQUAL IN DEPTH TO THAT REQUIRED IN THE RESIDENCE DISTRICT.
2. TRANSITION YARD REQUIREMENTS, SIDE OR REAR YARD. WHERE THE SIDE OR REAR YARD IN A RESIDENCE DISTRICT ABUTS A SIDE OR REAR YARD IN A NON-RESIDENCE DISTRICT, THERE SHALL BE PROVIDED ALONG SUCH ABUTTING LINES, A SIDE OR REAR YARD AT LEAST EQUAL IN DEPTH TO THAT REQUIRED IN THE RESIDENCE DISTRICT. IN NO CASE, HOWEVER SHALL THE ABUTTING SIDE OR REAR YARD BE LESS THAN 20 FT.
3. ALL RESIDENTIAL ZONES AND THE BUSINESS B-1 DISTRICT, ALL PARKING AREAS, LOADING AREAS, AND AREAS USED FOR ACCESS, EGRESS OR ONSITE CIRCULATION SHALL BE SET BACK A MINIMUM OF 10 FEET FROM ANY PROPERTY LINE AND THE TEN-FOOT SETBACK SHALL BE PROPERLY LANDSCAPED AND MAINTAINED.

REV	DATE	DESCRIPTION	BY	APP
1	3/15/21	WIDENED ROADWAY	ESS	BCM
2	6/7/21	DRAINAGE REVISION	ESS	BCM
3	6/29/21	DRAINAGE REVISION	ESS	BCM
4	8/6/21	CUL-DE-SAC REVISION	ESS	BCM
5	9/9/21	CUL-DE-SAC REVISION	ESS	BCM

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SITE DEVELOPMENT PLAN
PINECREST TOWNHOMES

ASSESSOR'S MAP 34, LOTS 83, 84, 87
88, 89 & 90
DYER STREET
ROCKLAND, MASSACHUSETTS

PROFESSIONAL ENGINEER:
BRADLEY C McKENZIE
CIVIL
No. 30917
REGISTERED PROFESSIONAL ENGINEER
COMMONWEALTH OF MASSACHUSETTS

APPLICANT:
GASPAR INVESTMENT INC.
265 WILLIS AVE.
MEDFORD, MASSACHUSETTS 02155

PERMIT PLAN SET

DRAWN BY:	ESS
DESIGNED BY:	ESS
CHECKED BY:	BCM
APPROVED BY:	BCM
DATE:	OCTOBER 23, 2020
SCALE:	1"=30'
PROJECT NO.:	220-163

DWG. TITLE:
SITE LAYOUT PLAN

DWG. NO:
C-1

M:\2022\2020-PROJECTS\220-163 GASPAR, MAE - DYER STREET, ROCKLAND\DWGS\SITE-167_SHEET4-CUL-DE-SAC-REVISION2.DWG

LOCUS MAP
1"=300'

ABBREVIATIONS

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CCB	CAPE COD BERM
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RCP	REINFORCED CONCRETE PIPE
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LSA	LANDSCAPED AREA
TRANS.	TRANSFORMER
GEN.	GENERATOR
HDPE	HIGH-DENSITY POLYETHYLENE

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- D — STORM DRAIN LINE
- S — SANITARY SEWER LINE
- DRAINAGE SWALE
- X — CHAIN LINK FENCE

PROP. 8" HDPE ROOF DRAIN (TYP.)
PROP. STORMWATER INFILTRATION SYSTEM #2
CULTEC R-150XLHD CHAMBERS (129 CHAMBERS)
BOTTOM OF STONE EL=143.90
BOTTOM OF CHAMBER EL=144.40
TOP OF CHAMBER EL=145.94
TOP OF STONE EL=146.44
INV 12" IN=144.40
INV. 12" OUT=143.90
PROP. 20' WIDE DRAINAGE EASEMENT (TYP.)
PROP. 24" NYLOPLAST DRAIN BASIN W/ 8" HDPE DRAIN PIPE
PROP. OUTLET CONTROL STRUCTURE
RIM=147.40
2" DIAMETER ORIFICE OUTLET EL=145.70
0.5'L X 0.80'H RECTANGULAR WEIR EL=145.75
INV 12" OUT=143.90
PROP. 12" REINFORCED CONCRETE (CLASS 4) DRAIN PIPE
PROP. 40 MIL EPDM POLYBARRIER
TOP OF BARRIER=146.44
BOT. OF BARRIER=1 FT. BELOW EXISTING GRADE
PROP. COMPOST SILT SOCK EROSION CONTROL BARRIER (LIMIT OF WORK) (TYP.)
REBAR
CHAIN LINK FENCE
APN 34-97-0 BRIAN R. KILGALLEN TRUST 32 RICE AVE. DEED BK 41555 - 305
APN 34-98-0 RYAN C. & SHANAHAN M. MYERS 26 RICE AVE. DEED BK 42388 - 0
APN 34-99-0 LYNDSEY PACIONE 18 RICE AVE. DEED BK - LC120106
RESIDENTIAL R-2 / BUSINESS B-1
PROP. PRECAST CONC. DRAIN MANHOLE RIM=144.40 INV=141.10
25' WETLAND BUFFER ZONE
PROP. 24" NYLOPLAST DRAIN BASIN W/ 8" HDPE DRAIN PIPE
APN 34-91-0 PATTI ANN-KING MAYO 8 DYER STREET DEED BK 31125 - 273
PROP. BUILDING A (7 UNITS)
FFE=148.0 FFE=148.0 FFE=148.2 FFE=148.4
42 L.F. S=0.066
10 L.F. S=0.01
PROP. DRAINAGE EASEMENT (TYP.)
PROP. FLARED END SECTION W/ RIP RAP SPILLWAY INV=141.00
PROP. PRECAST CONC. FIRST DEFENSE UNIT RIM=147.00 INV=144.42
PROP. 12" REINFORCED CONCRETE (CLASS 4) DRAIN PIPE
PROP. PRECAST CONC. CATCH BASIN RIM=147.10 INV=144.60
PROP. 8" HDPE ROOF LEADER (TYP.)
PROP. PRECAST CONC. DRAIN MANHOLE RIM=146.90 INV=143.85
PROP. PRECAST CONC. CATCH BASIN RIM=146.50 INV=144.00
APN 34-92-0 ROBERT & MARY LUTZ 32 SOUTH DOUGLAS STREET DEED BK 39761 -208
PROP. ROOF DRAIN SYSTEM (TYP.)
PROP. LIMIT OF ACCESS EASEMENT (TYP.)
PROP. MODULAR BLOCK RETAINING WALL W/ GUARD RAIL TOP OF WALL=VARIES BOTTOM OF WALL=VARIES
PROP. PRECAST CONC. CATCH BASIN RIM=146.50 INV=144.00
PROP. 12" REINFORCED CONCRETE (CLASS 5) DRAIN PIPE (TYP.)
PROP. DRAIN CLEANOUT (TYP.)
PROP. MODULAR BLOCK RETAINING WALL W/ FENCE TOP OF WALL=VARIES BOTTOM OF WALL=VARIES
PROP. 8" HDPE ROOF DRAIN (TYP.)
PROP. PRECAST CONC. DRAIN MAHOLE RIM=146.30 INV=142.92
PROP. BUILDING B (4-UNITS)
LIMIT OF BORDERING VEGETATED WETLAND RESOURCE (BVW) (TYP.)
PROP. MODULAR BLOCK RETAINING WALL W/ GUARD RAIL TOP OF WALL=146.5 BOTTOM OF WALL=VARIES
PROP. PRECAST CONC. CATCH BASIN RIM=145.60 INV=143.10
PROP. FLARED END SECTION W/ RIP RAP SPILLWAY INV=142.36
PROP. OUTLET CONTROL STRUCTURE RIM=145.50
1.5" DIAMETER ORIFICE OUTLET EL=143.90
1.5'L X 1.0'H RECTANGULAR WEIR EL=144.35
INV 12" OUT=142.60
PROP. STORMWATER INFILTRATION SYSTEM #1
CULTEC R-150XLHD CHAMBERS (84 CHAMBERS)
BOTTOM OF STONE EL=142.10
BOTTOM OF CHAMBER EL=142.60
TOP OF CHAMBER EL=144.14
TOP OF STONE EL=144.64
INV 12" IN=142.60
INV. 12" OUT=142.60
APN 34-75-0 TY VAN LE JR. 530 UNION STREET DEED BK 9078 - 159
APN 34-74-0 WILLIAM JR. & COLLEEN ONESSIMO 522 UNION STREET DEED BK 37224 - 205
APN 34-85-0 540 UNION ST 540 UNION DEED BK 44
APN 34-86-0 CONSTANCE A. 2 DEED BK 9704 - 62
APN 34-81-0 GEORGE & KAREN GRASS 40 SOUTH DOUGLAS STREET DEED BK 19790 - 48
APN 34-80-0 LISA M. MURPHY 46 SOUTH DOUGLAS STREET DEED BK 25828 - 24
APN 34-79-0 KEVIN REAL 54 SOUTH DOUGLAS STREET DEED BK 26919 - 329
APN 34-73-0 PATRICK FOLEY 516 UNION STREET DEED BK 44820 - 132
APN 34-52-0 BRETT J QUINN & JESSICA BILLE 6 DYER STREET
SOUTH DOUGLAS STREET (PUBLIC - 50' WIDE LAYOUT)
DYER ST
CHAIN LINK FENCE
POST AND RAIL FENCE
STOCKADE FENCE
PICKET FENCE
WIRE FENCE
24'± PAVEMENT WIDTH
CURB BOX FOR 5 & 8 DYER ST SEE NOTE #9
DEBRIS PILE
TP-14 EL=145.13 (GW=142.71)
TP-15 EL=140.90 (GW=138.82)
TP-9 EL=138.55 (GW=137.13)
TP-8 EL=138.90 (GW=137.40)
99 L.F. S=0.0072
63 L.F. S=0.014
101 L.F. S=0.005
31 L.F. S=0.009
37 L.F. S=0.005
PROP. DRAINAGE SWALE (TYP.)
PROP. PRECAST CONC. FIRST DEFENSE UNIT RIM=145.50 INV=142.64
PROP. 40 MIL EPDM POLYBARRIER TOP OF BARRIER=144.64 BOT. OF BARRIER=1 FT. BELOW EXISTING GRADE
PROP. INSPECTION PORT (TYP.)
100' WETLAND BUFFER ZONE
RESIDENTIAL R-2 / RESIDENTIAL R-1 / BUSINESS B-1
STONEWALL
M.S.P.C.S.

DRAINAGE NOTES:
1. ALL EROSION AND SEDIMENT CONTROLS SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY EARTH MOVING ACTIVITIES.
2. THE CONTRACTOR SHALL KEEP ON SITE AT ALL TIMES, ADDITIONAL SILTATION FENCING AND FILTER FABRIC FOR INSTALLATION AS DIRECTED BY THE TOWN TO MITIGATE ANY EMERGENCY CONDITIONS.
3. UPON COMPLETION OF ALL SITE WORK THE CONTRACTOR SHALL INSPECT ALL ON-SITE AND OFF-SITE CATCH BASINS (THAT RECEIVED CATCH BASIN PROTECTION) AND DRAINAGE MANHOLES AND REMOVE ALL SEDIMENT AND DEBRIS THAT HAS ACCUMULATED DURING THE COURSE OF CONSTRUCTION.
4. WHERE THE COVER OVER PROPOSED DRAINAGE PIPES IS LESS THAN 2.5 FEET, THE DRAINAGE PIPE SHALL BE CLASS 5 REINFORCED CONCRETE UNLESS OTHERWISE SPECIFIED.
5. UNSUITABLE SOILS LOCATED WITHIN THE LIMITS OF THE SUBSURFACE INFILTRATION SYSTEMS SHALL BE REMOVED PRIOR TO INSTALLATION OF THE SYSTEM. THE BOTTOM OF EXCAVATION SHALL BE INSPECTED BY THE PROJECT ENGINEER PRIOR TO THE PLACEMENT OF THE SUBSURFACE CHAMBERS.

SCALE: 1" = 30'
0 15 30 60 120

REV	DATE	DESCRIPTION	BY	APP
1	3/15/21	WIDENED ROADWAY	ESS	BCM
2	6/7/21	DRAINAGE REVISION	ESS	BCM
3	6/29/21	DRAINAGE REVISION	ESS	BCM
4	8/6/21	CUL-DE-SAC REVISION	ESS	BCM
5	9/9/21	CUL-DE-SAC REVISION	ESS	BCM

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SITE DEVELOPMENT PLAN
PINECREST TOWNHOMES

ASSESSOR'S MAP 34, LOTS 83, 84, 87
88, 89 & 90
DYER STREET
ROCKLAND, MASSACHUSETTS

PROFESSIONAL ENGINEER:
BRADLEY C. McKENZIE
CIVIL
No. 39917
REGISTERED PROFESSIONAL ENGINEER
COMMONWEALTH OF MASSACHUSETTS

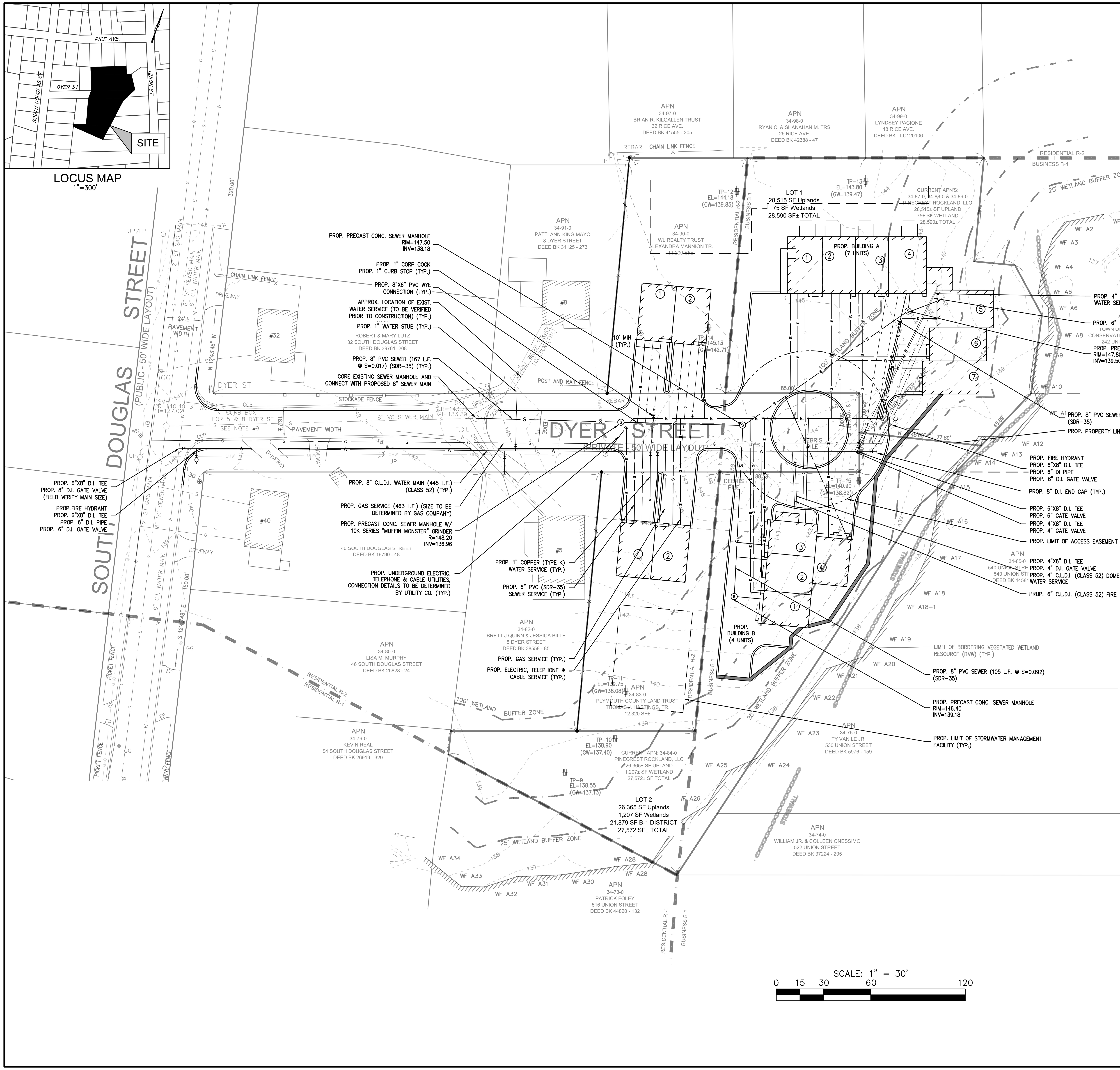
APPLICANT:
GASPAR INVESTMENT INC.
265 WILLIS AVE.
MEDFORD, MASSACHUSETTS 02155

PERMIT PLAN SET

DRAWN BY:	ESS
DESIGNED BY:	ESS
CHECKED BY:	BCM
APPROVED BY:	BCM
DATE:	OCTOBER 23, 2020
SCALE:	1"=30'
PROJECT NO.:	220-163

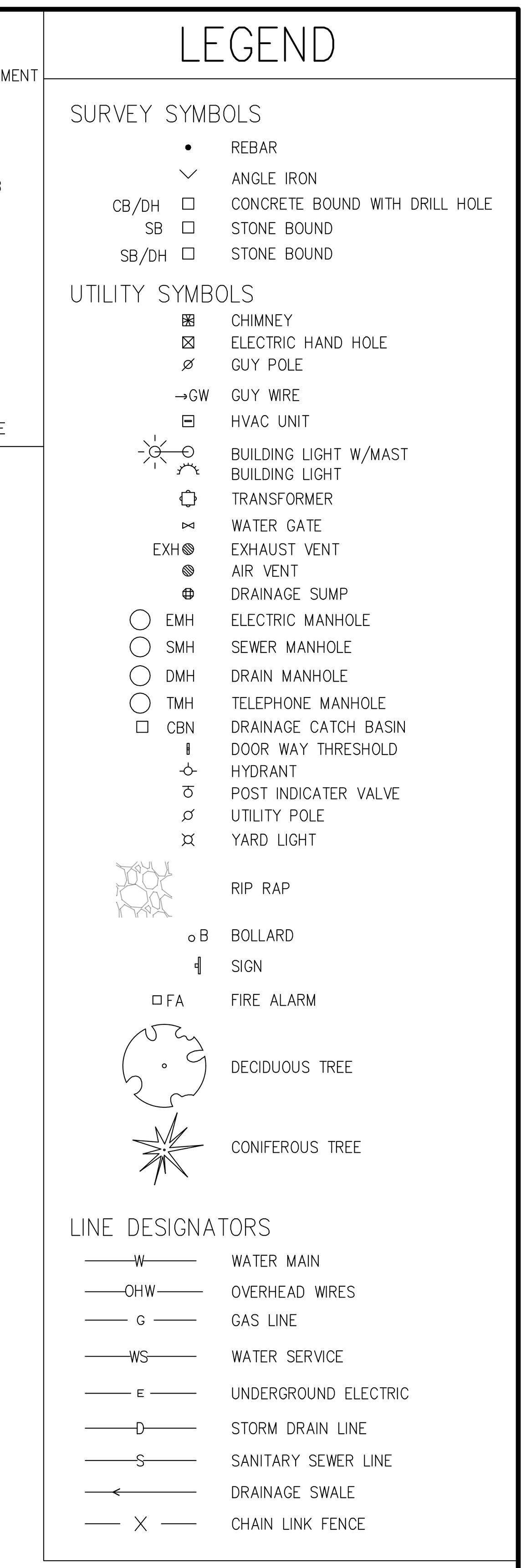
DWG. TITLE:
GRADING AND DRAINAGE PLAN

DWG. NO:
C-2



LOCUS MAP
1"=300'
SITE
RICE AVE.
DYER ST
SOUTH DOUGLAS STREET
DYER STREET
(PRIVATE - 50' WIDE LAYOUT)
(PUBLIC - 50' WIDE LAYOUT)
LOT 1
28,515 SF Uplands
75 SF Wetlands
28,590 SF± TOTAL
LOT 2
26,365 SF Uplands
1,207 SF Wetlands
21,879 SF B-1 DISTRICT
27,572 SF± TOTAL
PROP. BUILDING A
(7 UNITS)
PROP. BUILDING B
(4 UNITS)
PROP. PRECAST CONC. SEWER MANHOLE
RIM=147.50
INV=138.18
PROP. 1" CORP COCK
PROP. 1" CURB STOP (TYP.)
PROP. 8"X6" PVC WYE
CONNECTION (TYP.)
APPROX. LOCATION OF EXIST.
WATER SERVICE (TO BE VERIFIED
PRIOR TO CONSTRUCTION) (TYP.)
PROP. 1" WATER STUB (TYP.)
PROP. 8" PVC SEWER (167 L.F.
@ S=0.017) (SDR-35) (TYP.)
CORE EXISTING SEWER MANHOLE AND
CONNECT WITH PROPOSED 8" SEWER MAIN
PROP. 6"X8" D.I. TEE
PROP. 8" D.I. GATE VALVE
(FIELD VERIFY MAIN SIZE)
PROP. FIRE HYDRANT
PROP. 6"X8" D.I. TEE
PROP. 6" D.I. PIPE
PROP. 6" D.I. GATE VALVE
PROP. 8" C.L.D.I. WATER MAIN (445 L.F.)
(CLASS 52) (TYP.)
PROP. GAS SERVICE (463 L.F.) (SIZE TO BE
DETERMINED BY GAS COMPANY)
PROP. PRECAST CONC. SEWER MANHOLE W/
10K SERIES "MUFFIN MONSTER" GRINDER
R=148.20
INV=136.96
PROP. UNDERGROUND ELECTRIC,
TELEPHONE & CABLE UTILITIES,
CONNECTION DETAILS TO BE DETERMINED
BY UTILITY CO. (TYP.)
PROP. 1" COPPER (TYPE K)
WATER SERVICE (TYP.)
PROP. 6" PVC (SDR-35)
SEWER SERVICE (TYP.)
PROP. GAS SERVICE (TYP.)
PROP. ELECTRIC, TELEPHONE &
CABLE SERVICE (TYP.)
PROP. 4" C.L.D.I. (CLASS 52) DOMESTIC
WATER SERVICE
PROP. 6" C.L.D.I. (CLASS 52) FIRE SERVICE
PROP. PRECAST CONC. SEWER MANHOLE
RIM=147.80
INV=139.50
PROP. 8" PVC SEWER (124 L.F. @ S=0.01)
(SDR-35)
PROP. PROPERTY LINE (TYP.)
PROP. FIRE HYDRANT
PROP. 6"X8" D.I. TEE
PROP. 6" DI PIPE
PROP. 6" D.I. GATE VALVE
PROP. 8" D.I. END CAP (TYP.)
PROP. 6"X8" D.I. TEE
PROP. 6" GATE VALVE
PROP. 4"X8" D.I. TEE
PROP. 4" GATE VALVE
PROP. LIMIT OF ACCESS EASEMENT (TYP.)
PROP. 4"X6" D.I. TEE
PROP. 4" D.I. GATE VALVE
PROP. 4" C.L.D.I. (CLASS 52) DOMESTIC
WATER SERVICE
PROP. 6" C.L.D.I. (CLASS 52) FIRE SERVICE
LIMIT OF BORDERING VEGETATED WETLAND
RESOURCE (BVW) (TYP.)
PROP. 8" PVC SEWER (105 L.F. @ S=0.092)
(SDR-35)
PROP. PRECAST CONC. SEWER MANHOLE
RIM=146.40
INV=139.18
PROP. LIMIT OF STORMWATER MANAGEMENT
FACILITY (TYP.)
25' WETLAND BUFFER ZONE
100' WETLAND BUFFER ZONE
RESIDENTIAL R-2
BUSINESS B-1
RESIDENTIAL R-1
M.S.P.C.S.
SCALE: 1" = 30'
0 15 30 60 120

ABBREVIATIONS	
FFE	FIRST FLOOR ELEVATION
BIT CONC.	BITUMINOUS CONCRETE PAVEMENT
CCB	CAPE COD BERM
CEM. CONC.	CEMENT CONCRETE
C.I.	CAST IRON
C.L.	CEMENT LINED
EP	EDGE OF PAVEMENT
BC	BITUMINOUS CONCRETE CURB
(AM)	AS MEASURED
RET WALL	RETAINING WALL
CONC.	CONCRETE
RCP	REINFORCED CONCRETE PIPE
VGC	VERTICAL GRANITE CURB
ETW	EDGE OF TRAVEL WAY
MTL	METAL BERM
VCC	VERTICAL CONCRETE CURB
CMP	CORRUGATED METAL PIPE
LSA	LANDSCAPED AREA
TRANS.	TRANSFORMER
GEN.	GENERATOR
HDPE	HIGH-DENSITY POLYETHYLENE



LEGEND
SURVEY SYMBOLS
REBAR
ANGLE IRON
CB/DH CONCRETE BOUND WITH DRILL HOLE
SB STONE BOUND
SB/DH STONE BOUND
UTILITY SYMBOLS
CHIMNEY
ELECTRIC HAND HOLE
GUY POLE
GW GUY WIRE
HVAC UNIT
BUILDING LIGHT W/MAST
BUILDING LIGHT
TRANSFORMER
WATER GATE
EXH EXHAUST VENT
AIR VENT
DRAINAGE SUMP
EMH ELECTRIC MANHOLE
SMH SEWER MANHOLE
DMH DRAIN MANHOLE
TMH TELEPHONE MANHOLE
CBN DRAINAGE CATCH BASIN
DOOR WAY THRESHOLD
HYDRANT
POST INDICATER VALVE
UTILITY POLE
YARD LIGHT
RIP RAP
B BOLLARD
SIGN
FA FIRE ALARM
DECIDUOUS TREE
CONIFEROUS TREE
LINE DESIGNATORS
W WATER MAIN
OHW OVERHEAD WIRES
G GAS LINE
WS WATER SERVICE
E UNDERGROUND ELECTRIC
D STORM DRAIN LINE
S SANITARY SEWER LINE
DRAINAGE SWALE
X CHAIN LINK FENCE

UTILITY NOTES:

1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED UPON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DIGSAFE" AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF UTILITIES AND THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION SHALL BE TAKEN BEFORE PROCEEDING WITH THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLAN.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING ALL CONTROL POINTS AND BENCHMARKS NECESSARY FOR THE WORK.
3. THE CONTRACTOR SHALL COORDINATE ALL STREET WORK WITH THE ROCKLAND DPW.
4. THE CONTRACTOR SHALL EXCAVATE THE TEST PITS PRIOR TO INSTALLING THE DOMESTIC WATER SERVICE TO VERIFY THE ELEVATIONS AND LOCATIONS OF EXISTING UTILITIES. THE CONTRACTOR SHALL PROVIDE THE OWNER AND ENGINEER WITH THE RESULTS PRIOR TO COMMENCING ANY WORK.
5. THE WATER SERVICE SHALL BE INSTALLED WITH 5' OF COVER EXCEPT AS NOTED OR DETAILED OTHERWISE.
6. THE DOMESTIC WATER SERVICE SHALL BE 1" COPPER (TYPE K) FOR PROPOSED DUPLEXES (APN'S 34-83-0 & 34-90-0). THE DOMESTIC WATER SERVICES SHALL BE 4" CEMENT LINED DUCTILE IRON PIPE (C.L.D.I.) (CLASS 52) FOR PROPOSED MULTI-FAMILY BUILDINGS (BUILDINGS A & B).
7. ALL WATER SERVICE APPURTENANCES, MATERIALS, METHODS OF INSTALLATION SHALL MEET OR EXCEED ALL LOCAL MUNICIPAL REQUIREMENTS.
8. THE DOMESTIC WATER SERVICE SHALL BE ADEQUATELY PROTECTED AGAINST BACKFLOW (BACKFLOW PREVENTION) AT THE BUILDING.
9. AFTER PRESSURE TESTING AND CHLORINATION IS COMPLETED, SAMPLES SHALL BE TAKEN FROM THE DOMESTIC WATER SERVICE AND SHALL BE TESTED AT 200 PSI FOR A MINIMUM OF 2 HOURS. THE CONTRACTOR IS REQUIRED TO NOTIFY THE ABINGTON ROCKLAND JOINT WATER WORKS AT LEAST 24 HOURS PRIOR TO THE TESTING.
10. THE DOMESTIC WATER SERVICE SHALL BE TESTED IN ACCORDANCE WITH DEPARTMENT OF ENVIRONMENTAL PROTECTION REGULATIONS. A MINIMUM OF 2 SEPARATE WATER SAMPLES SHALL BE TESTED AT A STATE CERTIFIED LABORATORY.
11. A MINIMUM OF 10 FEET CLEAR HORIZONTALLY SHALL BE MAINTAINED BETWEEN SANITARY SEWER SERVICES AND WATER SERVICE. WHENEVER CONDITIONS PREVENT A LATERAL SEPARATION OF 10 FEET TO A WATER SERVICE THE ELEVATION OF THE CROWN OF THE SEWER SHALL BE AT LEAST 18 INCHES BELOW THE INVERT OF THE WATER SERVICE. ALL OTHER UTILITIES REQUIRE MINIMUM 5' SEPARATION FROM OTHER UTILITIES.
12. ALL GRAVITY SEWER PIPE SHALL BE POLYVINYL CHLORIDE (PVC) SDR-35 UNLESS OTHERWISE NOTED.
13. WHERE SANITARY SEWERS CROSS WATER MAINS, THE SEWER SHALL BE LAID AT SUCH AN ELEVATION THAT THE CROWN OF THE SEWER IS AT LEAST 18 INCHES BELOW THE INVERT OF THE WATER MAIN. IF THE ELEVATION OF THE SEWER CANNOT BE VARIED TO MEET THIS REQUIREMENT, THE WATER MAIN SHALL BE RELOCATED TO PROVIDE THIS SEPARATION OR CONSTRUCTED WITH MECHANICAL-JOINT PIPE FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE SEWER. ONE FULL LENGTH OF WATER MAIN SHALL BE CENTERED OVER THE SEWER SO THAT BOTH JOINTS WILL BE AS FAR FROM THE SEWER AS POSSIBLE. WHENEVER IT IS IMPOSSIBLE TO OBTAIN VERTICAL SEPARATION AS STIPULATED ABOVE, BOTH THE WATER MAIN AND THE SEWER MAIN SHALL BE ENCASED IN CONCRETE FOR A MINIMUM DISTANCE OF 10 FEET FROM THE CROSSING POINT OF THE OTHER PIPE AS MEASURED NORMALLY FROM ALL POINTS ALONG THE PIPE.
14. THE LOCATIONS OF PROPOSED ELECTRIC, TELEPHONE AND COMMUNICATION (E.T.C.) SERVICES ARE APPROXIMATE. THE PROJECT ELECTRICAL ENGINEER SHALL VERIFY THESE LOCATIONS PRIOR TO THE START OF CONSTRUCTION. COORDINATE ALL E.T.C. WORK WITH THE APPROPRIATE UTILITY COMPANIES.
15. THE PROPOSED GAS SERVICE LOCATION IS APPROXIMATE ONLY. THE CONTRACTOR SHALL COORDINATE THE GAS SERVICE INSTALLATION WITH THE MUNICIPAL GAS COMPANY.
16. ALL CONSTRUCTION WORK SHALL BE PERFORMED IN ACCORDANCE WITH ROCKLAND DEPARTMENT OF PUBLIC WORKS AND ABINGTON ROCKLAND JOINT WATER WORKS SPECIFICATIONS.
17. ALL EXISTING UTILITIES WITHIN THE SITE ARE TO BE REMOVED UNLESS OTHERWISE STATED TO REMAIN.
18. MAINTENANCE OF THE SEWER GRINDER AS SHOWN ON THE PLAN SHALL BE PAID FOR AND PERFORMED BY THE CONDOMINIUM ASSOCIATION.
19. ELECTRICAL ENGINEER TO SPECIFY ELECTRICAL DESIGN AND CONFIGURATION OF THE SEWER GRINDER.

REV	DATE	DESCRIPTION	BY	APP
1	3/15/21	WIDENED ROADWAY	ESS	BCM
2	6/7/21	DRAINAGE REVISION	ESS	BCM
3	6/29/21	DRAINAGE REVISION	ESS	BCM
4	8/6/21	CUL-DE-SAC REVISION	ESS	BCM
5	9/9/21	CUL-DE-SAC REVISION	ESS	BCM

MCKENZIE ENGINEERING GROUP
Assinippi Office Park
150 Longwater Drive, Suite 101
Norwell, MA 02061
P: 781.792.3900
F: 781.792.0333
www.mckeng.com

SITE DEVELOPMENT PLAN
PINECREST TOWNHOMES
ASSESSOR'S MAP 34, LOTS 83, 84, 87
88, 89 & 90
DYER STREET
ROCKLAND, MASSACHUSETTS

PROFESSIONAL ENGINEER:

APPLICANT:
GASPAR INVESTMENT INC.
265 WILLIS AVE.
MEDFORD, MASSACHUSETTS 02155

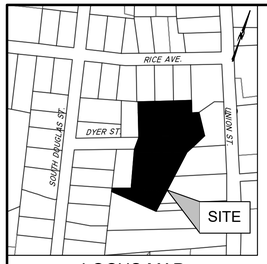
PERMIT PLAN SET

DRAWN BY:	ESS
DESIGNED BY:	ESS
CHECKED BY:	BCM
APPROVED BY:	BCM
DATE:	OCTOBER 23, 2020
SCALE:	1"=30'
PROJECT NO.:	220-163

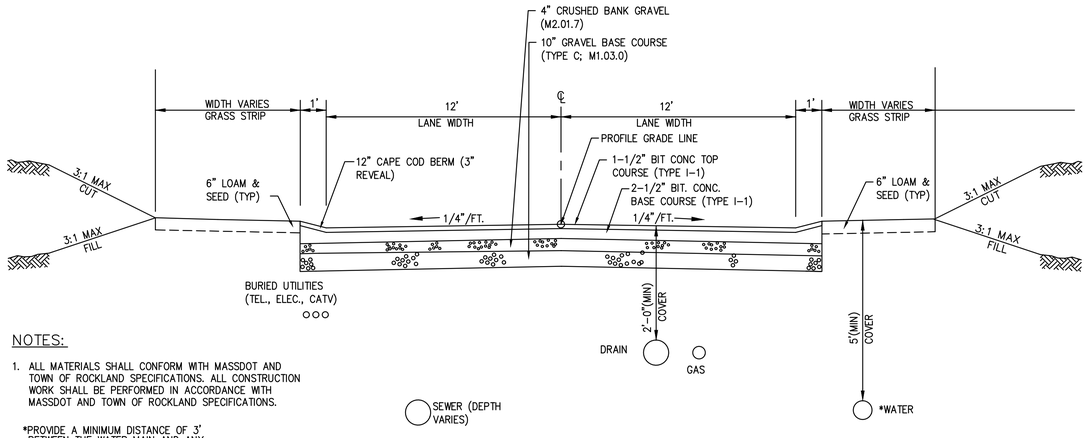
DWG. TITLE:

UTILITY PLAN

DWG. NO.: C-3



LOCUS MAP
1"=300'



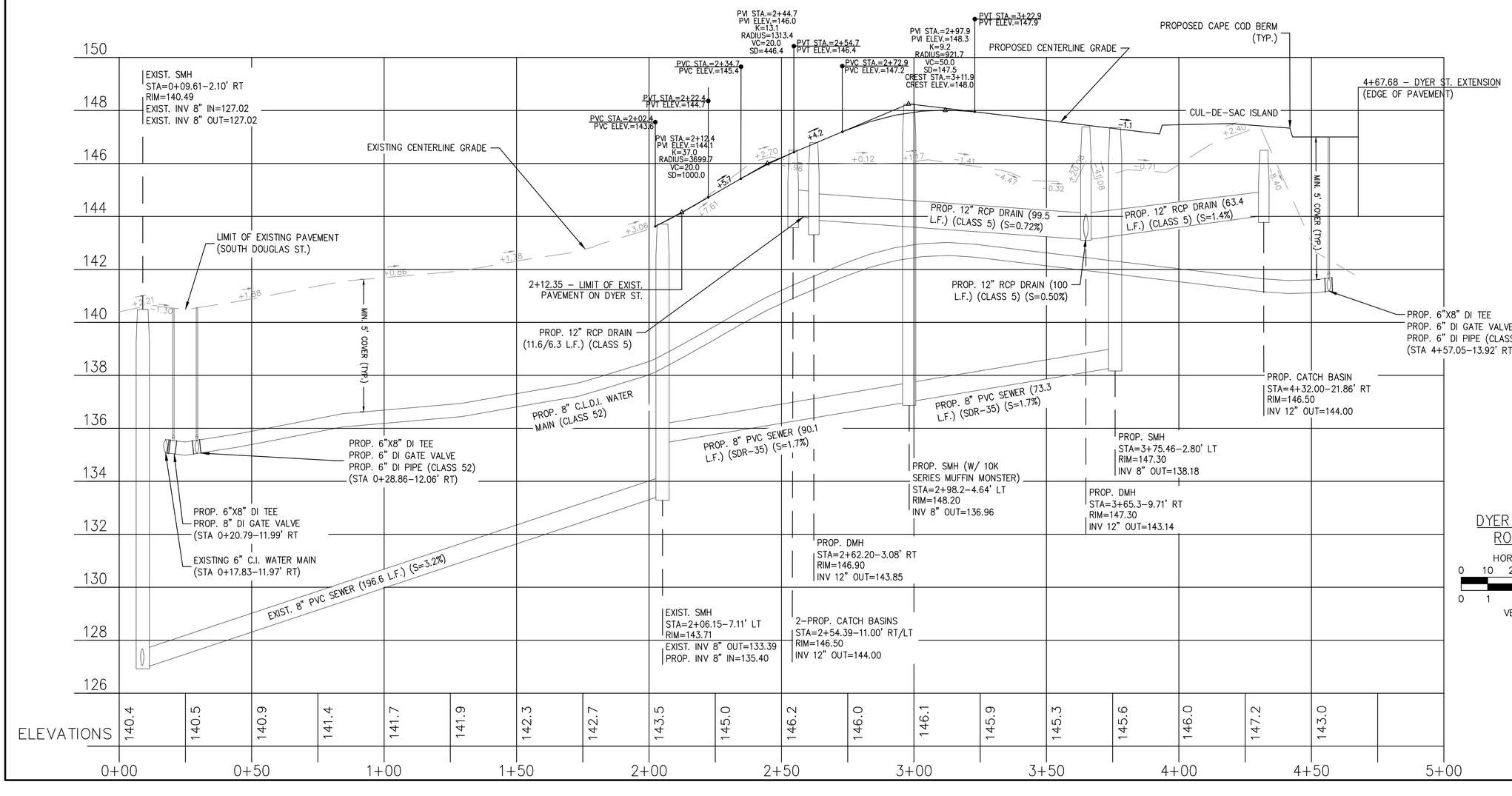
NOTES:

1. ALL MATERIALS SHALL CONFORM WITH MASSDOT AND TOWN OF ROCKLAND SPECIFICATIONS. ALL CONSTRUCTION WORK SHALL BE PERFORMED IN ACCORDANCE WITH MASSDOT AND TOWN OF ROCKLAND SPECIFICATIONS.

*PROVIDE A MINIMUM DISTANCE OF 3' BETWEEN THE WATER MAIN AND ANY DRAIN STRUCTURE, TO PREVENT FREEZING.

DYER STREET EXTENSION CROSS SECTION
STA 2+02.4–4+67.68

NOT TO SCALE



DYER STREET EXTENSION ROADWAY PROFILES

HORIZONTAL SCALE: 1" = 20'
0 10 20 40 80
VERTICAL SCALE: 1" = 2'
0 1 2 4 8

REV	DATE	DESCRIPTION	BY	APP
1	3/15/21	WIDENED ROADWAY	ESS	BCM
2	6/7/21	DRAINAGE REVISION	ESS	BCM
3	6/29/21	DRAINAGE REVISION	ESS	BCM
4	8/6/21	CUL-DE-SAC REVISION	ESS	BCM
5	9/9/21	CUL-DE-SAC REVISION	ESS	BCM

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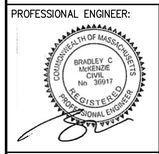
SITE DEVELOPMENT PLAN
PINECREST TOWNHOMES

ASSESSOR'S MAP 34, LOTS 83, 84, 87
88, 89 & 90
DYER STREET
ROCKLAND, MASSACHUSETTS

PROFESSIONAL ENGINEER:



APPLICANT:
GASPAR INVESTMENT INC.
265 WILLIS AVE.
MEDFORD, MASSACHUSETTS 02155

PERMIT PLAN SET

DRAWN BY:	ESS
DESIGNED BY:	ESS
CHECKED BY:	BCM
APPROVED BY:	BCM
DATE:	OCTOBER 23, 2020
SCALE:	AS NOTED
PROJECT NO.:	220-163

DWG. TITLE:

ROADWAY PROFILE

DWG. NO:

C-4

LOCUS MAP
1"=300'

PROP. TEMPORARY SEDIMENTATION BASIN #2
CONTRIBUTORY AREA=28,773 S.F.
PER SECTION 2.2.12 OF 2017 EPA
CONSTRUCTION GENERAL PERMIT:
REQUIRED VOLUME=(28,773 X 3,600 CUBIC FEET/ACRE) / 43,560 S.F./ACRE
=2,377 CUBIC FEET OF STORAGE (MIN.)
TOP OF BASIN=144.0
BOTTOM OF BASIN=141.5

APN 34-97-0 BRIAN R. KILGALLEN TRUST 32 RICE AVE. DEED BK 41555 - 305

APN 34-98-0 RYAN C. & SHANAHAN M. TRS 26 RICE AVE. DEED BK 42388 - 47

APN 34-99-0 LYNDSEY PACIONE 18 RICE AVE. DEED BK - LC120106

APN 34-91-0 PATTI ANN-KING MAYO 8 DYER STREET DEED BK 31125 - 273

APN 34-90-0 WL REALTY TRUST ALEXANDRA MANNION TR. 30 DYER

APN 34-92-0 ROBERT & MARY LUTZ 32 SOUTH DOUGLAS STREET DEED BK 39761 -208

APN 34-81 GEORGE & KAI ... 40 SOUTH DOUGLAS STREET DEED BK 19790 - 48

APN 34-82-0 BRETT J QUINN & JESSICA BILLE 5 DYER STREET DEED BK 38558 - 85

APN 34-80-0 LISA M. MURPHY 46 SOUTH DOUGLAS STREET DEED BK 25828 - 24

APN 34-79-0 KEVIN REAL 54 SOUTH DOUGLAS STREET DEED BK 26919 - 329

APN 34-86-0 TOWN OF ROCKLAND CONSERVATION COMMISSION 242 UNION STREET DEED BK 9704 - 62

APN 34-85-0 540 UNION STREET, LLC 540 UNION STREET DEED BK 44581 - 103

APN 34-75-0 JULIAN LE JR 530 UNION STREET DEED BK 5976 - 159

APN 34-74-0 WILLIAM JR. & COLLEEN ONESSIMO 522 UNION STREET DEED BK 37224 - 205

APN 34-73-0 PATRICK FOLEY 516 UNION STREET DEED BK 44820 - 132

LOT 1
28,515 SF Uplands
75 SF Wetlands
28,590 SF± TOTAL

CURRENT APN'S: 34-87-0, 34-88-0 & 34-89-0 PINECREST ROCKLAND, LLC
28,515± SF UPLAND
75± SF WETLAND
28,590± TOTAL

LOT 2
26,365 SF Uplands
1,207 SF Wetlands
21,879 SF B-1 DISTRICT
27,572 SF± TOTAL

CURRENT APN: 34-84-0 PINECREST ROCKLAND, LLC
26,365± SF UPLAND
1,207± SF WETLAND
27,572± SF TOTAL

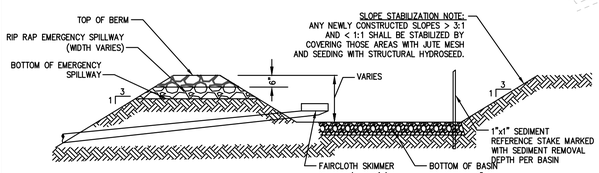
PROP. BUILDING A (7 UNITS)

PROP. BUILDING B (4 UNITS)

PROP. FUELING AND MAINTENANCE AREA (TYP.)
PROP. CONCRETE WASHOUT AREA (TYP.)
PROP. STABILIZED CONSTRUCTION ENTRANCE (TYP.)
PROP. CONSTRUCTION FENCING W/ GATE AT ENTRANCE (TYP.)
PROP. SILT SACK CATCH BASIN INLET PROTECTION (TO BE REMOVED UPON COMPLETION) (TYP.)
PROP. LIMIT OF DUPLEX (TYP.)
PROP. STAGING/MATERIAL STORAGE AREA FOR CONSTRUCTION (TYP.)
PROP. COMPOST SILT SOCK EROSION CONTROL BARRIER (LIMIT OF WORK) (TYP.)
PROP. SILT SACK CATCH BASIN INLET PROTECTION (TYP.) (TO BE REMOVED UPON COMPLETION)
PROP. LIMIT ACCESS EASEMENT (TYP.)
PROP. LIMIT OF MULTI-FAMILY BUILDING (TYP.)
LIMIT OF BORDERING VEGETATED WETLAND RESOURCE (BVW) (TYP.)
PROP. LIMIT OF SUBSURFACE INFILTRATION SYSTEM (TYP.)
PROP. RIP RAP EMERGENCY SPILLWAY (TYP.)
PROP. TEMPORARY SEDIMENTATION BASIN #1
CONTRIBUTORY AREA=23,860 S.F.
PER SECTION 2.2.12 OF 2017 EPA
CONSTRUCTION GENERAL PERMIT:
REQUIRED VOLUME=(23,860 X 3,600 CUBIC FEET/ACRE) / 43,560 S.F./ACRE
=1,972 CUBIC FEET OF STORAGE (MIN.)
TOP OF BASIN=140.0
BOTTOM OF BASIN=138.5

DYER STREET (PRIVATE - 50' WIDE LAYOUT)
SOUTH DOUGLAS STREET (PUBLIC - 50' WIDE LAYOUT)

SCALE: 1" = 30'
0 15 30 60 120



VOLUME REQUIREMENTS FOR TEMPORARY SEDIMENTION BASINS

TEMPORARY SEDIMATATION BASINS SHALL HAVE A MINIMUM VOLUME BASED ON 3,600 Cu. FT. OF STORAGE FOR EACH ACRE DRAINED TO BASIN.

CONSTRUCTION NOTE:
TEMPORARY SEDIMENTATION BASINS SHALL BE INSTALLED AS CLOSE AS POSSIBLE TO LOCATIONS SHOWN ON THE PLAN, BUT SITE CONDITION SUCH AS SOILS, POOL AREA, AND SPILLWAY CONDITIONS SHALL BE CONSIDERED. CONTRACTOR SHALL HAVE THE FLEXIBILITY TO ADJUST LOCATIONS AS LONG AS REQUIRED VOLUME IS PROVIDED.

TEMPORARY SEDIMENTATION BASIN
NOT TO SCALE

CONSTRUCTION PHASE BMP OPERATION AND MAINTENANCE NOTES:

1. STRUCTURAL PRACTICES UTILIZED FOR THE PROJECT WILL INCLUDE SILT SOCK EROSION CONTROL BARRIERS, STABILIZED CONSTRUCTION ENTRANCES, CONCRETE WASH STATIONS, STOCKPILE AREAS, AND INLET PROTECTION.
2. STABILIZATION PRACTICES UTILIZED FOR THE PROJECT WILL INCLUDE TEMPORARY SEEDING, GEOTEXTILES (JUTE MESH), MULCHING, AND PERMANENT SEEDING.
3. OPERATOR PERSONNEL AND/OR ITS CONSULTANTS MUST INSPECT THE CONSTRUCTION SITE AT LEAST ONCE EVERY 7 CALENDAR DAYS OR EVERY 14 CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT ½ INCH OR GREATER. THE INSPECTOR SHOULD REVIEW THE EROSION AND SEDIMENT CONTROLS WITH RESPECT TO THE FOLLOWING:
   A. WHETHER OR NOT THE BMP WAS INSTALLED/PERFORMED CORRECTLY.
   B. WHETHER OR NOT THERE HAS BEEN DAMAGE TO THE BMP SINCE IT WAS INSTALLED OR PERFORMED.
   C. WHAT SHOULD BE DONE TO CORRECT ANY PROBLEMS WITH THE BMP.
4. THE INSPECTOR SHALL COMPLETE THE INSPECTION SCHEDULE AND EVALUATION CHECKLIST FOR FINDINGS AND SHOULD REQUEST THE REQUIRED MAINTENANCE OR REPAIR.
5. ALL SLOPES EXCEEDING 15% RESULTING FROM SITE GRADING SHALL BE BOTH COVERED WITH FOUR INCHES OF TOPSOIL AND PLANTED WITH A VEGETATED COVER SUFFICIENT TO PREVENT EROSION.

ABBREVIATIONS

FFE	FIRST FLOOR ELEVATION
BIT CONC.	BITUMINOUS CONCRETE PAVEMENT
CCB	CAPE COD BERM
CEM. CONC.	CEMENT CONCRETE
C.I.	CAST IRON
C.L.	CEMENT LINED
EP	EDGE OF PAVEMENT
BC	BITUMINOUS CONCRETE CURB
(AM)	AS MEASURED
RET. WALL	RETAINING WALL
CONC.	CONCRETE
RCP	REINFORCED CONCRETE PIPE
VCC	VERTICAL GRANITE CURB
ETW	EDGE OF TRAVEL WAY
MTL	METAL BERM
VCC	VERTICAL CONCRETE CURB
CMP	CORRUGATED METAL PIPE
LSA	LANDSCAPED AREA
TRANS.	TRANSFORMER
GEN.	GENERATOR
HDPE	HIGH-DENSITY POLYETHYLENE

LEGEND

SURVEY SYMBOLS

- REBAR
- ANGLE IRON
- CB/DH — CONCRETE BOUND WITH DRILL HOLE
- SB — STONE BOUND
- SB/DH — STONE BOUND

UTILITY SYMBOLS

- CHIMNEY
- ELECTRIC HAND HOLE
- GUY POLE
- GW — GUY WIRE
- HVAC UNIT
- BUILDING LIGHT W/MAST / BUILDING LIGHT
- TRANSFORMER
- WATER GATE
- EXH — EXHAUST VENT
- AIR VENT
- DRAINAGE SUMP
- EMH — ELECTRIC MANHOLE
- SMH — SEWER MANHOLE
- DMH — DRAIN MANHOLE
- TMH — TELEPHONE MANHOLE
- CBN — DRAINAGE CATCH BASIN
- DOOR WAY THRESHOLD
- HYDRANT
- POST INDICATER VALVE
- UTILITY POLE
- YARD LIGHT
- RIP RAP
- B — BOLLARD
- SIGN
- FA — FIRE ALARM
- DECIDUOUS TREE
- CONIFEROUS TREE

LINE DESIGNATORS

- W — WATER MAIN
- OHW — OVERHEAD WIRES
- G — GAS LINE
- WS — WATER SERVICE
- E — UNDERGROUND ELECTRIC
- D — STORM DRAIN LINE
- S — SANITARY SEWER LINE
- DRAINAGE SWALE
- X — CHAIN LINK FENCE

CONSTRUCTION SEQUENCE

TO PREVENT EXCESSIVE EROSION AND SILTING, THE FOLLOWING CONSTRUCTION SEQUENCE COUPLED WITH OTHER WIDELY ACCEPTED PRINCIPALS FOR REDUCING EROSION AND SEDIMENTATION SHALL BE IMPLEMENTED IN THE DEVELOPMENT OF THE SITE.

1. THE CONTRACTOR SHALL COORDINATE A PRE-CONSTRUCTION MEETING PRIOR TO ANY CONSTRUCTION ACTIVITY.
2. STABILIZATION PRACTICES FOR EROSION AND SEDIMENT CONTROL SHALL BE INSTALLED PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES. REFER TO "EROSION AND SEDIMENTATION CONTROL" SECTION OF THIS PLAN & PLACE SILTATION FENCE ON THE SITE PLANS.
3. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE.
4. CLEAR AND GRUB UP AS REQUIRED FOR THE CONSTRUCTION OF THE ROADWAY, PARKING AREAS AND RELATED INFRASTRUCTURE.
5. CONSTRUCT TEMPORARY SEDIMENTATION BASINS AND EROSION CONTROL MITIGATION. EXCAVATE TOPSOIL AND SUBSOIL FROM CUT AND FILL AREAS AND STOCKPILE ON SITE IN LOCATIONS SHOWN ON THE PLAN. CONSIDERATION SHOULD BE GIVEN TO LOCATING STOCKPILES ON THE UPHILL SIDE OF DISTURBED AREAS, WHERE POSSIBLE, TO ACT AS TEMPORARY DIVERSIONS.
6. CONSTRUCT CUT AND FILL AREAS, INSTALLING STRAWBALE CHECK DAMS AT TOES OF ALL 3:1 OR GREATER SLOPES, AND AT ENDS OF ALL CUT AREAS. ALL FILL WILL BE INSTALLED USING 12" MAXIMUM COMPACTION LIFTS. PLACE ALL SLOPE PROTECTION WHERE INDICATED ON THE PLAN. THE STORMWATER SUBSURFACE INFILTRATION SYSTEMS SHALL BE CONSTRUCTED IMMEDIATELY AFTER THE ROADWAY ROUGH GRADING IS COMPLETED AND THE AREA HAS BEEN CLEARED OF VEGETATION.
7. INSTALL CLOSED DRAINAGE SYSTEM ON DYER ST., AND EXTEND OTHER UTILITIES FROM SOUTH DOUGLAS STREET. UTILITIES SHALL BE STUBBED AT PROPERTY LINES AS NEEDED. ALL CATCH BASINS SHALL BE COVERED WITH SILTSACK OR EQUIVALENT INLET PROTECTION.
8. GRADE ROADWAY AND LOTS TO SUBGRADE ELEVATION AND CONSTRUCT SIDE SLOPES. APPLY TEMPORARY STABILIZATION MEASURES WHERE WARRANTED. REFER TO "EROSION AND SEDIMENTATION CONTROL" SECTION OF THIS PLAN.
9. EXCAVATE AND CONSTRUCT FOUNDATIONS FOR MULTI-FAMILY BUILDINGS (BUILDINGS A & B). BUILDING A WILL PRECEDE BUILDING B.
10. FINALIZE CONSTRUCTION OF STORMWATER SUBSURFACE INFILTRATION SYSTEMS WITH OUTLET CONTROL STRUCTURES PRIOR TO FALL 2021.
11. PLACE GRAVEL SUBBASE ON ROADWAY AND MULTI-FAMILY LOTS (BUILDINGS A & B) BY FALL 2021. BUILDING A WILL PRECEDE BUILDING B.
12. PLACE THE BITUMINOUS CONCRETE BINDER COURSE ON ROADWAY AND PARKING AREAS FOR MULTI-FAMILY LOTS (BUILDINGS A & B) BY FALL 2021. BUILDING A WILL PRECEDE BUILDING B.
13. CONSTRUCT MULTI-FAMILY STRUCTURES WITH ASSOCIATED UTILITY CONNECTIONS AND FINALIZE MULTI-FAMILY LOT GRADING.
14. PLACE TEMPORARY SEEDING ON DISTURBED AREAS OF THE DUPLEX LOTS (APN'S 34-83 & 34-90) BY FALL 2021 TO STABILIZE THE SITE AND PROVIDE PROTECTION FROM EROSION OVER WINTER MONTHS.
15. EXCAVATE AND CONSTRUCT FOUNDATIONS FOR DUPLEX BUILDINGS (APN'S 34-83 & 34-90) IN SPRING 2022.
16. CONSTRUCT DUPLEX STRUCTURES WITH ASSOCIATED UTILITY CONNECTIONS.
17. GRADE SLOPES AND STABILIZE CUT AREAS AT TOE OF SLOPES. BLEND ALL SLOPES INTO EXISTING TOPOGRAPHY AND LOAM AND SEED ALL DISTURBED AREAS. SLOPES GREATER THAN 3:1 SHALL BE STABILIZED WITH JUTE MESH.
18. COMPLETE FINE GRADING OF SHOULDERS AND PLACE PAVEMENT IN MISCELLANEOUS AREAS.
19. PLACE THE FINAL WEARING COURSE OF PAVEMENT.
20. REMOVE TEMPORARY EROSION CONTROL DEVICES ONCE ADEQUATE GROWTH IS ESTABLISHED. ADEQUATE GROWTH IS DEFINED AS VEGETATION COVERING 75% OR MORE OF THE GROUND SURFACE.

GENERAL CONSTRUCTION NOTES

1. STORMWATER SUBSURFACE INFILTRATION SYSTEMS WILL BE DELINEATED BY STAKES WITH CAUTION TAPE AND/OR CONSTRUCTION FENCING PRIOR TO CONSTRUCTION TO PROTECT FROM SOIL COMPACTION. NO HEAVY EQUIPMENT WILL BE ALLOWED IN THIS AREA. CARE SHOULD BE TAKEN TO PREVENT SEDIMENT INTRUSION INTO THE SUBSURFACE INFILTRATION SYSTEM AND CLOSED DRAINAGE SYSTEM DURING CONSTRUCTION AND EXCAVATION.
2. TOPSOIL AND EXCAVATED STOCKPILES WILL BE STORED IN SEPARATE STOCKPILE AREAS. THE CONTRACTOR MAY ADJUST THE SIZE AND LOCATION OF STOCKPILE AREAS AS NEEDED.
3. STUMPS, LOGS AND DEBRIS HINDERING CONSTRUCTION ACTIVITY SHALL BE REMOVED PRIOR TO CONSTRUCTION AND DISPOSED OF IN ACCORDANCE WITH LOCAL AND STATE REGULATIONS.
4. UNSUITABLE MATERIAL INCLUDING THE EXISTING STOCKPILE WILL BE REMOVED AND/OR RELOCATED FROM SITE PRIOR TO CONSTRUCTION OF INDIVIDUAL LOTS.

REV	DATE	DESCRIPTION	BY	APP
1	3/15/21	WIDENED ROADWAY	ESS	BCM
2	6/7/21	DRAINAGE REVISION	ESS	BCM
3	6/29/21	DRAINAGE REVISION	ESS	BCM
4	8/6/21	CUL-DE-SAC REVISION	ESS	BCM
5	9/9/21	CUL-DE-SAC REVISION	ESS	BCM

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SITE DEVELOPMENT PLAN
PINECREST TOWNHOMES

ASSESSOR'S MAP 34, LOTS 83, 84, 87
88, 89 & 90
DYER STREET
ROCKLAND, MASSACHUSETTS

PROFESSIONAL ENGINEER:

BRADLEY C. MCKENZIE
CIVIL
No. 39917
REGISTERED PROFESSIONAL ENGINEER
COMMONWEALTH OF MASSACHUSETTS

APPLICANT:
GASPAR INVESTMENT INC.
265 WILLIS AVE.
MEDFORD, MASSACHUSETTS 02155

PERMIT PLAN SET

DRAWN BY:	ESS
DESIGNED BY:	ESS
CHECKED BY:	BCM
APPROVED BY:	BCM
DATE:	OCTOBER 23, 2020
SCALE:	1"=30'
PROJECT NO.:	220-163

DWG. TITLE:
EROSION AND SEDIMENT CONTROL PLAN

DWG. NO:
ESC-1

PROPOSED SEED MIX WITHIN THE 100 FOOT BUFFER ZONE TO CONSIST OF THE SEED MIX PROFILE BELOW WHERE EVER

ERNST SEEDS 800-873-3321

SHOWY NORTHEAST NATIVE WILDLIFE & GRASS SEED MIX

General Product Information:

The native wildflowers and some grasses provide a gorgeous display of color from spring to fall. Designed for upland sites with well-drained soils and full sun to semi-shaded areas; ideal for attracting butterflies and hummingbirds. Mix formulations are subject to change without notice depending on the availability of existing and new products. While the formula may change, the guiding philosophy and function of the mix will not.

Item Number: ERNMX-153
Product Categories:
Pollinator Favorites, Uplands & Meadows
Height: 1.0 – 5.0 Ft
Seeding Rate: 20 lbs/acre with 30 lbs/acre of a cover crop. For a cover crop use either grain oats (1 Jan to 31 Jul) or grain rye (1 Aug to 31 Dec).

ABBREVIATIONS

FFE	FIRST FLOOR ELEVATION
BIT CONC.	BITUMINOUS CONCRETE PAVEMENT
CCB	CAPE COD BERM
CEM. CONC.	CEMENT CONCRETE
C.I.	CAST IRON
C.L.	CEMENT LINED
EP	EDGE OF PAVEMENT
BC	BITUMINOUS CONCRETE CURB
(AM)	AS MEASURED
RET WALL	RETAINING WALL
CONC.	CONCRETE
RCP	REINFORCED CONCRETE PIPE
VGC	VERTICAL GRANITE CURB
ETW	EDGE OF TRAVEL WAY
MTL	METAL BERM
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CMP	CORRUGATED METAL PIPE
LSA	LANDSCAPED AREA
TRANS.	TRANSFORMER
GEN.	GENERATOR
HDPE	HIGH-DENSITY POLYETHYLENE

LEGEND

SURVEY SYMBOLS
- REBAR
- ANGLE IRON
- CB/DH — CONCRETE BOUND WITH DRILL HOLE
- SB — STONE BOUND
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UTILITY SYMBOLS
- CHIMNEY
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- W — WATER MAIN
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- S — SANITARY SEWER LINE
- DRAINAGE SWALE
- X — CHAIN LINK FENCE

SCALE: 1" = 30'
0 15 30 60 120

Proposed Native Plant Legend

Symbol	Qty	Common	Botanical	Size
	7	Black Chokeberry	Aronia melanocarpa	1.5 to 2 ft. high
	4	Eastern Red Cedar	Juniperus virginiana	6 to 7 ft. high
	12	Highbush Blueberry	Vaccinium corymbosum	1.5 to 2 ft. high
	15	Inkberry	Ilex glabra	1.5 to 2 ft. high
	18	Meadowsweet	Spiraea latifolia	1.5 to 2 ft. high
	6	Red Maple	Acer Rubrum	1 to 1.5" caliper
	2	Red Oak	Quercus rubra	1 to 1.5" caliper
	5	Shadbush	Amelanchier canadensis	1.5 to 2 ft. high
	10	Sweet Fern	Comptonia peregrina	1 to 2 ft. high
	8	Sweet Gum	Liquidambar Styraciflua	1 to 1.5" caliper
	21	Sweet Pepperbush	Clethra alnifolia	1.5 to 2 ft. high
	6	Witch Hazel	Hamamelis virginiana	1.5 to 2 ft. high

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88, 89 & 90
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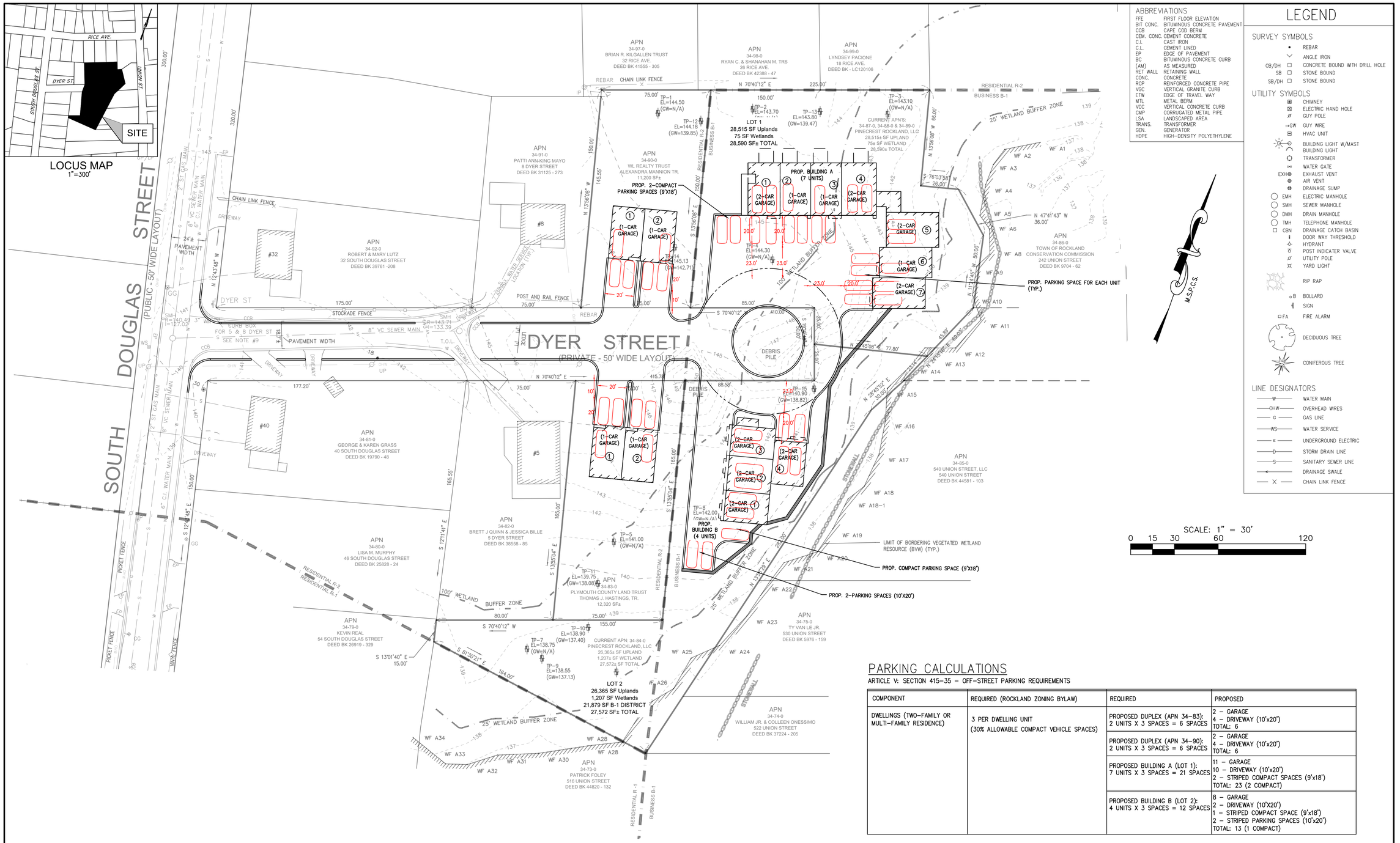
DWG. TITLE:
LANDSCAPING PLAN

DWG. NO:
LA-1



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PARKING CALCULATIONS

ARTICLE V: SECTION 415-35 - OFF-STREET PARKING REQUIREMENTS

COMPONENT	REQUIRED (ROCKLAND ZONING BYLAW)	REQUIRED	PROPOSED
DWELLINGS (TWO-FAMILY OR MULTI-FAMILY RESIDENCE)	3 PER DWELLING UNIT (30% ALLOWABLE COMPACT VEHICLE SPACES)	PROPOSED DUPLEX (APN 34-83): 2 UNITS X 3 SPACES = 6 SPACES	2 - GARAGE 4 - DRIVEWAY (10'x20') TOTAL: 6
		PROPOSED DUPLEX (APN 34-90): 2 UNITS X 3 SPACES = 6 SPACES	2 - GARAGE 4 - DRIVEWAY (10'x20') TOTAL: 6
		PROPOSED BUILDING A (LOT 1): 7 UNITS X 3 SPACES = 21 SPACES	11 - GARAGE 10 - DRIVEWAY (10'x20') 2 - STRIPED COMPACT SPACES (9'x18') TOTAL: 23 (2 COMPACT)
		PROPOSED BUILDING B (LOT 2): 4 UNITS X 3 SPACES = 12 SPACES	8 - GARAGE 2 - DRIVEWAY (10'X20') 1 - STRIPED COMPACT SPACE (9'x18') 2 - STRIPED PARKING SPACES (10'x20') TOTAL: 13 (1 COMPACT)

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PINECREST TOWNHOMES

ASSESSOR'S MAP 34, LOTS 83, 84, 87
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CHECKED BY:	BCM
APPROVED BY:	BCM
DATE:	MARCH 15, 2021
SCALE:	1"=30'
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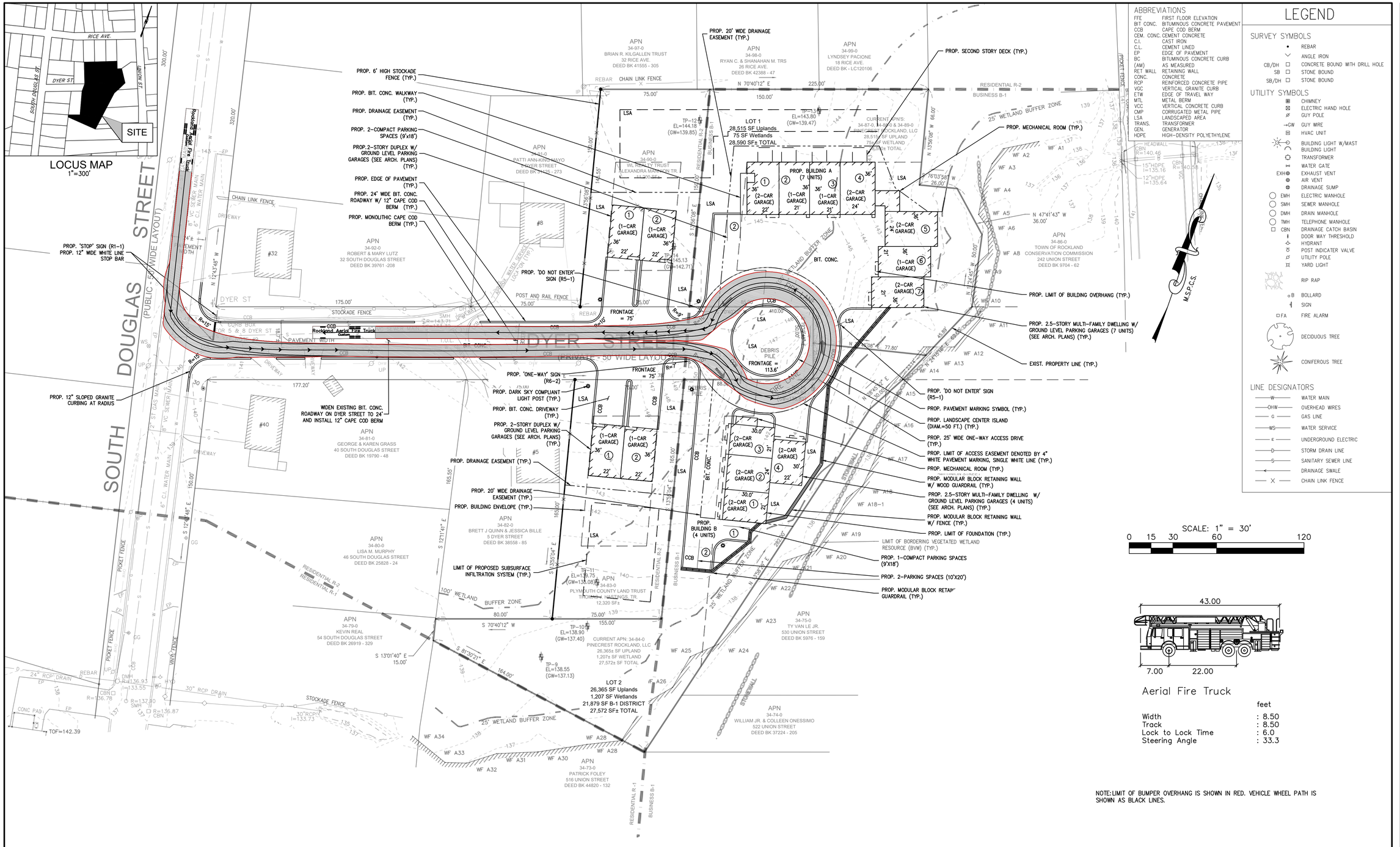
DWG. TITLE:

PARKING PLAN

DWG. NO:

SK-1



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SCALE: 1" = 30'

0 15 30 60 120

Aerial Fire Truck

	feet
Width	: 8.50
Track	: 8.50
Lock to Lock Time	: 6.0
Steering Angle	: 33.3

NOTE: LIMIT OF BUMPER OVERHANG IS SHOWN IN RED. VEHICLE WHEEL PATH IS SHOWN AS BLACK LINES.

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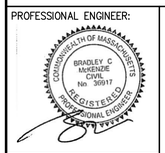

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PERMIT PLAN SET

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DATE:	OCTOBER 23, 2020
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PROJECT NO.:	220-163

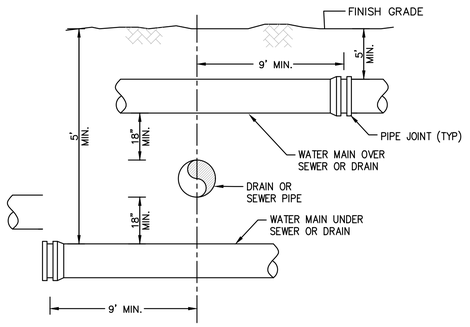
DWG. TITLE:

FIRE TRUCK TURNING PLAN

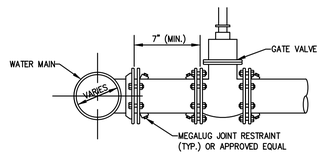
DWG. NO:

T-1

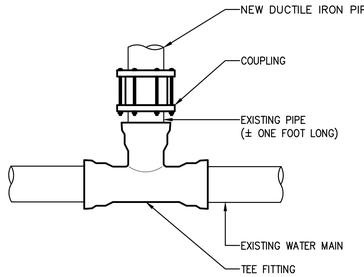
M:\MCK\2020-PROJECTS\220-163 GASPAR, MAE - DYER STREET, ROCKLAND\DWGS\CIVIL\160_SHEET4-CUL-DE-SAC-DRAFT.DWG



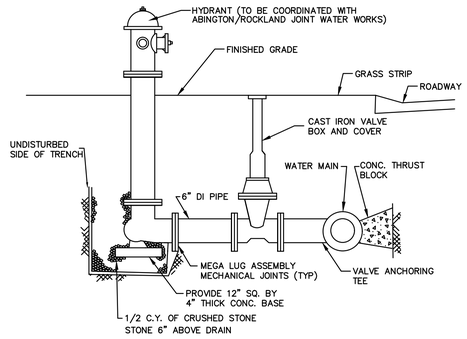
SEWER OR DRAIN CROSSING DETAIL
N.T.S.



MECHANICAL JOINT RESTRAINT DETAIL
N.T.S.



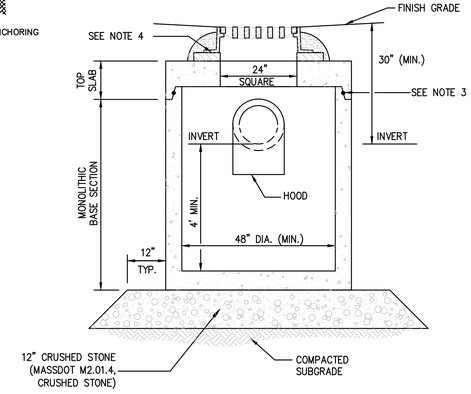
TEE CONNECTION DETAIL
N.T.S.



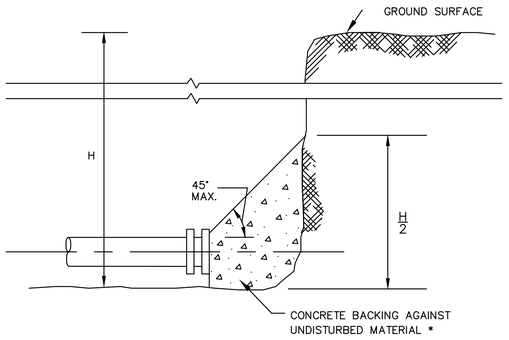
HYDRANT DETAIL
SCALE: N.T.S.

NOTES:

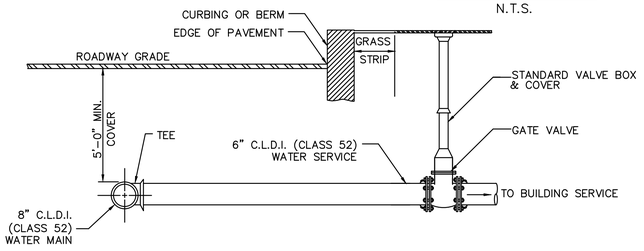
1. ALL SECTIONS SHALL BE DESIGNED FOR HS-20 LOADING.
2. PROVIDE DOGHOUSE OPENING FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. TOP SLAB SHALL NOT REST DIRECTLY ON PIPE. GROUT ALL PIPE CONNECTIONS (NON-SHRINK GROUT).
3. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
4. CATCH BASIN FRAME AND GRATE (4" DEPTH) SHALL BE SET IN FULL MORTAR BED.
5. ADJUST TO FINISH GRADE WITH CLAY BRICK AND MORTAR AS REQUIRED.



SHALLOW CATCH BASIN
SCALE: N.T.S.



TYPICAL WATER MAIN PLUG
NOT TO SCALE



MAXIMUM SIZE TAPPED CONNECTION *

WATER MAIN DIAMETER	MAXIMUM TAP DIAMETER
4"	1/2"
6"	3/4"
8"	3/4"
12"	1"

NOTE:
WHERE NO PAVED SIDEWALKS EXIST, CURB STOPS AND VALVE BOXES SHALL BE INSTALLED IN THE STREET.

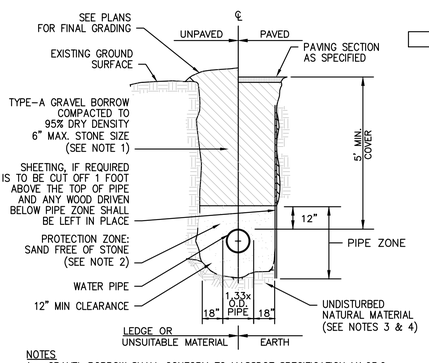
* WHERE THE SIZE OF THE CONNECTION EXCEEDS THAT GIVEN IN THE TABLE A BOSS SHALL BE PROVIDED OR THE TAP SHALL BE MADE BY MEANS OF MUTIPLE CORP. STOPS AND BRANCH FITTINGS, TAPPED TEE, OR TAPPED SADDLE.

WATER SERVICE CONNECTION (BUILDINGS A & B)
N.T.S.

GENERAL NOTES

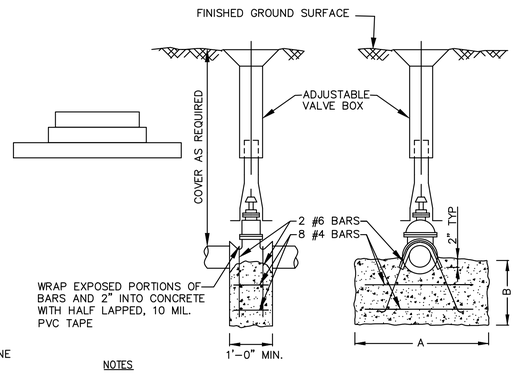
ALL WATER MAIN MATERIALS AND INSTALLATION SHALL BE IN ACCORDANCE WITH THE ABINGTON ROCKLAND JOINT WATER WORKS DEPARTMENT RULES AND REGULATIONS.

1. IF SHEETING IS USED, IT SHALL BE CUT OFF NO MORE THAN 12" ABOVE TOP OF PIPE.
2. ALL PIPES SHALL BE PRESSURE TESTED AT 200 PSI WORKING PRESSURE FOR A MINIMUM DURATION OF TWO HOUR.
3. WATER SYSTEM IS TO BE DISINFECTED TO 50 P.P.M. AVAILABLE CHLORINE AND AFTER 24 HOURS TO 25 P.P.M. OR AS REQUIRED BY ABINGTON ROCKLAND JOINT WATER WORKS SUPERINTENDENT/ENGINEER.
4. WATER PIPE IS TO BE CEMENT LINED DUCTILE IRON "TYTON" OR EQUAL TYPE JOINT, CONFORMING TO A.N.S.I./A.W.W.A. C150/A21.50, CLASS 52, AS APPROVED BY THE ABINGTON ROCKLAND JOINT WATER WORKS SUPERINTENDENT/ENGINEER.
5. ALL PIPING SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH A.W.W.A. STANDARDS PRIOR TO PAVING IF PAVING ABOVE TRENCH IS REQUIRED.
6. BACKFILL IS TO BE COMPACTED TO 90% MAXIMUM DRY DENSITY BY AASHTO T-180 D.
7. ALL WATER PIPE SHALL BE LAID WITH A MINIMUM OF 5 FEET OF COVER OF APPROVED MATERIALS.
8. ALL HYDRANT LOCATIONS ARE TO BE APPROVED BY FIRE DEPARTMENT.
9. RESULTS FROM PRESSURE TESTING AND DISINFECTION SHALL BE FURNISHED TO THE DIRECTOR OF PUBLIC WORKS FOR APPROVAL PRIOR TO WATER BEING TURNED ON.
10. ALL WORK SHALL BE IN CONFORMANCE WITH ABINGTON ROCKLAND JOINT WATER WORKS DEPARTMENT STANDARDS.
11. ALL PERMITS REQUIRED FOR STREET OPENINGS AND WATER MAIN TAPPING MUST BE OBTAINED.
12. NO WATER WILL BE TURNED ON IN THE PROJECT WITHOUT ABINGTON ROCKLAND JOINT WATER WORKS DEPARTMENT APPROVAL.



NOTES
1. GRAVEL BORROW SHALL CONFORM TO MASSDOT SPECIFICATION M1.03.0.
2. SAND BEDDING SHALL CONFORM TO MASSDOT SPECIFICATIONS.
3. SUBGRADE SHALL CONSIST OF NATIVE SOIL OR IMPORTED SOIL CONFORMING TO THE MASSDOT SPECIFICATION FOR ORDINARY BORROW AND SHALL BE FREE OF ANY UNSUITABLE SOILS OR MATERIAL.
4. UNSUITABLE SOIL OR MATERIAL SHALL INCLUDE BUT NOT BE LIMITED TO PEAT, MUCK, BROKEN PAVEMENT, STUMPS, LOGS, CONSTRUCTION DEBRIS OR ANY OTHER DELETERIOUS MATERIAL.

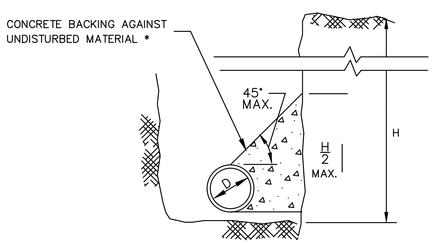
TYPICAL WATER TRENCH DETAIL
SCALE: N.T.S.

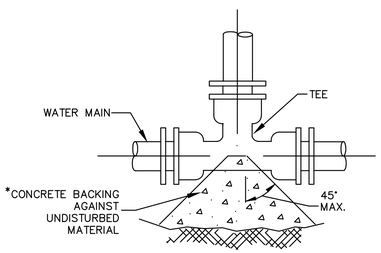


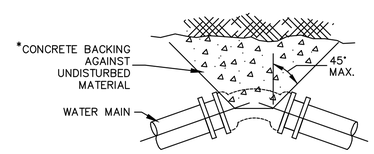
NOTES
1. FLANGES, BOLTS, & NUTS SHALL BE KEPT CLEAR OF CONCRETE
2. VALVES SHALL OPEN TO THE RIGHT.

SIZE OF GATE VALVE	ANCHOR BLOCK DIMENSIONS (FT.)		
	A	B	
		200 PSI TEST	250 PSI TEST
3"	1.5	1.5	2.0
4"	2.0	1.5	2.0
6"	3.0	1.5	2.0
8"	3.0	1.5	2.0
10"	3.0	2.0	2.5
12"	3.5	2.0	2.5

WATER GATE DETAIL
NOT TO SCALE







* SEE THRUST BLOCK BEARING AREAS TABLE FOR THE AREA OF CONCRETE REQUIRED.

TYPICAL WATER MAIN THRUST BLOCK DETAILS
NOT TO SCALE

THRUST BLOCK BEARING AREAS FOR WATER PIPE

TABLE OF BEARING AREAS IN SQ. FT. AGAINST UNDISTURBED MATERIAL FOR WATER MAIN FITTINGS*			
SIZE OF MAIN (IN.)	90° BEND	TEES AND PLUGS	45° BEND
6	4	2.5	2
8	6	4	3
12	12	9	7
16	21	16	12

* TYPE OF SOIL IS MEDIUM CLAYEY, 6 OR MORE BLOWS PER FOOT, OR LOOSE GRANULAR, 9 OR MORE BLOWS PER FOOT. SOIL CONDITIONS OTHER THAN THOSE GIVEN WILL REQUIRE LARGER BEARING AREAS.

NOTES:
1. FOR FITTINGS WITH LESS THAN 45 DEFLECTION, USE BEARING AREAS FOR 45 BEND.
2. BEARING AREAS BASED ON HORIZONTAL PASSIVE SOIL PRESSURE OF 2000 P.S.F AND INTERNAL WATER PRESSURE OF 150 P.S.I.G. JOINTS SHALL NOT BE ENCASED IN CONCRETE. BEARING AREAS MAY BE DIREGARDED FOR TRENCHES IN ROCK WHERE THE TOP OF THE ROCK FACE IS AT OR ABOVE THE CROWN OF THE PIPE. HOWEVER, CONCRETE BACKING SHALL BE PLACED BETWEEN THE PIPE AND THE ROCK FACE.
3. THE CONTRACTOR SHALL SUBMIT 2 WEEKS IN ADVANCE OF PLACEMENT, WORKING DRAWINGS FOR EACH THRUST BLOCK TO THE ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.
4. ALL TEES, GATE VALVES, HYDRANTS AND FITTINGS SHALL BE MECHANICAL JOINTS WITH MEGA-LUGS.
5. THRUST BLOCKS SHALL BE BARREL BLOCKS.

REV	DATE	DESCRIPTION	BY	APP
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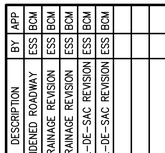
3	6/29/21	DRAINAGE REVISION	ESS	BCM
4	8/6/21	CUL-DE-SAC REVISION	ESS	BCM
5	9/9/21	CUL-DE-SAC REVISION	ESS	BCM

MCKENZIE ENGINEERING GROUP
Assinippi Office Park
150 Longwater Drive, Suite 101
Norwell, MA 02061
P: 781.792.3900
F: 781.792.0333
www.mckeng.com

SITE DEVELOPMENT PLAN
PINECREST TOWNHOMES

ASSESSOR'S MAP 34, LOTS 83, 84, 87
88, 89 & 90
DYER STREET
ROCKLAND, MASSACHUSETTS

PROFESSIONAL ENGINEER:



APPLICANT:
GASPAR INVESTMENT INC.
265 WILLIS AVE.
MEDFORD, MASSACHUSETTS 02155

PERMIT PLAN SET

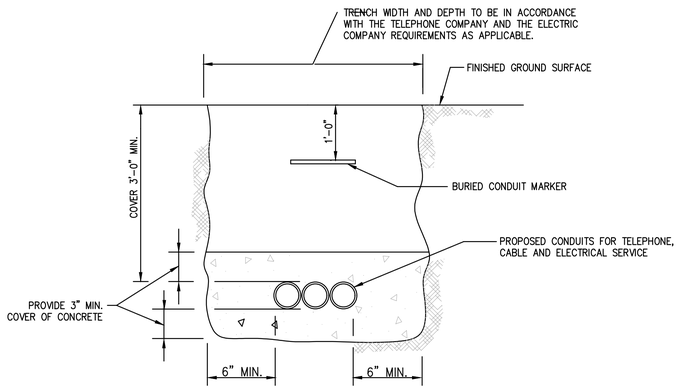
DRAWN BY:	ESS
DESIGNED BY:	ESS
CHECKED BY:	BCM
APPROVED BY:	BCM
DATE:	OCTOBER 23, 2020
SCALE:	
PROJECT NO.:	220-163

DWG. TITLE:

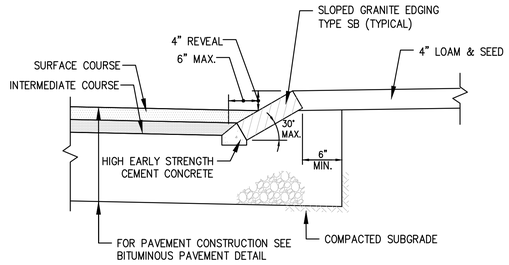
CONSTRUCTION DETAILS

DWG. NO:

D-1



TYPICAL ELECTRIC/TELEPHONE/CABLE CONDUIT (US-UTILITY SERVICE)
SCALE: N.T.S.



SLOPED GRANITE CURB DETAIL
SCALE: N.T.S.

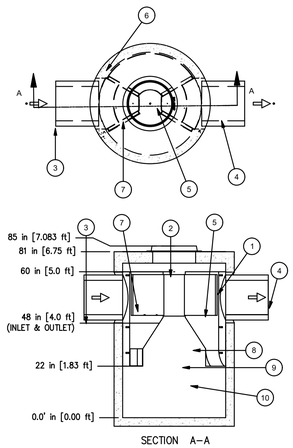
Hydro International
Stormwater Solutions
94 Hutchins Drive
Portland, Maine 04102
Tel: (207) 756-6200
Fax: (207) 756-6212
stormwaterinquiry@hydro-int.com

MANHOLE WALL AND SLAB THICKNESS ARE NOT TO SCALE.

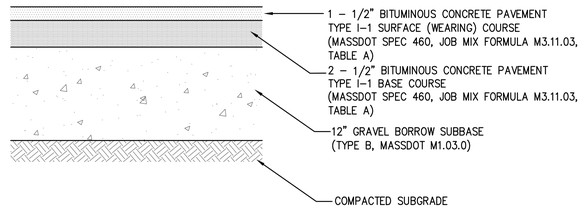
CONTACT HYDRO INTERNATIONAL FOR A BOTTOM OF STRUCTURE ELEVATION PRIOR TO SETTING FIRST DEFENSE MANHOLE.

CONTRACTOR TO CONFIRM RIM, PIPE INVERTS, PIPE DIA. AND PIPE ORIENTATION PRIOR TO RELEASING UNIT TO FABRICATION.

Parts List			
ITEM	QTY.	DESCRIPTION	SIZE (in)
1	2	I.D. CONCRETE MANHOLE	48
2	2	INLET CHUTE (W/ FLOATABLES TRAP)	
3	2	OUTLET CHUTE	
4	2	INLET PIPE (BY OTHERS)	12
5	2	OUTLET PIPE (BY OTHERS)	12
6	2	HIGH FLOW BYPASS	
7	2	FRAME AND COVER (OR GRATE)	

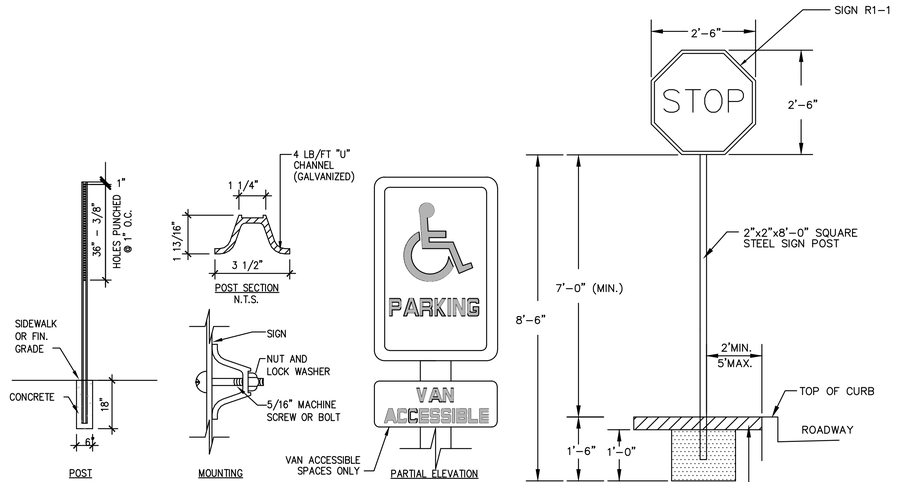


4' DIAMETER FIRST DEFENSE UNIT (FD-4HC)
N.T.S.

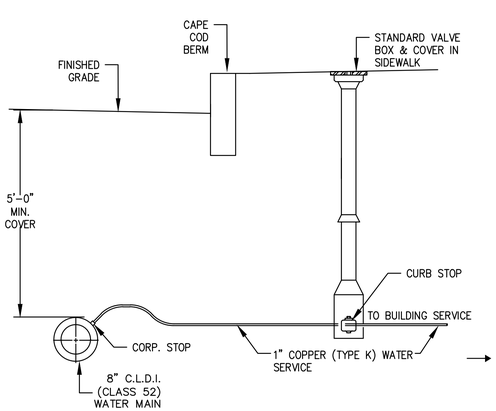


PARKING AREA PAVEMENT DETAIL
SCALE: N.T.S.

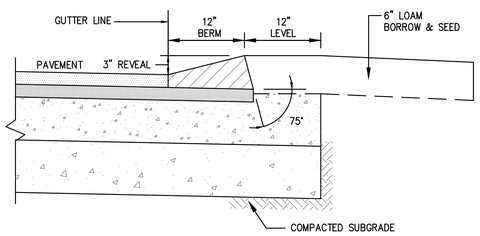
NOTES:
1. ALL SECTIONS SHALL BE DESIGNED FOR HS-20 LOADING.
2. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
3. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
4. CATCH BASIN FRAME AND GRATE SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM)



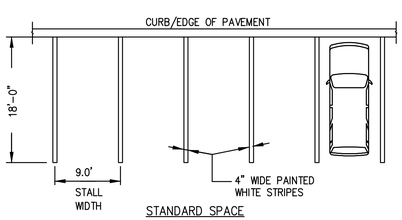
SIGN DETAIL
SCALE: N.T.S.



WATER SERVICE CONNECTION DETAIL (DUPLEXES)
SCALE: N.T.S.



MONOLITHIC BITUMINOUS CONCRETE BERM (CAPE COD BERM) DETAIL
SCALE: N.T.S.

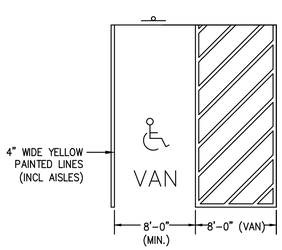


STANDARD SPACE

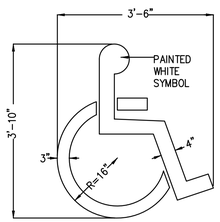
NOTE: PER ROCKLAND ZONING BYLAW: ALL PARKING SPACES AS REQUIRED BY THIS BYLAW SHALL BE A MINIMUM OF 10' IN WIDTH BY 20' IN LENGTH FOR FULL SIZE VEHICLES; AND 9' IN WIDTH BY 18' IN LENGTH FOR COMPACT VEHICLES. THE RATIO SHALL BE 30% COMPACT VEHICLES TO 70% FULL SIZE VEHICLE SPACES

*FOR THIS SUBMISSION STRIPED PARKING SPACES SHALL BE COMPACT.

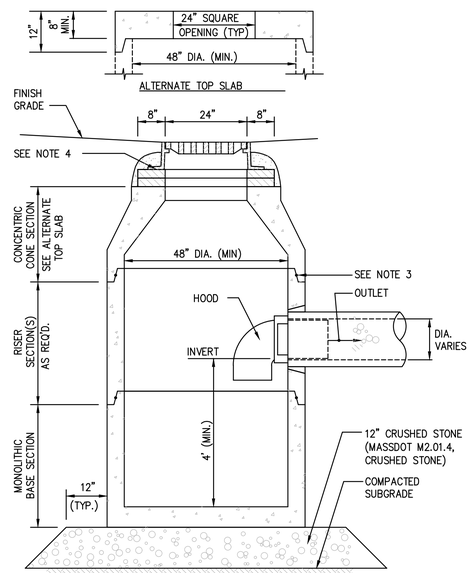
TYPICAL STRIPING DETAILS
SCALE: N.T.S.



HANDICAP PARKING STALL DETAIL
SCALE: N.T.S.



PAINTED HANDICAP SYMBOL DETAIL
SCALE: N.T.S.



CATCH BASIN W/HOOD
SCALE: N.T.S.

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SITE DEVELOPMENT PLAN
PINECREST TOWNHOMES

ASSESSOR'S MAP 34, LOTS 83, 84, 87
88, 89 & 90
DYER STREET
ROCKLAND, MASSACHUSETTS

PROFESSIONAL ENGINEER:
BRADLEY C. McKENZIE, CIVIL, No. 39017, COMMONWEALTH OF MASSACHUSETTS, REGISTERED PROFESSIONAL ENGINEER

APPLICANT:
GASPAR INVESTMENT INC.
265 WILLIS AVE.
MEDFORD, MASSACHUSETTS 02155

PERMIT PLAN SET

DRAWN BY:	ESS
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CHECKED BY:	BCM
APPROVED BY:	BCM
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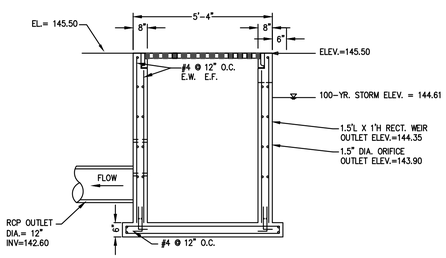
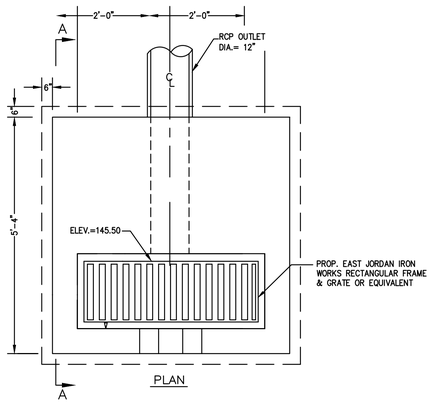
PROJECT NO.:	220-163

DWG. TITLE:
CONSTRUCTION DETAILS

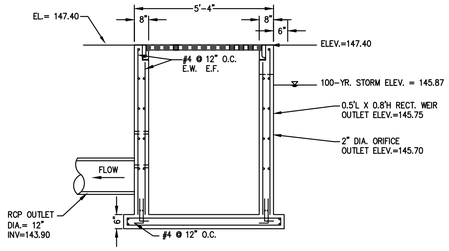
DWG. NO:
D-2



SECTION A-A



PLAN



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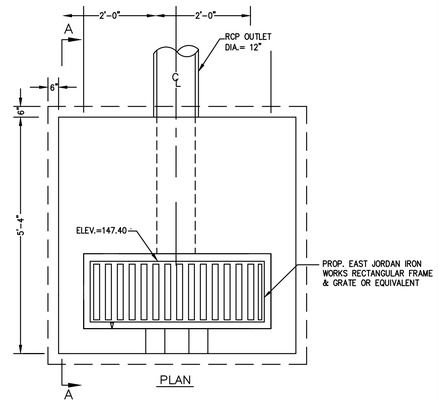
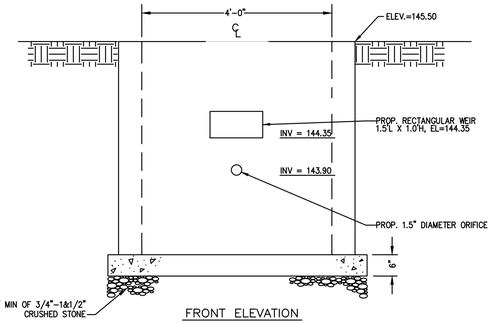
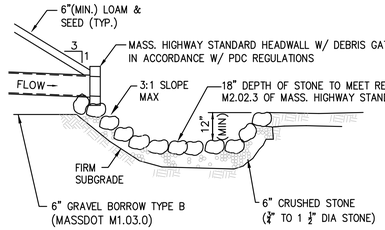


PLAN

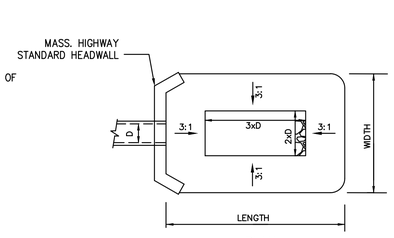


FRONT ELEVATION

SUBSURFACE INFIL. #1 OUTLET CONTROL STRUCTURE
SCALE: N.T.S.



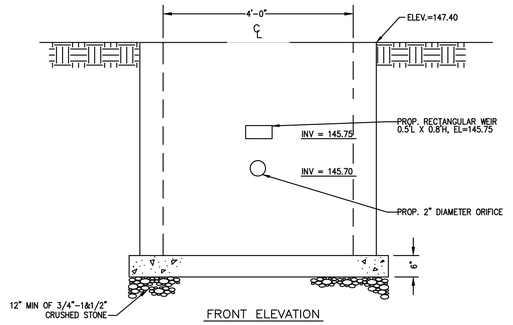
SECTION



PLAN

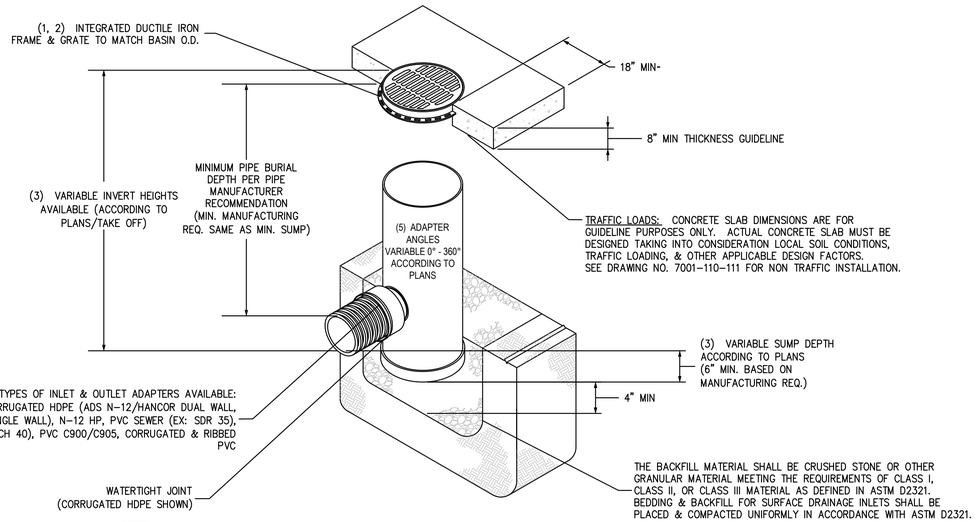
DRAINAGE STRUCTURE	D=PIPE DIA.	LENGTH	WIDTH	MIN. STONE SIZE
FES-1	12"	9.0'	8.0'	8"
FES-2	12"	9.0'	8.0'	8"

TYPICAL SEDIMENT TRAP DETAIL
SCALE: N.T.S.



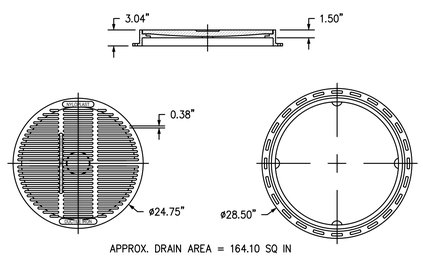
FRONT ELEVATION

SUBSURFACE INFIL. #2 OUTLET CONTROL STRUCTURE
SCALE: N.T.S.



1 - GRATES/SOLID COVER SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
2 - FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
3 - DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS. RISERS ARE NEEDED FOR BASINS OVER 84" DUE TO SHIPPING RESTRICTIONS. SEE DRAWING NO. 7001-110-065.
4 - DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS N-12/HANCOR DUAL WALL), N-12 HP & PVC SEWER.
5 - ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 360°. TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7001-110-012.

NYLOPLAST 24" DRAIN BASIN
SCALE: N.T.S.



APPROX. DRAIN AREA = 164.10 SQ IN
APPROX. WEIGHT WITH FRAME = 99.50 LBS

FRAME AND GRATE
SCALE: N.T.S.

REV	DATE	DESCRIPTION	BY	APP
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5	9/9/21	CUL-DE-SAC REVISION	ESS	BCM

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SITE DEVELOPMENT PLAN
PINECREST TOWNHOMES

ASSESSOR'S MAP 34, LOTS 83, 84, 87
88, 89 & 90
DYER STREET
ROCKLAND, MASSACHUSETTS

PROFESSIONAL ENGINEER:

BRADLEY C McKENZIE
CIVIL
No. 36917
REGISTERED
PROFESSIONAL ENGINEER
COMMONWEALTH OF MASSACHUSETTS

APPLICANT:
GASPAR INVESTMENT INC.
265 WILLIS AVE.
MEDFORD, MASSACHUSETTS 02155

PERMIT PLAN SET

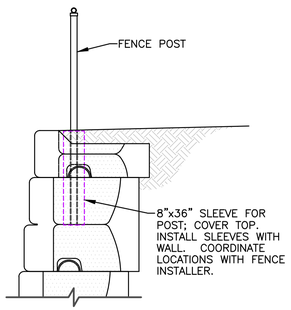
DRAWN BY:	ESS
DESIGNED BY:	ESS
CHECKED BY:	BCM
APPROVED BY:	BCM
DATE:	OCTOBER 23, 2020
SCALE:	
PROJECT NO.:	220-163

DWG. TITLE:

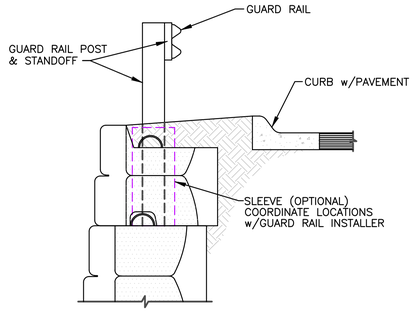
CONSTRUCTION DETAILS

DWG. NO:

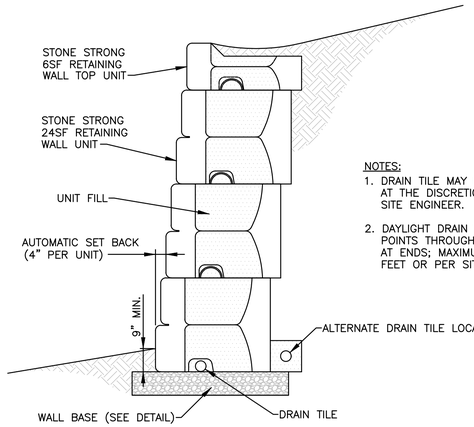
D-3



RETAINING WALL FENCE SLEEVE
NOT TO SCALE

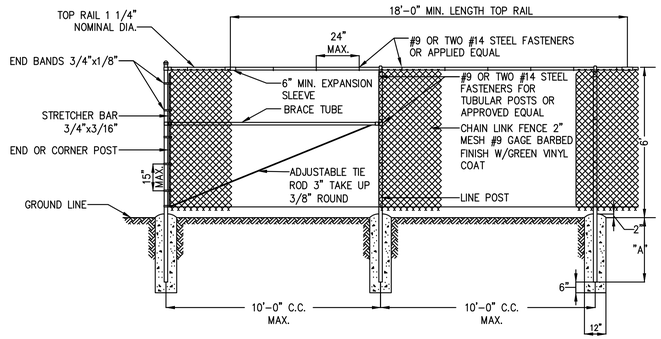


RETAINING WALL w/GUARD RAIL
NOT TO SCALE



NOTES:
1. DRAIN TILE MAY BE ELIMINATED AT THE DISCRETION OF THE SITE ENGINEER.
2. DAYLIGHT DRAIN TILE AT LOW POINTS THROUGH WALL FACE OR AT ENDS; MAXIMUM SPACING 100 FEET OR PER SITE CONDITIONS.

GRAVITY RETAINING WALL CROSS SECTION
NOT TO SCALE



END OR CORNER POSTS: NOMINAL 2" DIAMETER GALVANIZED STEEL PIPE, OR 2 1/2"x2"H SECTION.

LINE POSTS: NOMINAL 1-1/2" DIAMETER GALVANIZED STEEL PIPE OR 1-7/8"x1-5/8" STEEL H SECTION.

BRACE TUBES NOMINAL 1-1/4" DIA. GALVANIZED STEEL PIPE.

LINE GATE & END POST BASE ("A") 2'-6" FOR 3 FT. & 4 FT. FENCE. 3'-0" FOR 6 FT. FENCE. 5'-0" FOR ALL OTHERS

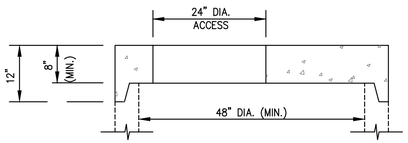
STRETCHER BARS LENGTH TO BE 1 INCH LESS THAN FULL HEIGHT OF FABRIC. ONE STRETCHER BAR FOR EACH GATE & END POST & TWO STRETCHER BARS FOR CORNER & BRACING.

NOTES:
1. ROUND BASES MAY BE SUBSTITUTED FOR THE SQUARE BASES SHOWN BY USING FIBER TUBULAR
2. FORMS.

BRACING NOT REQUIRED FOR 3'0" & 4'0" FENCE.

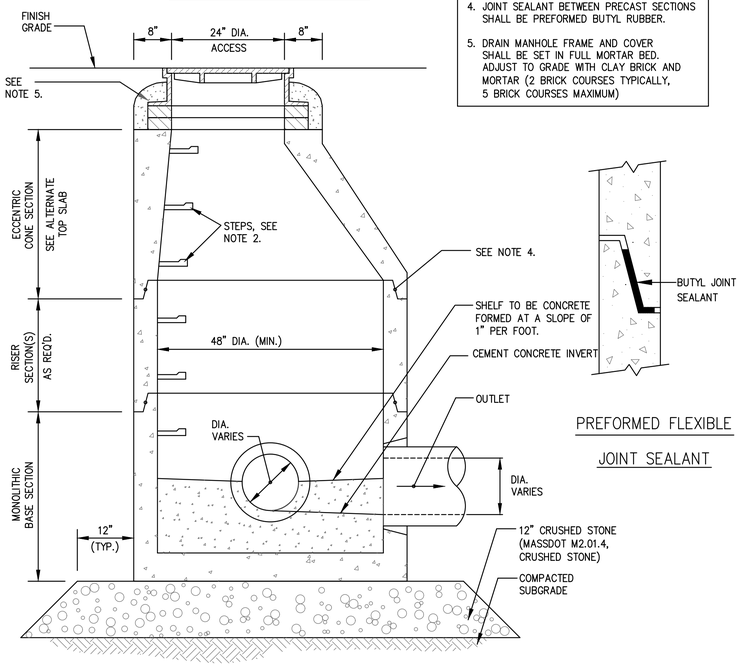
CONCRETE TO BE 4,000 P.S.I. FIBER REINFORCED.

TYPICAL CHAIN LINK FENCE DETAIL
SCALE: N.T.S.



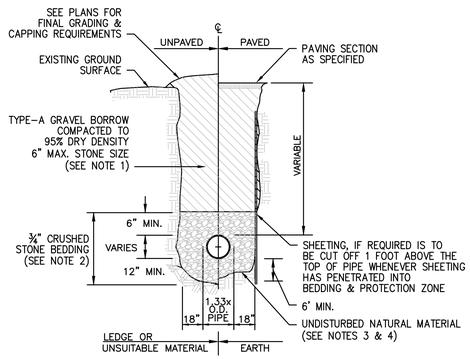
ALTERNATE TOP SLAB

NOTES:
1. ALL SECTIONS SHALL BE DESIGNED FOR HS-20 LOADING.
2. COPOLYMER MANHOLE STEPS SHALL BE INSTALLED AT 12" O.C. FOR THE FULL DEPTH OF THE STRUCTURE.
3. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
4. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
5. DRAIN MANHOLE FRAME AND COVER SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM)



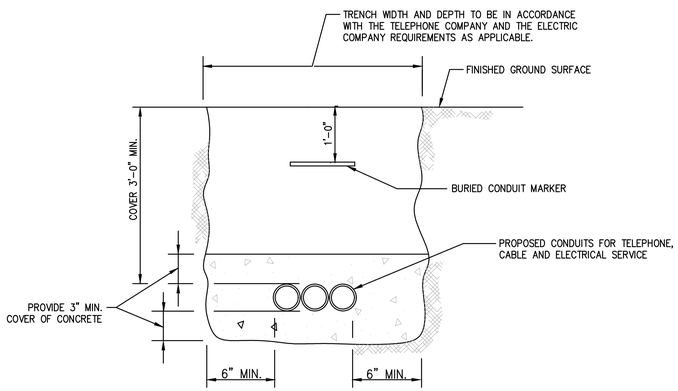
PREFORMED FLEXIBLE JOINT SEALANT

DRAIN MANHOLE DETAIL
SCALE: N.T.S.

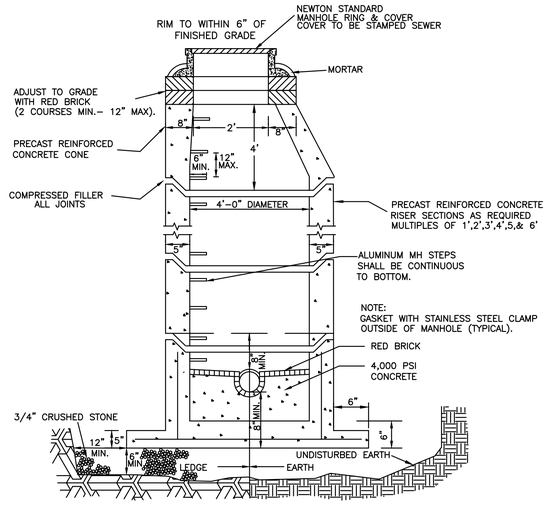


NOTES
1. GRAVEL BORROW SHALL CONFORM TO MASSDOT SPECIFICATION M1.03.0.
2. CRUSHED STONE BEDDING SHALL CONFORM TO MASSDOT SPECIFICATION M2.01.1.
3. SUBGRADE SHALL CONSIST OF NATIVE SOIL OR IMPORTED SOIL CONFORMING TO THE MASSDOT SPECIFICATION FOR ORDINARY BORROW AND SHALL BE FREE OF ANY UNSUITABLE SOILS OR MATERIAL.
4. UNSUITABLE SOIL OR MATERIAL SHALL INCLUDE BUT NOT BE LIMITED TO PEAT, MUCK, BROKEN PAVEMENT, STUMPS, LOGS, CONSTRUCTION DEBRIS OR ANY OTHER DELETERIOUS MATERIAL.

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



TYPICAL ELECTRIC/TELEPHONE/CABLE CONDUIT (US-UTILITY SERVICE)
SCALE: N.T.S.



TYPICAL PRECAST CONCRETE SEWER MANHOLE
N.T.S.

REV	DATE	DESCRIPTION	BY	APP
1	3/15/21	WIDENED ROADWAY	ESS	BCM
2	6/7/21	DRAINAGE REVISION	ESS	BCM
3	6/29/21	DRAINAGE REVISION	ESS	BCM
4	8/6/21	CUL-DE-SAC REVISION	ESS	BCM
5	9/9/21	CUL-DE-SAC REVISION	ESS	BCM

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F: 781.792.0333
www.mckeng.com

SITE DEVELOPMENT PLAN
PINECREST TOWNHOMES
ASSESSOR'S MAP 34, LOTS 83, 84, 87
88, 89 & 90
DYER STREET
ROCKLAND, MASSACHUSETTS

PROFESSIONAL ENGINEER:
BRADLEY C McKENZIE CIVIL No. 36917 REGISTERED PROFESSIONAL ENGINEER COMMONWEALTH OF MASSACHUSETTS

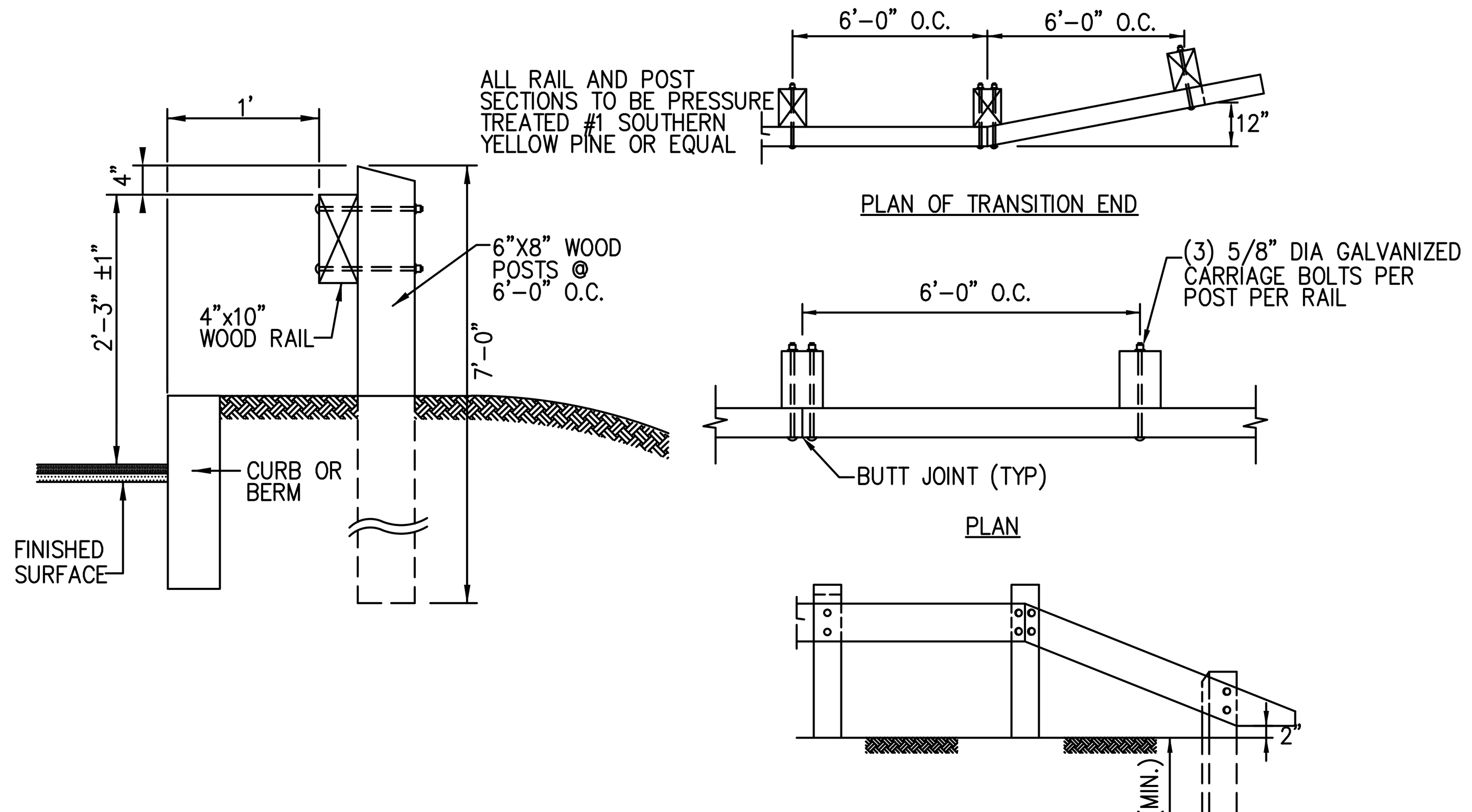
APPLICANT:
GASPAR INVESTMENT INC.
265 WILLIS AVE.
MEDFORD, MASSACHUSETTS 02155

PERMIT PLAN SET

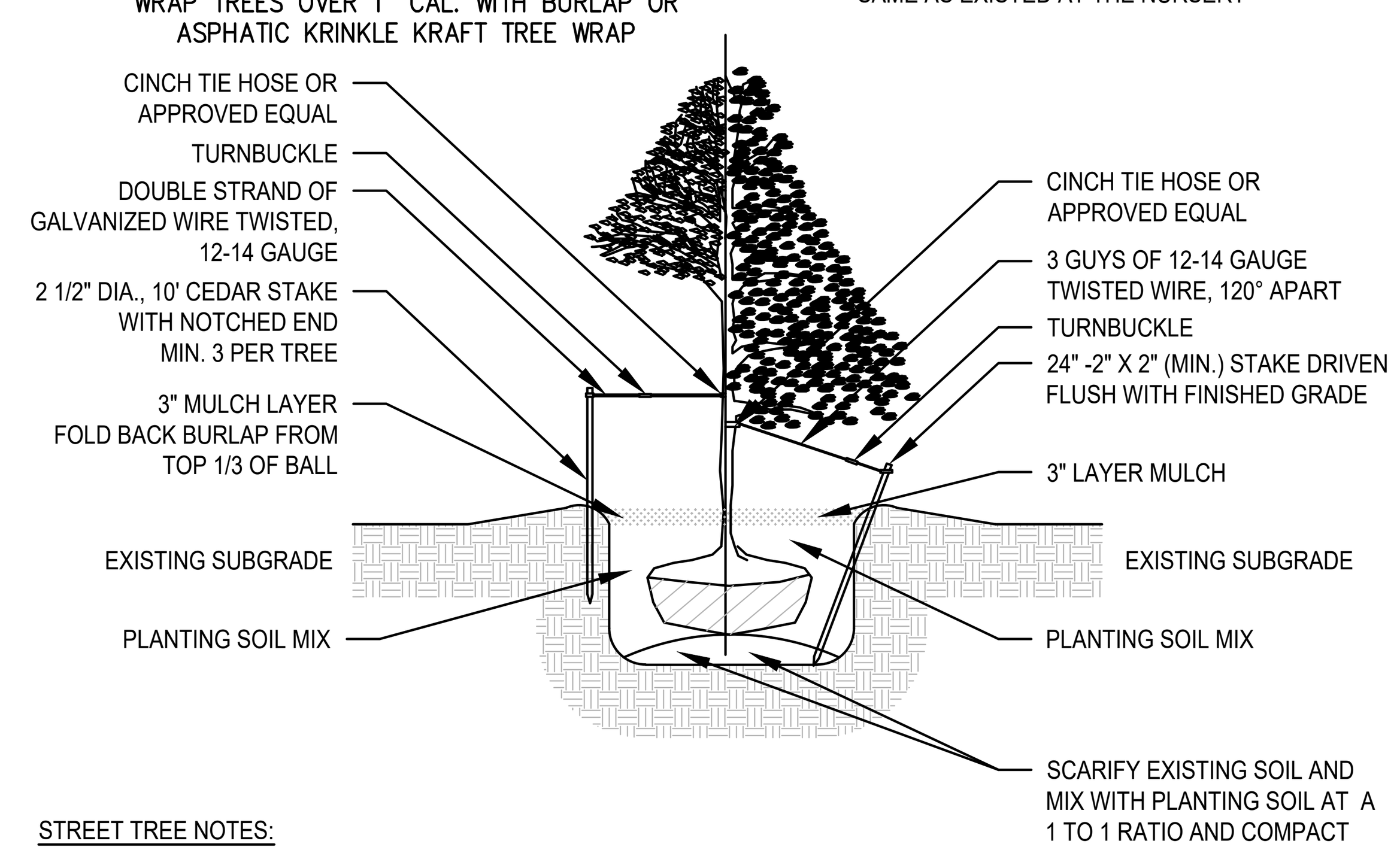
DRAWN BY:	ESS
DESIGNED BY:	ESS
CHECKED BY:	BCM
APPROVED BY:	BCM
DATE:	OCTOBER 23, 2020
SCALE:	
PROJECT NO.:	220-163

DWG. TITLE:
CONSTRUCTION DETAILS

DWG. NO:
D-4



WOOD GUARDRAIL
SCALE: N.T.S.

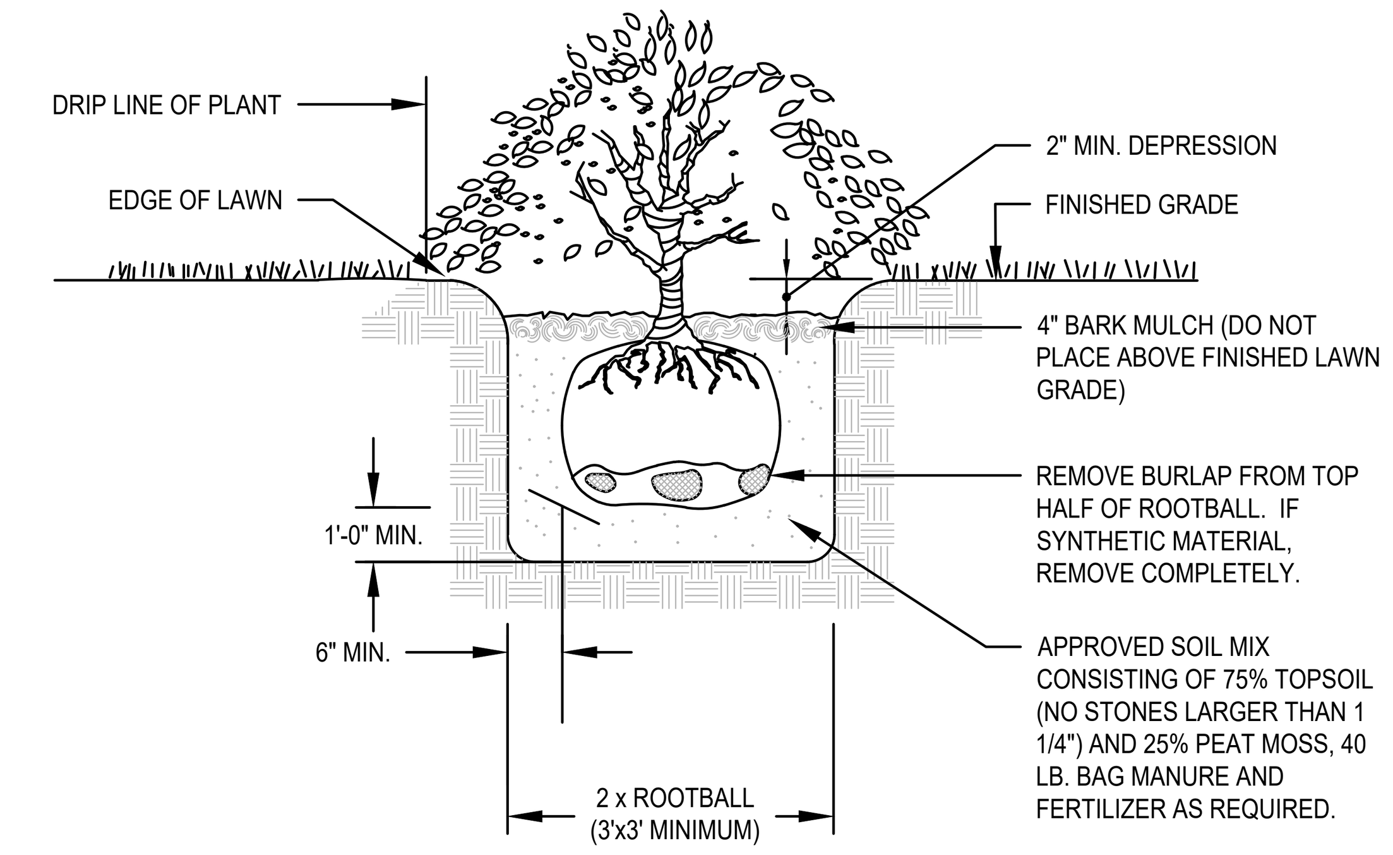


STREET TREE NOTES:

1. NEW TREES SHALL BE NURSERY GROWN AND COMPLY WITH THE ASSOCIATION OF AMERICAN NURSRIES SPECIFICATIONS AND BE AT LEAST 3 INCHES IN CALIPER.

2, THE PRESERVATION OF EXISTING TREES AND THE VARIETIES OF NEW TREES FOR PLANTING SHALL BE SUBJECT TO THE APPROVAL OF THE PLANNING BOARD WHICH SHALL BE GUIDED BY THE RECOMMENDATION OF THE TOWN'S DIRECTOR OF LANDS AND NATURAL RESOURCES AS TO THE NUMBER, LOCATION, CONDITION AND SPECIES OF SUCH TREES AND UNDER APPENDIX III 0 DETAIL B.

DECIDUOUS AND EVERGREEN TREE PLANTING DETAIL
SCALE: N.T.S.



TYPICAL SHRUB PLANTING DETAIL
SCALE: N.T.S.

SEEDING SPECIFICATIONS

SEEDING RECOMMENDATIONS

1. SEEDBED PREPARATION

A. SURFACE AND SEEPAGE WATER SHOULD BE DRAINED OR DIVERTED FROM THE SITE TO PREVENT DROWNING OR WINTER KILLING OF THE PLANTS.

B. STONES LARGER THAN FOUR INCHES AND TRASH SHOULD BE REMOVED BECAUSE THEY INTERFERE WITH SEEDING AND FUTURE MAINTENANCE OF THE AREA. WHERE FEASIBLE, THE SOIL SHOULD BE TILLED TO A DEPTH OF ABOUT FOUR INCHES TO PREPARE A SEEDBED AND MIX FERTILIZER AND LIME INTO THE SOIL. THE SEEDBED SHOULD BE LEFT IN A REASONABLY FIRM AND SMOOTH CONDITION. THE LAST TILLAGE OPERATION SHOULD BE PERFORMED ACROSS THE SLOPE WHEREVER PRACTICAL.

2. ESTABLISHING A STAND

A. LIME AND FERTILIZER SHOULD BE APPLIED PRIOR TO OR AT THE TIME OF SEEDING AND INCORPORATED INTO THE SOIL. KINDS AND AMOUNTS OF LIME AND FERTILIZER SHOULD BE BASED ON EVALUATION OF SOIL TESTS. WHEN A SOIL TEST IS NOT AVAILABLE, THE FOLLOWING MINIMUM AMOUNTS SHOULD BE APPLIED:

AGRICULTURAL LIMESTONE:	2 TONS PER ACRE OR 100 LBS. PER SQ. FT.
NITROGEN (N):	50 LBS. PER ACRE OR 1.1 LBS. PER 1000 SQ. FT.
PHOSPHATE (P O):	100 LBS. PER ACRE OR 2.2 LBS. PER 1000 SQ. FT.
POTASH (K O):	100 LBS. PER ACRE OR 2.2 LBS. PER 1000 SQ. FT.

(NOTE: THIS IS THE EQUIVALENT OF 500 LBS. PER ACRE OF 10-20-20 FERTILIZER OR 1,000 LBS. PER ACRE OF 5-10-10 FERTILIZER)

B. SEED SHOULD BE SPREAD UNIFORMLY BY THE METHOD MOST APPROPRIATE FOR THE SITE. METHODS INCLUDE BROADCASTING, DRILLING, AND HYDROSEEDING. WHERE BROADCASTING IS USED, COVER SEED WITH 0.25 INCH OF SOIL OR LESS, BY CULTIVATING OR RAKING.

C. REFER TO SEEDING RATES AND SEEDING GUIDES FOR APPROPRIATE SEED MIXTURES AND RATES OF SEEDING.

D. WHEN SEEDED AREAS ARE MULCHED, PLANTINGS MAY BE MADE FROM EARLY SPRING SPRING TO EARLY OCTOBER. WHEN SEEDED AREAS ARE NOT MULCHED, PLANTINGS SHOULD BE MADE FROM EARLY SPRING TO MAY 20 OR FROM AUGUST 10 TO SEPTEMBER 1.

3. MULCH

A. HAY, STRAW, OR OTHER MULCH, WHEN NEEDED, SHOULD BE APPLIED IMMEDIATELY AFTER SEEDING.

B. MULCH WILL BE HELD IN PLACE USING TECHNIQUES AS SPECIFIED IN THE "BEST MANAGEMENT PRACTICES OPERATION AND MAINTENANCE PLAN"

4. MAINTENANCE TO ESTABLISH A STAND

A. PLANTED AREAS SHOULD BE PROTECTED FROM DAMAGE BY FIRE, GRAZING, TRAFFIC, AND DENSE WEED GROWTH.

B. FERTILIZATION NEEDS SHOULD BE DETERMINED BY ONSITE INSPECTIONS. SUPPLEMENTAL FERTILIZER IS USUALLY THE KEY TO FULLY COMPLETE THE ESTABLISHMENT OF THE STAND BECAUSE MOST PERENNIALS TAKE 2 TO 3 YEARS TO BECOME ESTABLISHED.

C. IN WATERWAYS, CHANNELS, OR SWALES WHERE UNIFORM FLOW CONDITIONS ARE ANTICIPATED OCCASIONAL MOWING MAY BE NECESSARY TO CONTROL GROWTH OF WOODY VEGETATION.

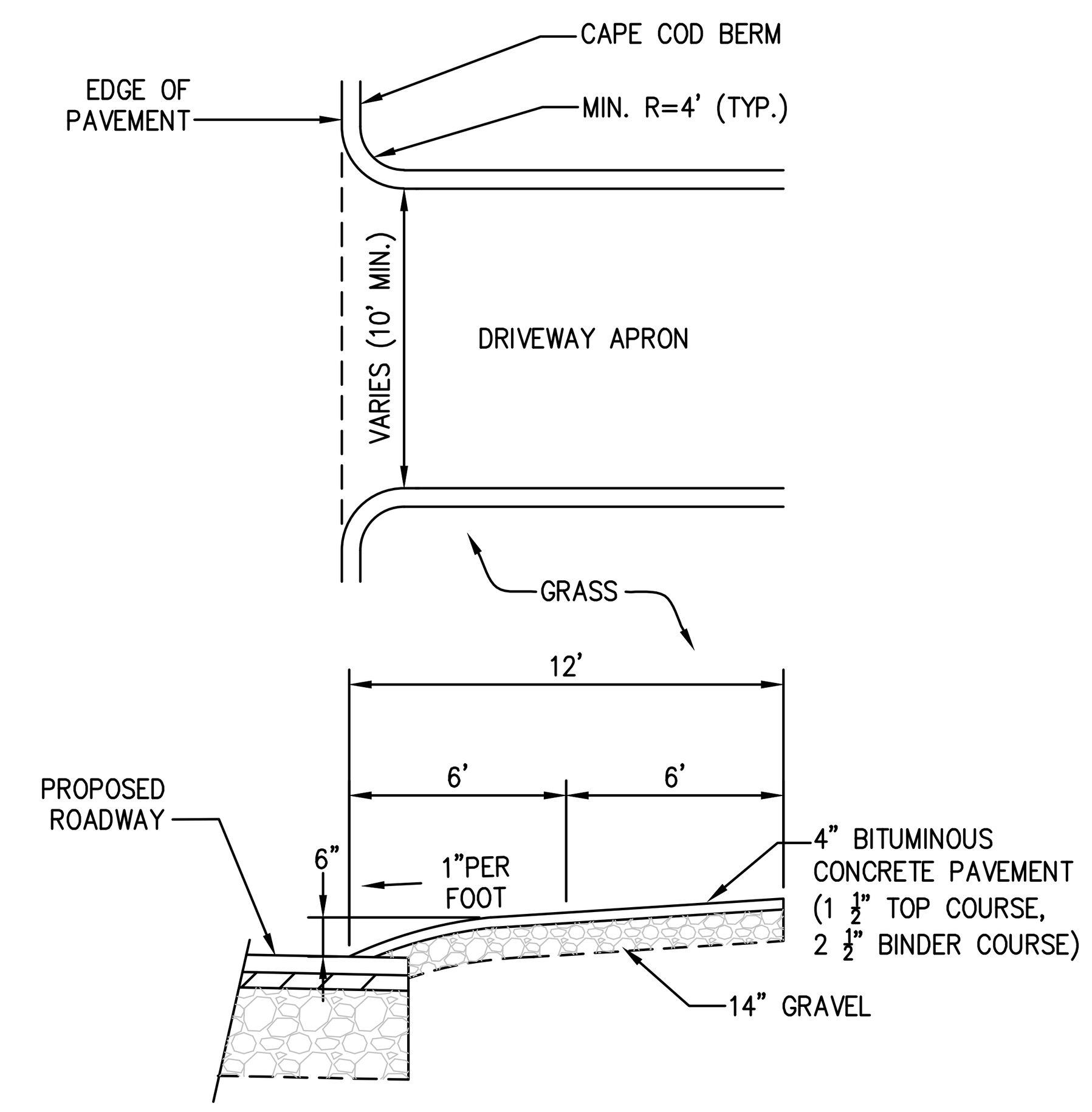
SEEDING RATES

	POUND / ACRE	POUNDS / 1,000 S.F.	
A. TALL FESCUE	20	0.45	
CREEPING RED FESCUE	20	0.45	
REDTOP	2	0.05	
TOTAL	42	0.95	
B. TALL FESCUE	15	0.35	
CREEPING RED FESCUE	10	0.25	
BIRDSFOOT TREFOIL	15	0.35	
TOTAL	40	0.95	
C. TALL FESCUE	20	0.45	
CREEPING RED FESCUE	20	0.45	
BIRDSFOOT TREFOIL	8	0.20	
TOTAL	48	1.10	
D. BIRDSFOOT TREFOIL	10	0.25	
REDTOP	5	0.10	
REED CANARY GRASS	15	0.35	
TOTAL	30	0.70	
E. TALL FESCUE	20	0.45	
FLATPEA	30	0.75	
TOTAL	50	1.20	
F. CREEPING RED FESCUE 1/	85	2.00	
KENTUCKY BLUEGRASS 1/	85	2.00	
TOTAL	170	4.00	
G. TALL FESCUE 1/	150	3.60	
TEMPORARY SEEDING RATES			
H. WINTER RYE	112	2.50	(BEST FOR FALL SEEDING, AUG 15 TO SEPT. 5)
OATS	80	2.00	(BEST FOR SPRING SEEDING, BEFORE MAY 15)
ANNUAL RYEGRASS	40	1.00	(BEST FOR FALL SEEDING, AUG 15 TO SEPT. 15)
TOTAL	232	5.50	(MAY BE USED EARLY SPRING ALSO)

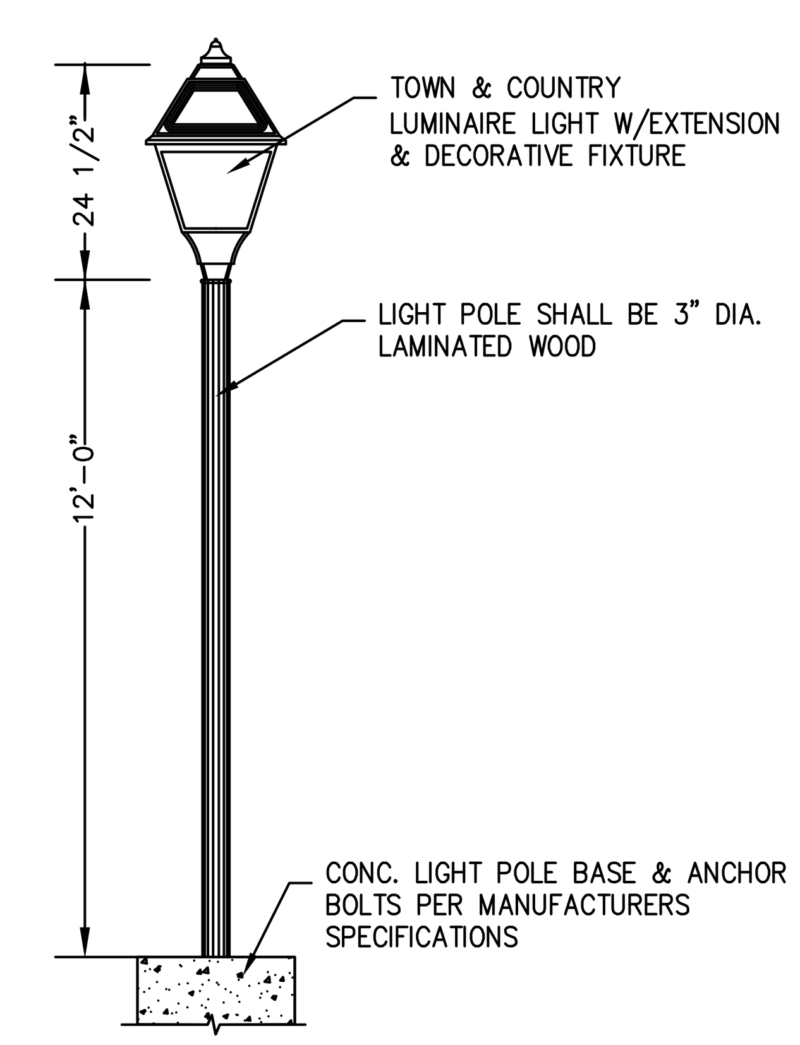
1/ FOR HEAVY USE ATHLETIC FIELDS CONSULT THE UNIVERSITY OF NEW HAMPSHIRE COOPERATIVE EXTENSION TURF SPECIALIST FOR CURRENT VARIETIES AND SEEDING RATES.

SEEDING GUIDE

USE	SEEDING MIXTURE 1/
STEEP CUTS AND FILLS, BORROW AND DISPOSAL AREAS	E
WATERWAYS, EMERGENCY SPILLWAYS, AND OTHER CHANNELS WITH FLOWING WATER	D
LAWN AREAS	F



DRIVEWAY APRON DETAIL
SCALE: NOT TO SCALE



TYPICAL LIGHT POST DETAIL
SCALE: N.T.S.

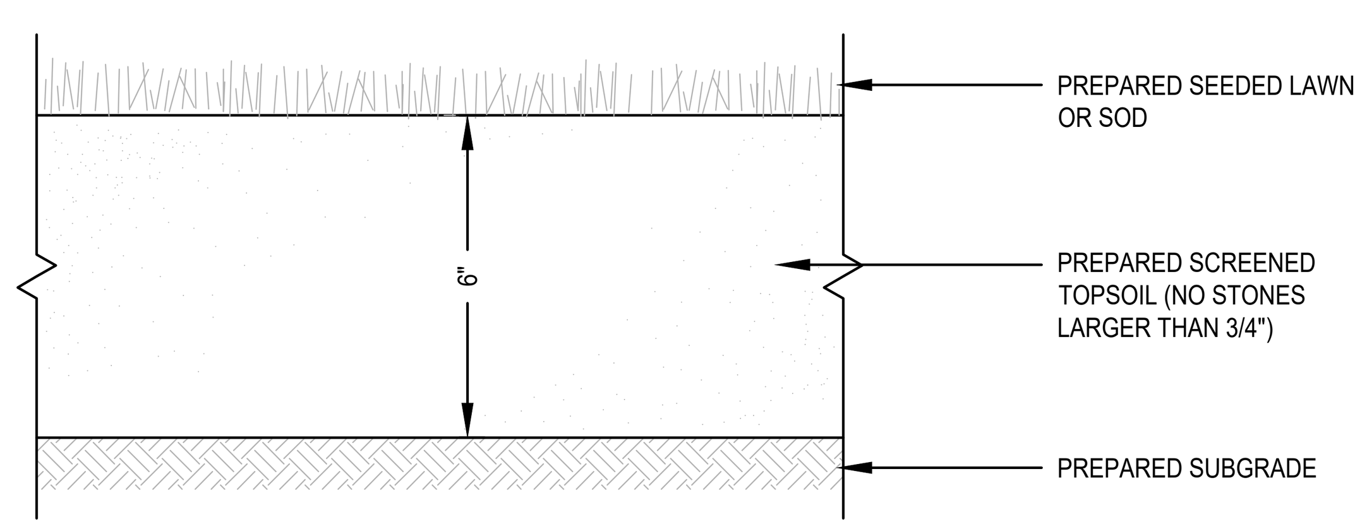
NOTE: ALL LIGHT BULBS SHALL BE DARK-SKY COMPLIANT AND REFLECTED DOWN TO PREVENT LIGHT POLLUTION.

NOTES:

1. TOP OF LOAM (TOPSOIL) IS FINISHED GRADE.

2. TOPSOIL SHALL CONTAIN BETWEEN 5% AND 12% ORGANIC MATTER AND SHALL HAVE A MAXIMUM STONE SIZE OF 3/4" AND SHALL CONFORM TO THE FOLLOWING GRADATION:

SIEVE	% PASSING
1 1/4 INCH	100
No.4	85-100
No.40	60-85
No.100	38-60
No.200	28-40



SEEDED OR SODDED LAWN DETAIL
SCALE: N.T.S.

REV	DATE	DESCRIPTION	BY	APP
1	3/15/21	WIDENED ROADWAY	ESS	BCM
2	6/7/21	DRAINAGE REVISION	ESS	BCM
3	6/29/21	DRAINAGE REVISION	ESS	BCM
4	8/6/21	CUL-DE-SAC REVISION	ESS	BCM
5	9/9/21	CUL-DE-SAC REVISION	ESS	BCM

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150 Longwater Drive, Suite 101
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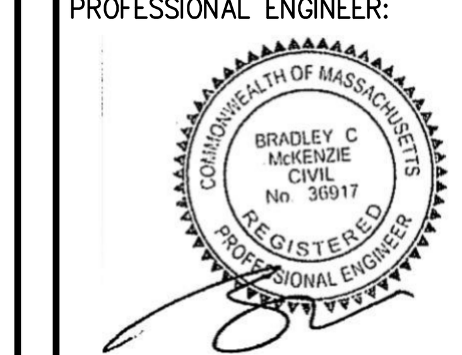
SITE DEVELOPMENT PLAN PINECREST TOWNHOMES

ASSESSOR'S MAP 34, LOTS 83, 84, 87
88, 89 & 90
DYER STREET
ROCKLAND, MASSACHUSETTS

PROFESSIONAL ENGINEER:



APPLICANT:
GASPAR INVESTMENT INC.
265 WILLIS AVE.
MEDFORD, MASSACHUSETTS 02155

PERMIT PLAN SET

DRAWN BY:	ESS
DESIGNED BY:	ESS
CHECKED BY:	BCM
APPROVED BY:	BCM
DATE:	OCTOBER 23, 2020
SCALE:	
PROJECT NO.:	220-163
DWG. TITLE:	CONSTRUCTION DETAILS
DWG. NO:	D-5

EROSION AND SEDIMENTATION CONTROL

1. WIDELY ACCEPTED PRACTICES FOR REDUCING EROSION AND SEDIMENTATION WILL BE EMPLOYED IN THE DEVELOPMENT OF THIS SITE.
2. THE DEVELOPMENT OF THE SITE HAS BEEN PLANNED TO ENHANCE THE EXISTING TOPOGRAPHY AND VEGETATIVE COVER. ALL NATURAL DRAINAGE PATTERNS OF THE SITE HAVE BEEN MAINTAINED.
3. STEEP SLOPES, WHERE POSSIBLE, WILL NOT BE DISTURBED.
4. NATURAL WATERWAYS WILL BE PRESERVED AND PROTECTED, AND EXISTING VEGETATION WILL BE RETAINED AND PROTECTED TO THE EXTENT POSSIBLE.
5. THE ROADWAY CONFORMS TO EXISTING LAND CONTOURS WHERE PRACTICAL.
6. THE CONTRACTOR SHALL MINIMIZE THE AREA OF DISTURBED LAND TO THE EXTENT FEASIBLE.
7. SEDIMENT CONTROL MEASURES WILL BE APPLIED TO CONTROL ANY SEDIMENTS THAT MAY BE PRODUCED AS A RESULT OF SITE CONSTRUCTION ACTIVITIES. EROSION AND DEPOSITION OF SEDIMENT WILL BE CLOSELY MONITORED DURING CONSTRUCTION.
8. TEMPORARY EROSION CONTROL MEASURES WILL INCLUDE, BUT NOT BE LIMITED TO, STRAWBALE CHECK DAMS, SEDIMENT FOREBAYS, STABILIZED CONSTRUCTION ENTRANCES, FILTER FABRIC SILT FENCES, SEEDING AND MULCHING, AND SEEDED FILTER STRIPS.
9. TOPSOIL STRIPPED FROM CUT AND FILL AREAS WILL BE STOCKPILED FOR LOAMING AND SEEDING AT LATER CONSTRUCTION STAGES. THE STOCKPILES SHALL BE LOCATED SO AS TO ACT AS TEMPORARY DIVERSIONS, GENERALLY ON THE UPHILL SLOPE.
10. ALL CUT AREAS LOCATED AT TOES OF SLOPES AND DITCHES THAT HAVE GRADES EXCEEDING 5% SHALL BE STABILIZED WITH RIP-RAP. THE RIP-RAP SHALL CONSIST OF 50% STONES GREATER THAN 6" IN SIZE. SWALES SHALL BE 6" IN DEPTH AND APPROXIMATELY 5' IN WIDTH. ALL SLOPES WILL BE BLENDED INTO THE EXISTING TOPOGRAPHY TO MINIMIZE IMPACT.
11. SITE DEVELOPMENT WILL NOT COMMENCE UNTIL ALL TEMPORARY EROSION CONTROL MEASURES ARE IN PLACE. THESE MEASURES SHALL BE EMPLOYED UNTIL FINAL PAVING AND ADEQUATE VEGETATION HAS BEEN ESTABLISHED.
12. REFER TO CONSTRUCTION PHASE BEST MANAGEMENT PRACTICES AS SPECIFIED IN "BEST MANAGEMENT PRACTICES OPERATION AND MAINTENANCE PLAN" PREPARED BY MCKENZIE ENGINEERING GROUP, INC. FOR STRUCTURAL STABILIZATION AND DUST CONTROL EROSION AND SEDIMENTATION CONTROL MEASURES.
13. STABILIZATION PRACTICES UTILIZED FOR THE PROJECT WILL INCLUDE TEMPORARY SEEDING, GEOTEXTILES (JUTE MESTH), MULCHING, AND PERMANANT SEEDING.

CONSTRUCTION PHASE BMP OPERATION & MAINTENANCE:

STRUCTURAL PRACTICES UTILIZED FOR THE PROJECT WILL INCLUDE SILT SOCK EROSION CONTROL BARRIERS, STABILIZED CONSTRUCTION ENTRANCES, TEMPORARY DIVERSION SWALES WITH CHECK DAMS, TEMPORARY SEDIMENT BASINS, AND INLET PROTECTION.

STABILIZATION PRACTICES UTILIZED FOR THE PROJECT WILL INCLUDE TEMPORARY SEEDING, GEOTEXTILES (JUTE MESH), MULCHING, AND PERMANENT SEEDING.

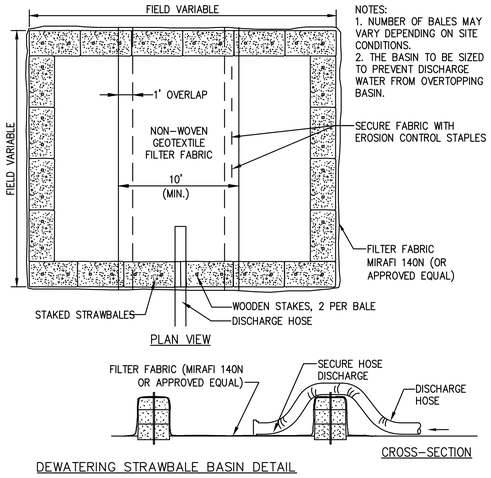
OPERATOR PERSONNEL AND/OR ITS CONSULTANTS MUST INSPECT THE CONSTRUCTION SITE AT LEAST ONCE EVERY 7 CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT OF 1/2 INCH OR GREATER. THE INSPECTOR SHOULD REVIEW THE EROSION AND SEDIMENT CONTROLS WITH RESPECT TO THE FOLLOWING:

A. WHETHER OR NOT THE BMP WAS INSTALLED/PERFORMED CORRECTLY.
B. WHETHER OR NOT THERE HAS BEEN DAMAGE TO THE BMP SINCE IT WAS INSTALLED OR PERFORMED.
C. WHAT SHOULD BE DONE TO CORRECT ANY PROBLEMS WITH THE BMP.

THE INSPECTOR SHALL COMPLETE THE INSPECTION SCHEDULE AND EVALUATION CHECKLIST FOR FINDINGS AND SHOULD REQUEST THE REQUIRED MAINTENANCE OR REPAIR. THE CHECKLIST IS PROVIDED WITHIN THE OPERATION AND MAINTENANCE PLAN.

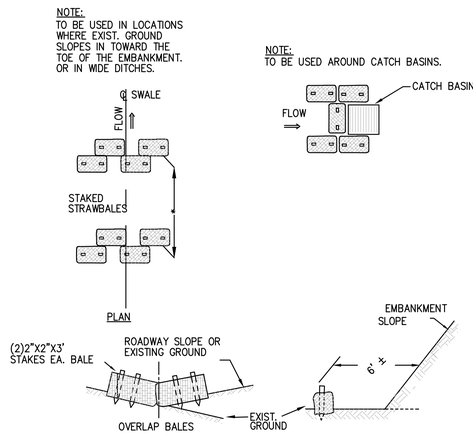
THE TEMPORARY SEDIMENT BASINS SHALL BE INSPECTED AND CLEANED IF REQUIRED PRIOR TO ANY PREDICTED LARGE STORM EVENT.

ALL SLOPES EXCEEDING 15% RESULTING FROM SITE GRADING SHALL BE BOTH COVERED WITH FOUR INCHES OF TOPSOIL AND PLANTED WITH A VEGETATED COVER SUFFICIENT TO PREVENT EROSION.

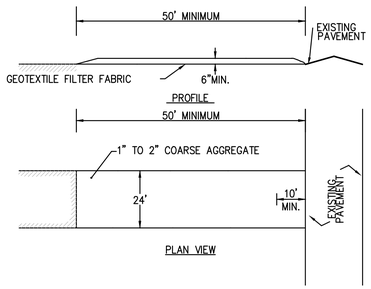


NOTES:
1. NUMBER OF BALES MAY VARY DEPENDING ON SITE CONDITIONS.
2. THE BASIN TO BE SIZED TO PREVENT DISCHARGE WATER FROM OVERTOPPING BASIN.

DEWATERING STRAWBALE BASIN DETAIL
SCALE: N.T.S.



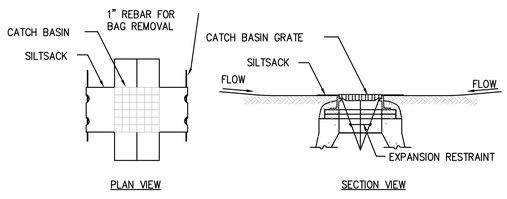
TEMPORARY EROSION CONTROL
SCALE: N.T.S.



(SCE) CONSTRUCTION SPECIFICATIONS:

1. STONE FOR A STABILIZATION CONSTRUCTION ENTRANCE SHALL BE 1 TO 2 INCH STONE, RECLAIMED STONE.
2. THE LENGTH OF THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 50 FEET, EXCEPT FOR A SINGLE RESIDENTIAL LOT A 30 FOOT MINIMUM LENGTH WOULD APPLY.
3. THE THICKNESS OF THE STONE FOR THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 6 INCHES.
4. THE WIDTH OF THE ENTRANCE SHALL NOT BE LESS THAN A FULL WIDTH OF THE ENTRANCE WHERE INGRESS OR EGRESS OCCURS OR 10 FEET, WHICH EVER IS GREATER.
5. GEOTEXTILE FILTER CLOTH SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING THE STONE.
6. ALL SURFACE WATER THAT IS FLOWING TO OR DEVERTED TOWARDS THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
7. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOPDRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. SEDIMENT SPILLED, WASHED, OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED PROMPTLY.

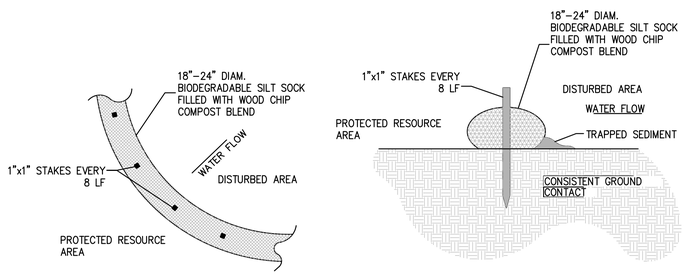
STABILIZED CONSTRUCTION ENTRANCE (SCE) DETAIL
SCALE: N.T.S.



SILT SACK SEDIMENT TRAP CONTRUCTION NOTES:

1. INSTALL SILTSACK IN ALL CATCH BASINS WHERE INDICATED ON THE PLAN BEFORE COMMENCING WORK OR IN PAVED AREAS AFTER BINDER COURSE IS PLACED AND STRAWBALES HAVE BEEN REMOVED.
2. GRATE TO BE PLACED OVER SILTSACK.
3. SILTSACK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS AND CLEANING OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED. MAINTAIN UNTIL UPSTREAM AREAS HAVE BEEN PERMANENTLY STABILIZED

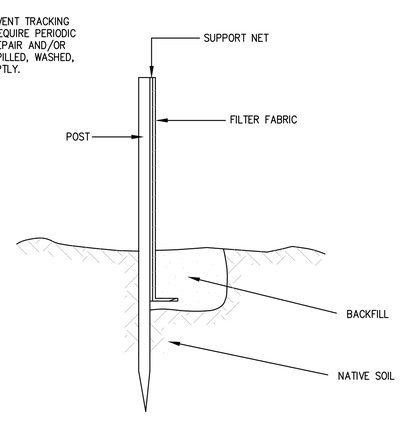
SILTSACK SEDIMENT TRAP
SCALE: N.T.S.



CONSTRUCTION NOTES:

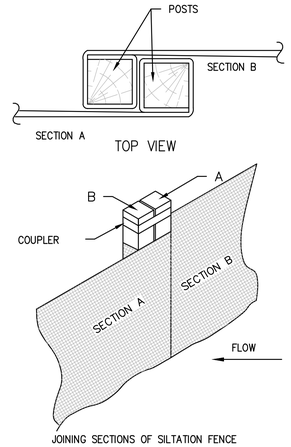
1) SILT SOCKS SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING OR LAPPING THE ADJACENT SECTIONS.
2) SILT SOCKS SHALL BE SECURELY ANCHORED IN PLACE BY STAKES OR RE-BARS DRIVEN EVERY 8 LF.
3) INSPECTION SHALL BE FREQUENT, AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS REQUIRED.
4) SILT SOCKS SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS, SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

SILT SOCK DETAIL
SCALE: N.T.S.



CONSTRUCTION NOTES:

1) WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
2) FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
3) WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 6 INCHES AND FOLDED.
4) MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.



NOTES:

1. INSTALL SILTSACK IN ALL CATCH BASINS WHERE INDICATED ON THE PLAN BEFORE COMMENCING WORK OR IN PAVED AREAS AFTER BINDER COURSE IS PLACED AND STRAWBALES HAVE BEEN REMOVED.
2. GRATE TO BE PLACED OVER SILTSACK.
3. SILTSACK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS AND CLEANING OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED. MAINTAIN UNTIL UPSTREAM AREAS HAVE BEEN PERMANENTLY STABILIZED.

SILTATION FENCE
SCALE: N.T.S.

REV	DATE	DESCRIPTION	BY	APP
1	3/15/21	WIDENED ROADWAY	ESS	BCM
2	6/7/21	DRAINAGE REVISION	ESS	BCM
3	6/29/21	DRAINAGE REVISION	ESS	BCM
4	8/6/21	CUL-DE-SAC REVISION	ESS	BCM
5	9/9/21	CUL-DE-SAC REVISION	ESS	BCM

MCKENZIE ENGINEERING GROUP
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150 Longwater Drive, Suite 101
Norwell, MA 02061
P: 781.792.3900
F: 781.792.0333
www.mckeng.com

SITE DEVELOPMENT PLAN
PINECREST TOWNHOMES

ASSESSOR'S MAP 34, LOTS 83, 84, 87
88, 89 & 90
DYER STREET
ROCKLAND, MASSACHUSETTS

PROFESSIONAL ENGINEER:
BRADLEY C McKENZIE CIVIL No. 30917 REGISTERED PROFESSIONAL ENGINEER
COMMONWEALTH OF MASSACHUSETTS

APPLICANT:
GASPAR INVESTMENT INC.
265 WILLIS AVE.
MEDFORD, MASSACHUSETTS 02155

PERMIT PLAN SET

DRAWN BY:	ESS
DESIGNED BY:	ESS
CHECKED BY:	BCM
APPROVED BY:	BCM
DATE:	OCTOBER 23, 2020
SCALE:	
PROJECT NO.:	220-163

DWG. TITLE:
CONSTRUCTION DETAILS

DWG. NO:
D-6

CULTEC RECHARGER® 150XLHD SPECIFICATIONS

GENERAL
CULTEC RECHARGER® 150XLHD CHAMBERS ARE DESIGNED FOR UNDERGROUND STORMWATER MANAGEMENT. THE CHAMBERS MAY BE USED FOR RETENTION, RECHARGING, DETENTION OR CONTROLLING THE FLOW OF ON-SITE STORMWATER RUNOFF.

CHAMBER PARAMETERS

1. THE CHAMBERS WILL BE MANUFACTURED IN THE U.S.A. BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE CHAMBER WILL BE VACUUM THERMOFORMED OF BLACK HIGH MOLECULAR WEIGHT HIGH DENSITY POLYETHYLENE (HMWHDPE.)
3. THE CHAMBER WILL BE ARCHED IN SHAPE.
4. THE CHAMBER WILL BE OPEN-BOTTOMED.
5. THE CHAMBER WILL BE JOINED USING AN INTERLOCKING OVERLAPPING RIB METHOD. CONNECTIONS MUST BE FULLY SHOULDERED OVERLAPPING RIBS, HAVING NO SEPARATE COUPLINGS OR SEPARATE END WALLS.
6. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC RECHARGER 150XLHD SHALL BE 18.5 INCHES (470 mm) TALL, 33 INCHES (838 mm) WIDE AND 11 FEET (3.35 m) LONG. THE INSTALLED LENGTH OF A JOINED RECHARGER 150XLHD SHALL BE 10.25 FEET (3.12 m).
7. MAXIMUM INLET OPENING ON THE CHAMBER ENDWALL IS 12 INCHES (300 mm).
8. THE CHAMBER WILL HAVE TWO SIDE PORTALS TO ACCEPT CULTEC HVLV® FC-24 FEED CONNECTORS TO CREATE AN INTERNAL MANIFOLD. THE NOMINAL INSIDE DIMENSIONS OF EACH SIDE PORTAL WILL BE 8.5 INCHES (216 mm) HIGH BY 12 INCHES (304 mm) WIDE. MAXIMUM ALLOWABLE OUTER DIAMETER (O.D.) PIPE SIZE IN THE SIDE PORTAL IS 10.25 INCHES (260 mm).
9. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC HVLV® FC-24 FEED CONNECTOR SHALL BE 12 INCHES (305 mm) TALL, 16 INCHES (406 mm) WIDE AND 24.2 INCHES (615 mm) LONG.
10. THE NOMINAL STORAGE VOLUME OF THE RECHARGER 150XLHD CHAMBER WILL BE 2.650 FT³ / FT (0.246 m³ / m) - WITHOUT STONE. THE NOMINAL STORAGE VOLUME OF A JOINED RECHARGER 150XLHD SHALL BE 27.16 FT3 / UNIT (0.77 m³ / UNIT) - WITHOUT STONE.
11. THE NOMINAL STORAGE VOLUME OF THE HVLV FC-24 FEED CONNECTOR WILL BE 0.913 FT³ / FT (0.085 m³ / m) - WITHOUT STONE.
12. THE RECHARGER 150XLHD CHAMBER WILL HAVE THIRTY DISCHARGE HOLES BORED INTO THE SIDEWALLS OF THE UNIT'S CORE TO PROMOTE LATERAL CONVEYANCE OF WATER.
13. THE RECHARGER 150XLHD CHAMBER SHALL HAVE 20 CORRUGATIONS.
14. THE ENDWALL OF THE CHAMBER, WHEN PRESENT, WILL BE AN INTEGRAL PART OF THE CONTINUOUSLY FORMED UNIT. SEPARATE END PLATES CANNOT BE USED WITH THIS UNIT.
15. THE RECHARGER 150XLHD STAND ALONE UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO FULLY FORMED INTEGRAL ENDWALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE ENDWALLS.
16. THE RECHARGER 150XLSHD STARTER UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY FORMED INTEGRAL ENDWALL AND ONE PARTIALLY FORMED INTEGRAL ENDWALL WITH A LOWER TRANSFER OPENING OF 10 INCHES (254 mm) HIGH X 20.5 INCHES (521 mm) WIDE.
17. THE RECHARGER 150XLHD INTERMEDIATE UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY OPEN ENDWALL AND ONE PARTIALLY FORMED INTEGRAL ENDWALL WITH A LOWER TRANSFER OPENING OF 10 INCHES (254 mm) HIGH X 20.5 INCHES (521 mm) WIDE.
18. THE RECHARGER 150XLEHD END UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY FORMED INTEGRAL ENDWALL AND ONE FULLY OPEN END WALL AND HAVING NO SEPARATE END PLATES OR END WALLS.
19. THE HVLV® FC-24 FEED CONNECTOR MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO OPEN END WALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS. THE UNIT WILL FIT INTO THE SIDE PORTALS OF THE RECHARGER 150XLHD AND ACT AS CROSS FEED CONNECTIONS.
20. CHAMBERS MUST HAVE HORIZONTAL STIFFENING FLEX REDUCTION STEPS BETWEEN THE RIBS.
21. HEAVY DUTY UNITS ARE DESIGNATED BY A COLORED STRIPE FORMED INTO THE PART ALONG THE LENGTH OF THE CHAMBER.
22. THE CHAMBER WILL HAVE A RAISED INTEGRAL CAP AT THE TOP OF THE ARCH IN THE CENTER OF EACH UNIT TO BE USED AS AN OPTIONAL INSPECTION PORT OR CLEAN-OUT.
23. THE UNITS MAY BE TRIMMED TO CUSTOM LENGTHS BY CUTTING BACK TO ANY CORRUGATION.
24. THE CHAMBER SHALL BE MANUFACTURED IN AN ISO 9001:2008 CERTIFIED FACILITY.
25. THE CHAMBER WILL BE DESIGNED TO WITHSTAND TRAFFIC LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.
26. MAXIMUM ALLOWED COVER OVER TOP OF UNIT SHALL BE 12 FEET (3.65 m).

CULTEC HVLV® FC-24 FEED CONNECTOR PRODUCT SPECIFICATIONS

GENERAL
CULTEC HVLV FC-24 FEED CONNECTORS ARE DESIGNED TO CREATE AN INTERNAL MANIFOLD FOR CULTEC RECHARGER 150XLHD STORMWATER CHAMBERS.

CHAMBER PARAMETERS

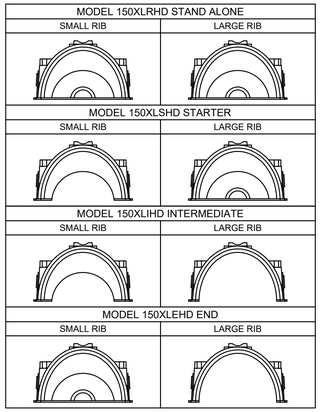
1. THE CHAMBERS WILL BE MANUFACTURED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE CHAMBER WILL BE VACUUM THERMOFORMED OF BLACK HIGH MOLECULAR WEIGHT HIGH DENSITY POLYETHYLENE (HMWHDPE).
3. THE CHAMBER WILL BE ARCHED IN SHAPE.
4. THE CHAMBER WILL BE OPEN-BOTTOMED.
5. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC HVLV FC-24 FEED CONNECTOR SHALL BE 12 INCHES (305 MM) TALL, 16 INCHES (406 mm) WIDE AND 24.2 INCHES (614 mm) LONG.
6. THE NOMINAL STORAGE VOLUME OF THE HVLV FC-24 FEED CONNECTOR WILL BE 0.913 FT3 / FT (0.085 m³ / m) - WITHOUT STONE.
7. THE HVLV FC-24 FEED CONNECTOR CHAMBER SHALL HAVE 2 CORRUGATIONS.
8. THE HVLV FC-24 FEED CONNECTOR MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO OPEN END WALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS. THE UNIT WILL FIT INTO THE SIDE PORTALS OF THE CULTEC RECHARGER STORMWATER CHAMBER AND ACT AS CROSS FEED CONNECTIONS CREATING AN INTERNAL MANIFOLD.
9. THE CHAMBER WILL BE DESIGNED TO WITHSTAND TRAFFIC LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.
10. THE CHAMBER SHALL BE MANUFACTURED IN AN ISO 9001:2008 CERTIFIED FACILITY.

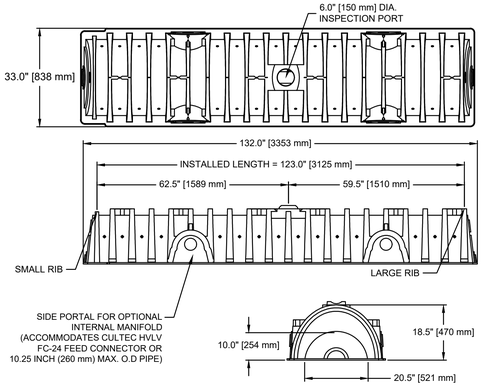
CULTEC NO. 66™ WOVEN GEOTEXTILE

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

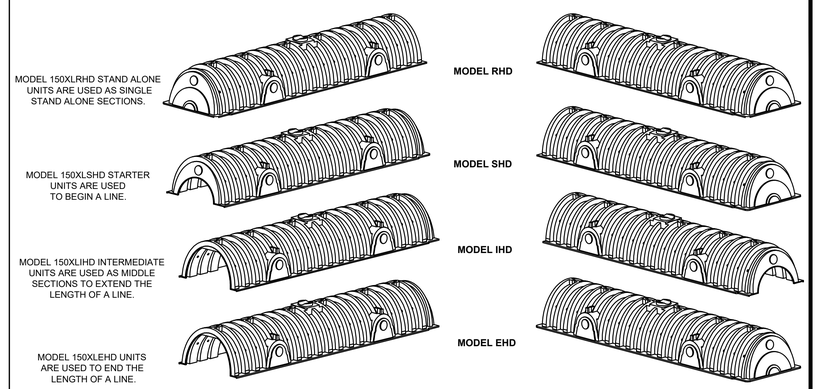
GEOTEXTILE PARAMETERS

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



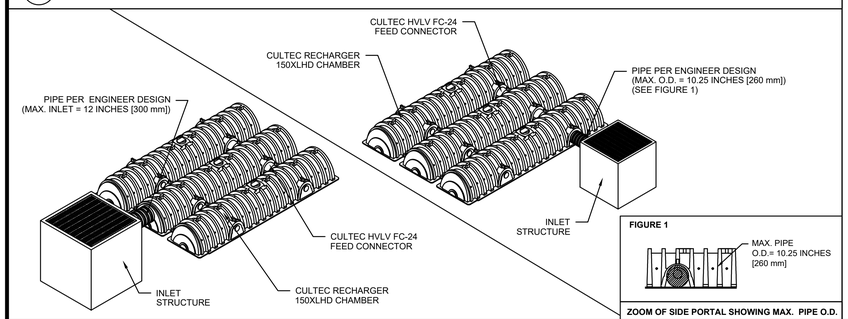


CULTEC RECHARGER 150XLHD CHAMBER STORAGE = 2.65 CF/FT [0.245 m³/m]
INSTALLED LENGTH ADJUSTMENT = 0.75' [0.23 m]
ALL RECHARGER 150XLHD HEAVY-DUTY UNITS ARE MARKED WITH A COLORED STRIPE FORMED INTO THE PART ALONG THE LENGTH OF THE CHAMBER.
SIDE PORTAL ACCEPTS CULTEC HVLV FC-24 FEED CONNECTOR.



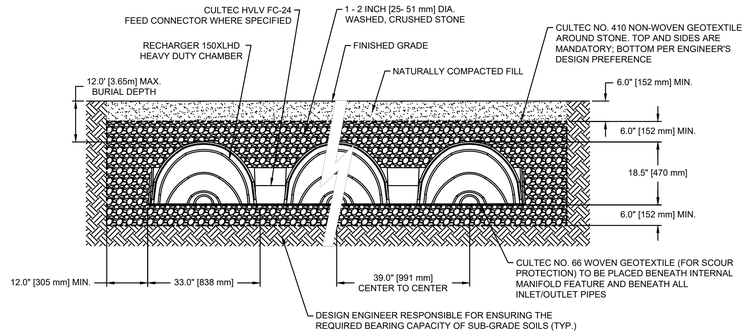
150XLHD 1.0

GENERAL NOTES



150XLHD 2.0

CULTEC RECHARGER 150XLHD HEAVY DUTY THREE VIEW

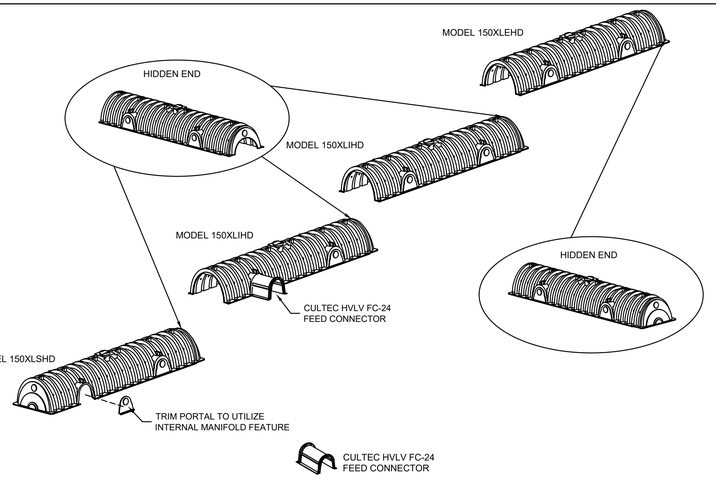


GENERAL NOTES
RECHARGER 150XLHD BY CULTEC, INC. OF BROOKFIELD, CT.
STORAGE PROVIDED = 4.89 CF/FT (0.45 m³/m) PER DESIGN UNIT.
REFER TO CULTEC, INC.'S CURRENT RECOMMENDED INSTALLATION GUIDELINES.
MAXIMUM ALLOWED COVER OVER TOP OF UNIT SHALL BE 12 '(3.65m).
THE CHAMBER WILL BE DESIGNED TO WITHSTAND TRAFFIC LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.

ALL RECHARGER 150XLHD HEAVY DUTY UNITS ARE MARKED WITH A COLORED STRIPE FORMED INTO THE PART ALONG THE LENGTH OF THE CHAMBER.
ALL RECHARGER 150XLHD CHAMBERS MUST BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.

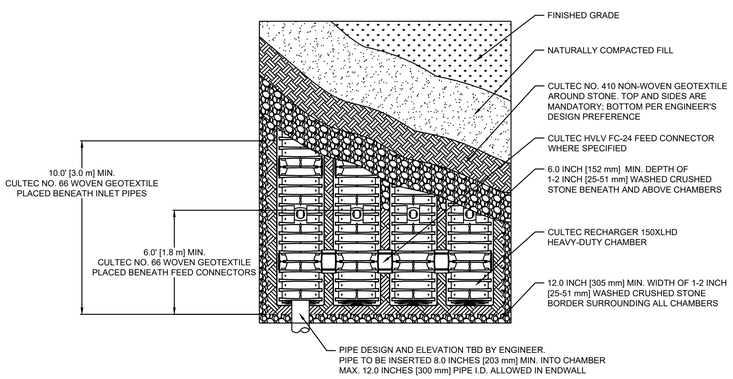
150XLHD 3.0

CULTEC RECHARGER 150XLHD HEAVY DUTY END DETAIL INFORMATION



150XLHD 4.0

CULTEC TYPICAL INLET CONNECTION

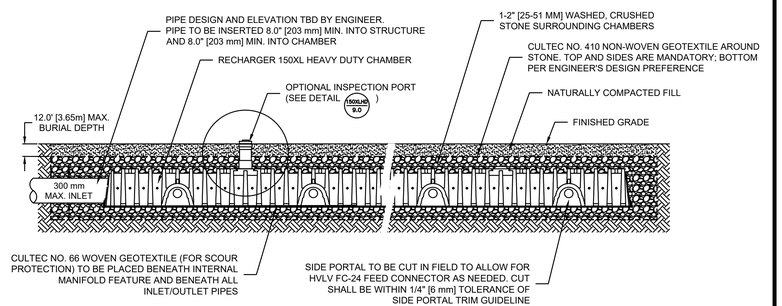


150XLHD 5.0

CULTEC RECHARGER 150XLHD HEAVY DUTY TYPICAL CROSS SECTION

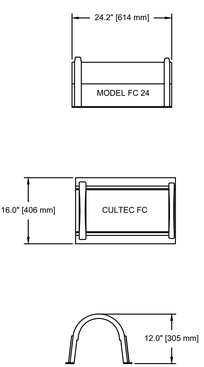
150XLHD 6.0

CULTEC RECHARGER 150XLHD HEAVY DUTY TYPICAL INTERLOCK



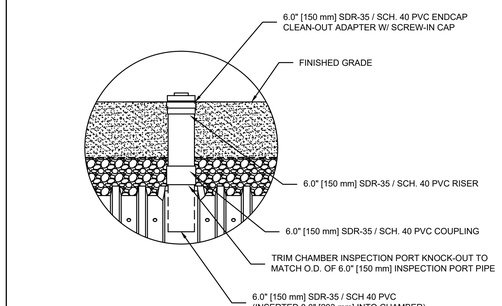
150XLHD 7.0

CULTEC RECHARGER 150XLHD HEAVY DUTY PLAN VIEW



150XLHD 8.0

CULTEC HVLV FC-24 FEED CONNECTOR THREE VIEW



150XLHD 9.0

OPTIONAL INSPECTION PORT - ZOOM DETAIL

150XLHD 10.0

CULTEC INTERNAL MANIFOLD - OPTIONAL INSPECTION PORT DETAIL

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tech@cultec.com

RECHARGER 150XLHD
DETAIL SHEET
NON-TRAFFIC APPLICATION

CULTEC RECHARGER® 150XLHD

PROJECT NO:		DATE:	02/2016
DESIGNED BY:	CULTEC, INC	DRAWN BY:	TECH
SCALE:	N.T.S.	SHEET NO:	D-7