

Planning Received 8/5/2025

ABBREVIATIONS

FFE FIRST FLOOR ELEVATION
BIT CONC. BITUMINOUS CONCRETE PAVEMENT
C&B C&B BERM
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

LEGEND

SURVEY SYMBOLS

REBAR
ANGLE IRON
CONCRETE BOUND WITH DRILL HOLE
STONE BOUND
STONE BOUND

UTILITY SYMBOLS

CHIMNEY
ELECTRIC HAND HOLE
GUY POLE
GUY WIRE
HVAC UNIT
BUILDING LIGHT W/MAST
BUILDING LIGHT
TRANSFORMER
WATER GATE
EXHAUST VENT
AIR VENT
DRAINAGE SUMP
ELECTRIC MANHOLE
SEWER MANHOLE
DRAIN MANHOLE
TELEPHONE MANHOLE
DRAINAGE CATCH BASIN
DOOR WAY THRESHOLD
HYDRANT
POST INDICATOR VALVE
UTILITY POLE
YARD LIGHT
RIP RAP
BOLLARD
SIGN
FIRE ALARM
DECIDUOUS TREE
CONIFEROUS TREE

LINE DESIGNATORS

WATER MAIN
HANDRAIL
JERSEY BARRIER
GUARD RAIL
OVERHEAD WIRES
GAS LINE
WATER SERVICE
UNDERGROUND ELECTRIC
STORM DRAIN LINE
SANITARY SEWER LINE
CHAIN LINK FENCE

ZONING REQUIREMENTS

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.

SURVEY NOTES:

- 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.
- 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
- THIS SURVEY WAS MADE ON THE GROUND IN SEPTEMBER OF 2019 BY MCKENZIE ENGINEERING GROUP, INC.
- ELEVATIONS SHOWN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.
- 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.

- LOCUS IS SITUATED IN ZONE X AS SHOWN ON F.I.R.M. No. 25023C0093J, EFFECTIVE JULY 17, 2012.
- LOCUS IS NOT LOCATED IN A DEP ZONE 2 OR TOWN OF ROCKLAND AQUIFER PROTECTION ZONE.
- 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.
- 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.
- PLAN REFERENCES:
PB PG
3 563
8 557
23 130
39 170
PLAN 94 OF 1956
LOP 265144

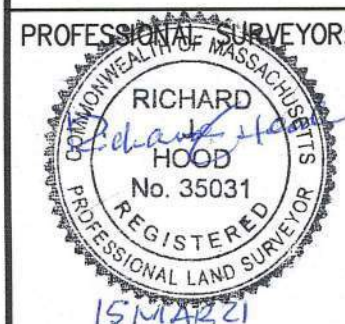
- BORDERING VEGETATED WETLAND WAS DELINEATED BY ENVIRONMENTAL CONSULTING & RESTORATION, LLC ON SEPTEMBER 4, 2019 AND FIELD LOCATED BY MCKENZIE ENGINEERING GROUP, INC. IN SEPTEMBER OF 2019.
- ASSESSOR'S PARCELS 34-87, 34-88, 34-89 AND PORTION OF DYER STREET RIGHT OF WAY WERE RECENTLY COMBINED BY ANR PLAN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

SCALE: 1" = 30'

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MCKENZIE ENGINEERING GROUP
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F: 781.792.0333
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EXISTING CONDITIONS PLAN
ASSESSOR'S MAP 34, LOTS 83, 84, 87, 88, 89 & 90
DYER STREET
ROCKLAND, MASSACHUSETTS

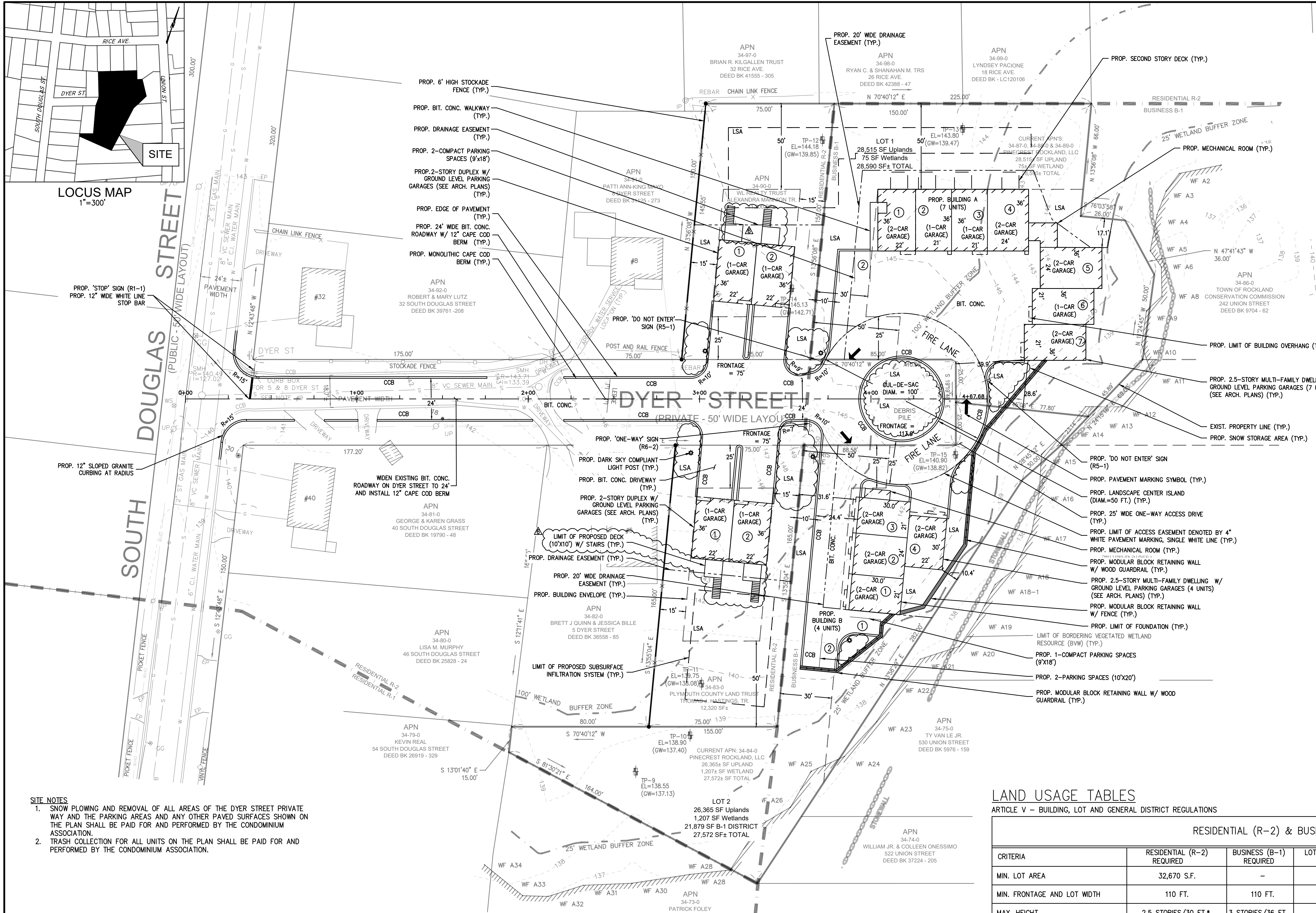


APPLICANT:
GASPAR INVESTMENT INC.
285 WILLIS AVE.
MEDFORD, MASSACHUSETTS 02155

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

FFE FIRST FLOOR ELEVATION
BIT CONC. BITUMINOUS CONCRETE PAVEMENT
CCB CAPE COD BERM
CCM 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
- CONCRETE BOUND WITH DRILL HOLE
- STONE BOUND
- STONE BOUND

UTILITY SYMBOLS

- CHIMNEY
- ELECTRIC HAND HOLE
- GUY POLE
- GUY WIRE
- HVAC UNIT
- BUILDING LIGHT W/MAST
- BUILDING LIGHT
- TRANSFORMER
- WATER GATE
- EXHAUST VENT
- AIR VENT
- DRAINAGE SUMP
- ELECTRIC MANHOLE
- SEWER MANHOLE
- DRAIN MANHOLE
- TELEPHONE MANHOLE
- DRAINAGE CATCH BASIN
- DOOR WAY THRESHOLD
- HYDRANT
- POST INDICATOR VALVE
- UTILITY POLE
- LIGHT RAY
- RIP RAP
- BOLLARD
- SIGN
- FIRE ALARM
- DECIDUOUS TREE
- CONIFEROUS TREE

LINE DESIGNATORS

- WATER MAIN
- OVERHEAD WIRES
- GAS LINE
- WATER SERVICE
- UNDERGROUND ELECTRIC
- STORM DRAIN LINE
- SANITARY SEWER LINE
- DRAINAGE SWALE
- 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.

BY APP

DESCRIPTION

DATE

REV

1	3/15/21	WIDEN ROADWAY	ESS
2	6/7/21	DRAINAGE REVISION	ESS
3	6/29/21	DRAINAGE REVISION	ESS
4	8/6/21	CUL-DE-SAC REVISION	ESS
5	9/9/21	CUL-DE-SAC REVISION	ESS
6	8/1/25	PROP. DECKS AT DUPLEXES	ESS

MCKENZIE ENGINEERING GROUP

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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

REGISTERED PROFESSIONAL ENGINEER

STATE OF MASSACHUSETTS

APPLICANT:

GASPAR INVESTMENT INC.

265 WILLIS AVE.

MEDFORD, MASSACHUSETTS 02155

DRAWN BY: ESS

DESIGNED BY: ESS

CHECKED BY: BCM

APPROVED BY: BCM

DATE: OCTOBER 23, 2020

SCALE: 1"=30'

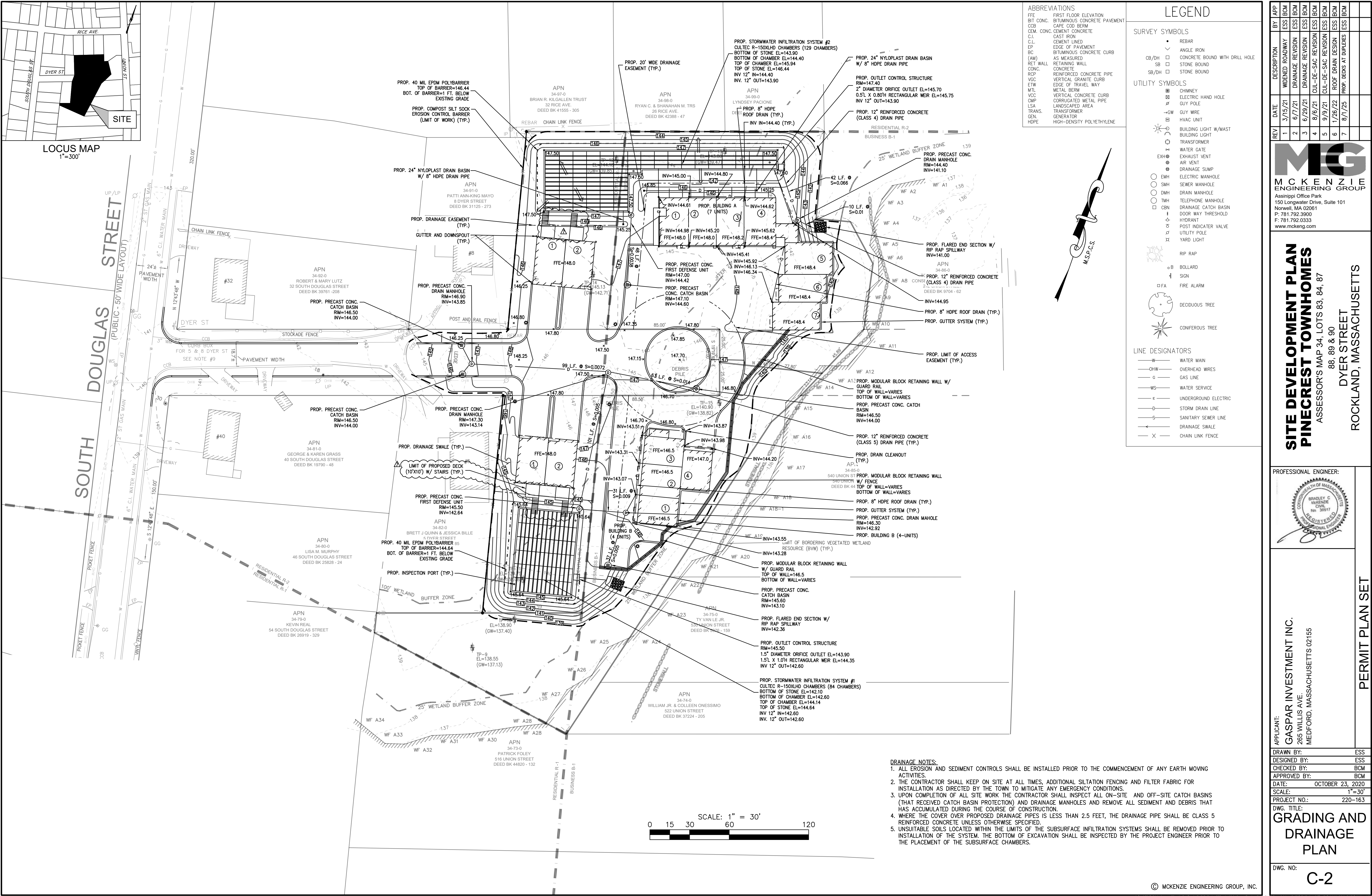
PROJECT NO.: 220-163

DWG. TITLE:

SITE LAYOUT PLAN

DWG. NO:

C-1



ABBREVIATIONS	
FFE	FIRST FLOOR ELEVATION
BIT CONC.	BITUMINOUS CONCRETE PAVEMENT
CB	CAPE COD BERM
CCM	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
HOPE	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	CHIMNEY
ELECTRIC HAND HOLE	ELECTRIC HAND HOLE
GUY POLE	GUY POLE
GUY WIRE	GUY WIRE
HVAC UNIT	HVAC UNIT
BUILDING LIGHT W/MAST	BUILDING LIGHT W/MAST
BUILDING LIGHT	BUILDING LIGHT
TRANSFORMER	TRANSFORMER
WATER GATE	WATER GATE
EXHAUST VENT	EXHAUST VENT
AIR VENT	AIR VENT
DRAINAGE SUMP	DRAINAGE SUMP
EMH	ELECTRIC MANHOLE
SMH	SEWER MANHOLE
DMH	DRAIN MANHOLE
TMH	TELEPHONE MANHOLE
CBN	DRAINAGE CATCH BASIN
DOOR WAY THRESHOLD	DOOR WAY THRESHOLD
HYDRANT	HYDRANT
POST INDICATOR VALVE	POST INDICATOR VALVE
UTILITY POLE	UTILITY POLE
YARD LIGHT	YARD LIGHT
RIP RAP	RIP RAP
BOLLARD	BOLLARD
SIGN	SIGN
FIRE ALARM	FIRE ALARM
DECIDUOUS TREE	DECIDUOUS TREE
CONIFEROUS TREE	CONIFEROUS TREE
LINE DESIGNATORS	
W	WATER MAIN
OWW	OVERHEAD WIRES
G	GAS LINE
WS	WATER SERVICE
E	UNDERGROUND ELECTRIC
D	STORM DRAIN LINE
S	SANITARY SEWER LINE
SW	DRAINAGE SWALE
X	CHAIN LINK FENCE

BY	APP	DESCRIPTION	DATE	REV
ESS	BCM	WIDEN ROADWAY	3/15/21	1
ESS	BCM	DRAINAGE REVISION	6/7/21	2
ESS	BCM	DRAINAGE REVISION	6/29/21	3
ESS	BCM	CUL-DE-SAC REVISION	8/6/21	4
ESS	BCM	CUL-DE-SAC REVISION	9/9/21	5
ESS	BCM	ROOF DRAIN DESIGN	1/26/22	6
ESS	BCM	PROP. DECKS AT DUPLEXES	8/1/25	7

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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

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:

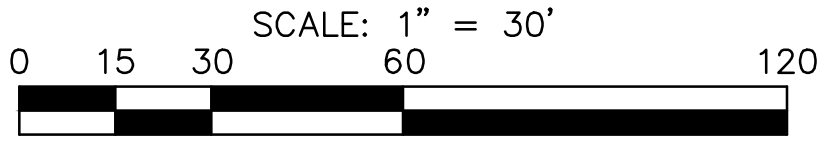
GRADING AND DRAINAGE PLAN

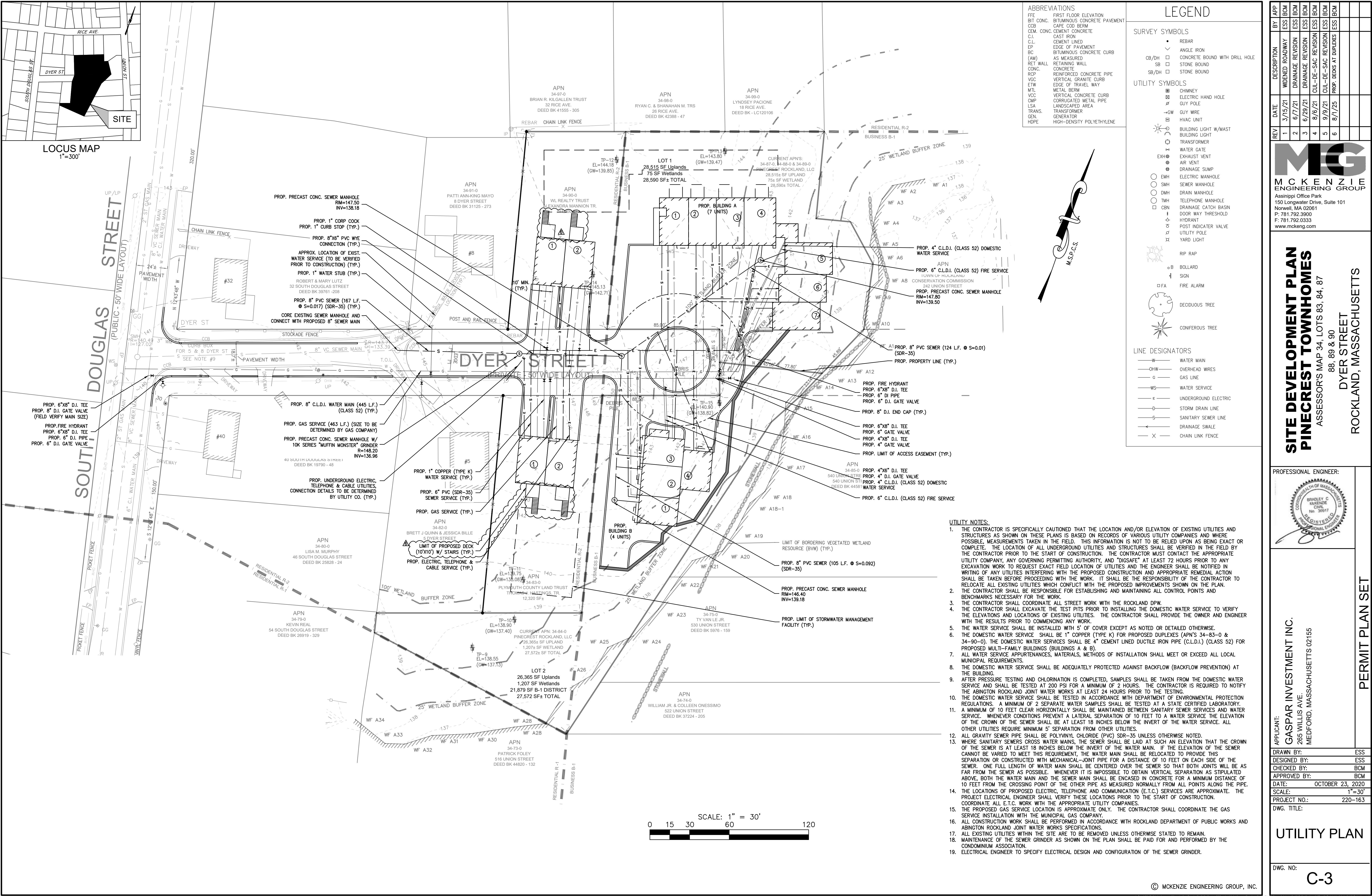
DWG. NO.: **C-2**

PERMIT PLAN SET

DRAINAGE NOTES:

- ALL EROSION AND SEDIMENT CONTROLS SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY EARTH MOVING ACTIVITIES.
- THE CONTRACTOR SHALL KEEP ON SITE AT ALL TIMES, ADDITIONAL SILTATION FENCING AND FILTER FABRIC FOR INSTALLATION AS DIRECTED BY THE TOWN TO MITIGATE ANY EMERGENCY CONDITIONS.
- 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.
- 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.
- UNSATURABLE 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.





ABBREVIATIONS

FFE

FIRST FLOOR ELEVATION

BIT CONC.

BITUMINOUS CONCRETE PAVEMENT

CBM

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

LISA

LANDSCAPED AREA

TRANS.

TRANSFORMER

GEN.

GENERATOR

HOPE

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

CHIMNEY

⊞

ELECTRIC HAND HOLE

⊞

GUY POLE

⊞

GUY WIRE

⊞

HVAC UNIT

⊞

BUILDING LIGHT W/MAST

⊞

BUILDING LIGHT

⊞

TRANSFORMER

⊞

WATER GATE

⊞

EXHAUST VENT

⊞

AIR VENT

⊞

DRAINAGE SUMP

⊞

ELECTRIC MANHOLE

⊞

SEWER MANHOLE

⊞

DRAIN MANHOLE

⊞

TELEPHONE MANHOLE

⊞

DRAINAGE CATCH BASIN

⊞

DOOR WAY THRESHOLD

⊞

HYDRANT

⊞

POST INDICATOR VALVE

⊞

UTILITY POLE

⊞

YARD LIGHT

⊞

RIP RAP

⊞

BOLLARD

⊞

SIGN

⊞

FIRE ALARM

⊞

DECIDUOUS TREE

⊞

CONIFEROUS TREE

LINE DESIGNATORS

—

WATER MAIN

—

OVERHEAD WIRES

—

GAS LINE

—

WATER SERVICE

—

UNDERGROUND ELECTRIC

—

STORM DRAIN LINE

—

SANITARY SEWER LINE

—

DRAINAGE SWALE

—

CHAIN LINK FENCE

BY

APP

DESCRIPTION

DATE

REV

ESS

ESS

3/15/21

1

WIDENED ROADWAY

6/7/21

2

DRAINAGE REVISION

6/29/21

3

ESS

8/6/21

4

ESS

9/9/21

5

ESS

8/1/25

6

ESS

ESS

ESS

ESS

ESS

ESS

MG

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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. 50917

REGISTERED PROFESSIONAL ENGINEER

APPLICANT:

GASPAR INVESTMENT INC.

265 WILLIS AVE.

MEDFORD, MASSACHUSETTS 02155

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

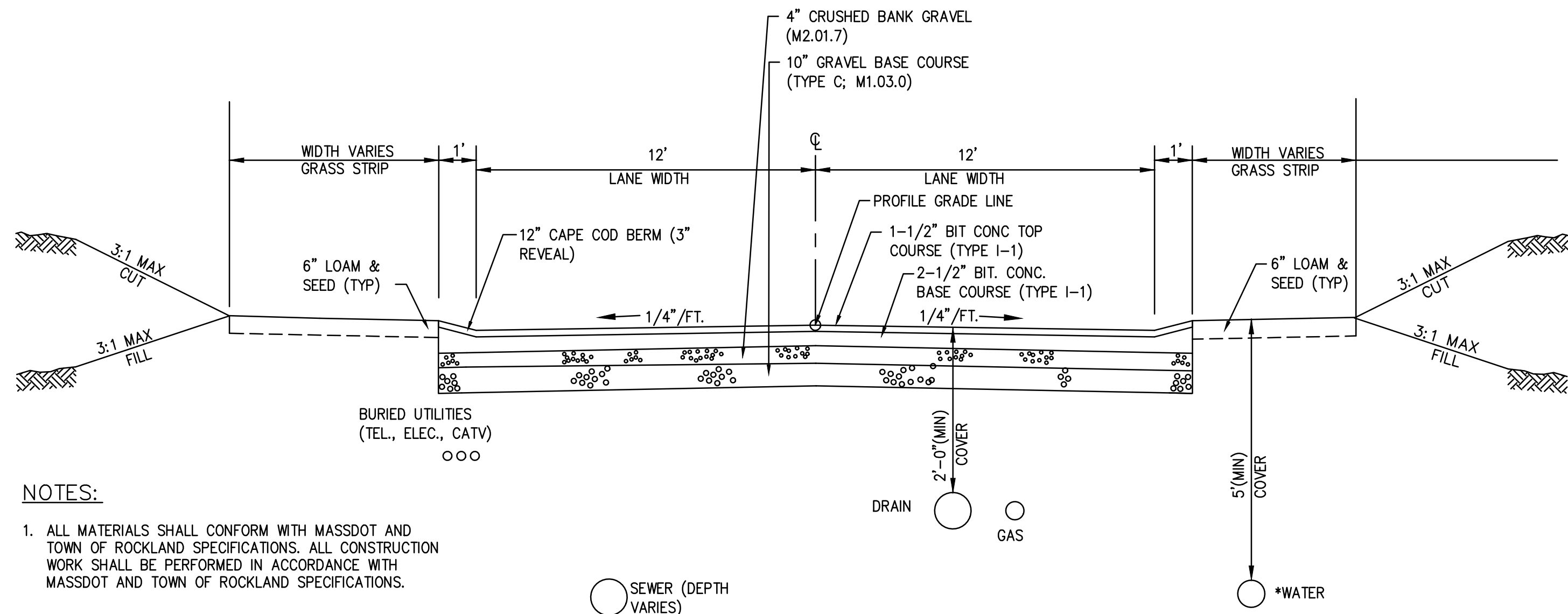
DWG. NO.:

C-3

© MCKENZIE ENGINEERING GROUP, INC.



LOCUS MAP
1"=300'

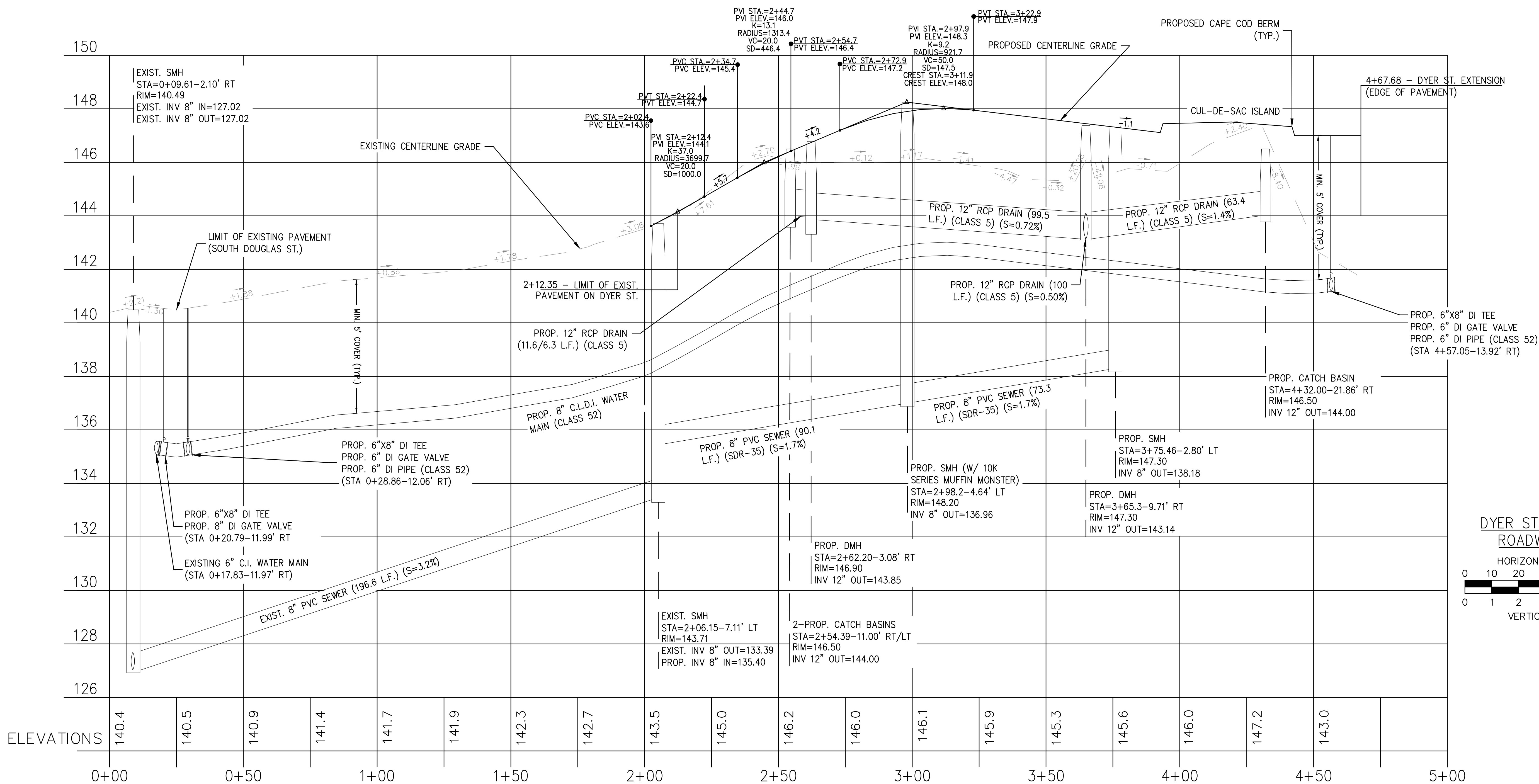


NOTES:

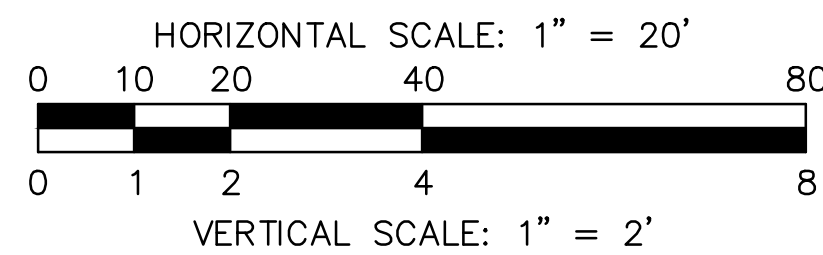
1. ALL MATERIALS SHALL CONFORM WITH MASSDOT AND TOWN OF ROCKLAND SPECIFICATIONS. ALL CONSTRUCTION WORK SHALL BE PERFORMED IN ACCORDANCE WITH MASSDOT AND TOWN OF ROCKLAND SPECIFICATIONS.

*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



© MCKENZIE ENGINEERING GROUP, INC.

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
6	8/7/25	PROP. DECKS AT DUKES	ESS	BCM



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

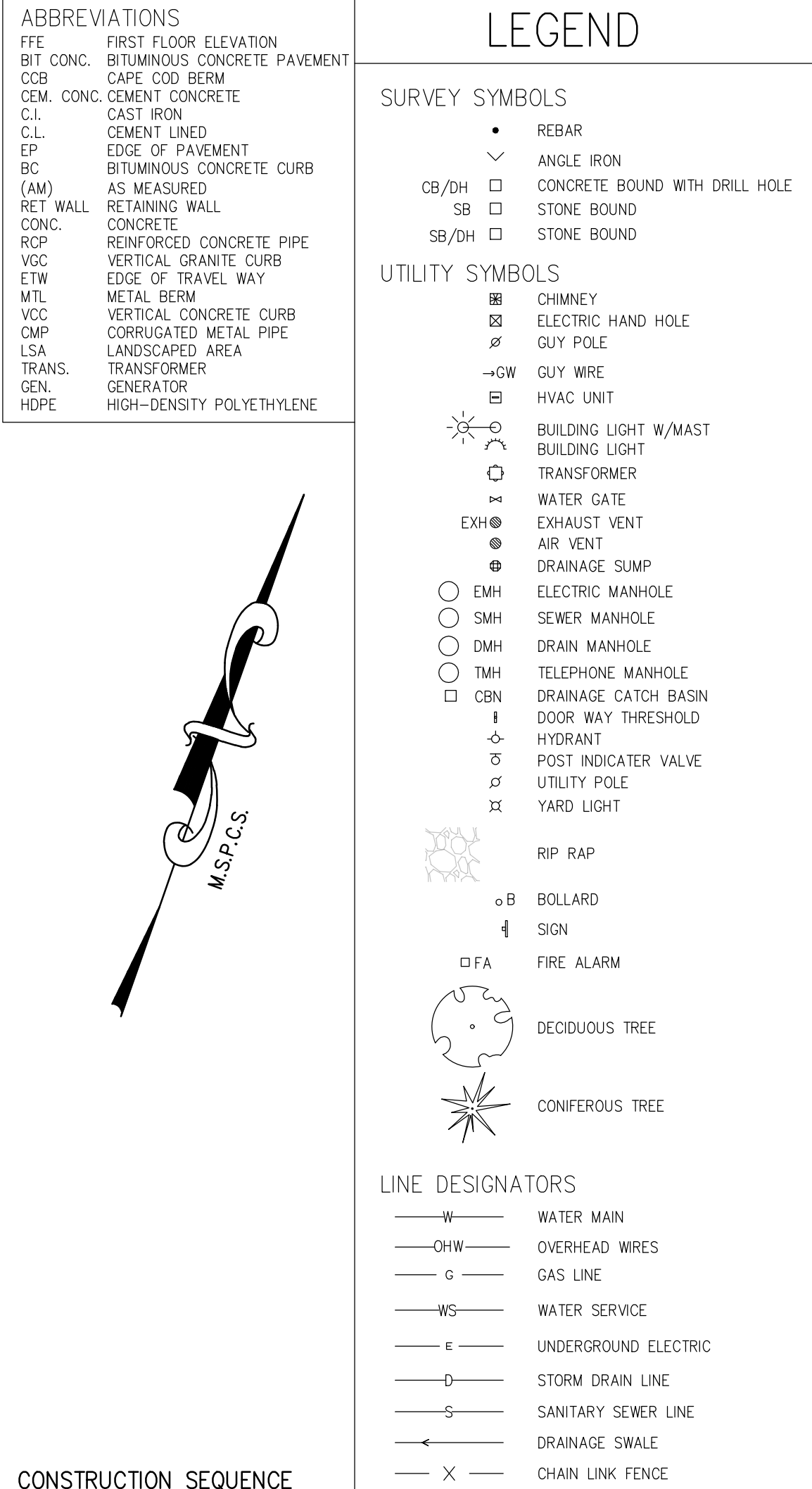
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DESIGNED BY:	ESS
CHECKED BY:	BCM
APPROVED BY:	BCM
DATE:	OCTOBER 23, 2020
SCALE:	AS NOTED
PROJECT NO.:	220-163
DWG. TITLE:	

ROADWAY
PROFILE

DWG. NO.:

C-4

PERMIT PLAN SET



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, IF POSSIBLE, TO AVOID EROSION OF STOCKPILES.
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 SILTSACKS 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 THE 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 SOIL AND LEAVE ALL DISTURBED AREAS. SLOPES GREATER THAN 3:1 SHALL BE STABILIZED WITH LITE 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/SURFACE 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 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.
- © MCKENZIE ENGINEERING GROUP, INC.

REV	DATE	DESCRIPTION	BY	APP
1	3/15/21	WIDEN ROADWAY	ESS	BCM
2	6/17/21	DRAINAGE REVISION	ESS	BCM
3	6/29/21	DRAINAGE REVISION	ESS	BCM
4	8/16/21	CUL-DE-SAC REVISION	ESS	BCM
5	9/9/21	CUL-DE-SAC REVISION	ESS	BCM
6	8/1/25	PROP. DECKS AT DUNE EXES	ESS	BCM

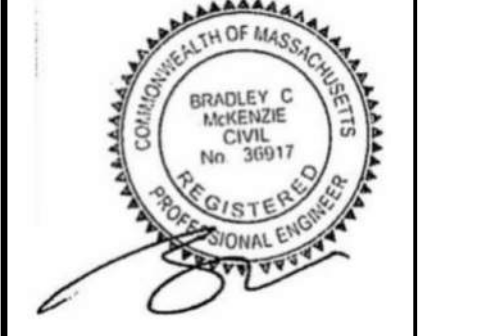


SITE DEVELOPMENT PLAN PINECREST TOWNHOMES

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

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DESIGNED BY:	ESS
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DATE:	OCTOBER 23, 2020
SCALE:	1"=30'
PROJECT NO.:	220-163
DWG. TITLE:	

EROSION AND SEDIMENT CONTROL PLAN

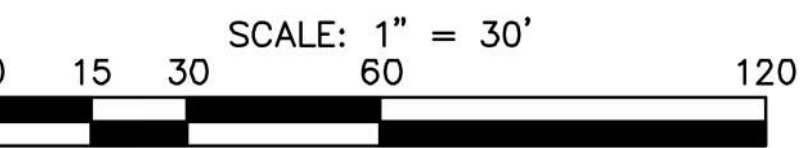
DWG. NO: **ESC-1**

PERMIT PLAN SET



- ABBREVIATIONS
- FTE FIRST FLOOR ELEVATION
 - BIT CONC. BITUMINOUS CONCRETE PAVEMENT
 - CCB CAPE COD BERM
 - CEM. CONC. CEMENT CONCRETE
 - CL. CAST IRON
 - C.L. CEMENT LINED
 - EP EDGE OF PAVEMENT
 - BC BITUMINOUS CONCRETE CURB
 - 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
 - GUY WIRE
 - HVAC UNIT
 - BUILDING LIGHT W/MAST
 - BUILDING LIGHT
 - TRANSFORMER
 - WATER GATE
 - EXHAUST VENT
 - AIR VENT
 - DRAINAGE SUMP
 - EMH ELECTRIC MANHOLE
 - SMH SEWER MANHOLE
 - DMH DRAIN MANHOLE
 - TMH TELEPHONE MANHOLE
 - DRAINAGE CATCH BASIN
 - DOOR WAY THRESHOLD
 - HYDRANT
 - POST INDICATOR VALVE
 - UTILITY POLE
 - YARD LIGHT
 - RIP RAP
 - BOLLARD
 - SIGN
 - FIRE ALARM
 - DECIDUOUS TREE
 - CONIFEROUS TREE
- LINE DESIGNATORS
- W WATER MAIN
 - OHW OVERHEAD WRES
 - G GAS LINE
 - WS WATER SERVICE
 - E UNDERGROUND ELECTRIC
 - D STORM DRAIN LINE
 - S SANITARY SEWER LINE
 - SW DRAINAGE SWALE
 - X CHAIN LINK FENCE



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

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

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).

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

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

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

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

APN 34-82-0
ROBERT & MARY LUTZ
32 SOUTH DOUGLAS STREET
DEED BK 39761 - 208

APN 34-81-0
GEORGE & KAREN GRASS
40 SOUTH DOUGLAS STREET
DEED BK 19790 - 48

APN 34-80-0
LISA M. MURPHY
48 SOUTH DOUGLAS STREET
DEED BK 25628 - 24

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

APN 34-78-0
TY VAN LE JR.
530 UNION STREET
DEED BK 5976 - 109

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

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

MCKENZIE ENGINEERING GROUP

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SITE DEVELOPMENT PLAN

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

PROFESSIONAL ENGINEER:

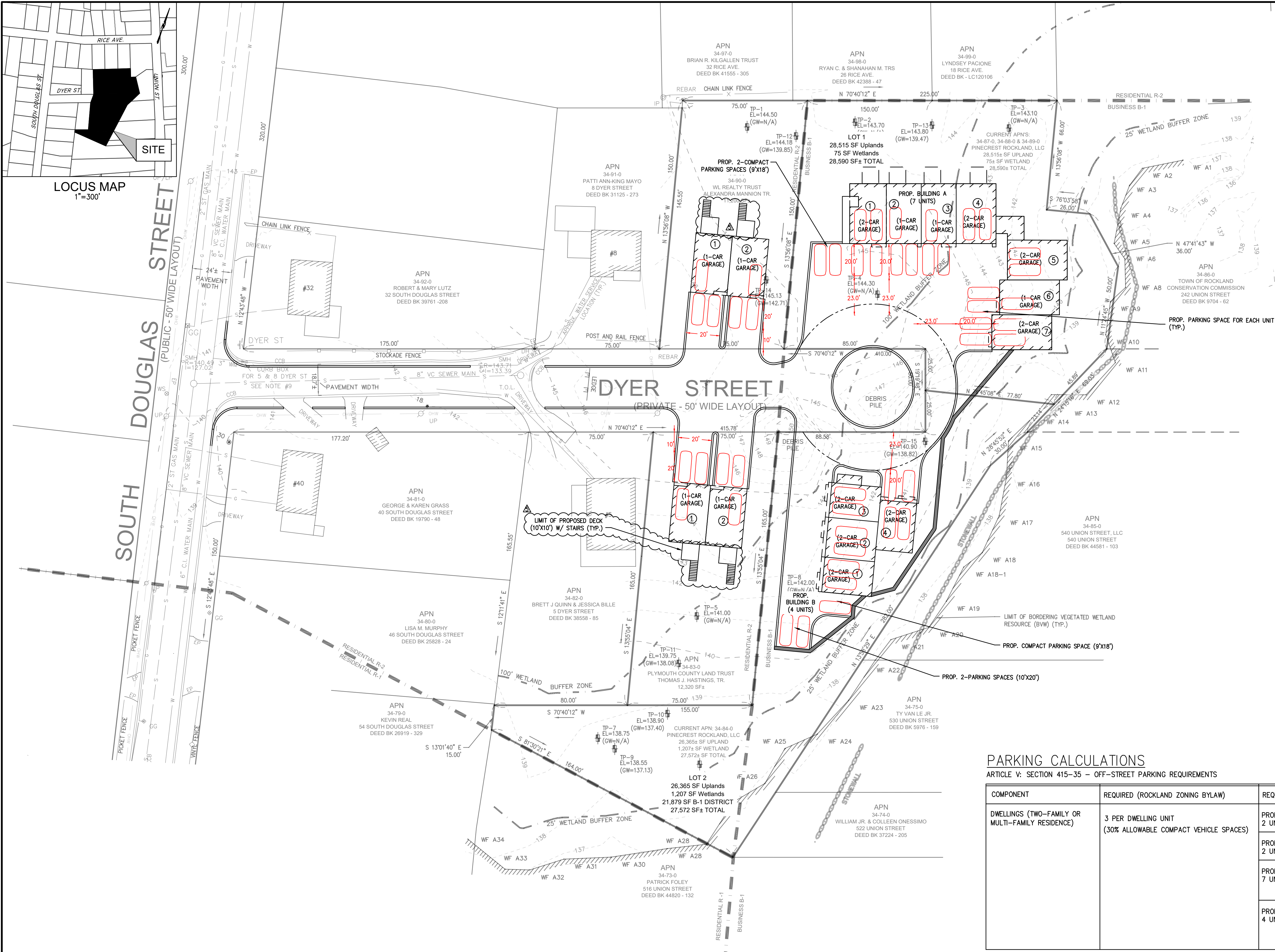
APPLICANT:
GASPAR INVESTMENT INC.
265 WILIS AVE.
MEDFORD, MASSACHUSETTS 02155

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:

PERMIT PLAN SET

LANDSCAPING PLAN

DWG. NO.: LA-1

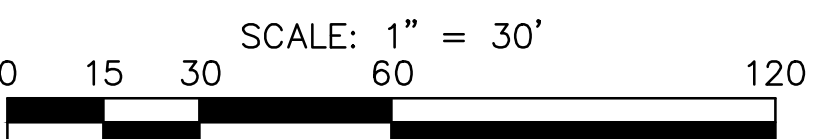


ABBREVIATIONS

FFE	FIRST FLOOR ELEVATION
BIT CONC.	BITUMINOUS CONCRETE PAVEMENT
CBM	CAPE COD BERM
CCM	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
CB/DH	CONCRETE BOUND WITH DRILL HOLE
SB	STONE BOUND
SB/DH	STONE BOUND
UTILITY SYMBOLS	
CHIMNEY	CHIMNEY
ELECTRIC HAND HOLE	ELECTRIC HAND HOLE
GUY POLE	GUY POLE
GUY WIRE	GUY WIRE
HYVAC UNIT	HYVAC UNIT
BUILDING LIGHT W/MAST	BUILDING LIGHT W/MAST
BUILDING LIGHT	BUILDING LIGHT
TRANSFORMER	TRANSFORMER
WATER GATE	WATER GATE
EXHAUST VENT	EXHAUST VENT
AIR VENT	AIR VENT
DRAINAGE SUMP	DRAINAGE SUMP
ELECTRIC MANHOLE	ELECTRIC MANHOLE
SEWER MANHOLE	SEWER MANHOLE
DRAIN MANHOLE	DRAIN MANHOLE
TELEPHONE MANHOLE	TELEPHONE MANHOLE
DRAINAGE CATCH BASIN	DRAINAGE CATCH BASIN
DOOR WAY THRESHOLD	DOOR WAY THRESHOLD
HYDRANT	HYDRANT
POST INDICATOR VALVE	POST INDICATOR VALVE
UTILITY POLE	UTILITY POLE
YARD LIGHT	YARD LIGHT
RIP RAP	RIP RAP
BOLLARD	BOLLARD
SIGN	SIGN
FIRE ALARM	FIRE ALARM
DECIDUOUS TREE	DECIDUOUS TREE
CONIFEROUS 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
X	DRAINAGE SWALE
X	CHAIN LINK FENCE



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)

BY APP

DESCRIPTION

DATE

REV

1 6/7/21

2 6/29/21

3 8/16/21

4 9/9/21

5 8/1/25

DRAINAGE REVISION

REVISION

DRAINAGE REVISION

DRAINAGE REVISION

CUL-DE-SAC REVISION

PROG. BEGS AT DUPLEXES

MCKENZIE ENGINEERING GROUP

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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

DRAWN BY: ESS

DESIGNED BY: ESS

CHECKED BY: BCM

APPROVED BY: BCM

DATE: MARCH 15, 2021

SCALE: 1"=30'

PROJECT NO.: 220-163

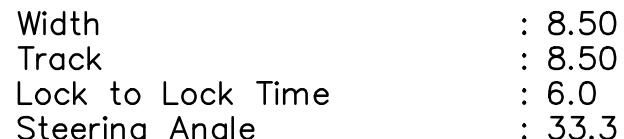
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PARKING PLAN

DWG. NO:

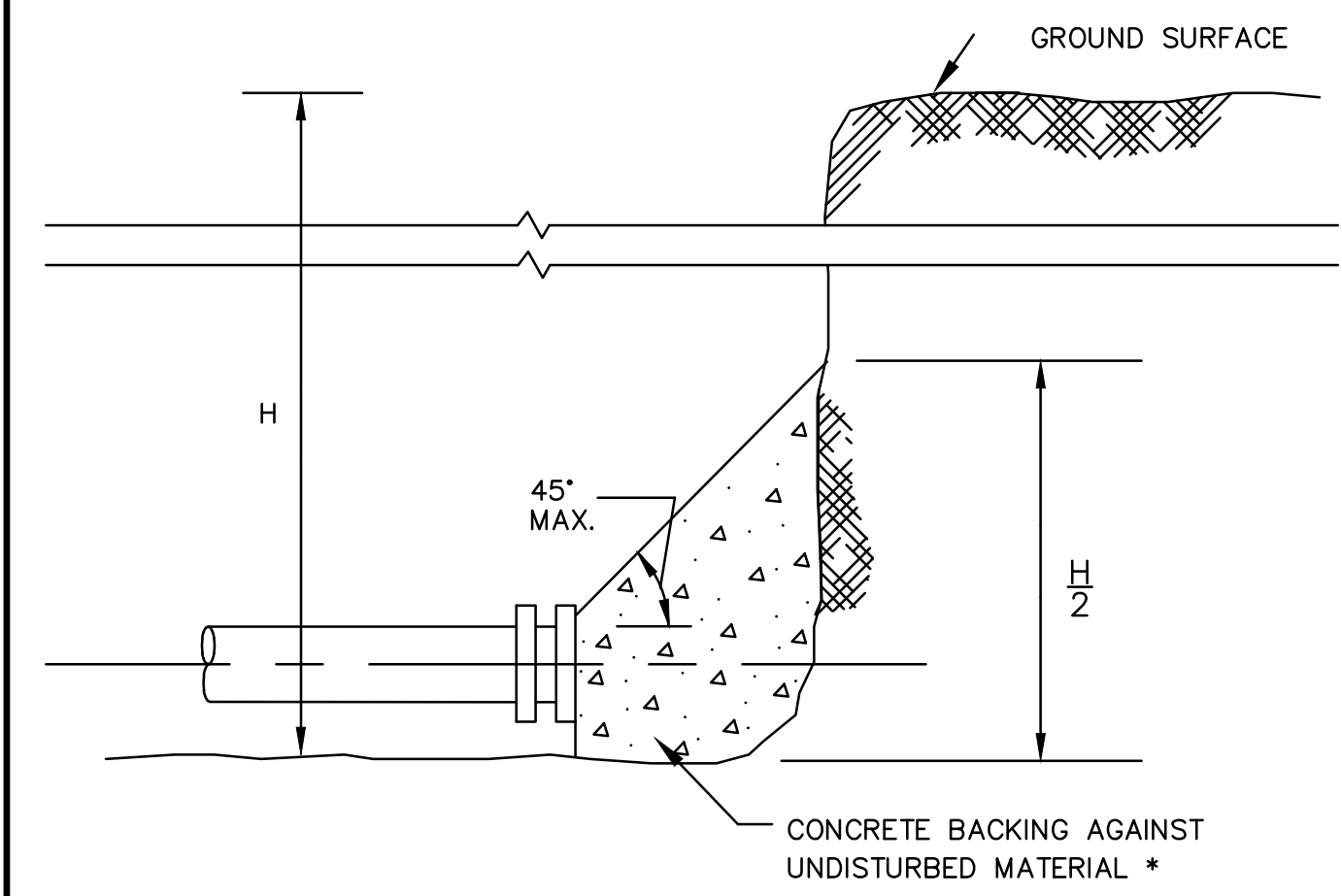
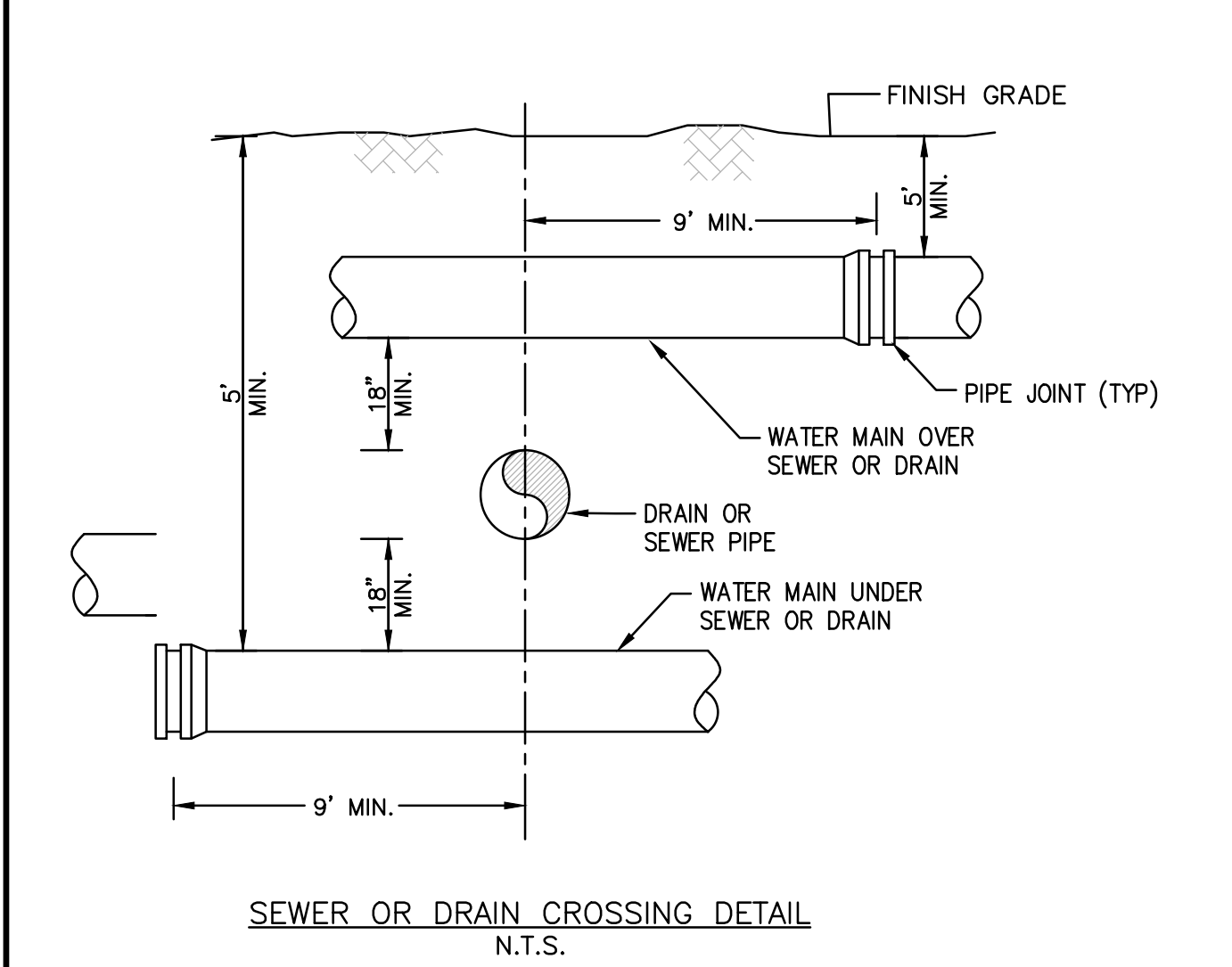
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PERMIT PLAN SET

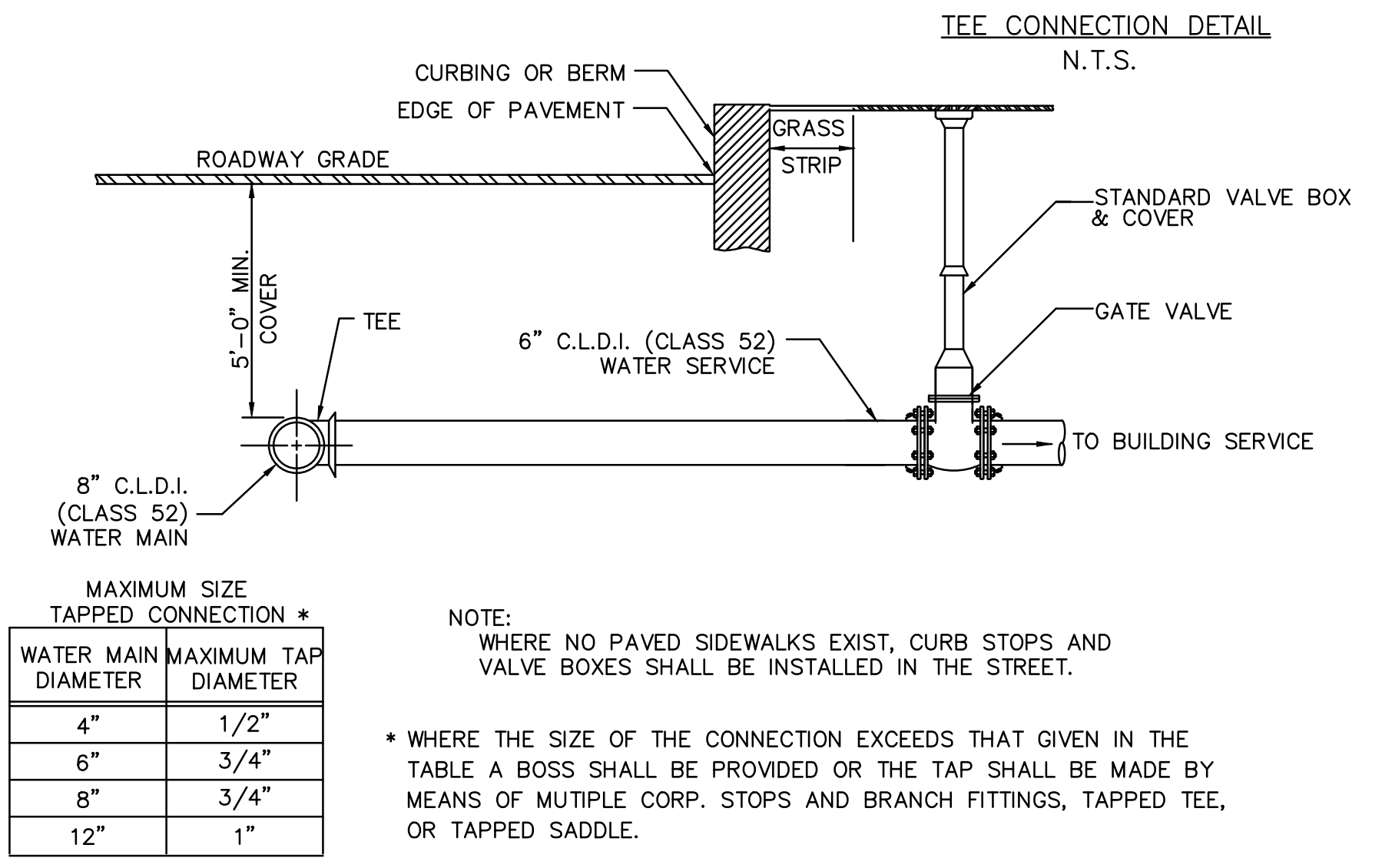
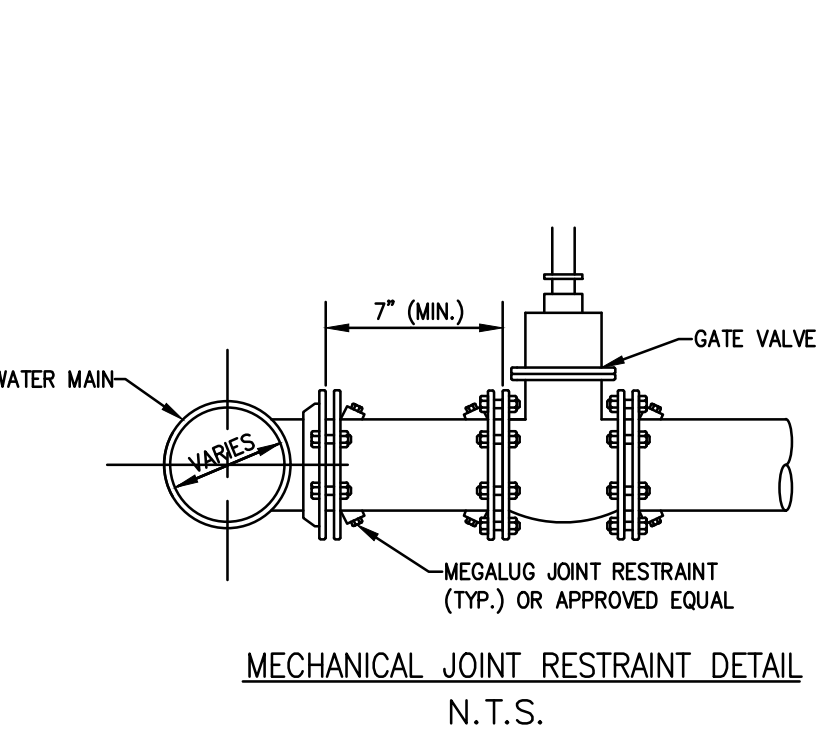
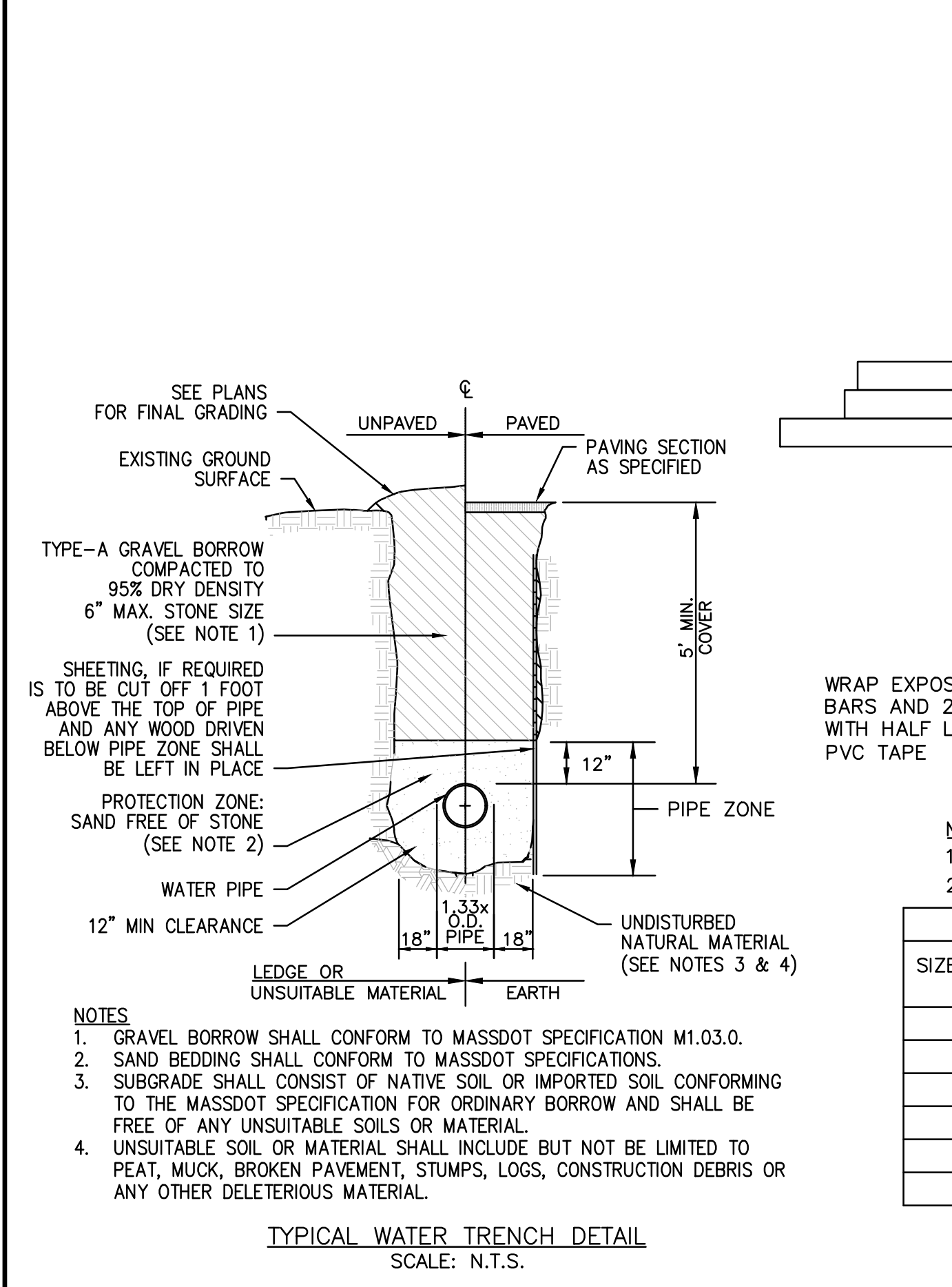


NOTE: LIMIT OF BUMPER OVERHANG IS SHOWN IN RED. VEHICLE WHEEL PATH IS SHOWN AS BLACK LINES.

DWG. NO: T-1

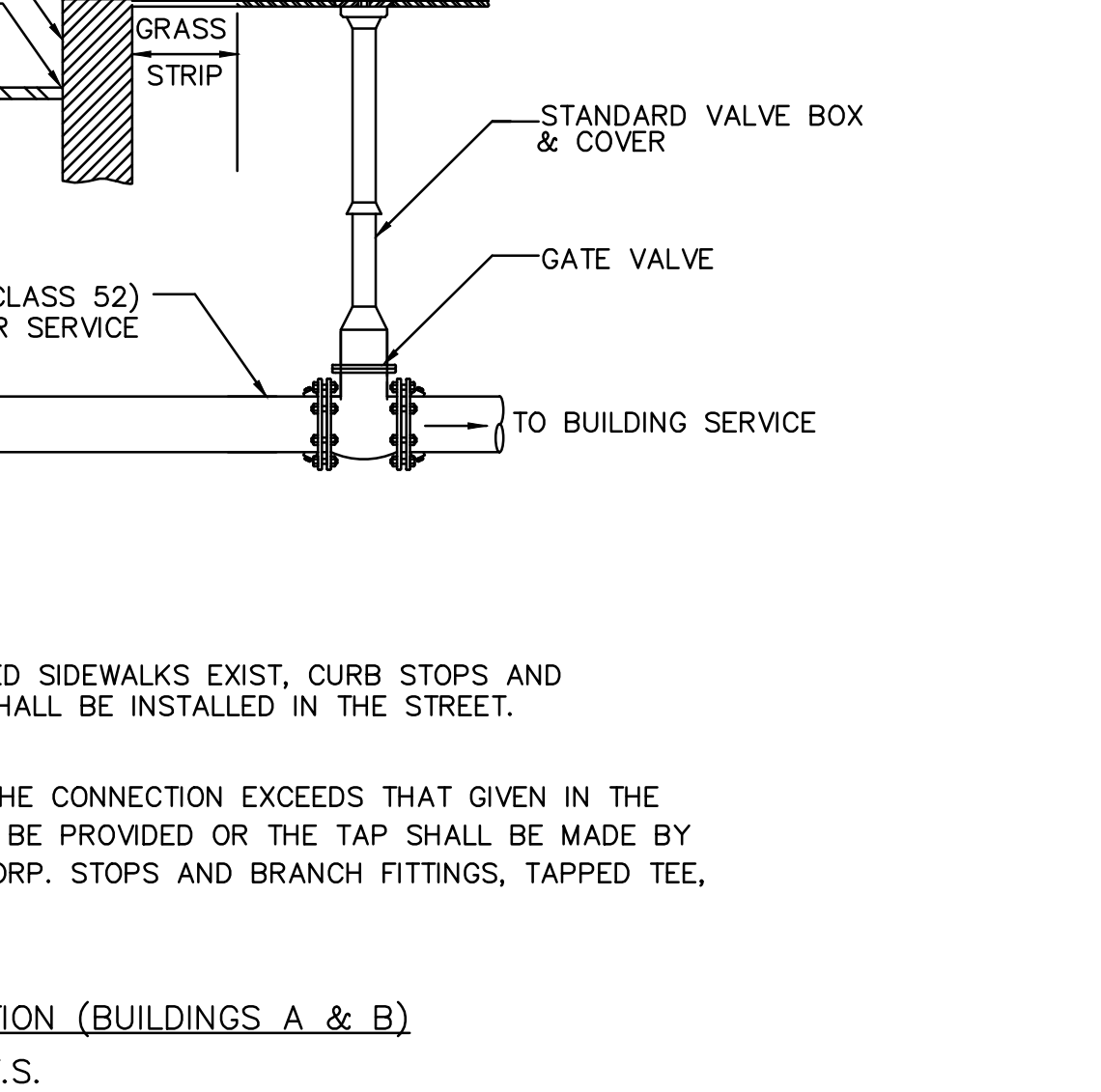
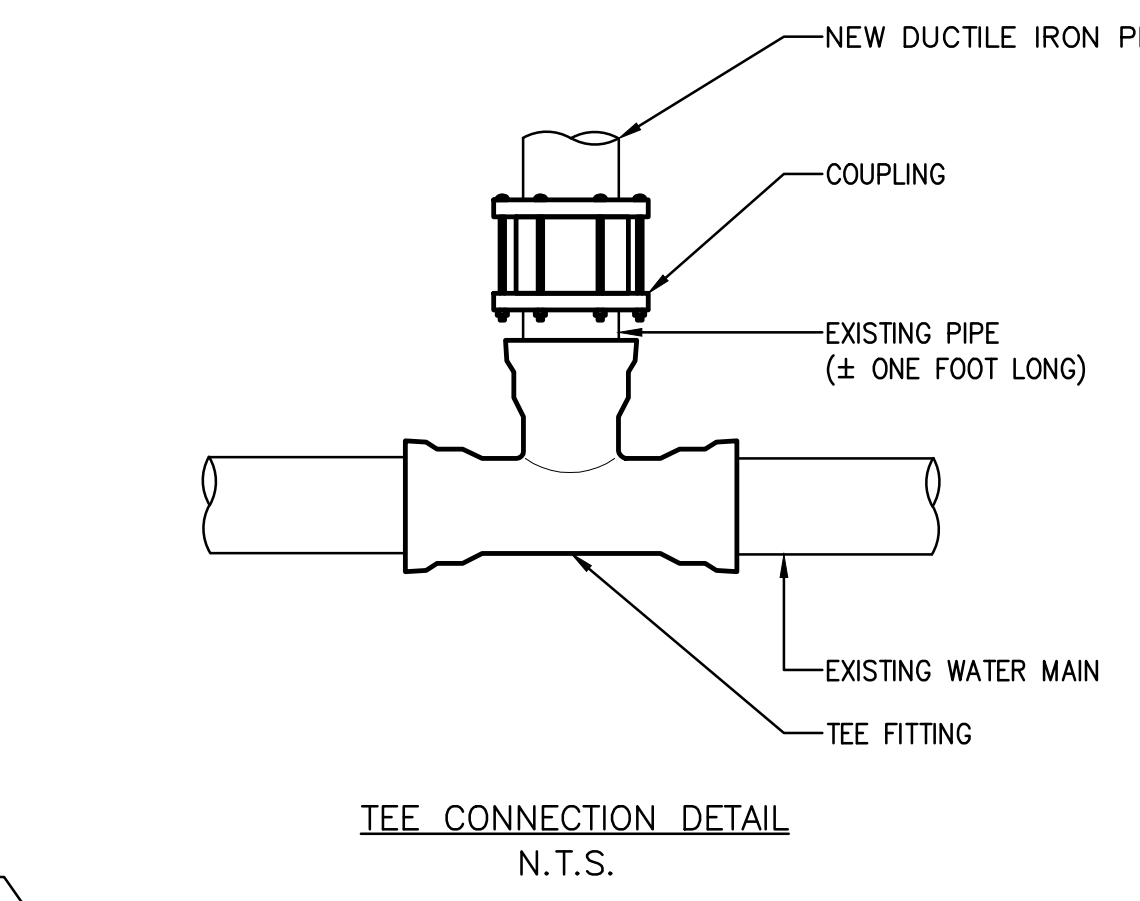
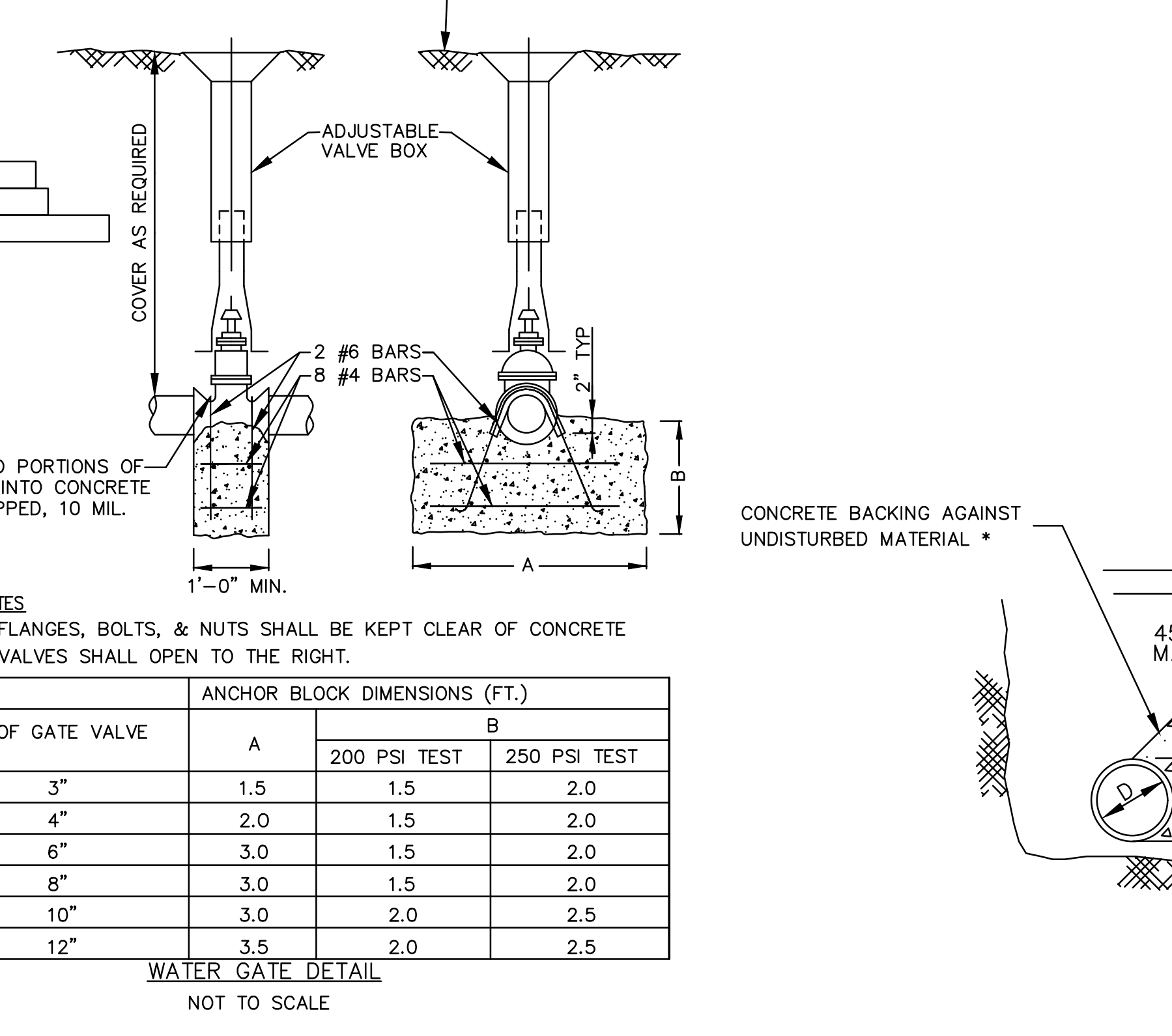


TYPICAL WATER MAIN PLUG
NOT TO SCALE



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

MAXIMUM SIZE TAPPED CONNECTION *	
WATER MAIN DIAMETER	MAXIMUM TAP DIAMETER
4"	1/2"
6"	3/4"
8"	3/4"
12"	1"



ANCHOR BLOCK DIMENSIONS (FT.)	
SIZE OF GATE VALVE	A
3"	1.5
4"	2.0
6"	3.0
8"	3.0
10"	3.0
12"	3.5

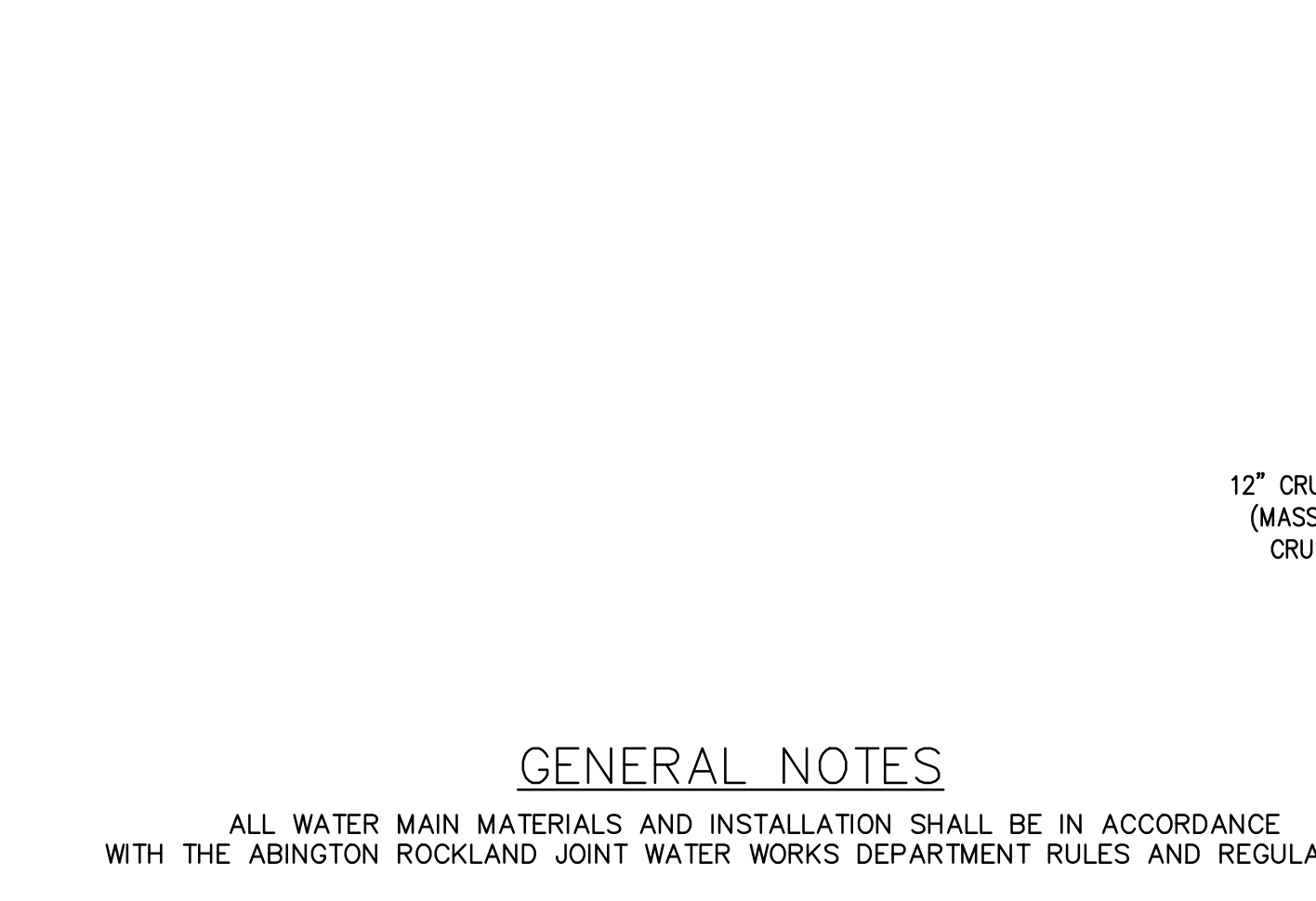
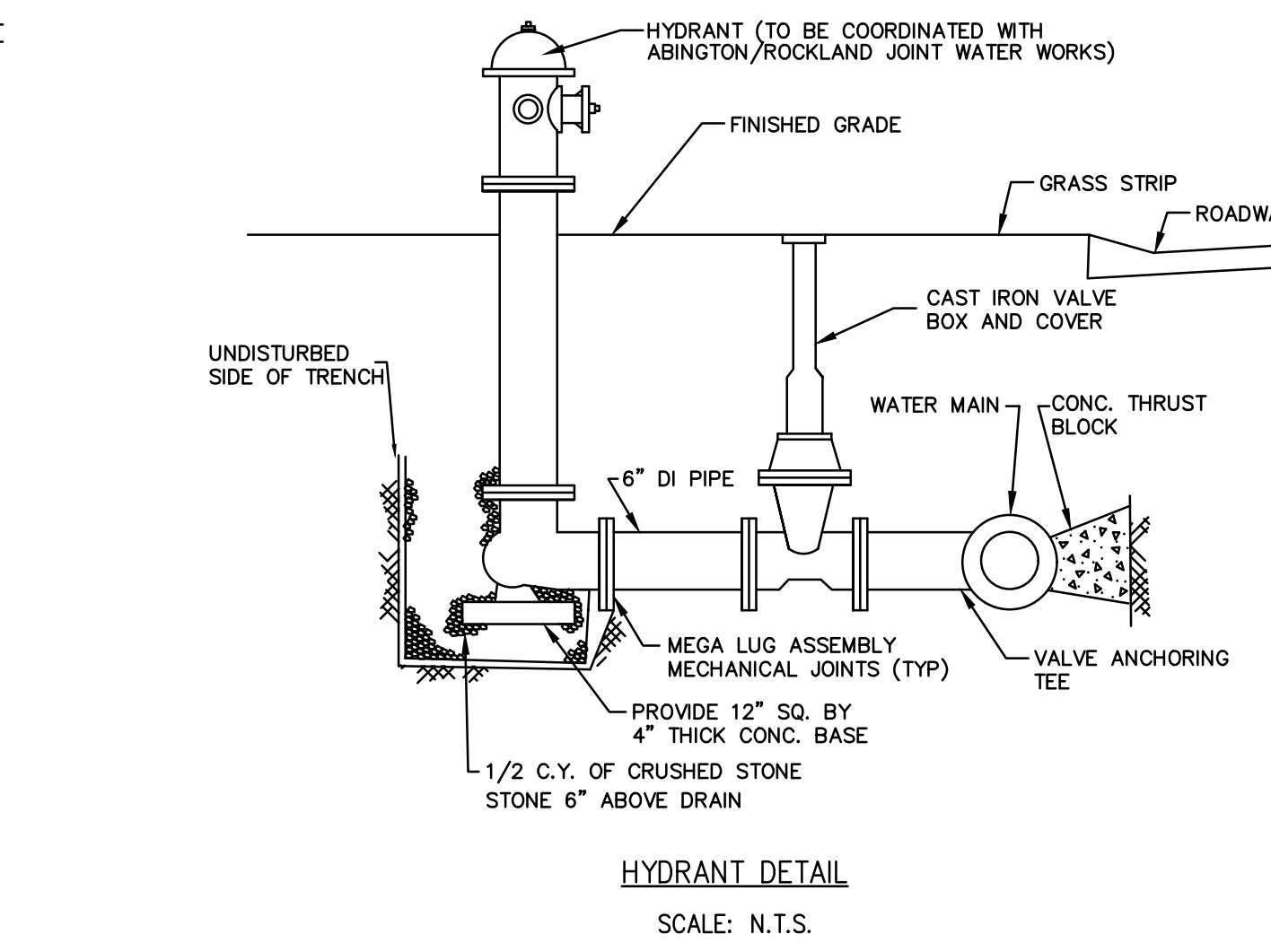


TABLE OF BEARING AREAS IN SQ. FT. AGAINST UNDISTURBED MATERIAL FOR WATER MAIN FITTINGS*	
SIZE OF MAIN (IN.)	90° BEND
6	4
8	6
12	12
16	21

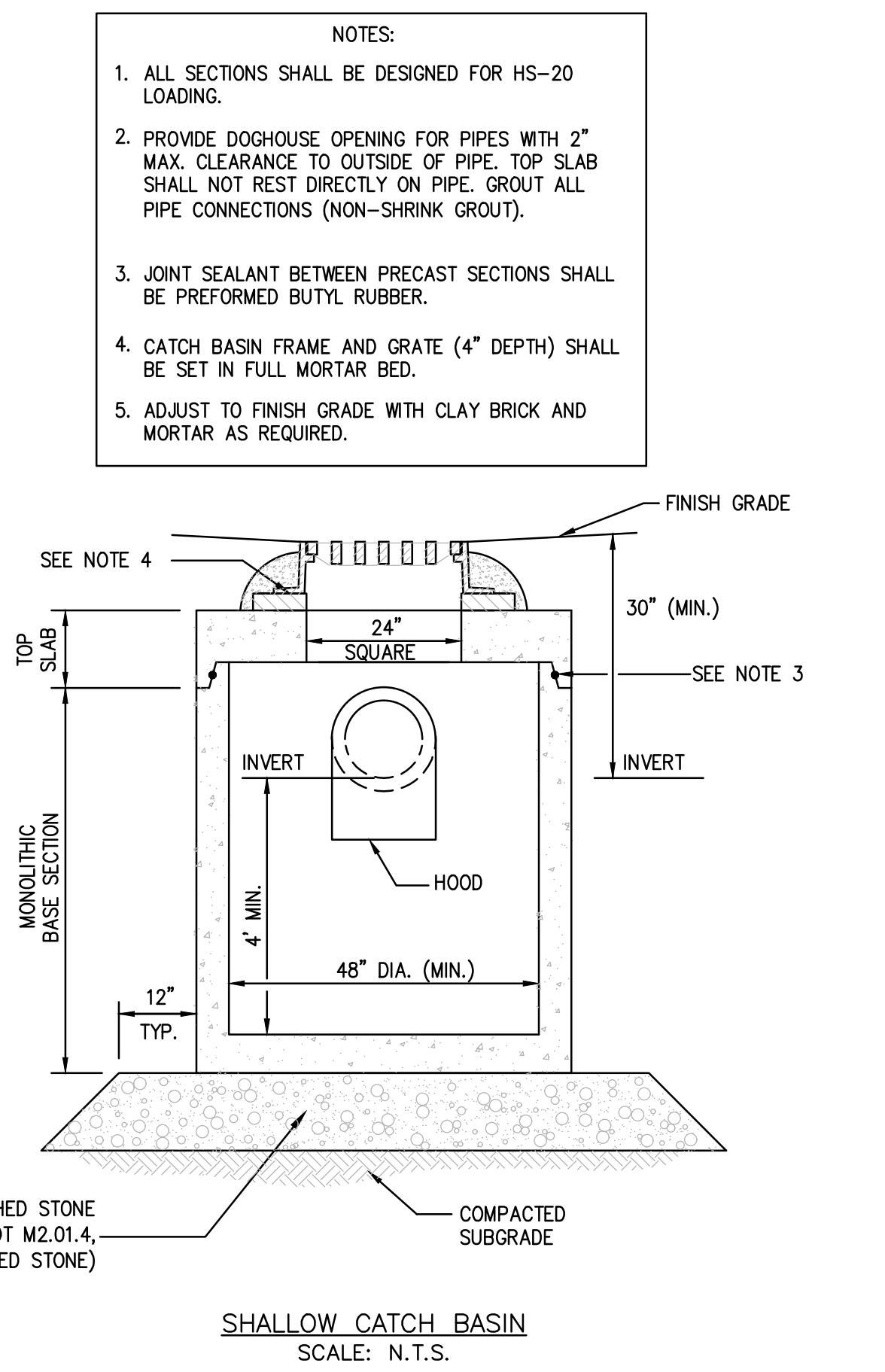
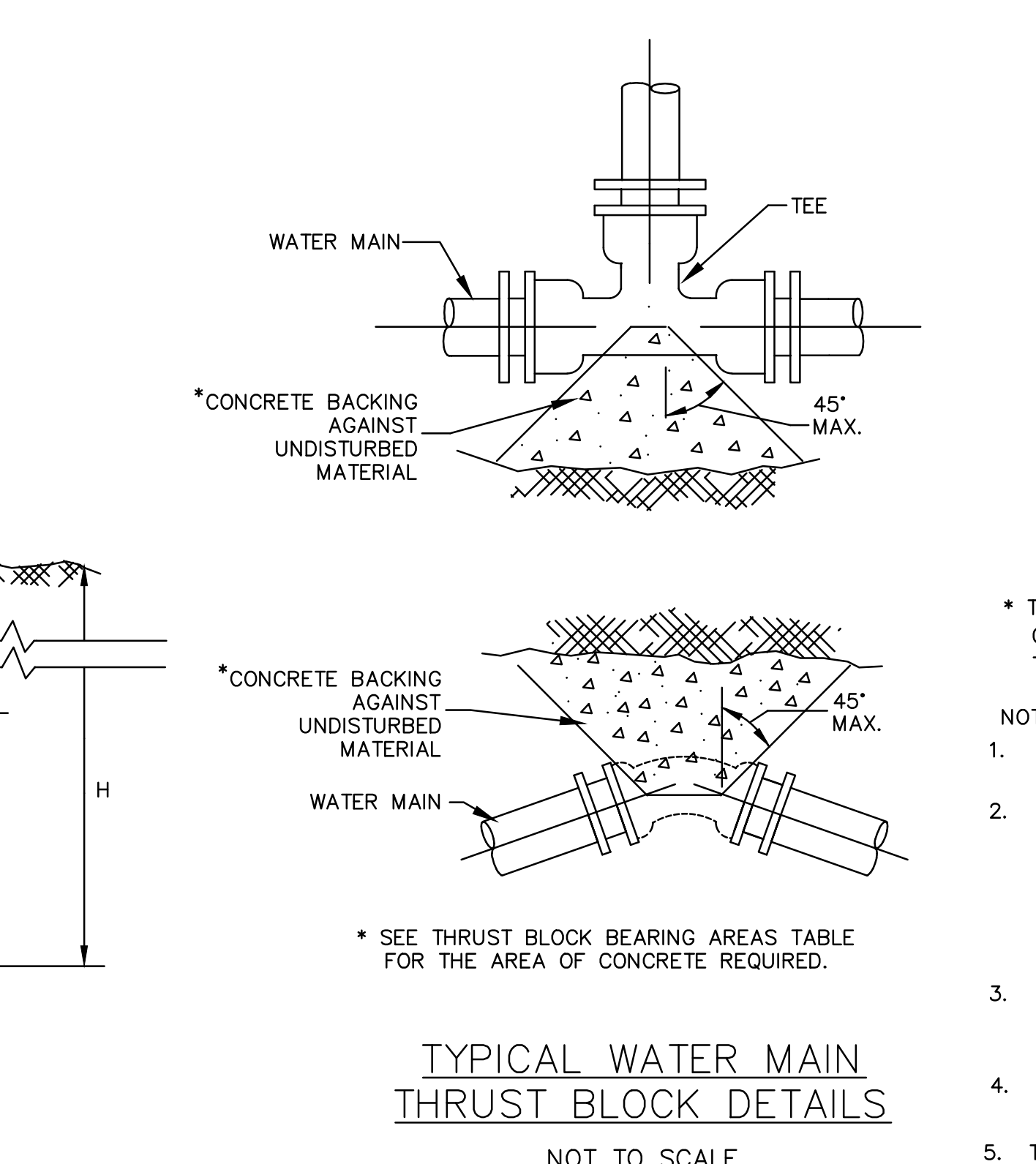
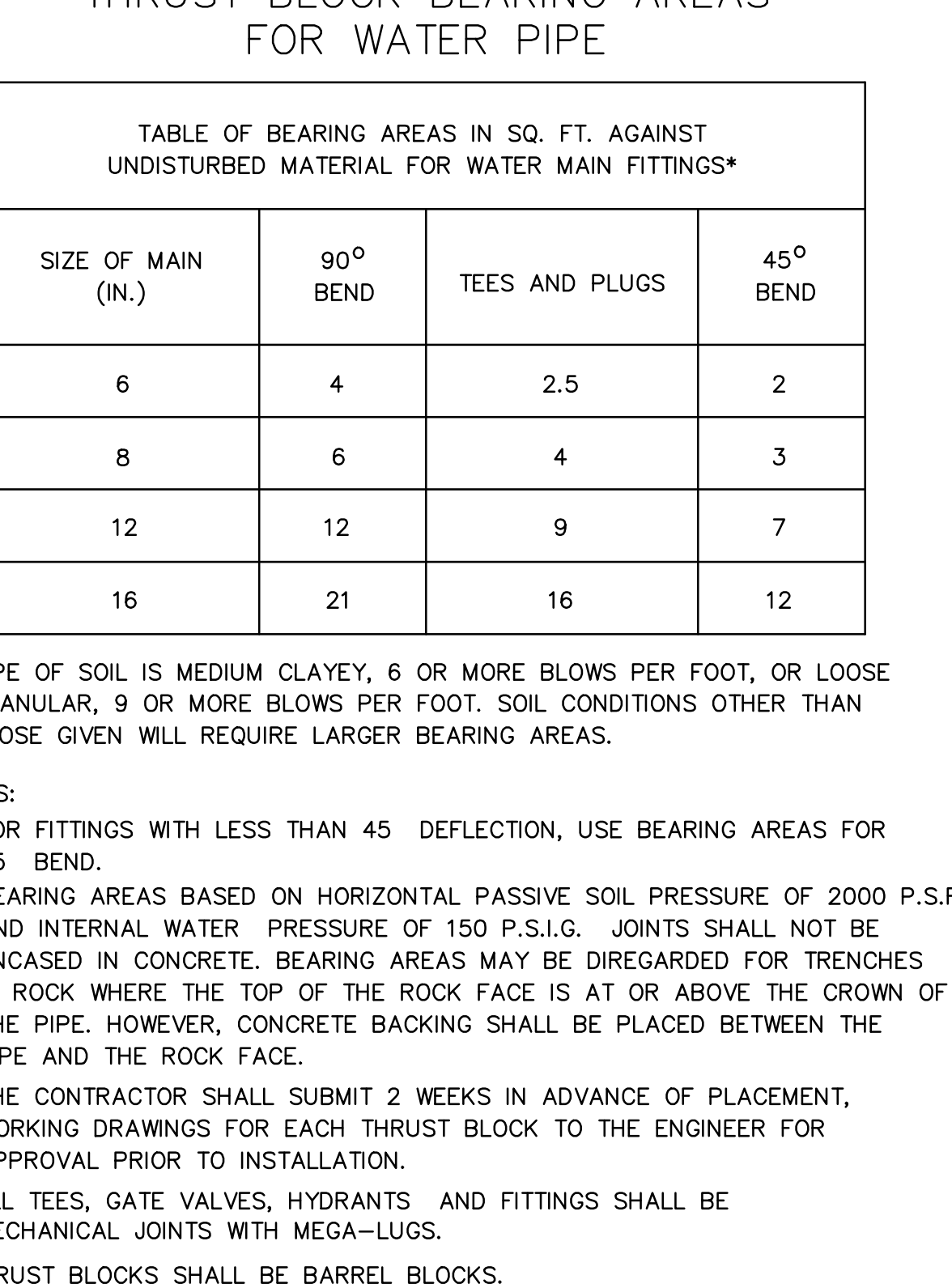


TABLE OF BEARING AREAS IN SQ. FT. AGAINST UNDISTURBED MATERIAL FOR WATER MAIN FITTINGS*	
SIZE OF MAIN (IN.)	90° BEND
6	4
8	6
12	12
16	21



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.

GENERAL NOTES

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

- IF SHEETING IS USED, IT SHALL BE CUT OFF NO MORE THAN 12" ABOVE TOP OF PIPE.
- ALL PIPES SHALL BE PRESSURE TESTED AT 200 PSI WORKING PRESSURE FOR A MINIMUM DURATION OF TWO HOUR.
- 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.
- 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.
- ALL PIPING SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH A.W.W.A. STANDARDS PRIOR TO PAVING IF PAVING ABOVE TRENCH IS REQUIRED.
- BACKFILL IS TO BE COMPACTED TO 90% MAXIMUM DRY DENSITY BY AASHTO T-180 D.
- ALL WATER PIPE SHALL BE LAID WITH A MINIMUM OF 5 FEET OF COVER OF APPROVED MATERIALS.
- ALL HYDRANT LOCATIONS ARE TO BE APPROVED BY FIRE DEPARTMENT.
- RESULTS FROM PRESSURE TESTING AND DISINFECTION SHALL BE FURNISHED TO THE DIRECTOR OF PUBLIC WORKS FOR APPROVAL PRIOR TO WATER BEING TURNED ON.
- ALL WORK SHALL BE IN CONFORMANCE WITH ABINGTON ROCKLAND JOINT WATER WORKS DEPARTMENT STANDARDS.
- ALL PERMITS REQUIRED FOR STREET OPENINGS AND WATER MAIN TAPPING MUST BE OBTAINED.
- NO WATER WILL BE TURNED ON IN THE PROJECT WITHOUT ABINGTON ROCKLAND JOINT WATER WORKS DEPARTMENT APPROVAL.

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
6	4
8	6
12	12
16	21

* 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:
- FOR FITTINGS WITH LESS THAN 45 DEFLECTION, USE BEARING AREAS FOR 45 BEND.
 - 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 DIERGARED 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.
 - THE CONTRACTOR SHALL SUBMIT 2 WEEKS IN ADVANCE OF PLACEMENT, WORKING DRAWINGS FOR EACH THRUST BLOCK TO THE ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.
 - ALL TEES, GATE VALVES, HYDRANTS AND FITTINGS SHALL BE MECHANICAL JOINTS WITH MEGA-LUGS.
 - THRUST BLOCKS SHALL BE BARREL BLOCKS.

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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	OUT-DE-SAC REVISION	ESS	BCM
5	9/9/21	OUT-DE-SAC REVISION	ESS	BCM
6	8/1/25	PROP. DECKS AT DUPLEXES	ESS	BCM

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 150 Longwater Drive, Suite 101
 Norwell, MA 02061
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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:

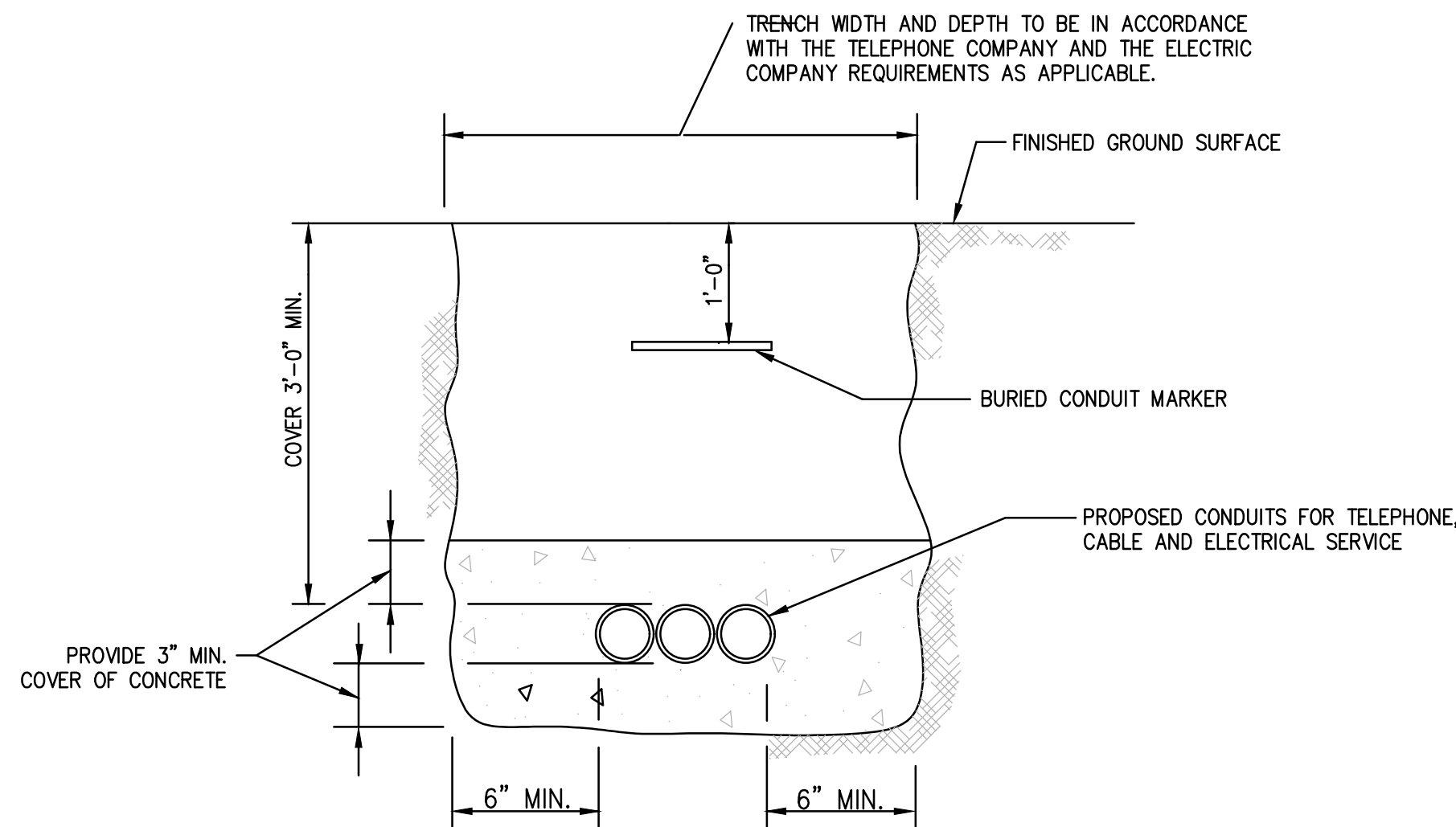
 BRADLEY C. MCKENZIE
 CIVIL
 No. 30917
 REGISTERED PROFESSIONAL ENGINEER
 STATE OF MASSACHUSETTS

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

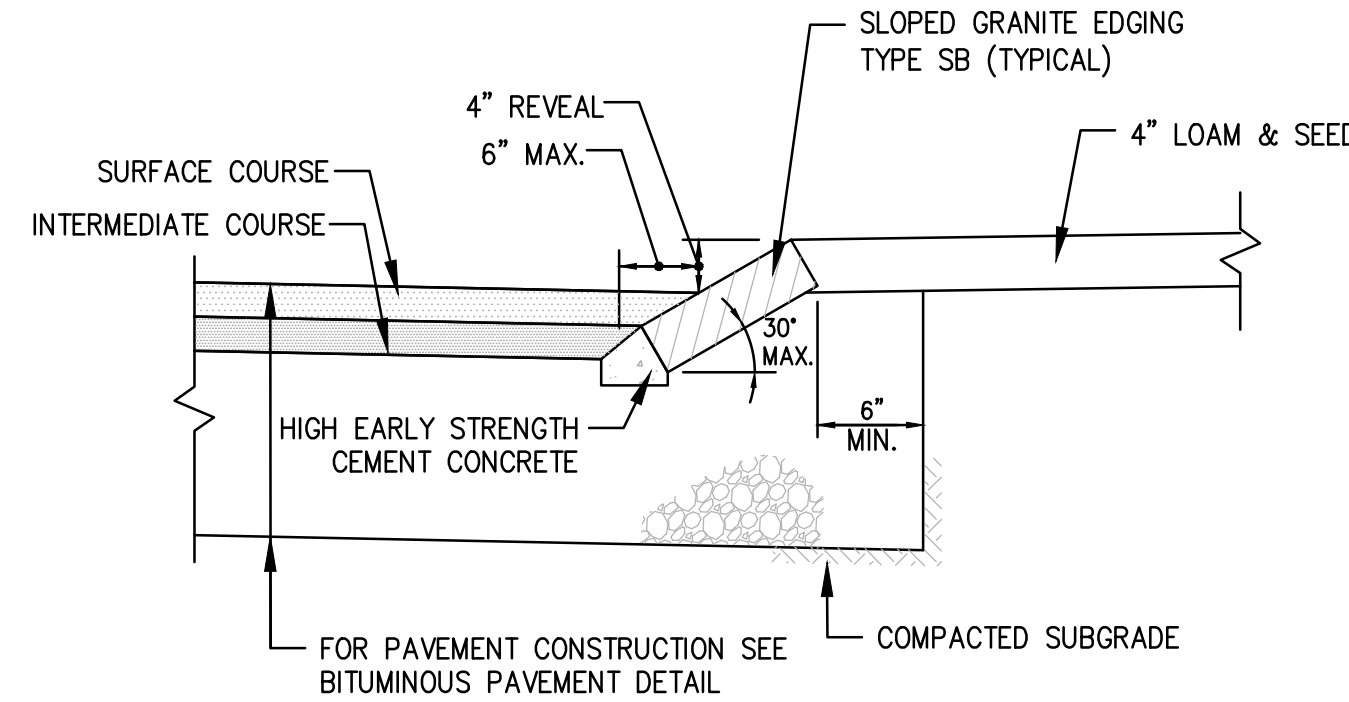
DRAWN BY: ESS
 DESIGNED BY: ESS
 CHECKED BY: BCM
 APPROVED BY: BCM
 DATE: OCTOBER 23, 2020
 SCALE:
 PROJECT NO.: 220-163
 DWG. TITLE:

CONSTRUCTION DETAILS
 DWG. NO.: **D-1**

PERMIT PLAN SET



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



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

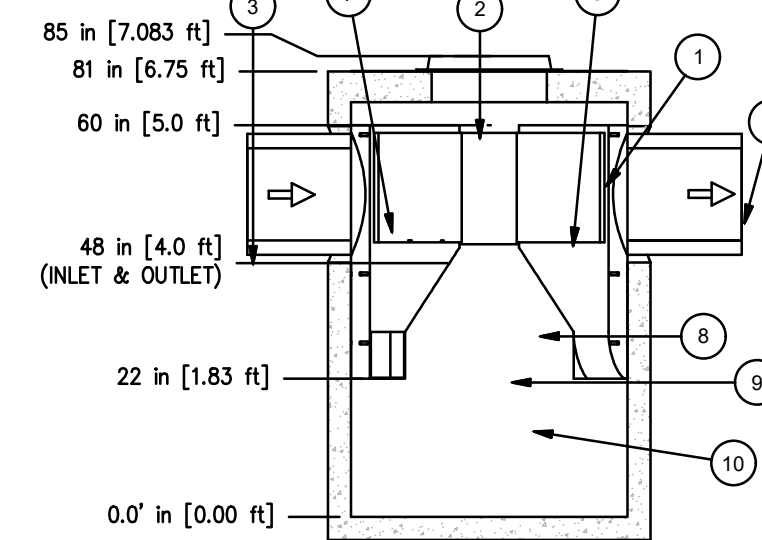
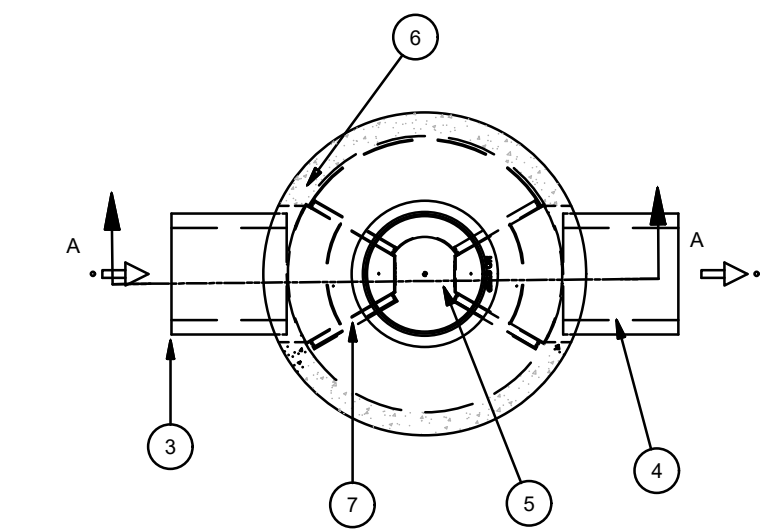
Hydro
International
Stormwater Solutions
94 Hutchins Drive
Portland, Maine 04102
Tel: (207) 756-6200
Fax: (207) 756-6212
stormwaterinquiry@hydro-int.com

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.

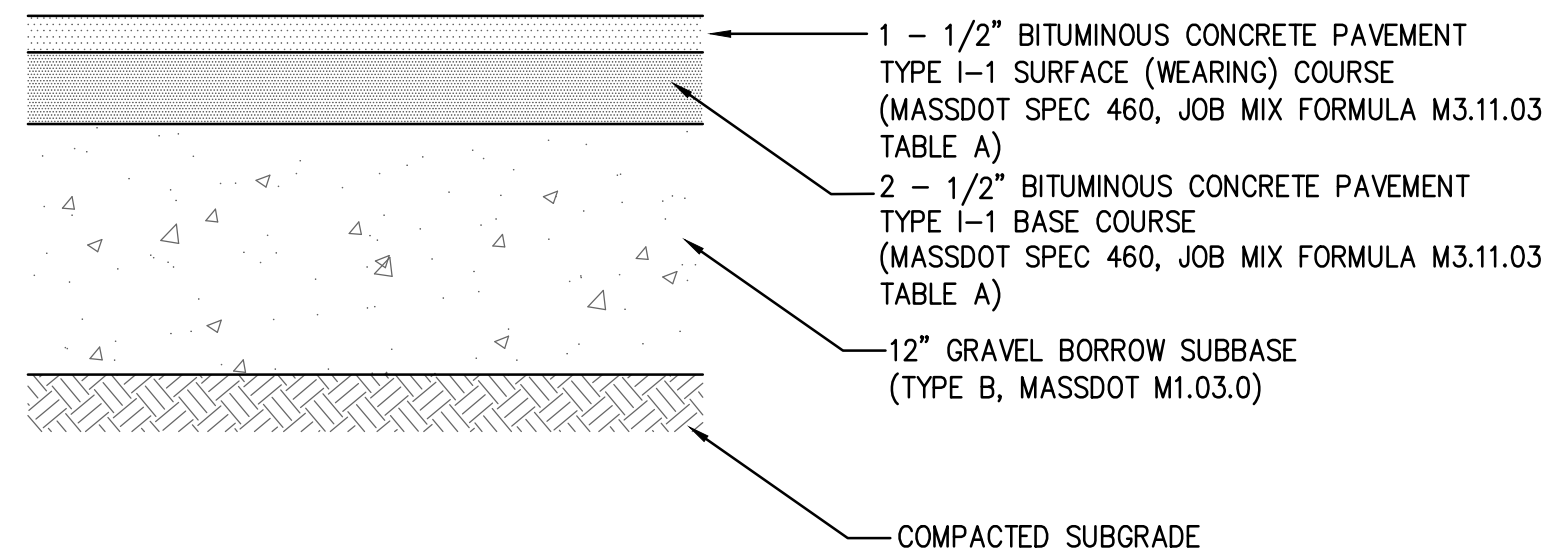
Parts List			
ITEM	QTY.	DESCRIPTION	SIZE (in)
1	2	I.D. CONCRETE MANHOLE	48
2	2	INLET CHUTE (W/ FLOATABLES TRAP)	
3	2	OUTLET CHUTE	
4	2	INLET PIPE (BY OTHERS)	12
5	2	OUTLET PIPE (BY OTHERS)	12
6	2	HIGH FLOW BYPASS	
7	2	FRAME AND COVER (OR GRATE)	



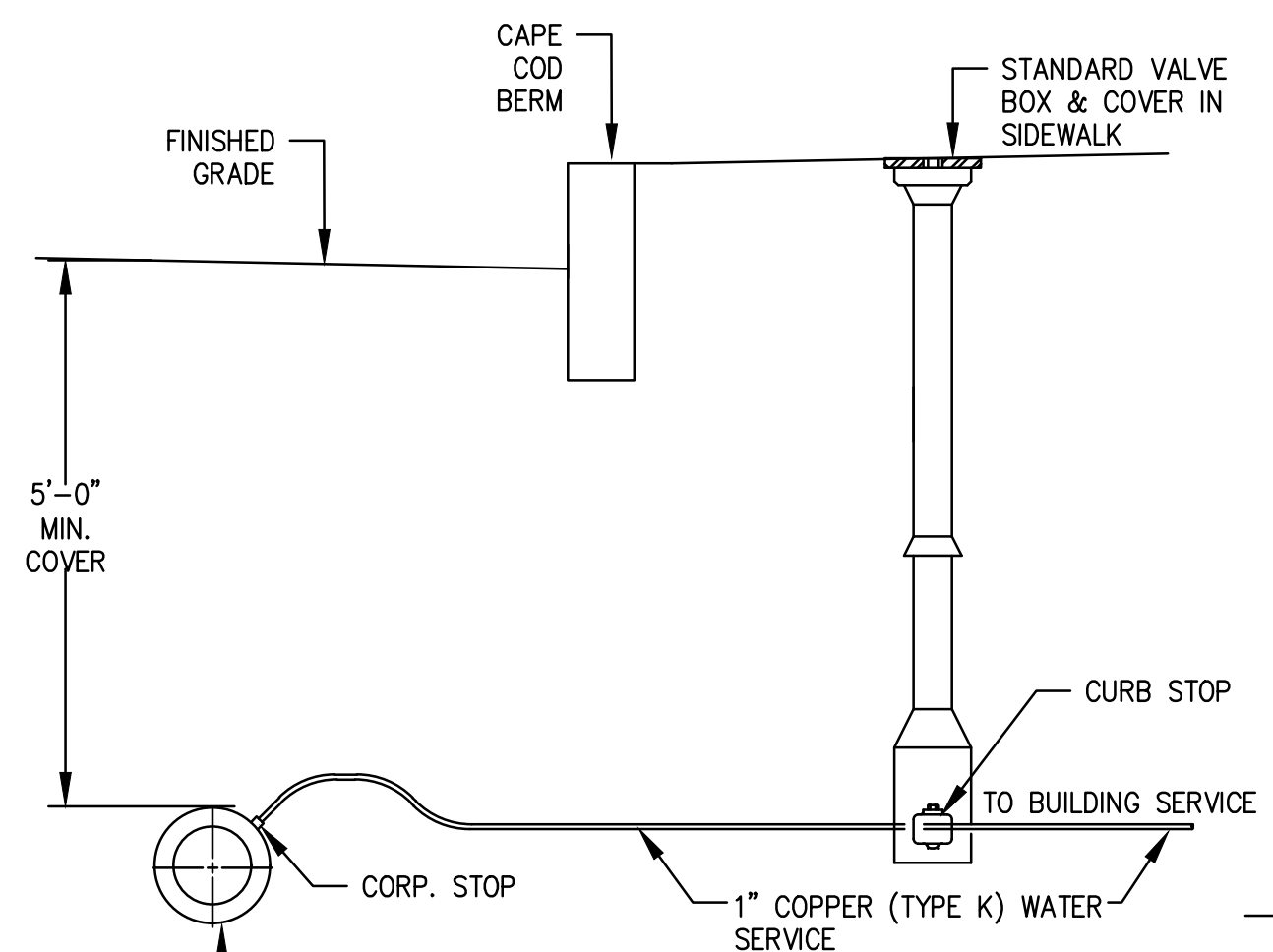
4' DIAMETER FIRST DEFENSE UNIT (FD-4HC)
N.T.S.

NOTES:

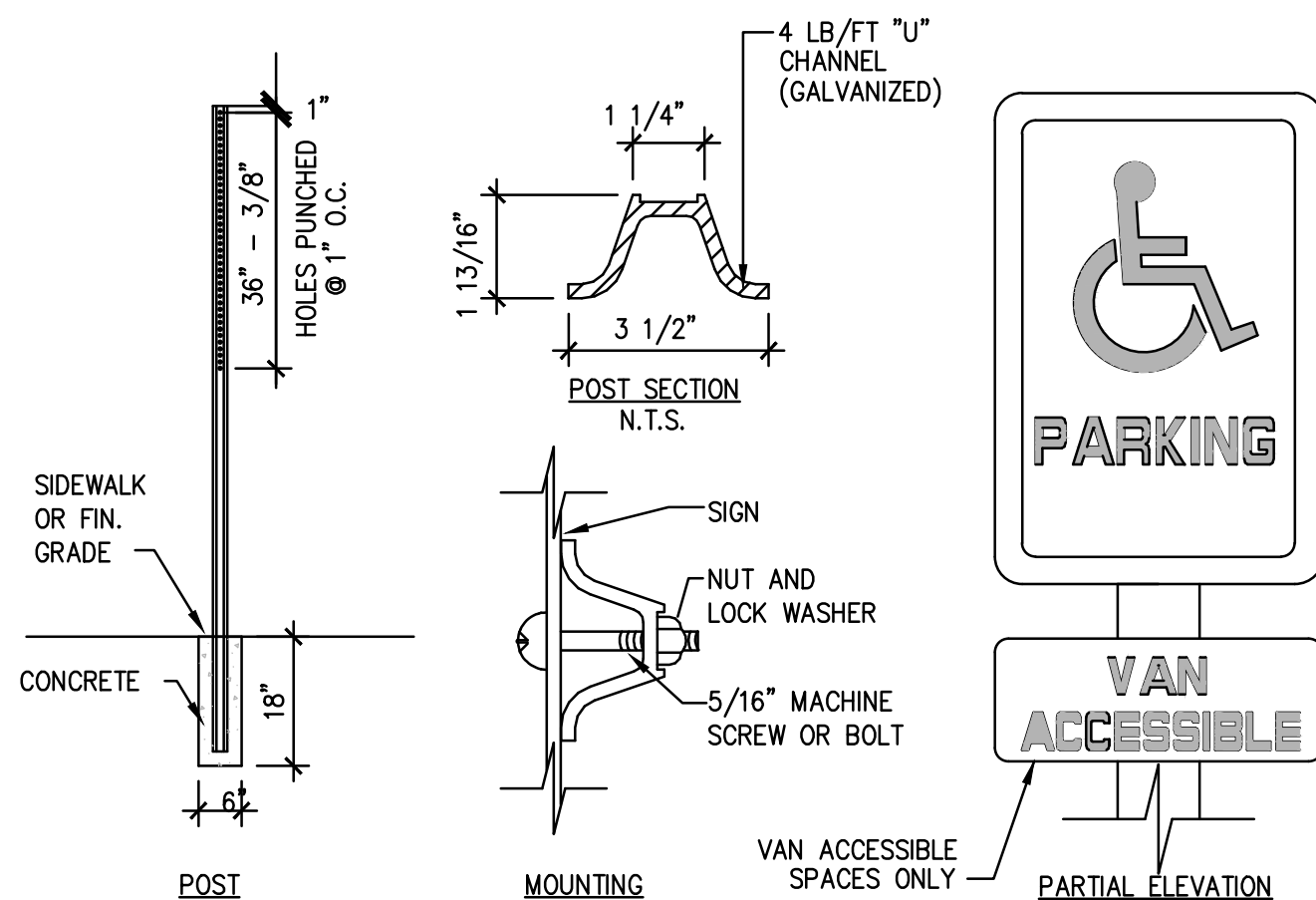
- ALL SECTIONS SHALL BE DESIGNED FOR HS-20 LOADING.
- PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
- JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
- CATCH BASIN FRAME AND GRATE SHALL BE SET IN FULL MORTAR BED. ADJUST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



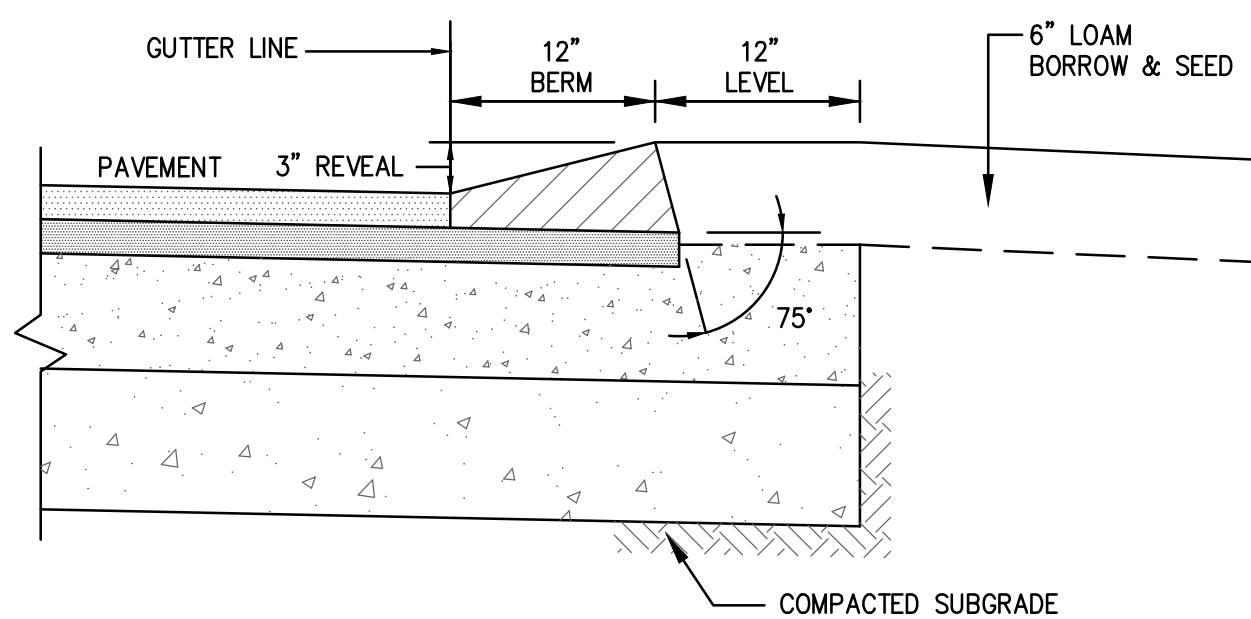
PARKING AREA PAVEMENT DETAIL
SCALE: N.T.S.



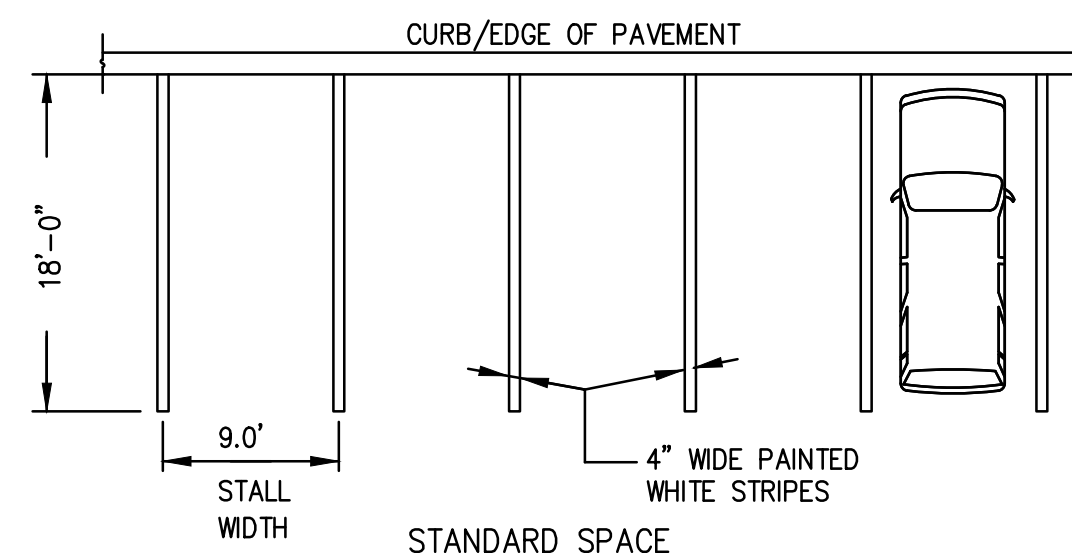
WATER SERVICE CONNECTION DETAIL (DUPLEXES)
SCALE: N.T.S.



SIGN DETAIL
SCALE: N.T.S.



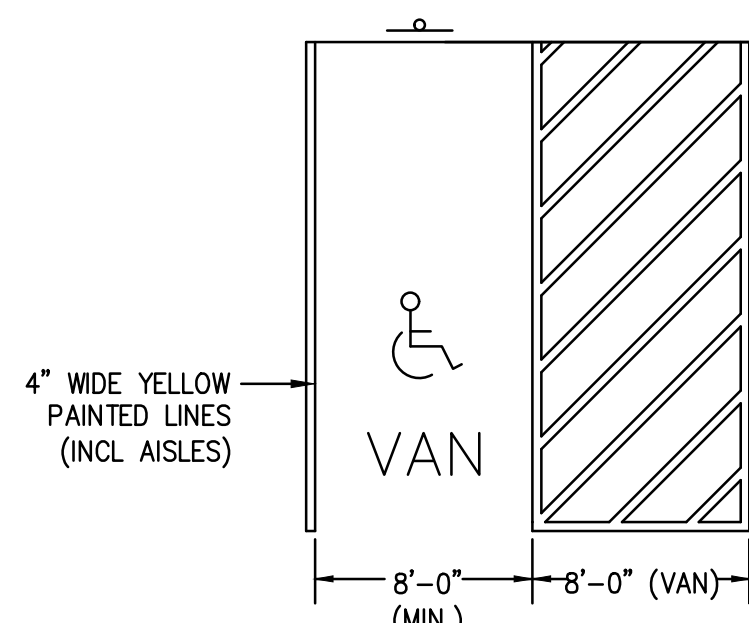
MONOLITHIC BITUMINOUS CONCRETE BERM (CAPE COD BERM) DETAIL
SCALE: N.T.S.



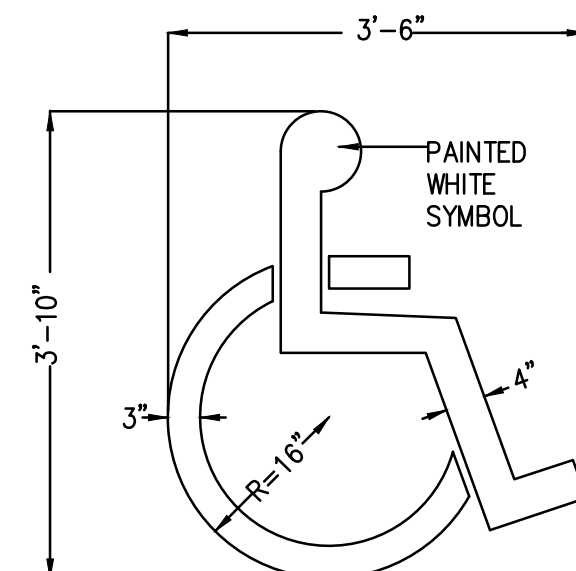
TYPICAL STRIPING DETAILS
SCALE: N.T.S.

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

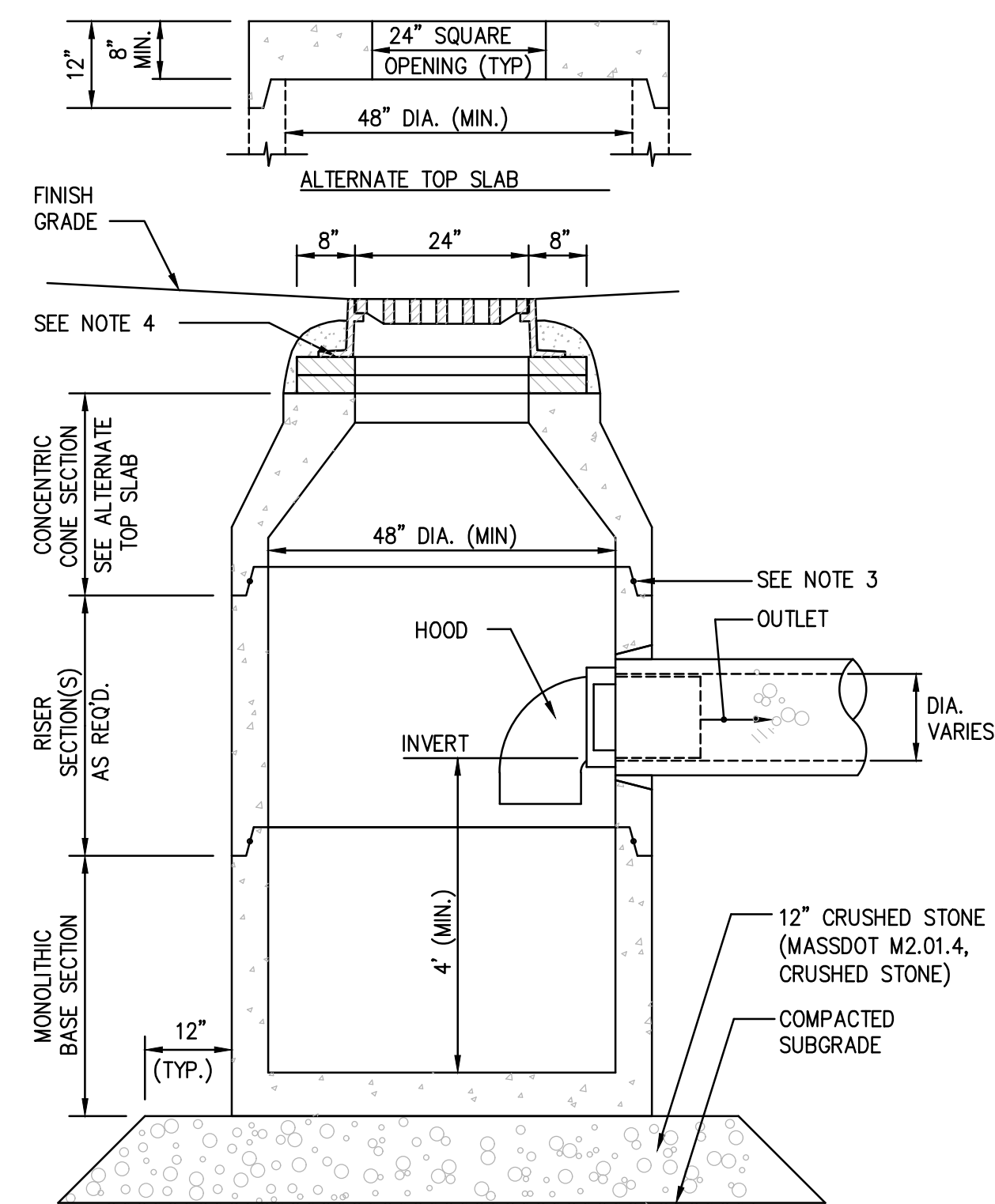
*FOR THIS SUBMISSION STRIPED PARKING SPACES SHALL BE COMPACT.



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



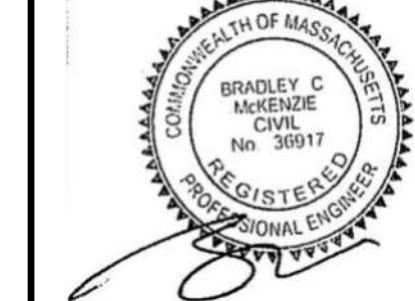
PAINTED HANDICAP SYMBOL DETAIL
SCALE: N.T.S.



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

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

PROFESSIONAL ENGINEER:



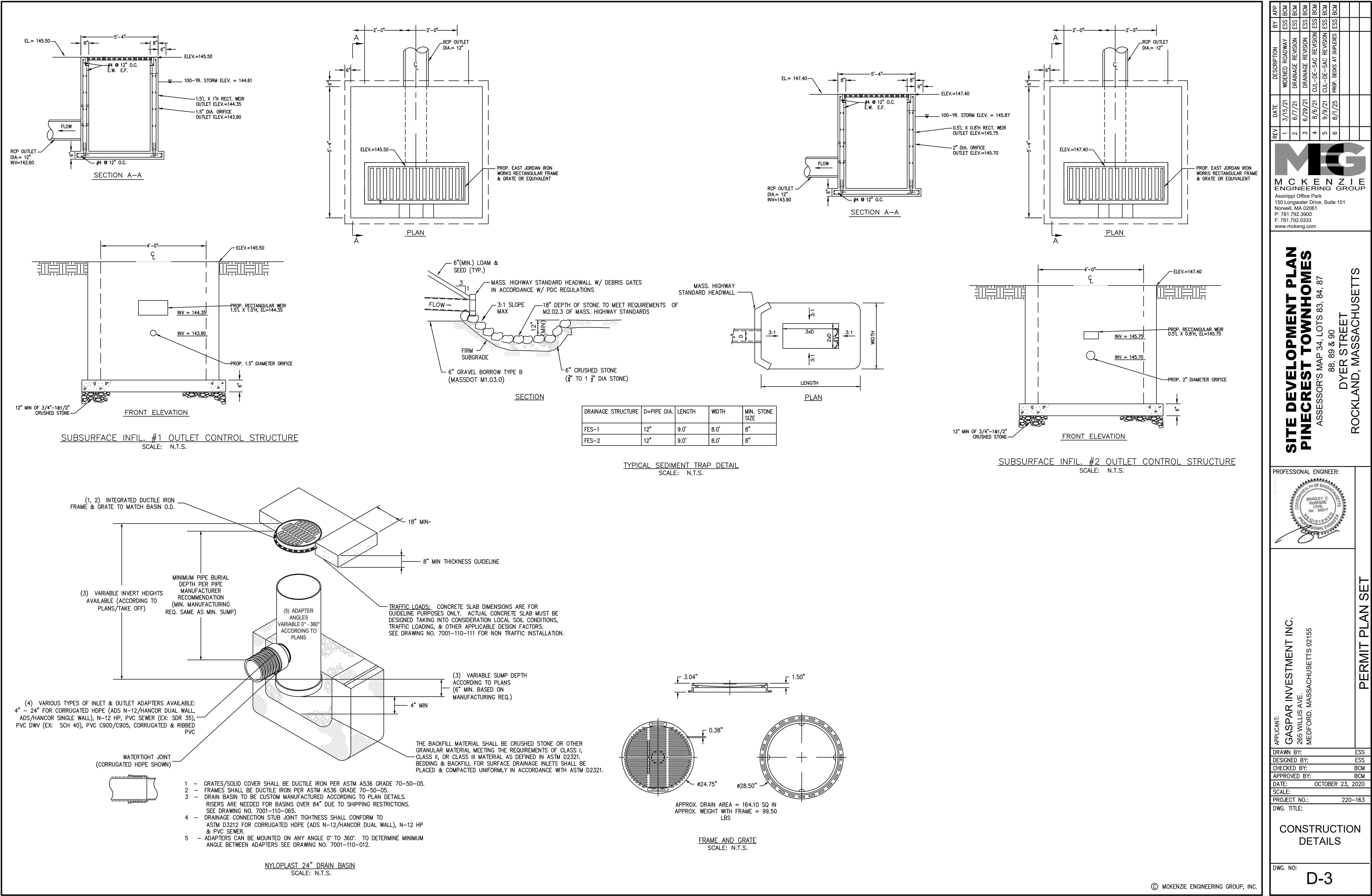
APPLICANT:
GASPAR INVESTMENT INC.
265 WILLIS AVE.
MEDFORD, MASSACHUSETTS 02155

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-2



BY APP

DESCRIPTION

DATE

REV

ESS BCM

WIDENED ROADWAY

3/15/21

1

ESS BCM

DRAINAGE REVISION

6/7/21

2

ESS BCM

DRAINAGE REVISION

6/29/21

3

ESS BCM

CUL-DE-SAC REVISION

8/6/21

4

ESS BCM

CUL-DE-SAC REVISION

9/9/21

5

ESS BCM

PROP. DECKS AT DUPLEXES

8/7/25

6

MG

MCKENZIE

ENGINEERING GROUP

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Norwell, MA 02061

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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:

COMMONWEALTH OF MASSACHUSETTS

BRADLEY C. MCKENZIE

CIVIL

No. 36911

REGISTERED

PROFESSIONAL ENGINEER

APPLICANT:

GASPAR INVESTMENT INC.

265 WILLIS AVE.

MEDFORD, MASSACHUSETTS 02155

DESIGNED BY:

ESS

CHECKED BY:

BCM

APPROVED BY:

BCM

DATE:

OCTOBER 23, 2020

SCALE:

PROJECT NO.:

220-163

DWG. TITLE:

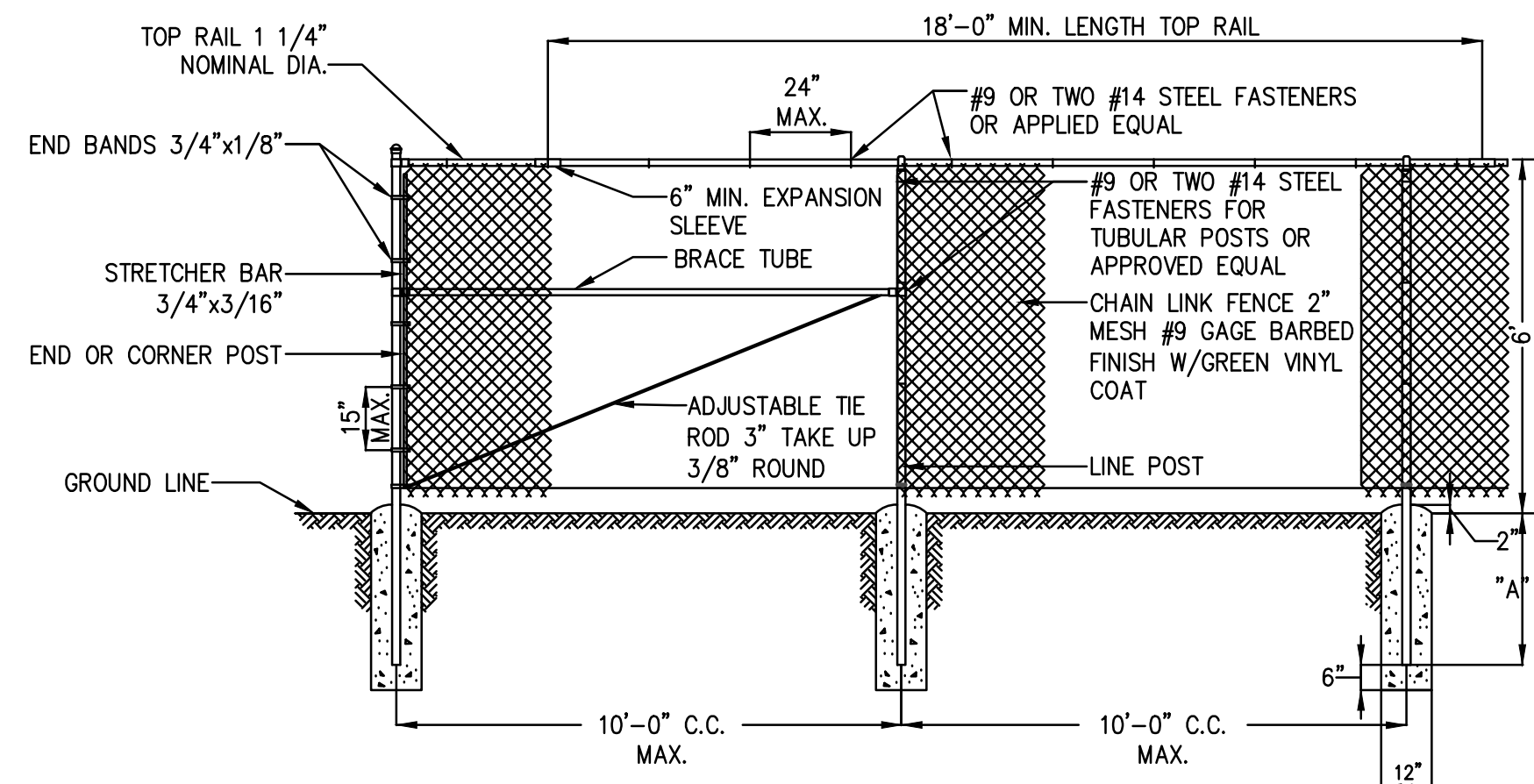
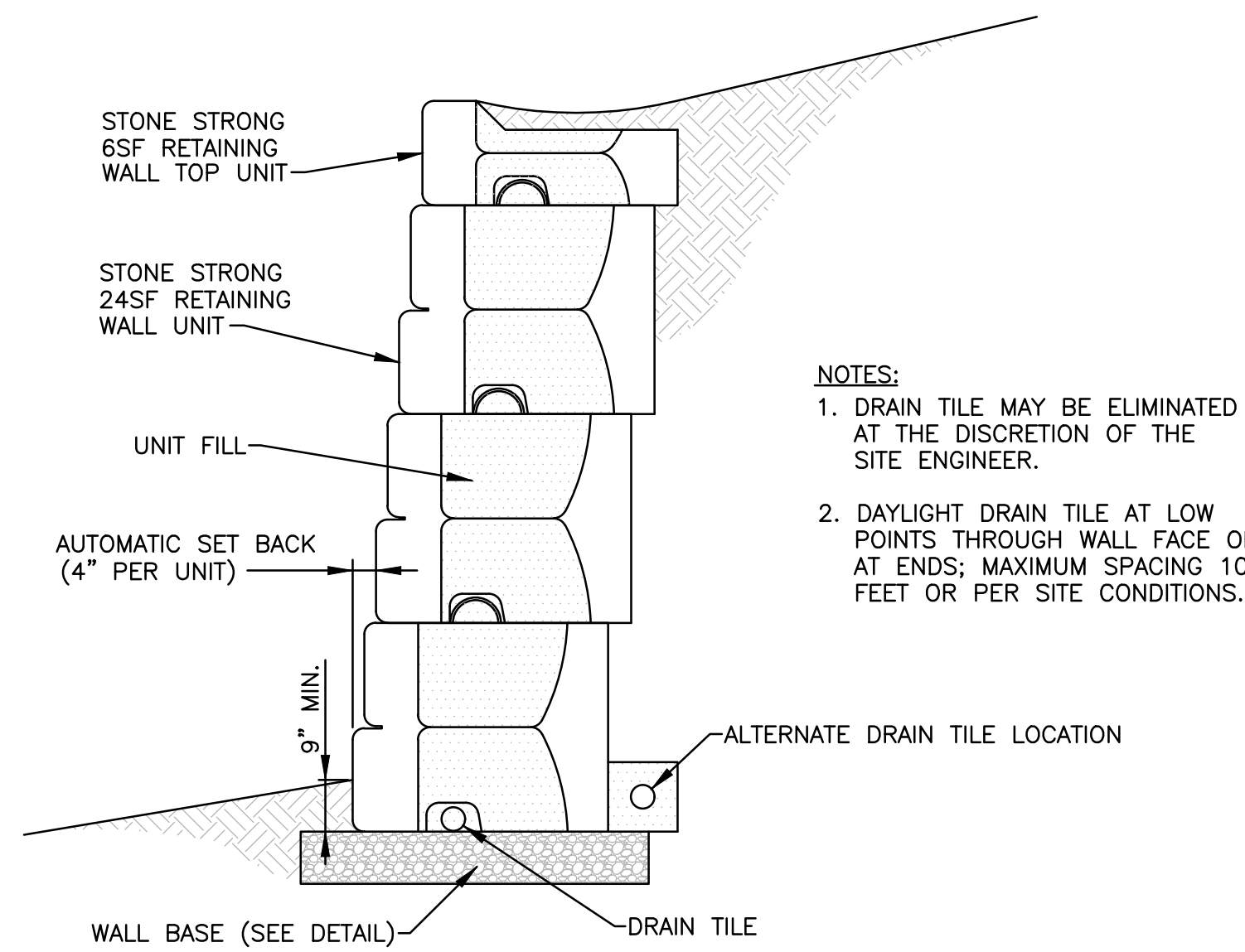
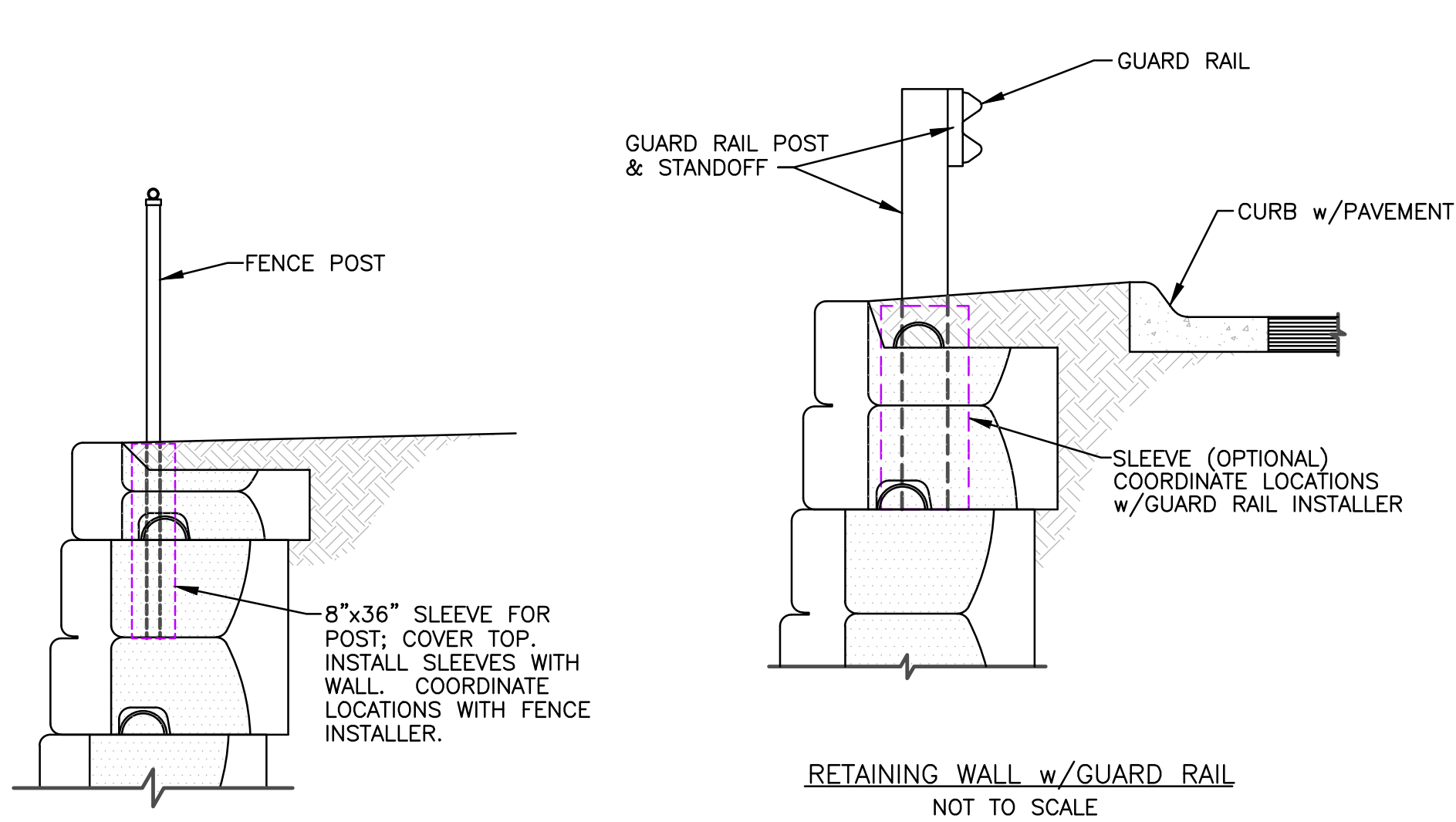
CONSTRUCTION DETAILS

DWG. NO.:

D-3

PERMIT PLAN SET

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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.

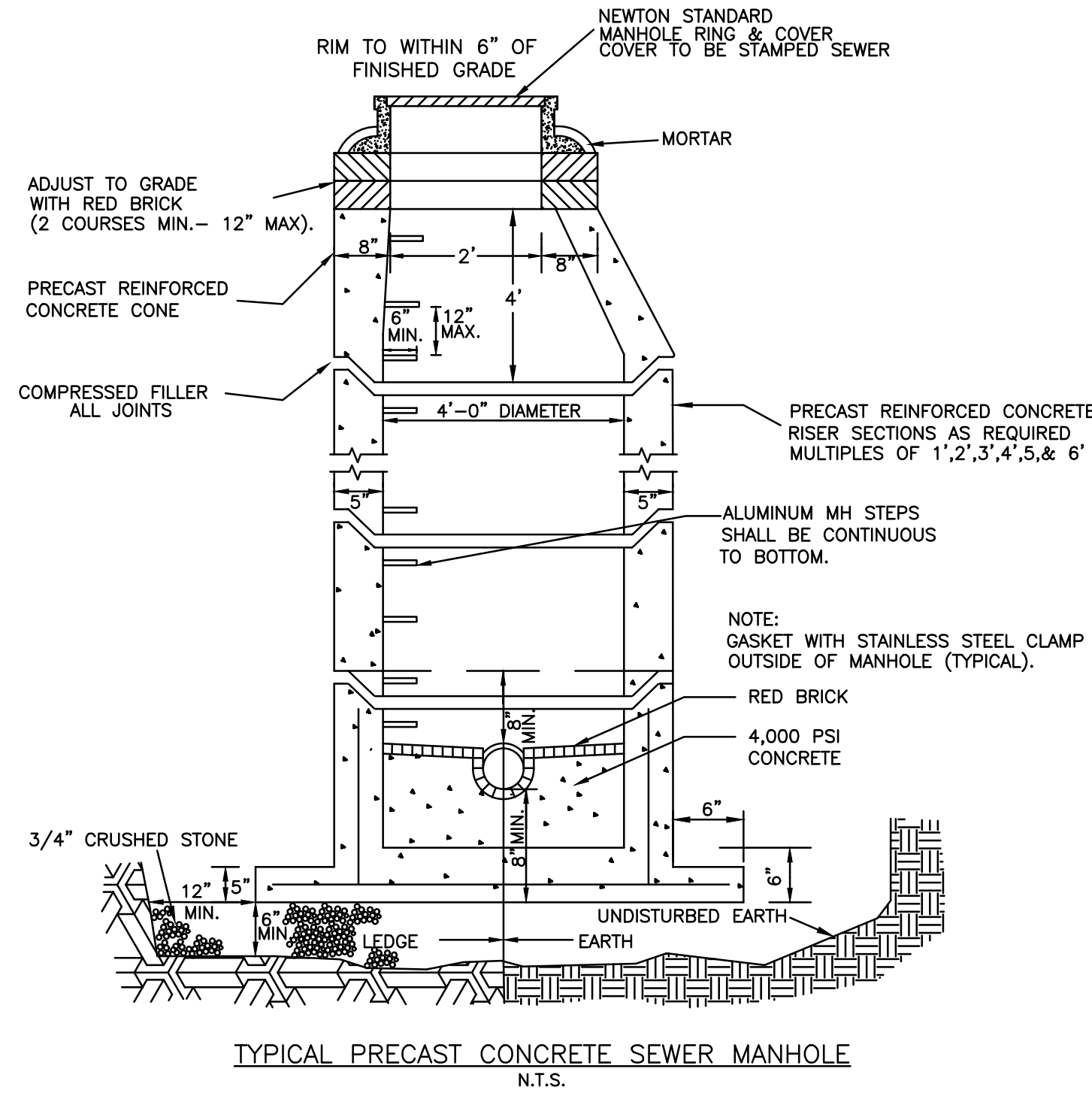
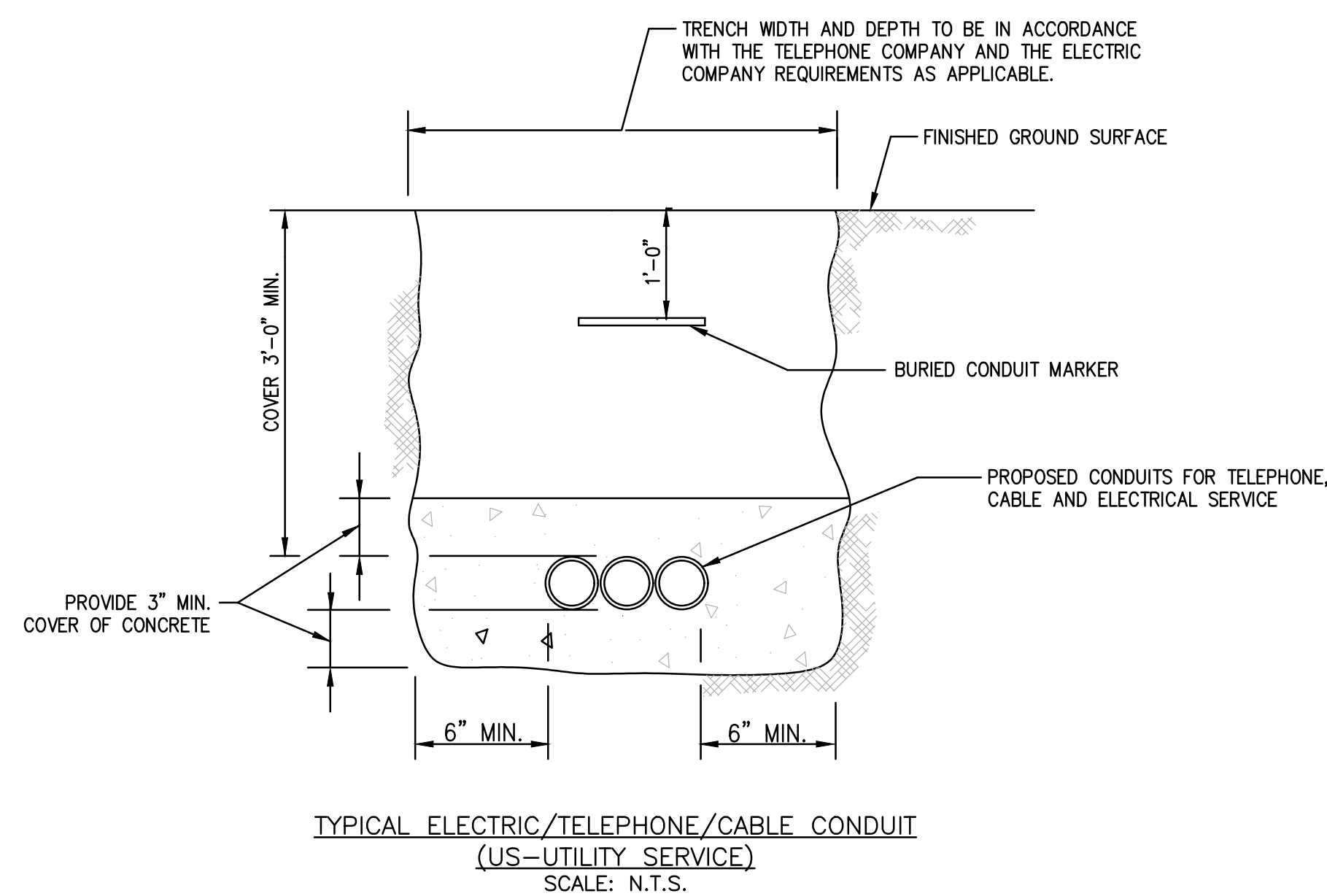
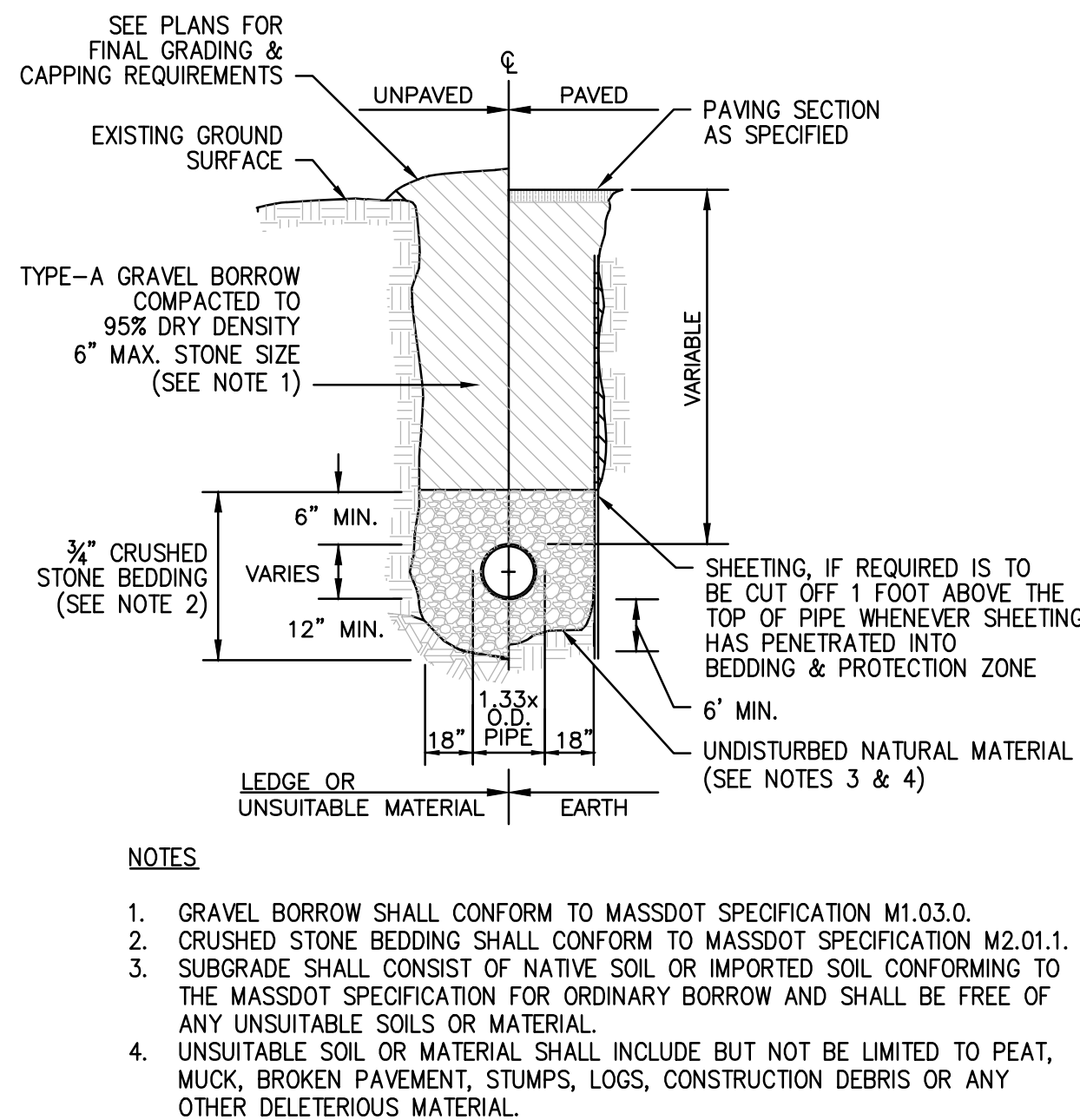
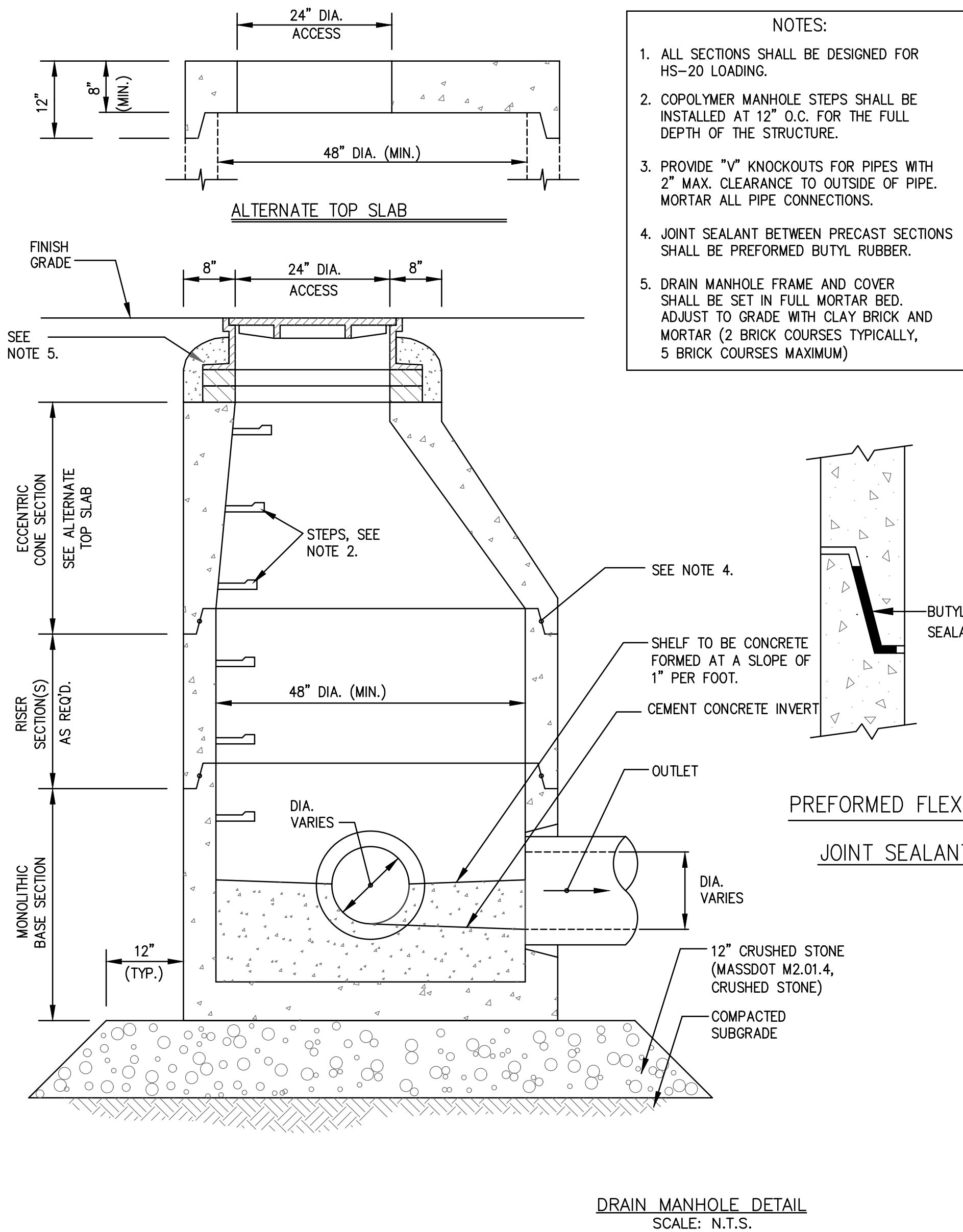
LINE GATE & END POST BASE ("A") 2'-6" FOR 3 FT. & 4 FT. FENCE. 3'-0" FOR 6 FT. FENCE. 5'-0" FOR ALL OTHERS

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

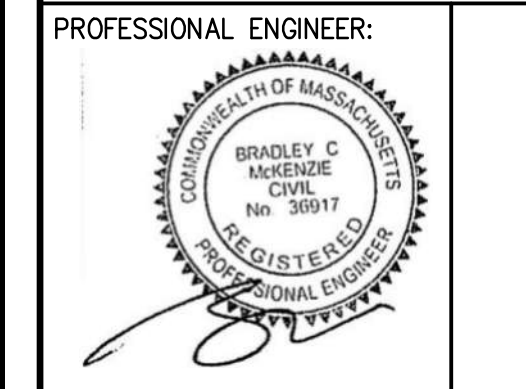
CONCRETE TO BE 4,000 P.S.I. FIBER REINFORCED.



REV	DATE	DESCRIPTION	BY	APP
1	3/15/21	WIDENED ROADWAY	ESS	BCM
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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
6	8/1/25	PROP. DECKS AT DUPLEXES	ESS	BCM



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

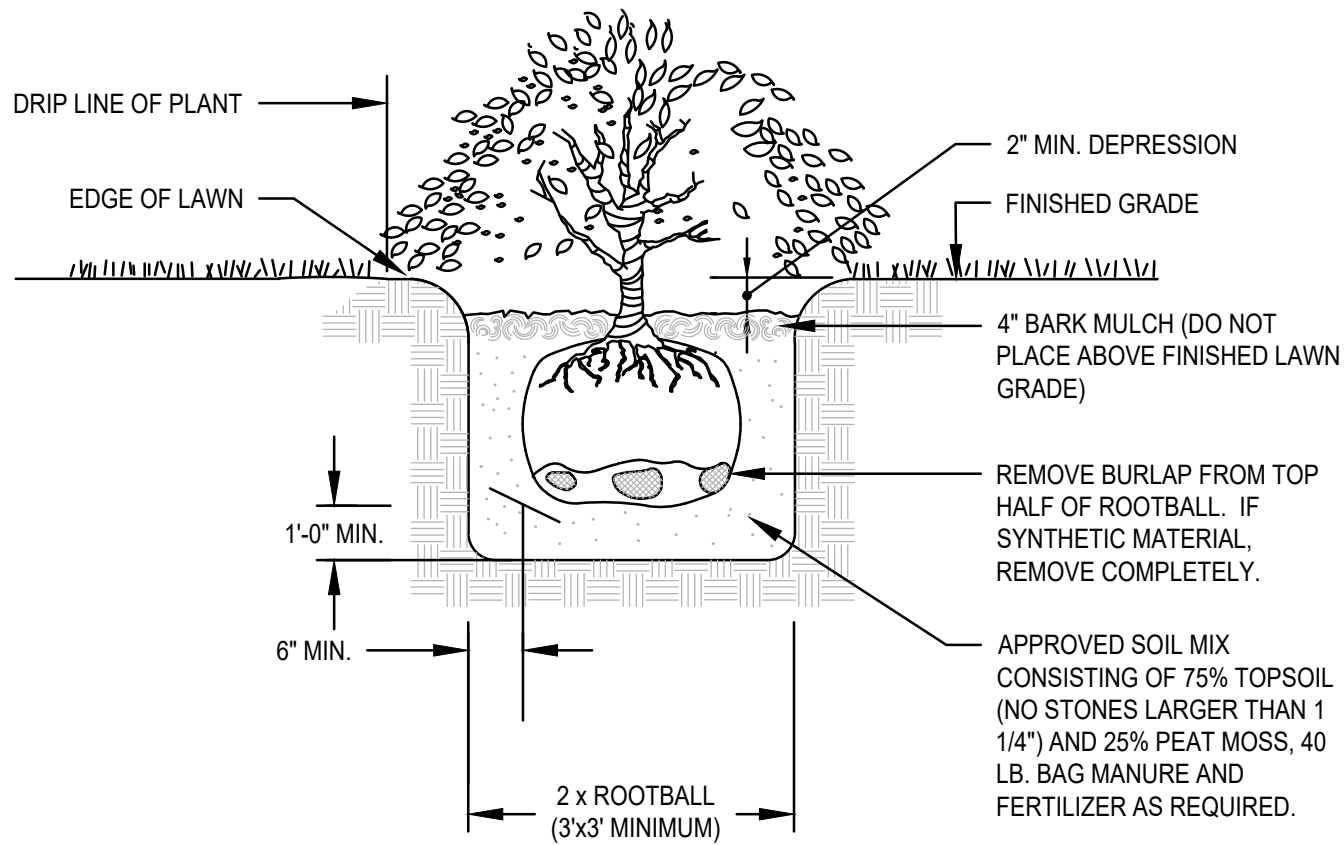
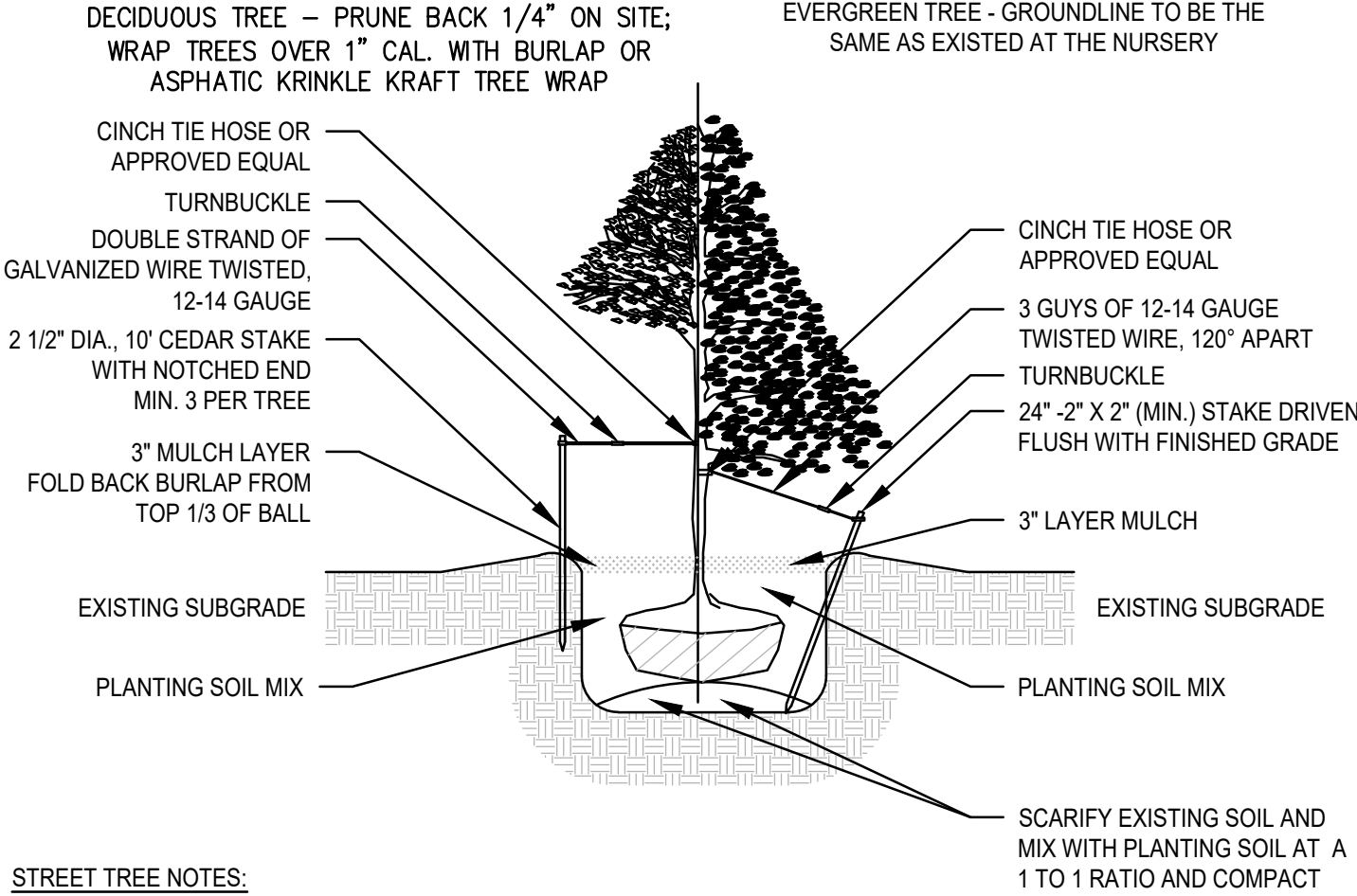
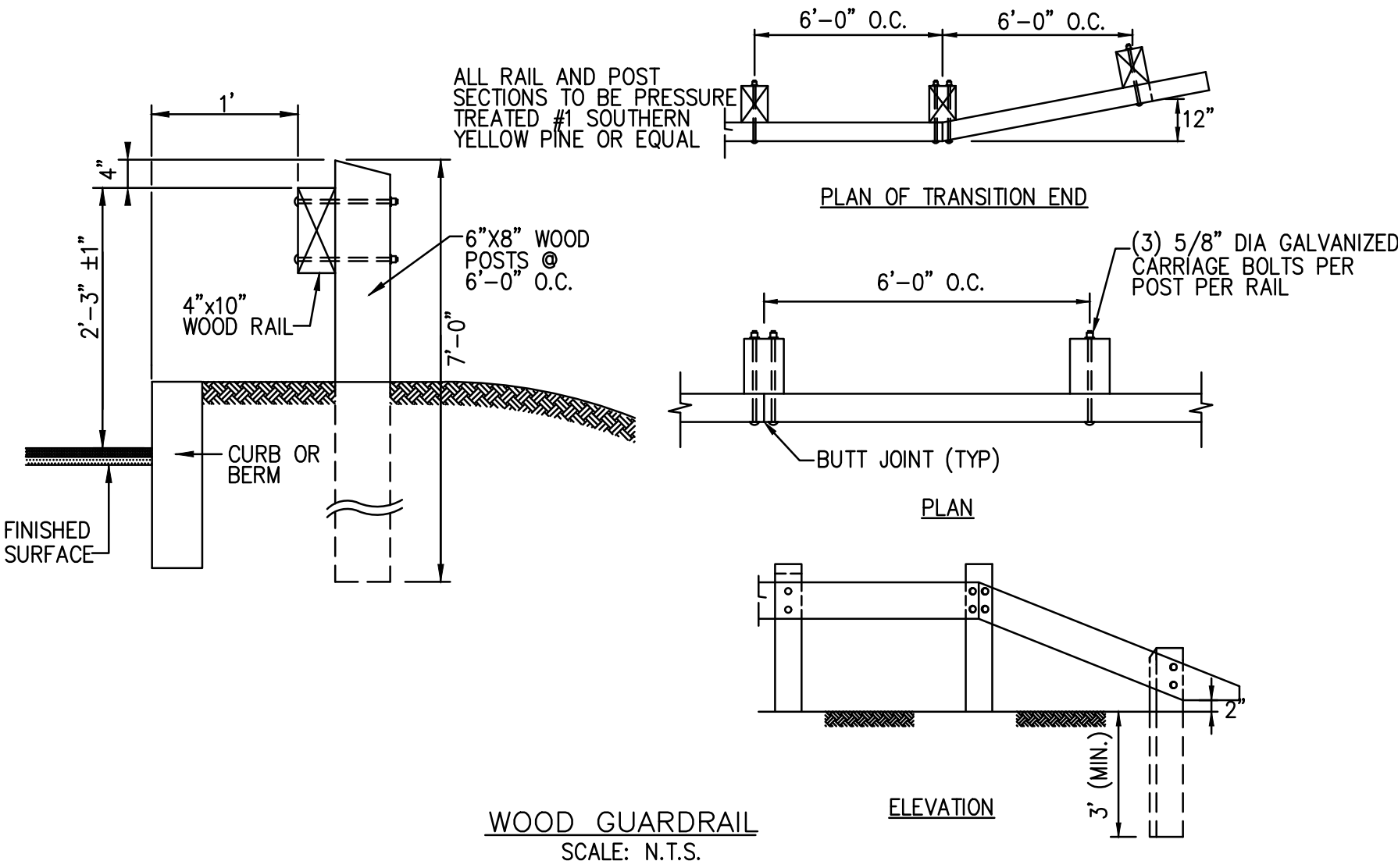


APPLICANT:
GASPAR INVESTMENT INC.
265 WILLIS AVE.
MEDFORD, MASSACHUSETTS 02155

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**



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"

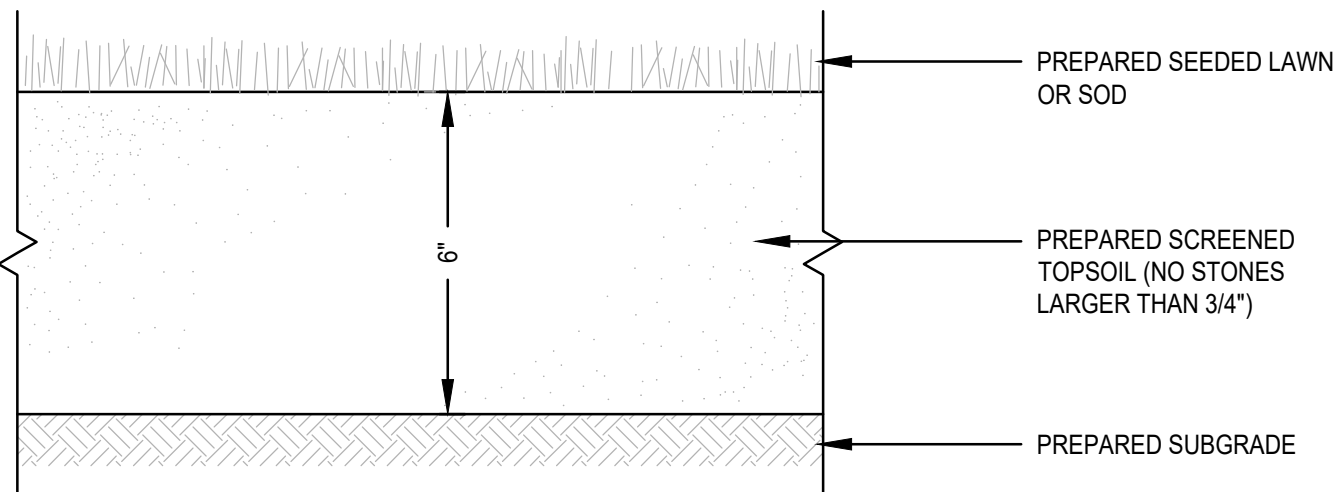
4. MAINTENANCE TO ESTABLISH A STAND

- 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.

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



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

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
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

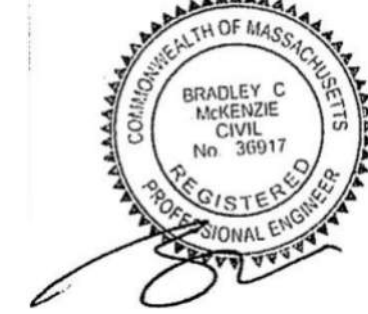
USE	SEEDING MIXTURE 1/
STEEP CUTS AND FILLS, BORROW AND DISPOSAL AREAS	E
WATERWAYS, EMERGENCY SPILLWAYS, AND OTHER CHANNELS WITH FLOWING WATER	D
LAWN AREAS	F

REV	DATE	DESCRIPTION	BY	APP
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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

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

PERMIT PLAN SET

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 MESH), 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.

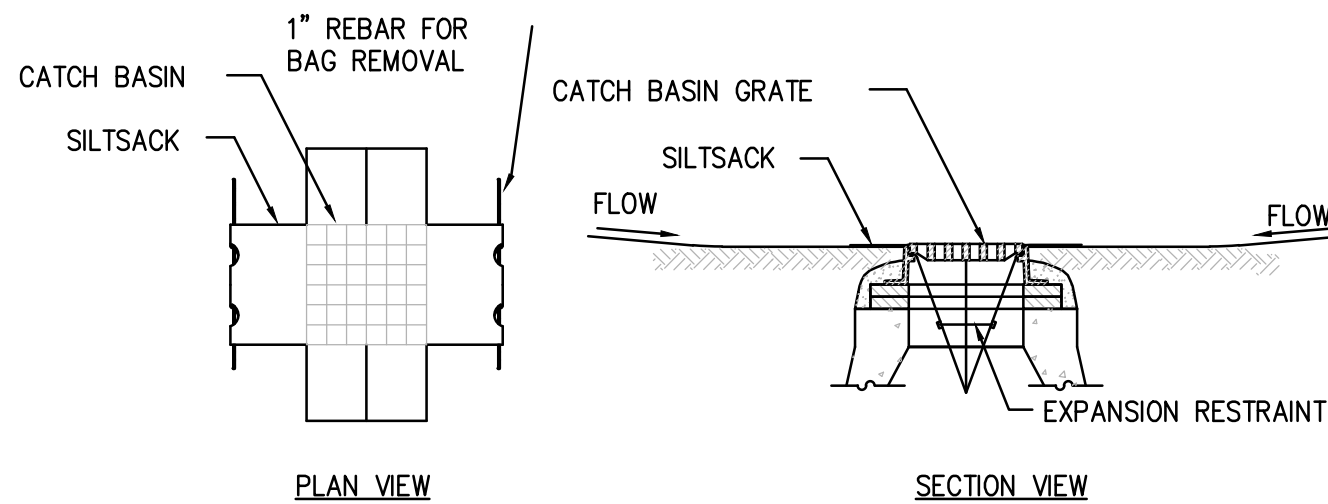
B. WHETHER OR NOT THERE HAS BEEN DAMAGE TO THE BMP SINCE IT WAS INSTALLED OR PERFORMED.

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.

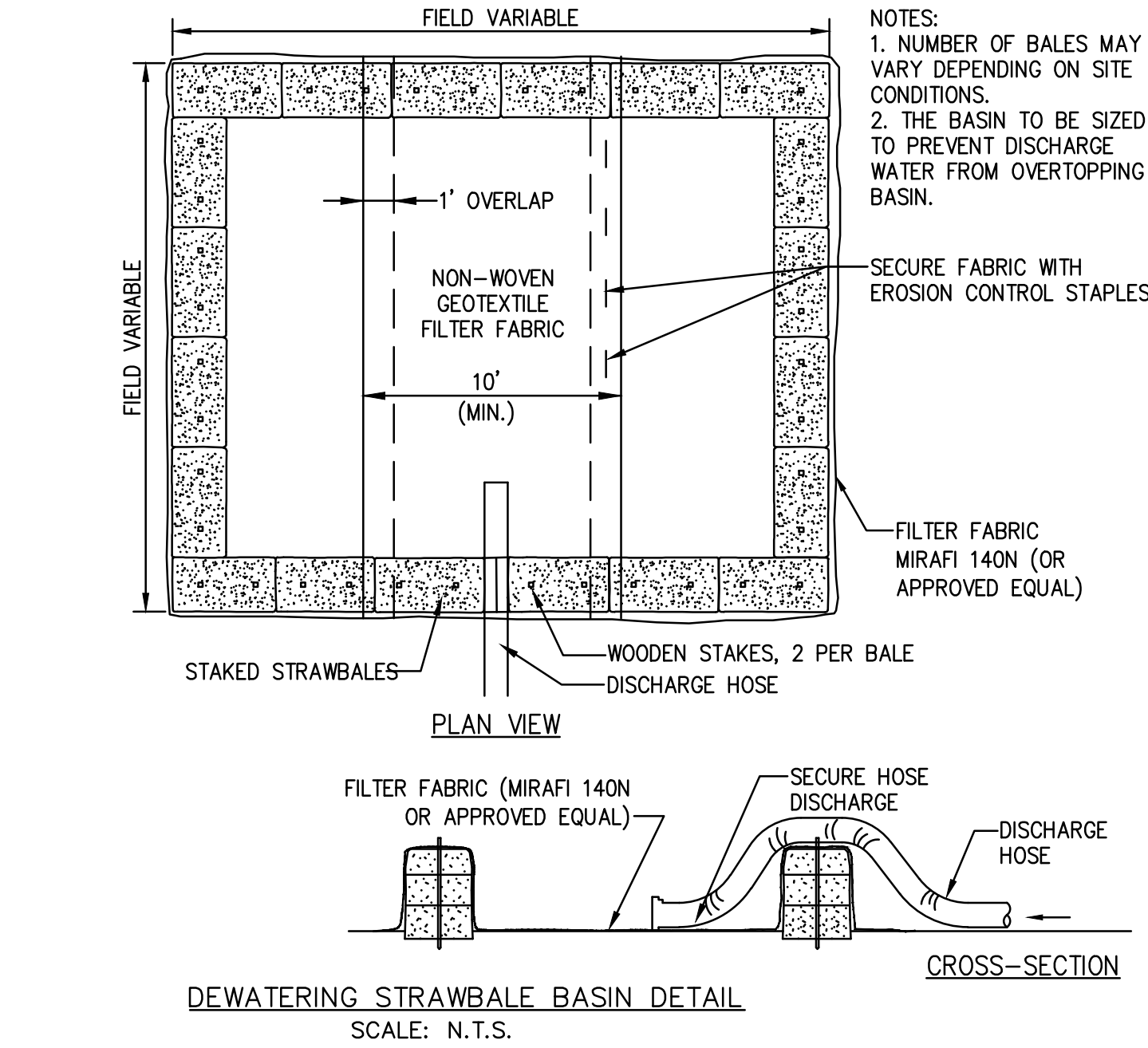
ALL SLOPES EXCEEDING 15% RESULTING FROM SITE GRADING SHALL BE BOTH COVERED WITH FOUR INCHES OF TOPSOIL AND PLANTED WITH A VEGETATED COVER SUFFICIENT TO PREVENT EROSION.



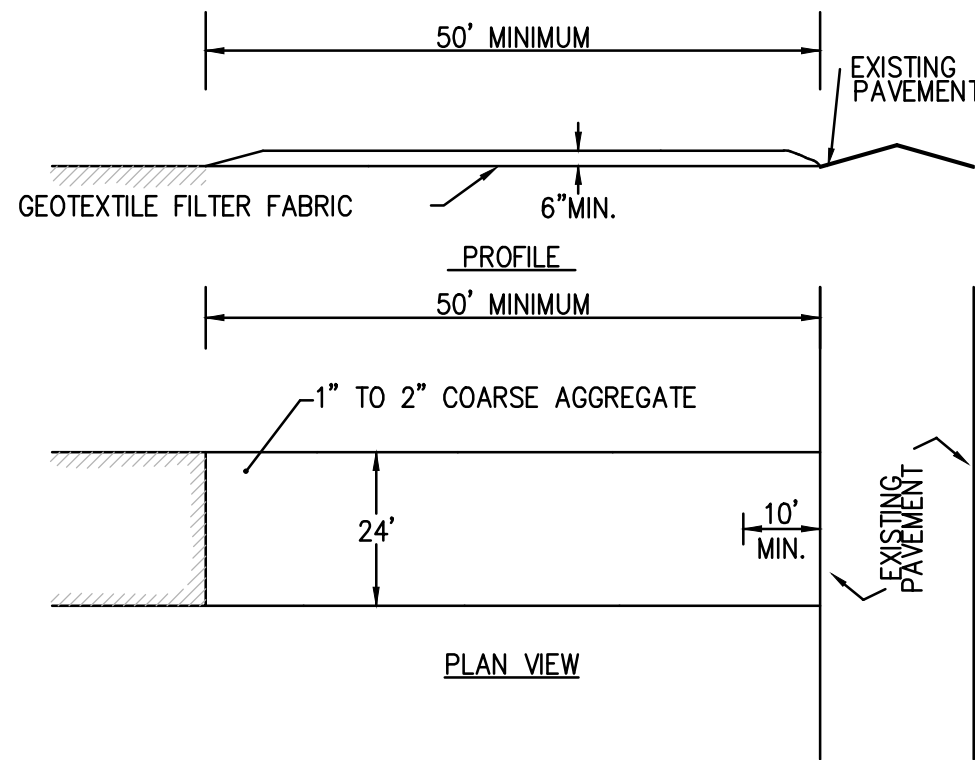
SILT SACK SEDIMENT TRAP CONSTRUCTION NOTES:

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

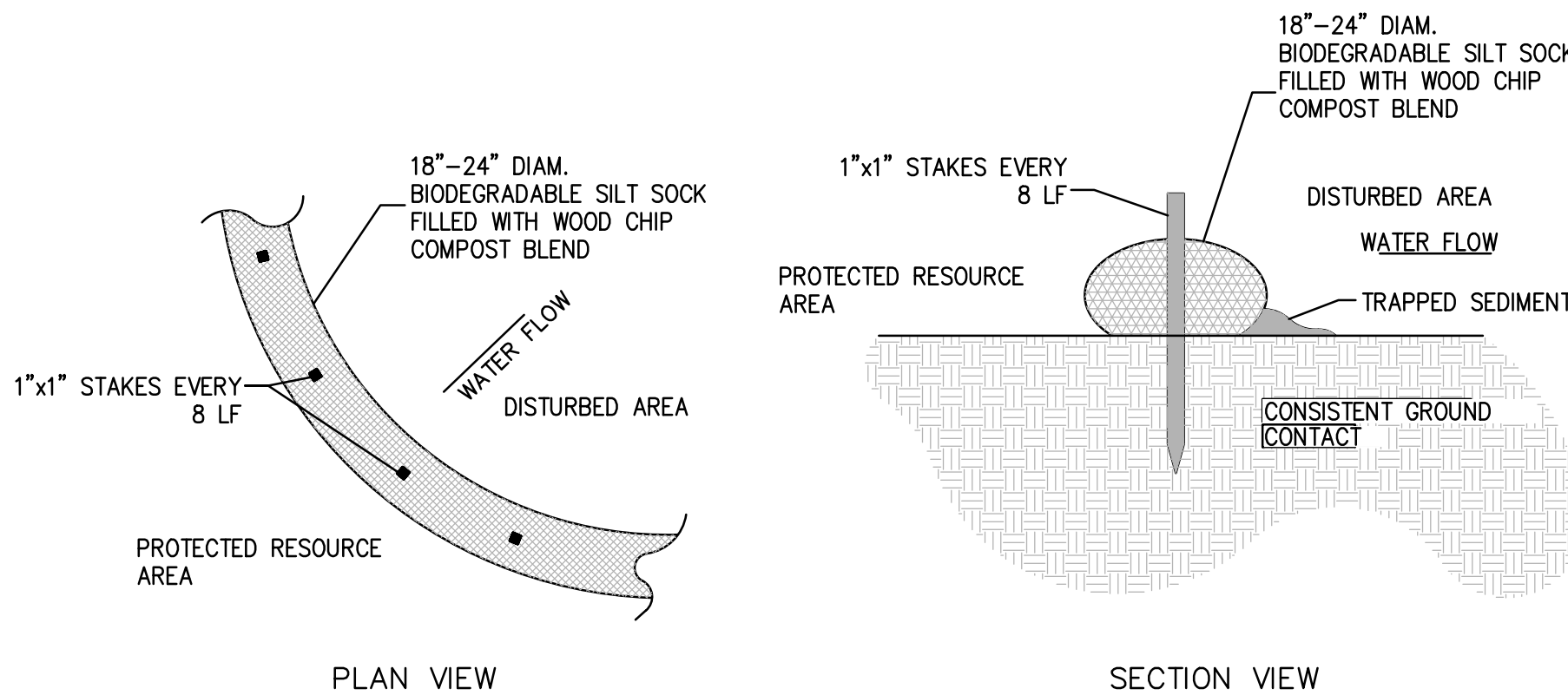
SILTSACK SEDIMENT TRAP
SCALE: N.T.S.



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



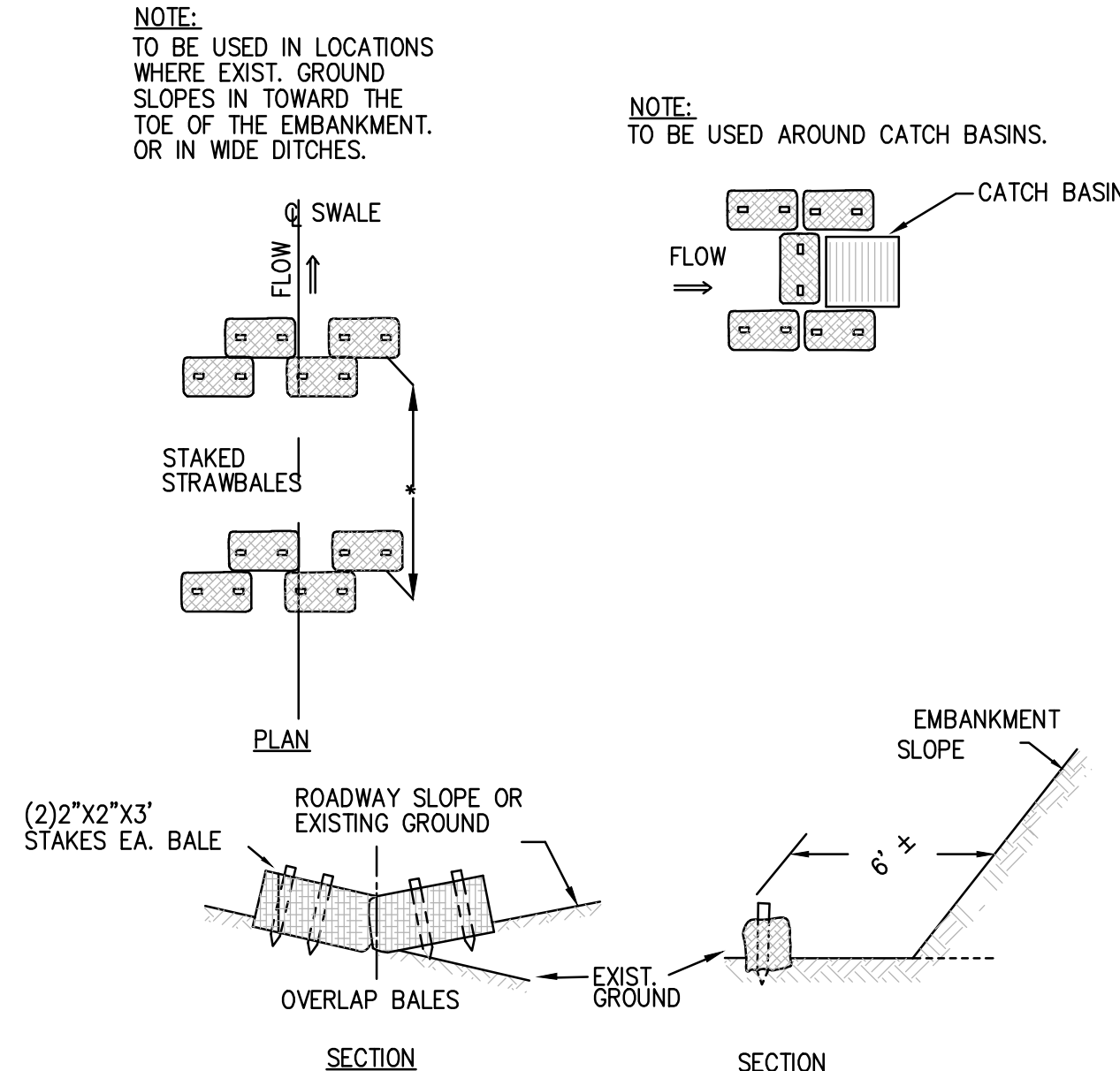
STABILIZED CONSTRUCTION ENTRANCE (SCE) DETAIL
SCALE: N.T.S.



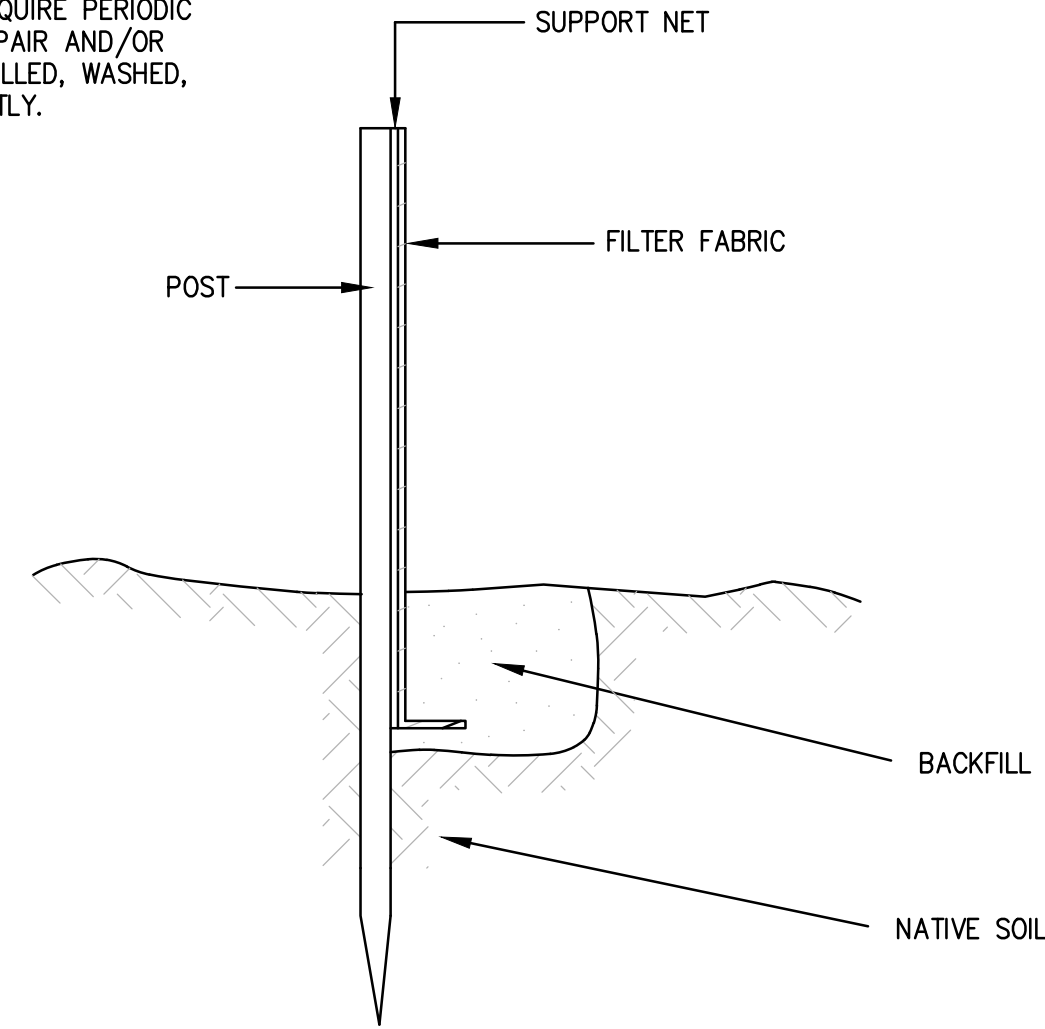
CONSTRUCTION NOTES:

- 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.

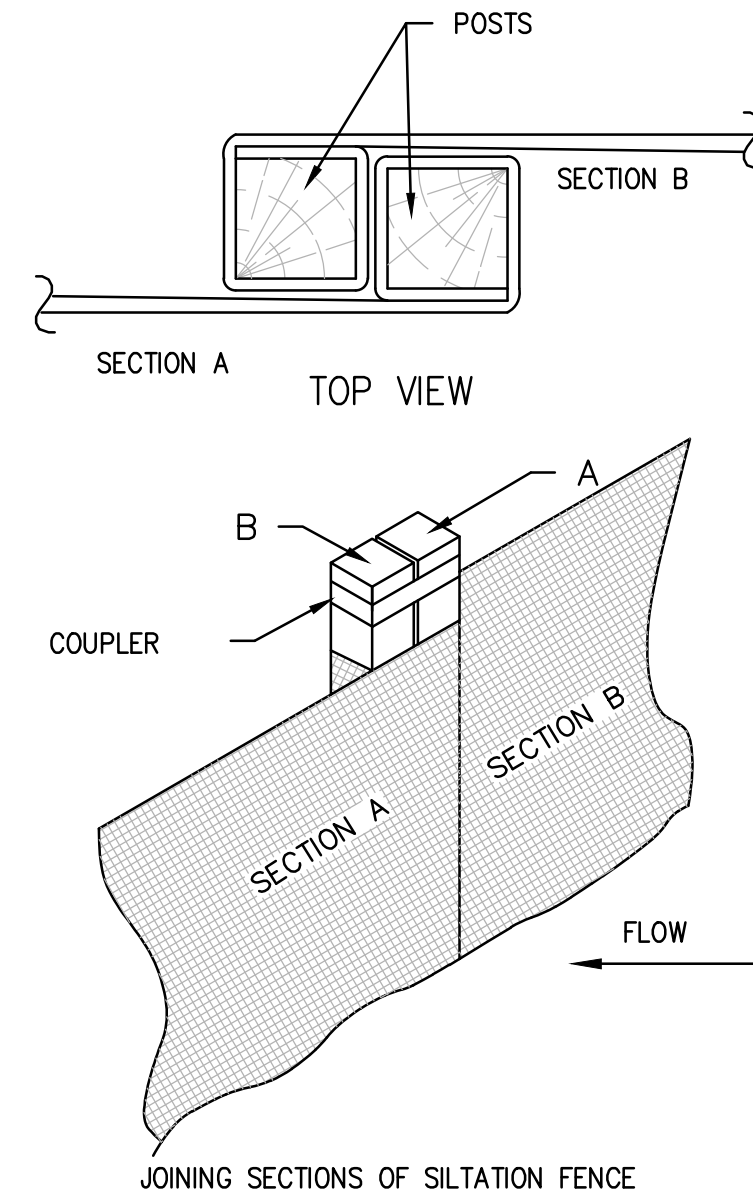
SILT SOCK DETAIL
SCALE: N.T.S.



TEMPORARY EROSION CONTROL
SCALE: N.T.S.



SILTATION FENCE
SCALE: N.T.S.



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.

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
6	8/1/25	PROP. DECKS AT DUPLEXES	ESS	BCM

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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

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

**CONSTRUCTION
DETAILS**

DWG. NO:

D-6

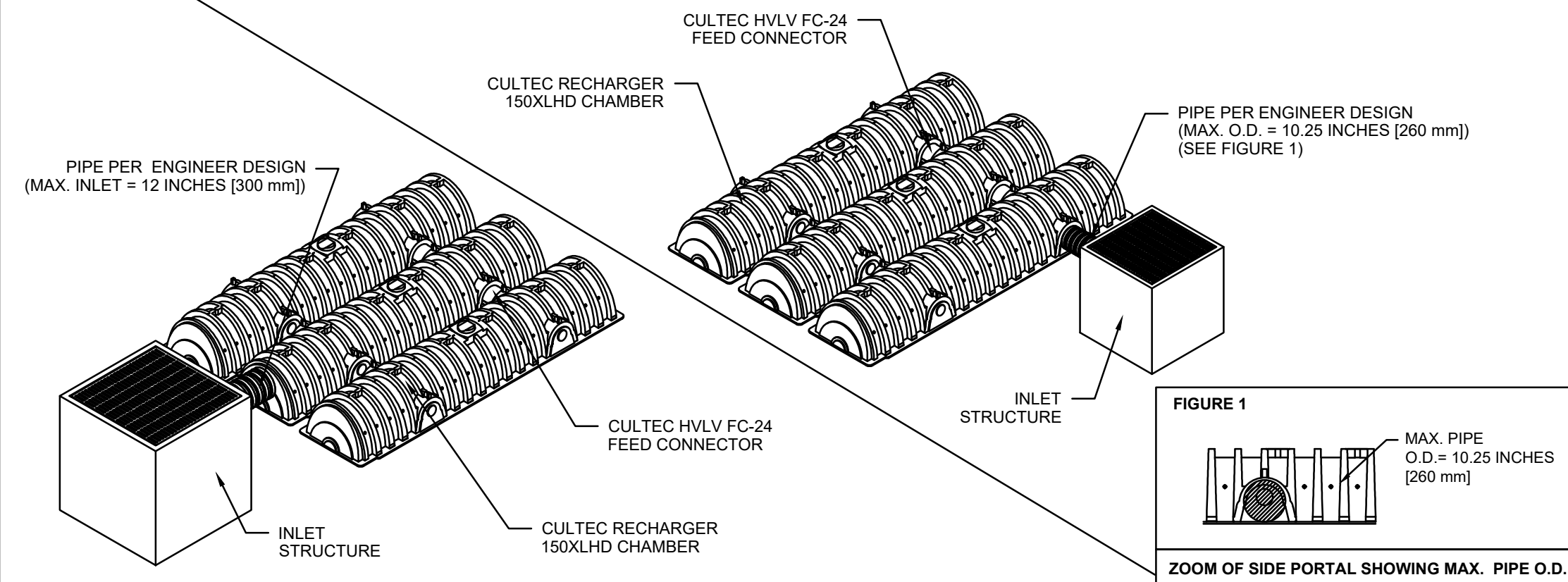
PERMIT PLAN SET

CULTEC RECHARGER® 150XLHD SPECIFICATIONS

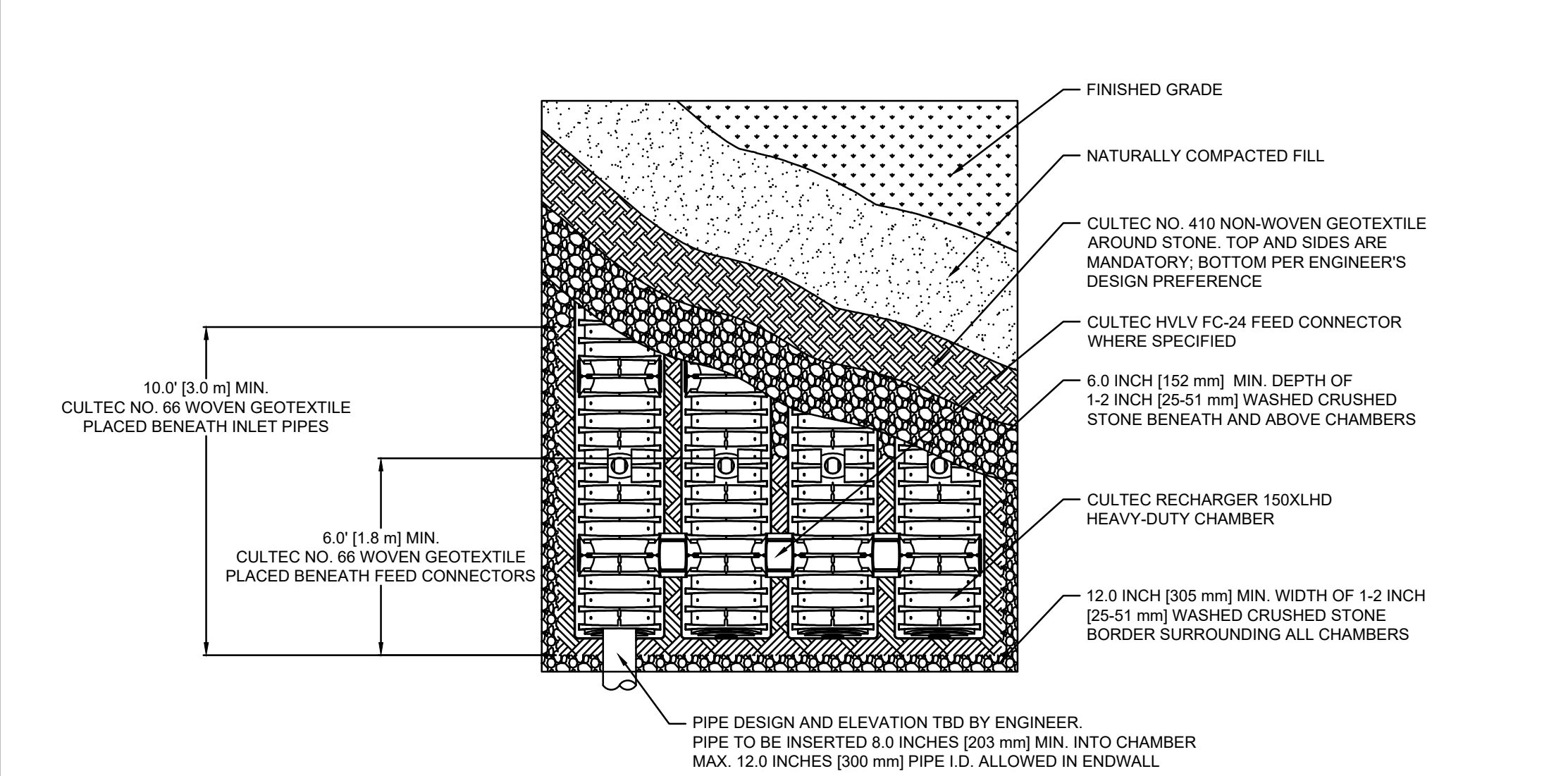
GENERAL
CULTEC RECHARGER® 150XLHD CHAMBERS ARE DESIGNED FOR UNDERGROUND STORMWATER MANAGEMENT. THE CHAMBERS MAY BE USED FOR RETENTION, RECHARGING, DETENTION OR CONTROLLING THE FLOW OF ON-SITE STORMWATER RUNOFF.

- 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 UNITS 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 150XLHD 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 150XLHD 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).

GENERAL NOTES



CULTEC TYPICAL INLET CONNECTION



CULTEC RECHARGER 150XLHD HEAVY DUTY PLAN VIEW

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FX: (203) 775-1462
tech@cultec.com

THIS DRAWING WAS PREPARED TO SUPPORT THE DESIGN ENGINEER FOR THE PROPOSED SYSTEM. IT IS THE ULTIMATE RESPONSIBILITY OF THE DESIGN ENGINEER TO ASSURE THAT THE STORMWATER SYSTEM'S DESIGN IS IN FULL COMPLIANCE WITH ALL APPLICABLE LAWS AND REGULATIONS. IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ENSURE THAT THE CULTEC PRODUCTS ARE DESIGNED IN ACCORDANCE WITH CULTEC'S MINIMUM REQUIREMENTS. CULTEC INC. DOES NOT APPROVE PLANS, SIZING, OR SYSTEM DESIGNS. THE DESIGNING ENGINEER IS RESPONSIBLE FOR ALL DESIGN DECISIONS.

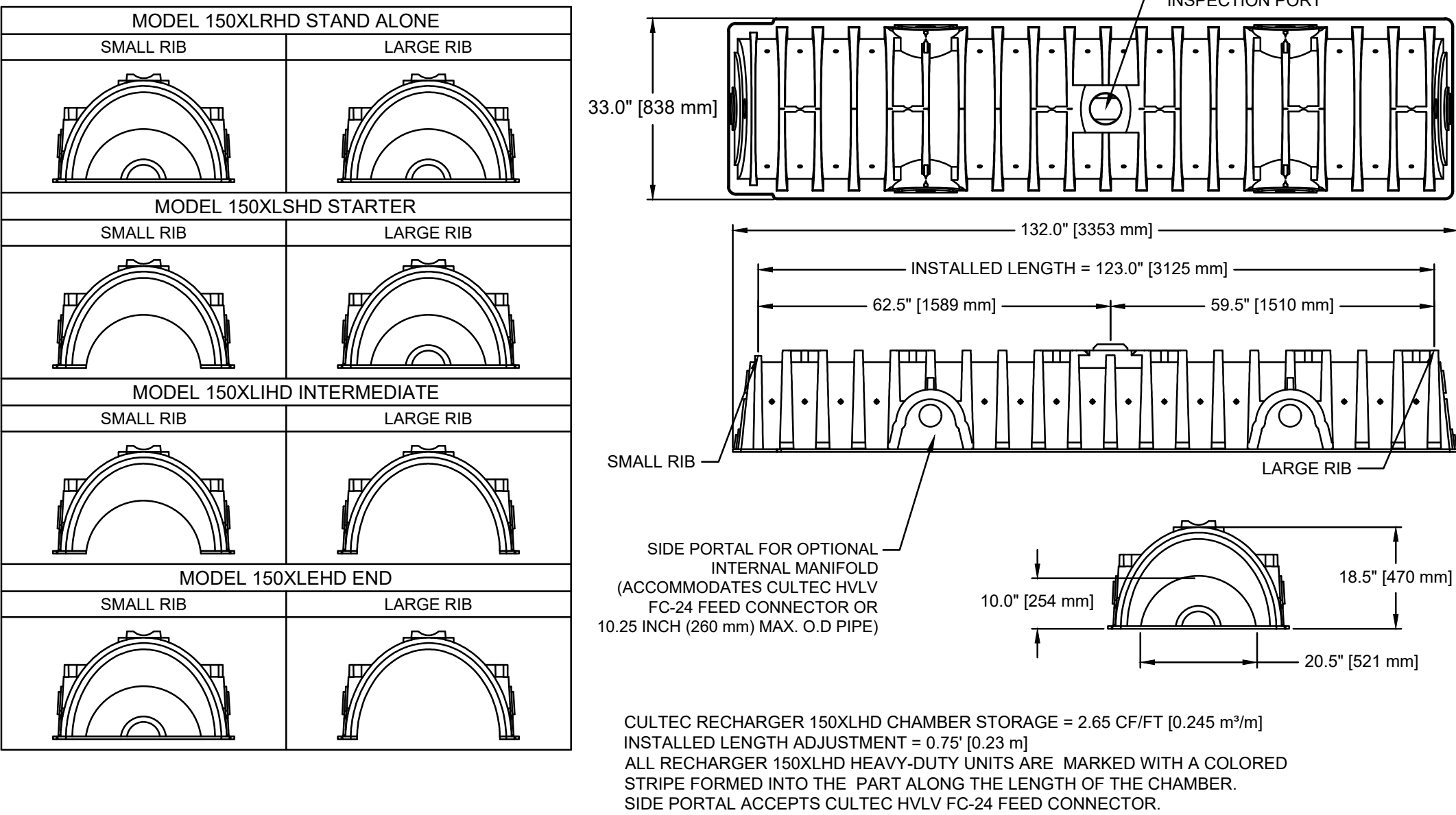
CULTEC HVLV® FC-24 FEED CONNECTOR PRODUCT SPECIFICATIONS

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

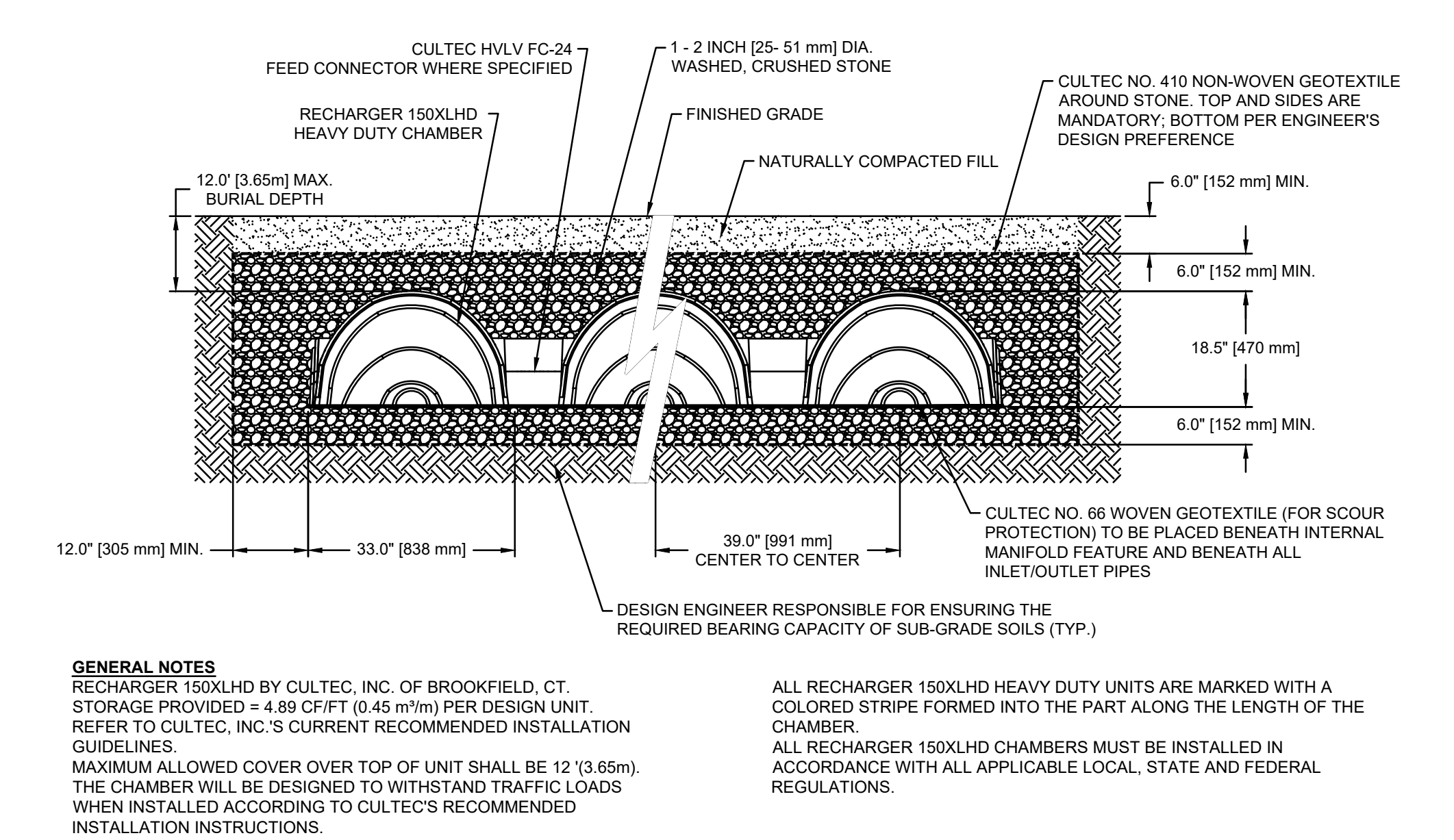
- CHAMBER PARAMETERS**
1. THE CHAMBERS WILL BE MANUFACTURED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
 2. THE CHAMBER WILL BE VACUUM THERMOFORMED OF BLACK HIGH MOLECULAR WEIGHT HIGH DENSITY POLYETHYLENE (HMWHDPE).
 3. THE CHAMBER WILL BE ARCHED IN SHAPE.
 4. THE CHAMBER WILL 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

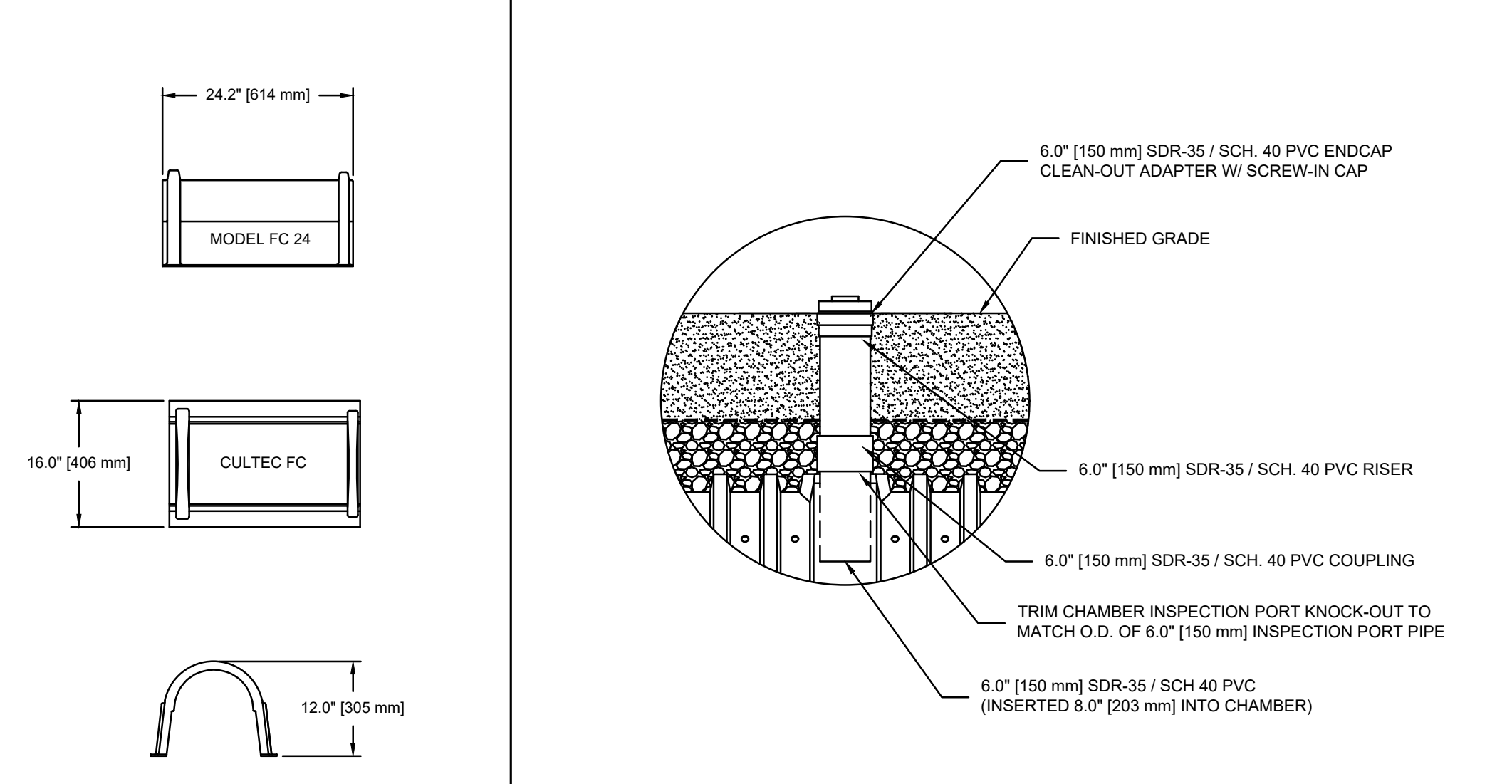
- GENERAL
CULTEC NO. 66™ WOVEN GEOTEXTILE IS UTILIZED AS AN UNDERLAYMENT TO PREVENT SCOURING. SEPARATE END PLATES CANNOT BE USED WITH THIS UNIT.
- GEOTEXTILE PARAMETERS**
1. THE GEOTEXTILE SHALL BE PROVIDED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
 2. THE GEOTEXTILE SHALL BE BLACK IN APPEARANCE.
 3. THE GEOTEXTILE SHALL HAVE A TENSILE STRENGTH OF 315 LBS (1.400 kN) PER ASTM D4832 TESTING METHOD.
 4. THE GEOTEXTILE SHALL HAVE A TENSILE ELONGATION RESISTANCE OF 15% PER ASTM D4832 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-FREE POLYPROPYLENE YARNS.



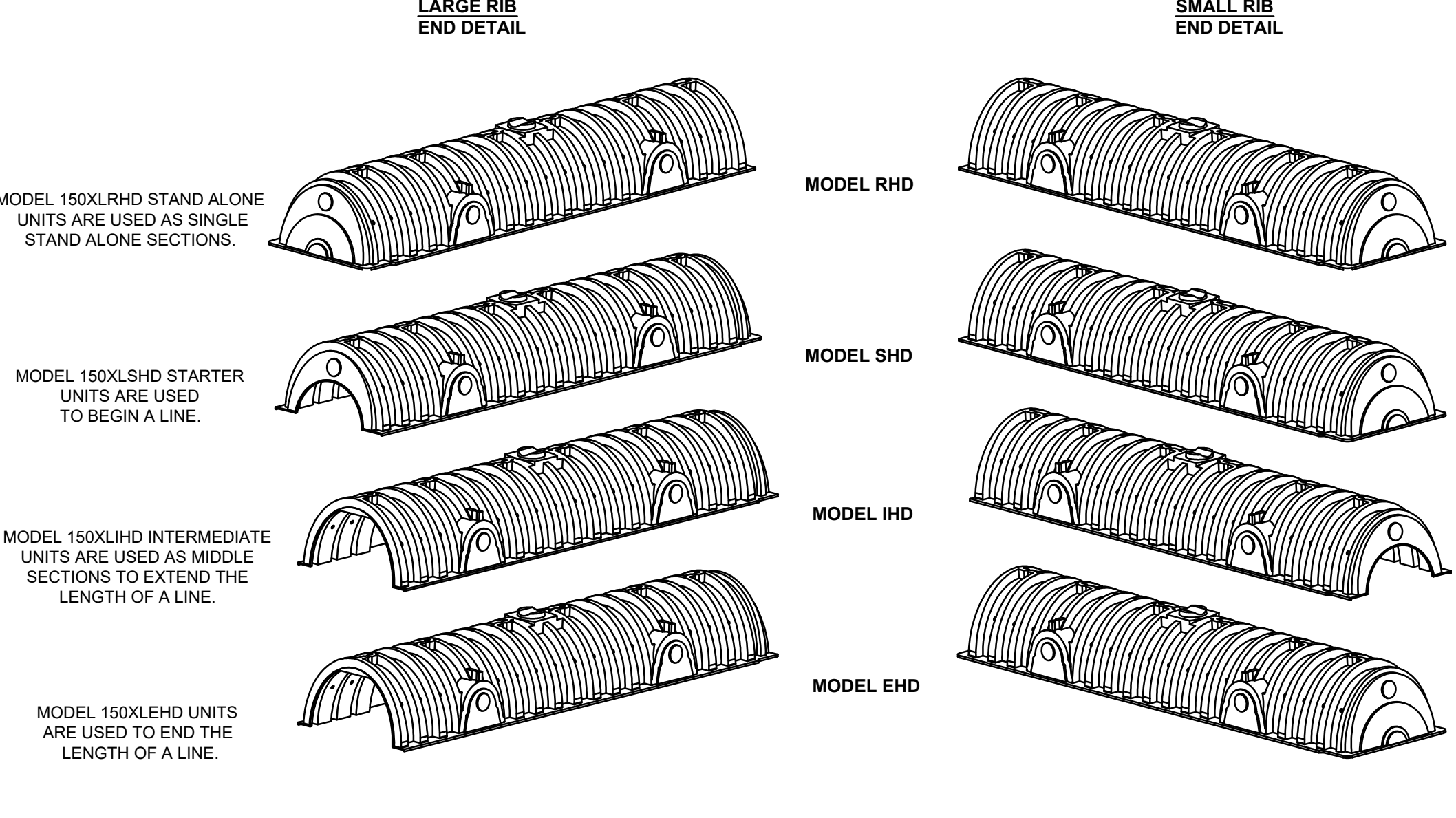
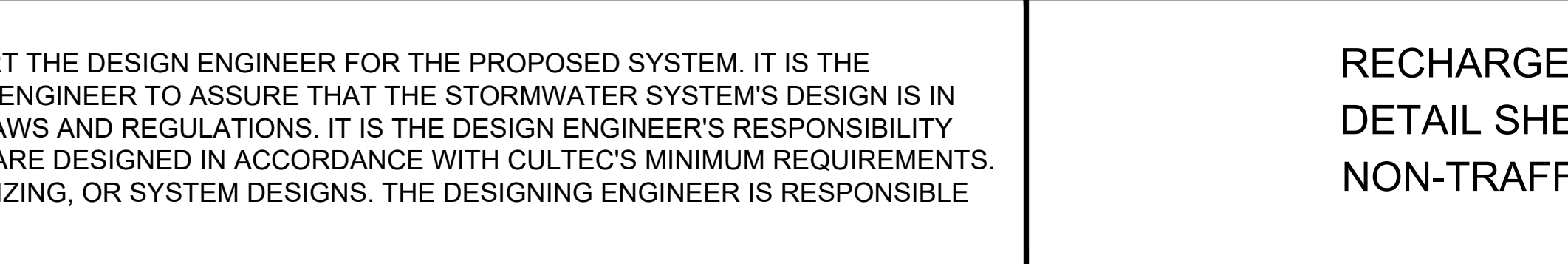
CULTEC RECHARGER 150XLHD HEAVY DUTY THREE VIEW



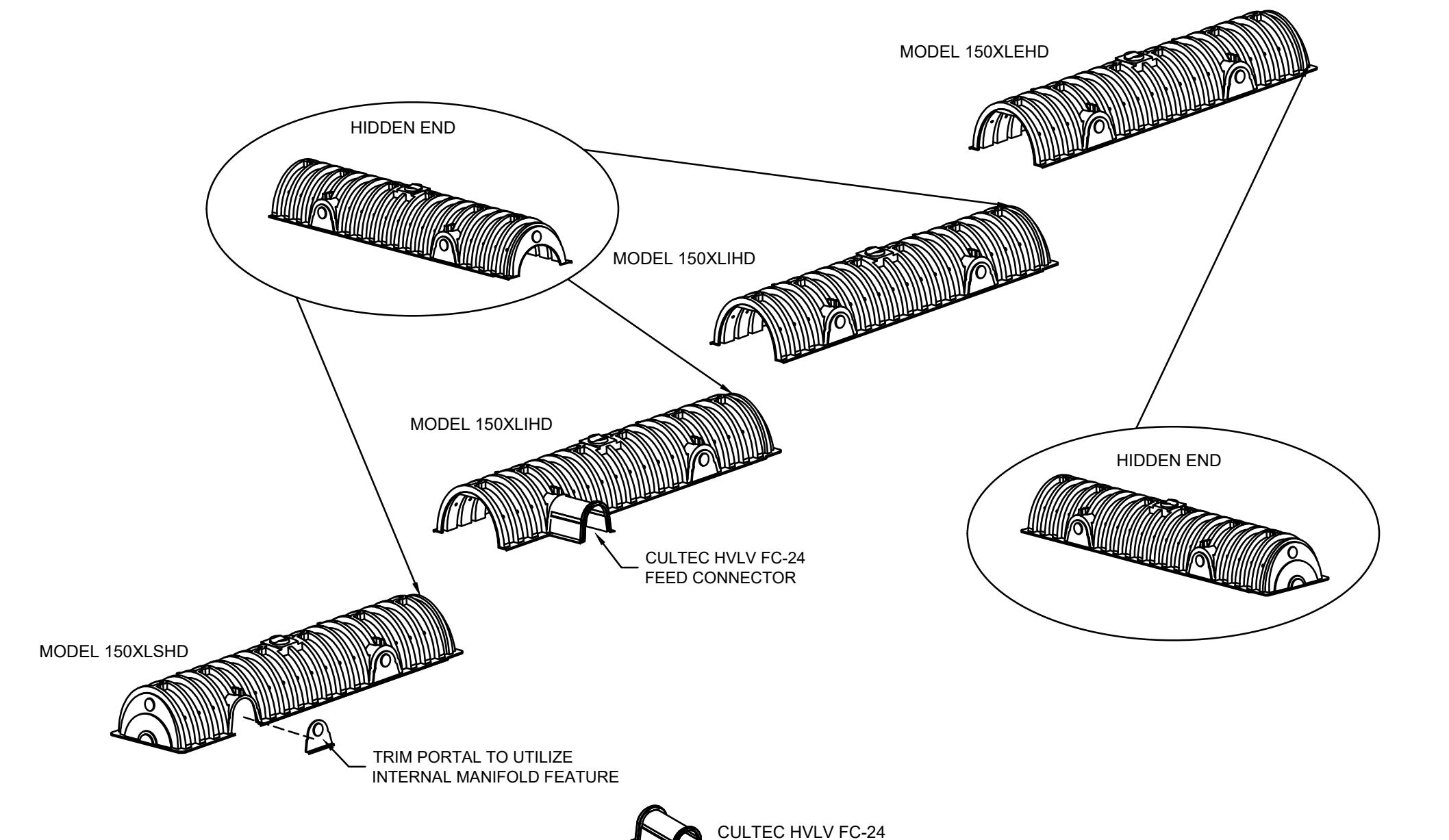
CULTEC RECHARGER 150XLHD HEAVY DUTY TYPICAL CROSS SECTION



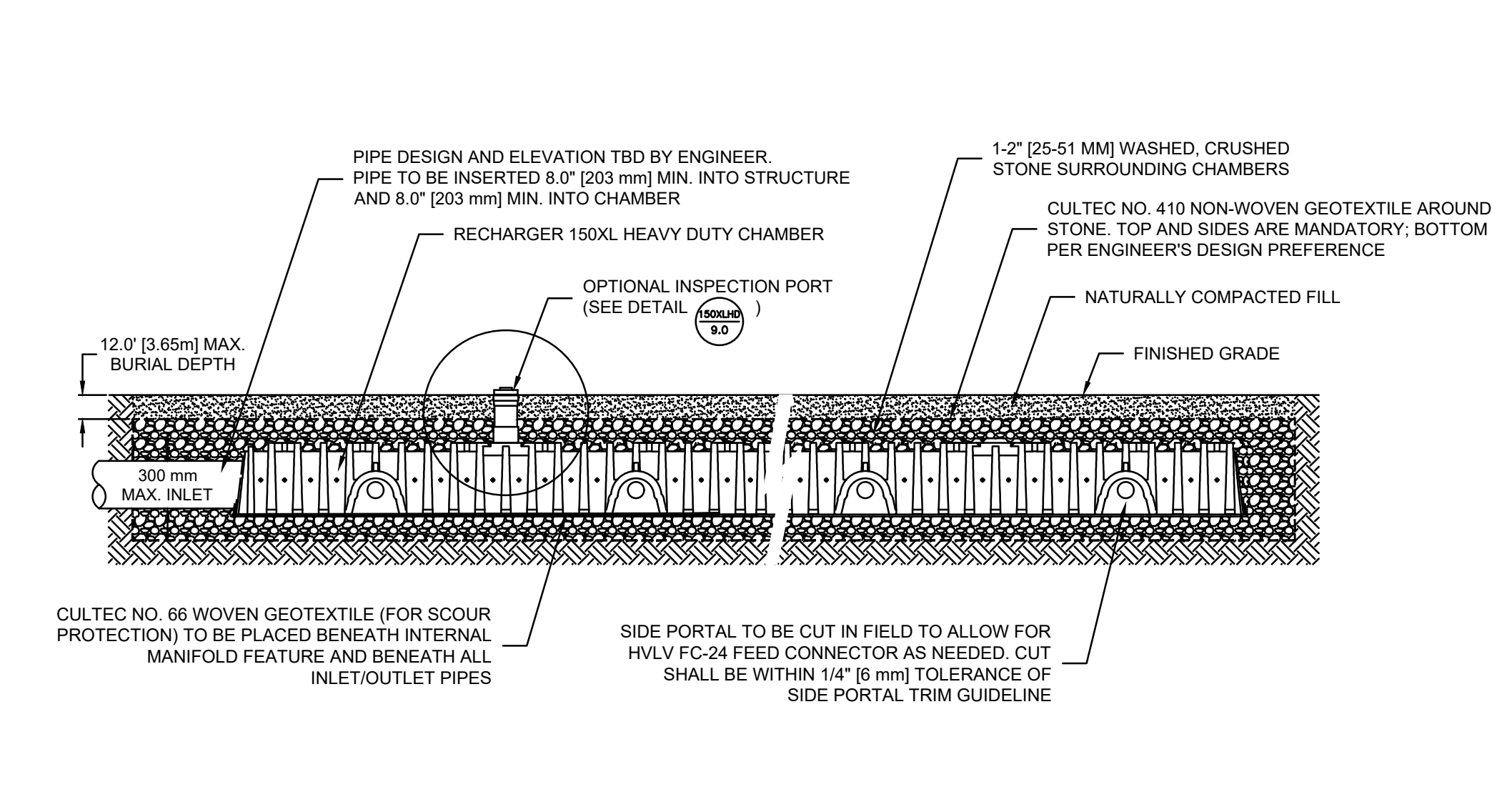
OPTIONAL INSPECTION PORT - ZOOM DETAIL



CULTEC RECHARGER 150XLHD HEAVY DUTY END DETAIL INFORMATION



CULTEC RECHARGER 150XLHD HEAVY DUTY TYPICAL INTERLOCK



CULTEC INTERNAL MANIFOLD - OPTIONAL INSPECTION PORT DETAIL

CULTEC RECHARGER® 150XLHD	
PROJECT NO:	DATE: 02/2016
DESIGNED BY: CULTEC, INC	DRAWN BY: TECH
SCALE: N.T.S.	SHEET NO: D-7

RECHARGER 150XLHD
DETAIL SHEET
NON-TRAFFIC APPLICATION