

ENG. NAME: PROFESSIONAL ENGINEER DATE:

**PLANNED RESIDENTIAL DEVELOPMENT (PRD)**

IN BEDFORD MASSACHUSETTS (MIDDLESEX COUNTY)

**GRADING & DRAINAGE PLAN**

JULY 1, 2016

REVISIONS:

NO.	DATE	DESC.

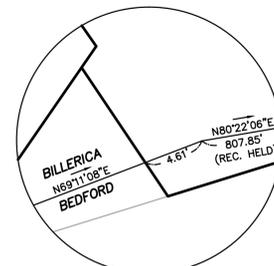
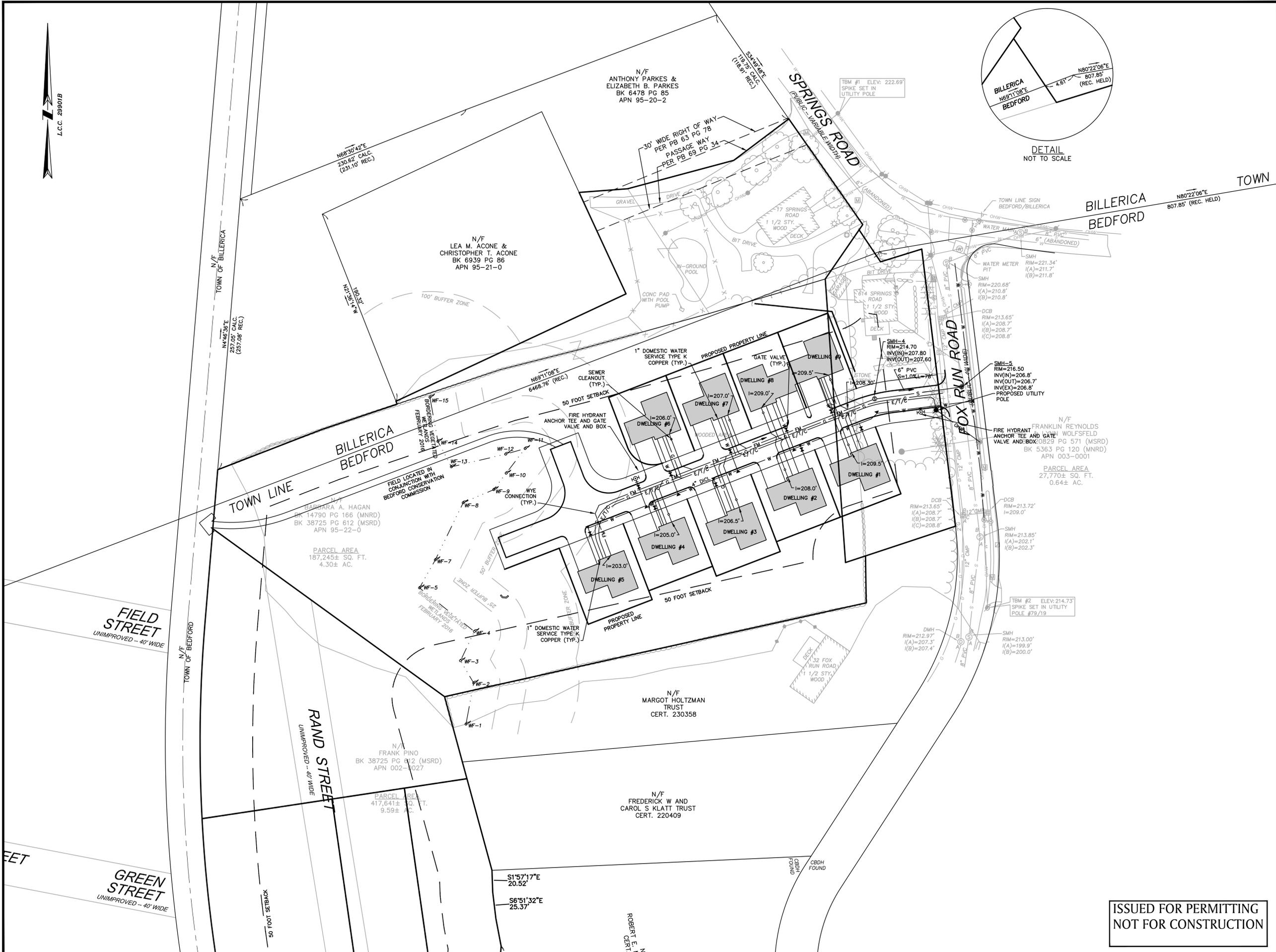
PREPARED FOR:  
BERNSTEIN DEVELOPMENT LLC  
C/O DEVELLIS CONSULTING GROUP  
41 NORTH ROAD-SUITE 203  
BEDFORD, MA 01730

**BSC GROUP**  
803 Summer Street  
Boston, Massachusetts  
02127  
617 896 4300

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SCALE: 1" = 40'  
0 20 40 80 FEET

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FILE: 2327100\Civil\Drawings  
DWG. NO:  
JOB. NO: 23271.00 SHEET **C-107**



ENG. NAME: TINO LABORS  
 PROFESSIONAL ENGINEER  
 DATE: 1/1/2016

**PLANNED RESIDENTIAL DEVELOPMENT (PRD)**

IN  
**BEDFORD MASSACHUSETTS**  
 (MIDDLESEX COUNTY)

**UTILITY PLAN**

JULY 1, 2016

REVISIONS:

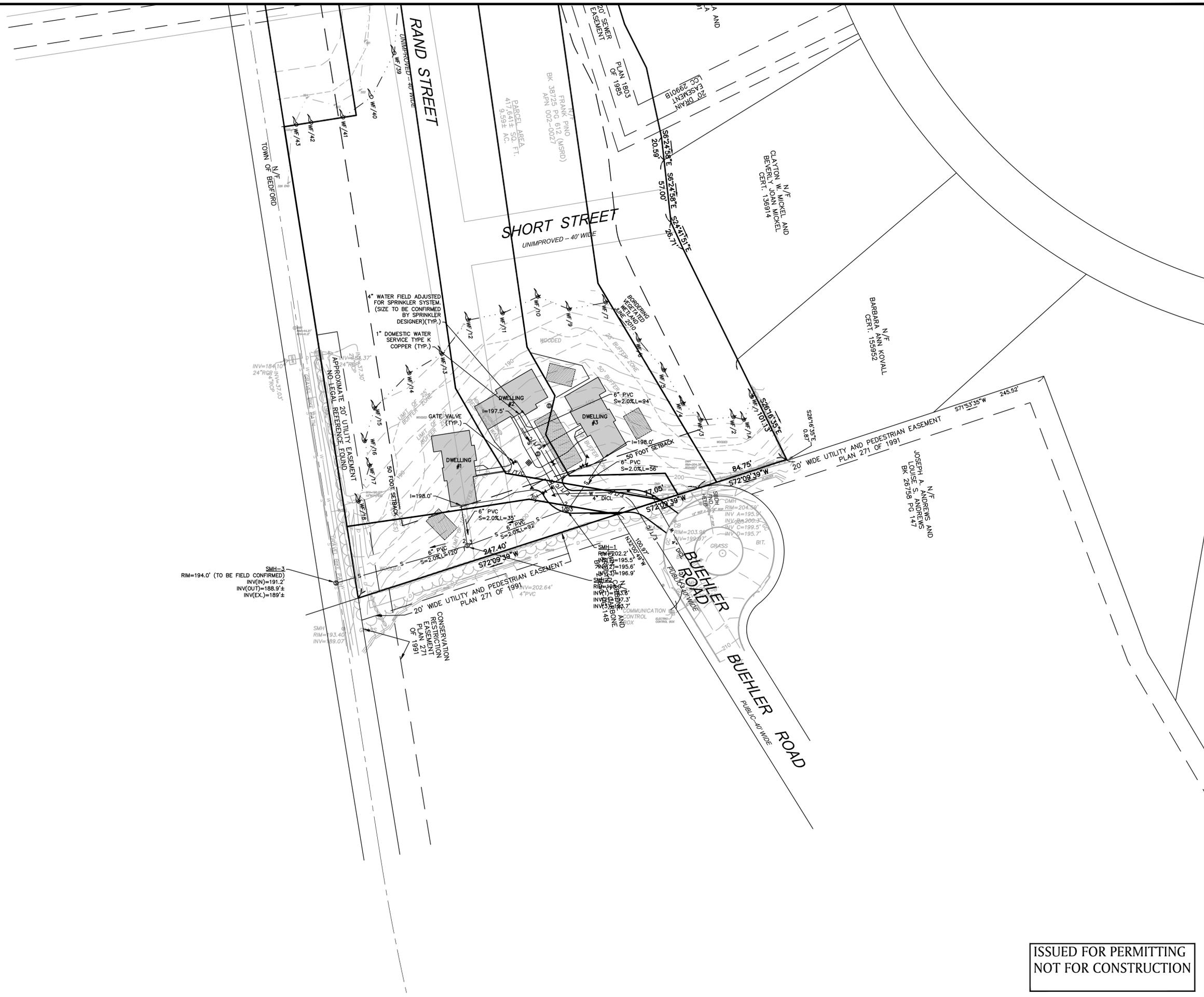
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PREPARED FOR:  
 BERNSTEIN DEVELOPMENT LLC  
 C/O DEVELLIS CONSULTING GROUP  
 41 NORTH ROAD-SUITE 203  
 BEDFORD, MA 01730

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 SHEET **C-108**



SMH-3  
RIM=194.0' (TO BE FIELD CONFIRMED)  
INV(N)=191.2'  
INV(OUT)=188.9'±  
INV(EX)=189'±

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DEVELOPMENT (PRD)**

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BEDFORD  
MASSACHUSETTS  
(MIDDLESEX COUNTY)

**UTILITY PLAN**

JULY 1, 2016

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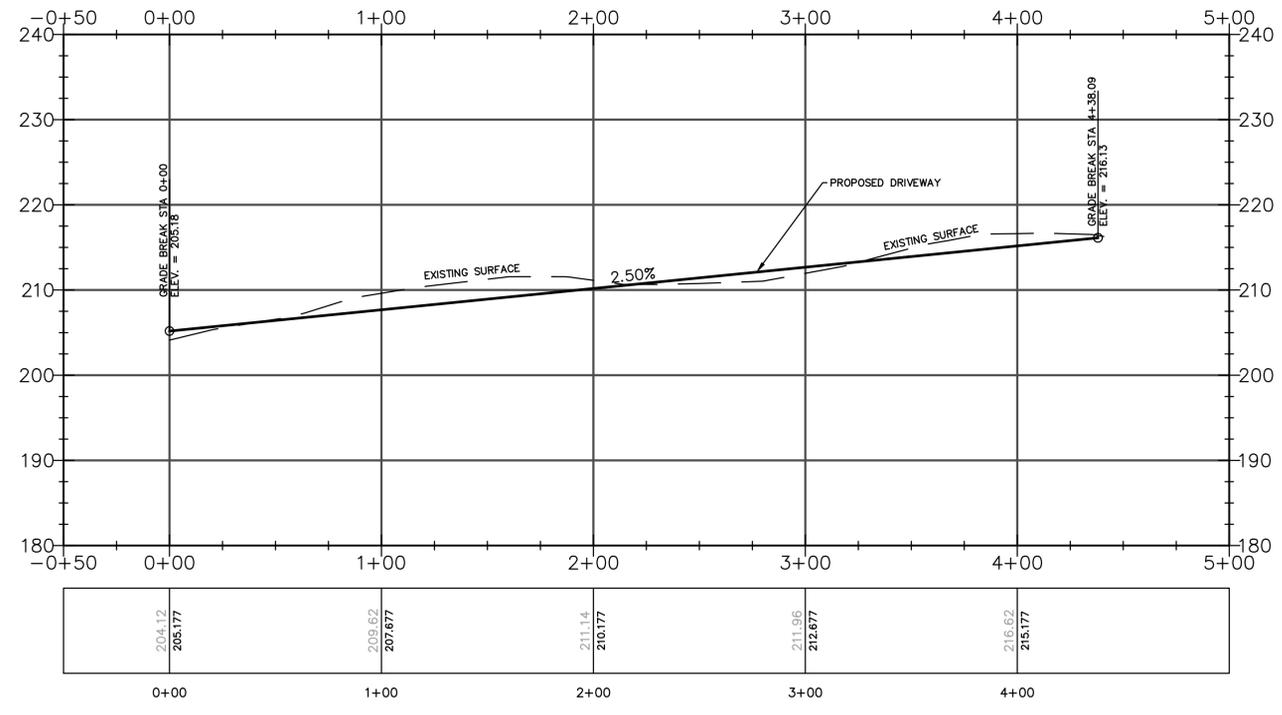
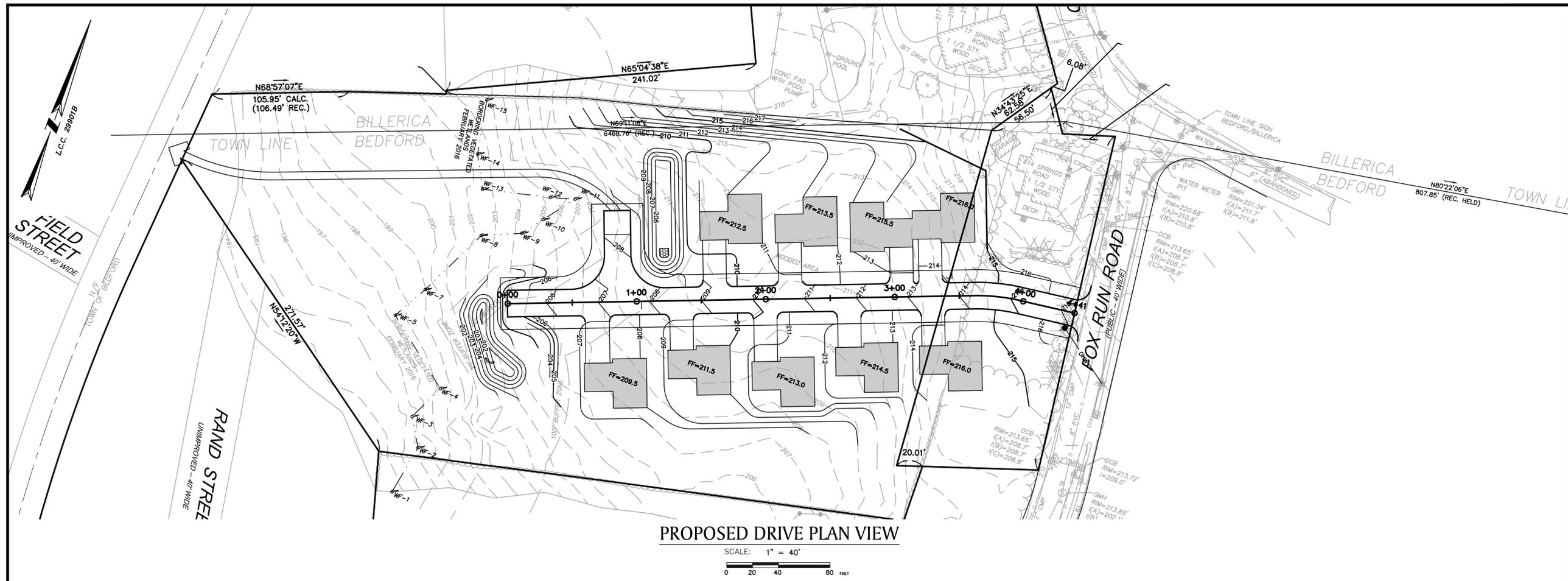
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DEVELOPMENT (PRD)**

IN  
BEDFORD  
MASSACHUSETTS  
(MIDDLESEX COUNTY)

**ROADWAY PLAN  
& PROFILE**

JULY 1, 2016

REVISIONS:

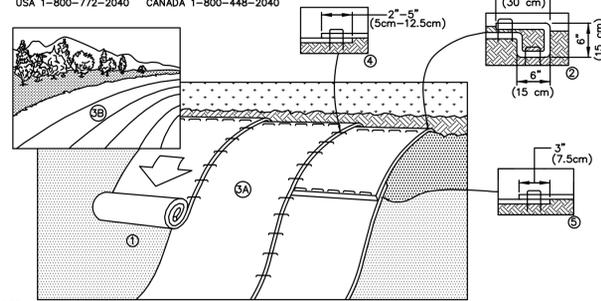
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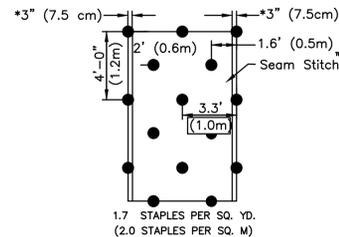
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**STAPLE PATTERN GUIDE**



BLANKETS WITH THE OPTIONAL NORTH AMERICAN GREEN DOT SYSTEM PLACE STAPLES/STAKES THROUGH EACH OF THE GREEN COLORED DOTS.

- CONSTRUCTION NOTES:**
1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. HYDROSEED SIDE SLOPES BEFORE INSTALLATION OF BLANKETS.
  2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE BLANKET.
  3. ROLL THE BLANKETS (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
  4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" (5cm-12.5cm) OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
  5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE CLOSED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5cm) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30cm) APART ACROSS ENTIRE BLANKET WIDTH.

**NOTES:**

\*IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15cm) MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

**CRITICAL POINTS**

- A. OVERLAPS AND SEAMS
- B. PROJECTED WATER LINE
- C. CHANNEL BOTTOM/SIDE SLOPE VERTICES

\* HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.

\*\* IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS IN EXCESS OF 6" (15 cm) MAY BE NECESSARY TO PROPERLY ANCHOR THE BLANKETS.

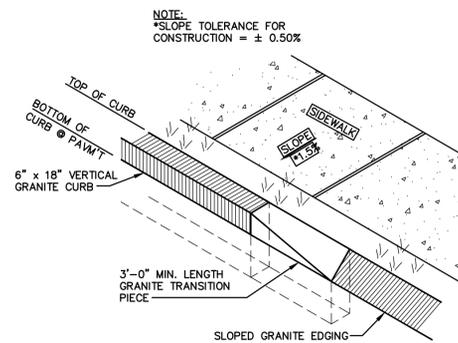
\*LOCATION OF SEAM STITCH WILL VARY DEPENDING ON NORTH AMERICAN GREEN PRODUCT TYPE: --APPROX. 5" SEAM OVERLAP FOR BIONET EROSION CONTROL BLANKETS

**SLOPE STABILIZATION INSTALLATION**

SCALE: NONE

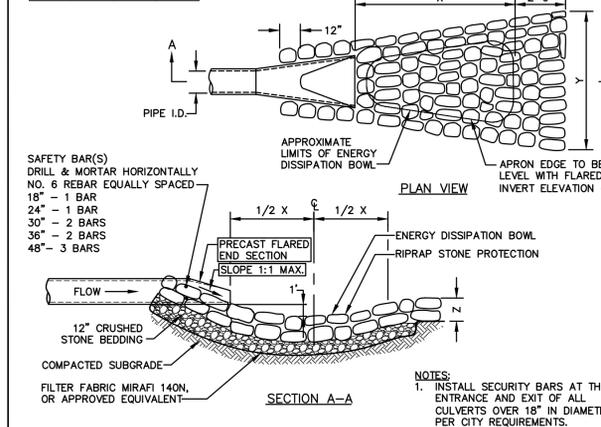
**GRANITE CURB TRANSITION**

SCALE: NONE



**DISSIPATION BOWL SIZING TABLE**

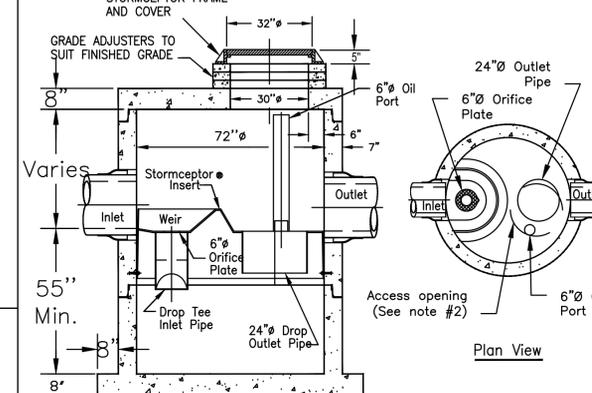
OUTLET	X	Y	Z	OUTLET	X	Y	Z	OUTLET	X	Y	Z
FES 1	14'	21.5'	40"	FES 9	5'	7.5'	5.5"	FES 15	6'	8.5'	12.5"
FES 2	8'	11.5'	8.5"	FES 10	4'	6'	5"	FES 16	4'	6'	13"
FES 3	5'	7.5'	8"	FES 11	4'	6'	4"	FES 17	6'	8.5'	21.5"
FES 4	12'	17'	14"	FES 12	8'	11.5'	8.5"	FES 18	8'	11.5'	18.5"
FES 5	4'	6'	4"	FES 13	6'	8.5'	9"				
FES 6	4'	6'	4"	FES 14	6'	8.5'	12.5"				
FES 7	8'	11.5'	10"								
FES 8	4'	6'	3.5"								



**FLARED END SECTION W/ STONE PROTECTION (DISSIPATION BOWL)**

SCALE: NONE

**STC 900 Precast Concrete Stormceptor® (900 U.S. Gallon Capacity)**

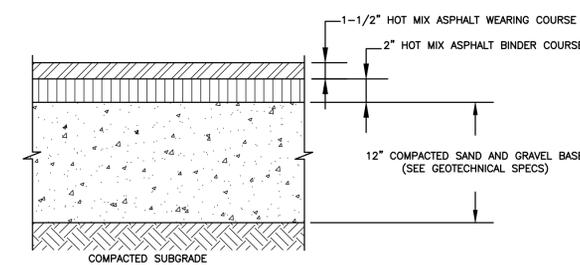


**Section Thru Chamber**

- NOTES:**
1. THE USE OF FLEXIBLE CONNECTIONS IS RECOMMENDED AT THE INLET AND OUTLET WHERE APPLICABLE.
  2. THE COVER SHOULD BE POSITIONED OVER THE OUTLET DROP PIPE AND THE OIL PORT.
  3. THE STORMCEPTOR SYSTEM IS PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS: #4985148, #5498331, #5725760, #5753115, #5849181, #6068765, #6371690

**STORMCEPTOR 900 (WQU1.3.4.5)**

SCALE: NONE

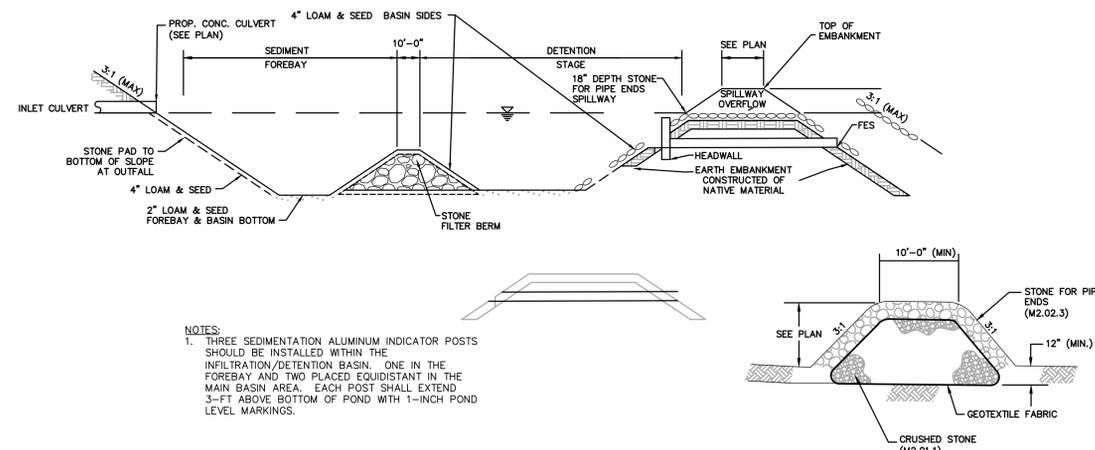


**HOT MIX ASPHALT DETAIL**

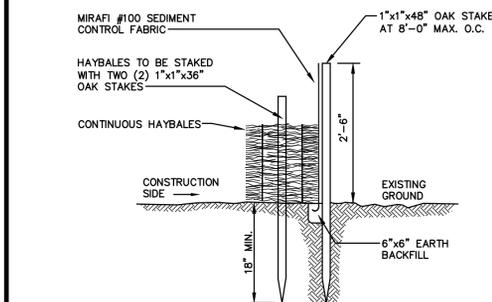
SCALE: NONE

**TYPICAL INFILTRATION/DETENTION BASIN**

SCALE: NONE



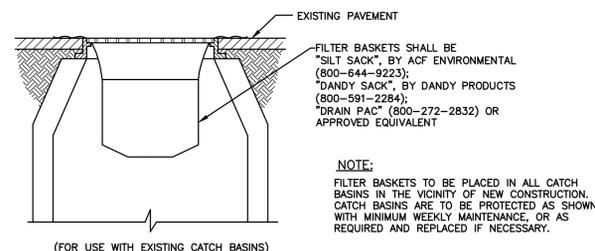
**STONE FILTER BERM**



- NOTES:**
1. BALES SHALL BE PLACED IN A ROW WITH THE ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
  2. BALES SHALL BE SECURELY ANCHORED IN PLACE BY TWO (2) 1"X1"X36" OAK STAKES DRIVEN THROUGH THE BALES. THE FIRST STAKE IN EACH BALE SHALL BE ANGLED TOWARD PREVIOUSLY LAID BALE TO FORCE BALES TOGETHER.
  3. INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
  4. BALES SHALL BE REMOVED AND REPLACED WHEN THEY BECOME FILLED WITH SEDIMENT AND BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
  5. BALES SHALL BE REMOVED WHEN THE EMBANKMENTS STABILIZE.
  6. BALES TO BE TWINE BOUND.

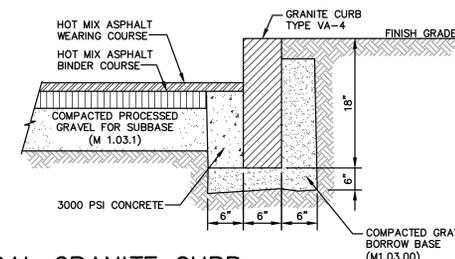
**SILT FENCE WITH HAYBALES**

SCALE: NONE



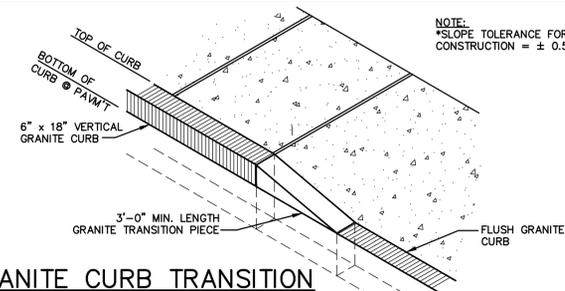
**CATCH BASIN INLET PROTECTION**

SCALE: NONE



**VERTICAL GRANITE CURB**

SCALE: NONE



**GRANITE CURB TRANSITION**

SCALE: NONE



ENG. NAME DATE  
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IN BEDFORD MASSACHUSETTS (MIDDLESEX COUNTY)

**CIVIL DETAILS I**

JULY 1, 2016

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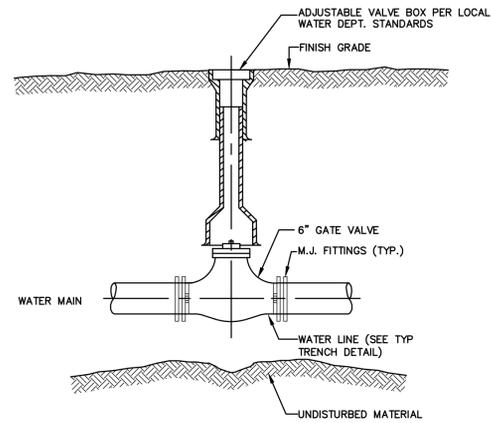
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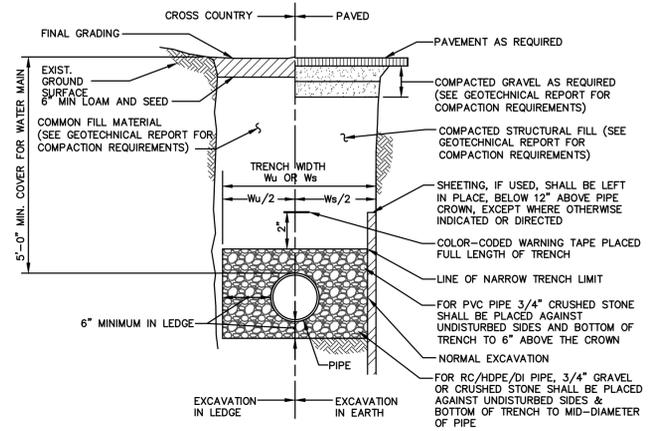
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JOB. NO: 23271.00 C-200

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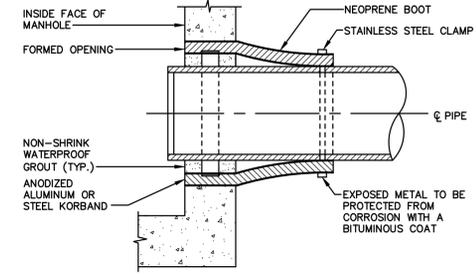


**GATE VALVE**  
SCALE: NONE

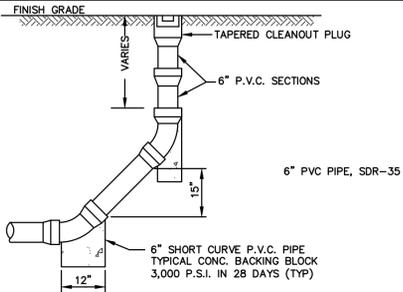


**TYPICAL PIPE TRENCH SECTION**  
SCALE: NONE

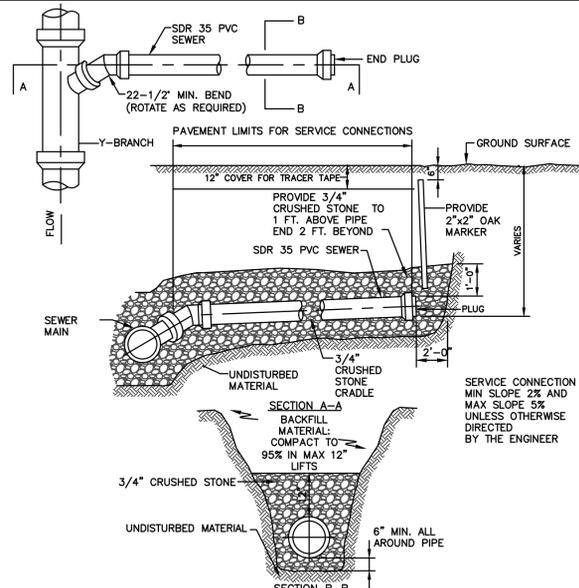
D DIAMETER OF PIPE	TRENCH WIDTH, Ws OR Wu	
	UNSHEETED	WS SHEETED
12" AND SMALLER	3'-0"	4'-2"
15"	3'-2"	4'-4"
18"	3'-6"	4'-8"
21"	3'-10"	5'-0"
24"	4'-2"	5'-4"
27"	4'-6"	5'-8"
30"	4'-10"	6'-0"
36"	5'-6"	6'-8"
42"	6'-2"	7'-4"
48"	6'-10"	8'-0"



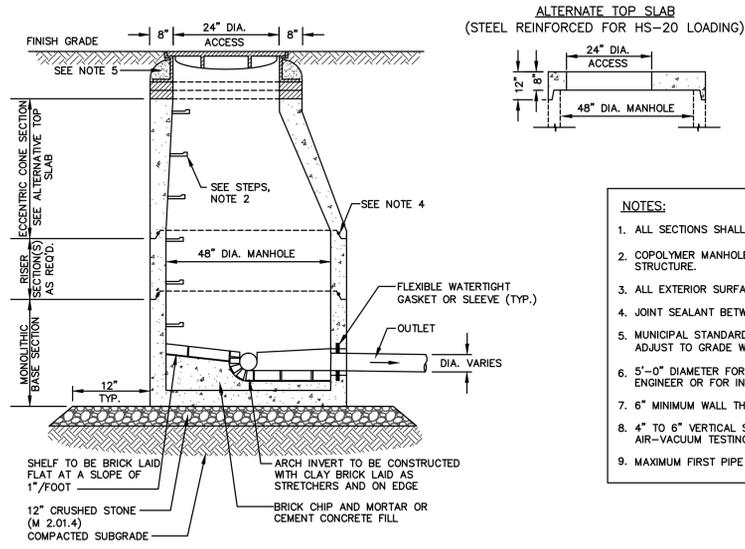
**FLEXIBLE PIPE TO MANHOLE CONNECTION (NEOPRENE BOOT)**  
SCALE: NONE



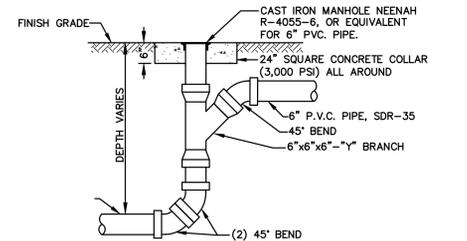
**SEWER LINE CLEANOUT**  
SCALE: NONE



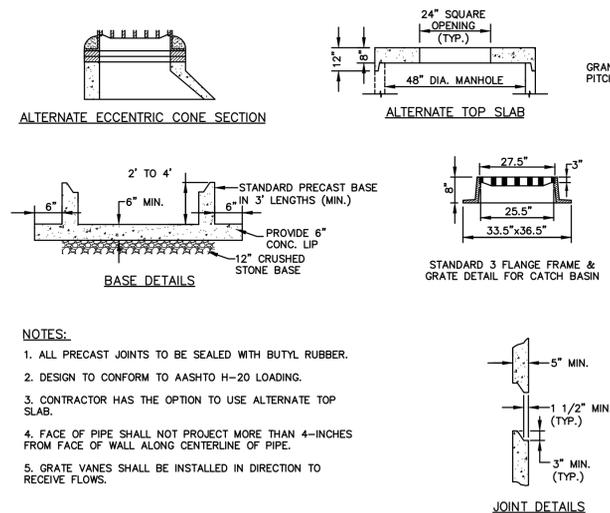
**BUILDING SEWER SERVICE CONNECTION**  
SCALE: NONE



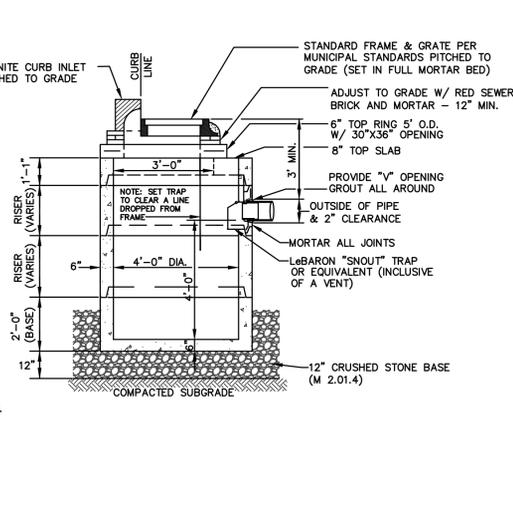
**SANITARY SEWER MANHOLE**  
SCALE: NONE



**FIRE HYDRANT & VALVE**  
SCALE: NONE



**CATCH BASIN WITH CURB INLET**  
SCALE: NONE



ENG. NAME DATE  
PROFESSIONAL ENGINEER

**PLANNED RESIDENTIAL DEVELOPMENT (PRD)**

IN  
**BEDFORD MASSACHUSETTS**  
(MIDDLESEX COUNTY)

**CIVIL DETAILS II**

JULY 1, 2016

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**PLANTING NOTES**

ALL PLANT MATERIAL SHALL CONFORM TO THE MINIMUM GUIDELINES ESTABLISHED BY THE AMERICAN STANDARD FOR NURSERY STOCK PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC.

ANY PROPOSED SUBSTITUTIONS OF PLANT MATERIAL SHALL BE MADE WITH MATERIAL EQUIVALENT TO THE DESIRED MATERIAL IN OVERALL FORM, HEIGHT, BRANCHING HABIT, FLOWER, LEAF, COLOR, FRUIT AND CULTURE. PROPOSED SUBSTITUTIONS WILL ONLY BE CONSIDERED IF SUBMITTED WITH ENUMERATED REASONS WHY SUBSTITUTIONS ARE PROPOSED.

VERIFY ALL EXISTING UTILITY LINES PRIOR TO PLANTING AND REPORT ANY CONFLICTS TO THE OWNER OR HIS REPRESENTATIVE.

NO PLANT SHALL BE PLANTED BEFORE ACCEPTANCE OF ROUGH GRADING.

ALL PLANT MATERIALS SHALL BE GUARANTEED FOR ONE YEAR FOLLOWING DATE OF FINAL ACCEPTANCE.

THE CONTRACTOR SHALL CLEARLY MARK LIMITS OF CLEARING AND LIMITS OF SELECTIVE PRUNING AND THINNING, FOR REVIEW BY THE A/E PRIOR TO ANY CLEARING OPERATIONS.

ALL TREES NOTED FOR CLEARING AND SELECTIVE PRUNING AND THINNING SHALL BE EXECUTED BY A LICENSED ARBORIST.

THE CONTRACTOR SHALL TAKE ALL MEASURES NECESSARY TO PROTECT EXISTING VEGETATION THAT IS TAGGED BY THE A/E, "TO BE SAVED".

ALL TREES TO BE SAVED SHALL BE PROTECTED WITH A SNOW FENCE AND HAY BALES CIRCILING THE TREE AT A MINIMUM DISTANCE OF 1/2 THE CANOPY.

THE A/E RESERVES THE RIGHT TO ADJUST FINAL GRADES IN THE FIELD TO SAVE EXISTING VEGETATION.

PLANT QUANTITIES NOTED IN THE PLANT SCHEDULE ARE APPROXIMATE AND ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FURNISHING AND INSTALLATION OF ALL PLANT MATERIALS NOTED ON THE PLANTING PLAN.

LOAM AND SEED ALL DISTURBED AREAS UNLESS OTHERWISE INDICATED.

REGRADE STOCKPILE AREA AFTER REMOVAL OF SURPLUS MATERIALS (SEE SITE WORK SPECIFICATIONS). LOAM AND SEED THE DISTURBED AREA.

TOPSOIL STRIPPED FROM THE SITE AND PROPERLY STOCKPILED PRIOR TO APPLICATION MAY, UPON APPROVAL OF THE ENGINEER, BE USED FOR PREPARATION OF LAWNS AND PLANTING BEDS. IT SHOULD BE FREE OF LARGE (ONE (1) INCH OR GREATER) COBBLES, ROOTS, OLD SOO, TRASH, WOOD OR OTHER CONTAMINANTS AND BE OF A FRIABLE CONSISTENCY AND SUITABLE FOR PLANT GROWTH.

PROVIDE SOIL TEST REPORTS FOR ONSITE TOP SOIL TO BE REUSED AND FOR LOAM BORROW TO BE IMPORTED. SOIL TEST REPORT SHALL INCLUDE USDA TEXTURAL CLASSIFICATION TEXTURAL SIEVE ANALYSIS, AS WELL AS NUTRIENT ANALYSIS, AND MICRO-NUTRIENTS.

THE LANDSCAPE CONTRACTOR SHALL FURNISH LOAM BORROW/ TOPSOIL. LOAM SHALL BE FERTILE, FRIABLE, NATURAL AND PRODUCTIVE TOPSOIL OF GOOD CLAY-LOAM TO SANDY LOAM TYPE. LOAM SHALL BE WITHOUT ADMIXTURE OF SUBSOIL AND SHALL BE REASONABLY FREE OF STONES, LUMPS, ROOTS, STICKS INVASIVE SEED OR STOCK AND OTHER FOREIGN MATTER. LOAM SHALL NOT BE WORKED OR APPLIED IN A MUDDY OR WET CONDITION.

PROVIDE SOIL AMENDMENTS AS DIRECTED BY THE A/E BASED UPON THE FINDINGS OF SOIL TESTS PROVIDED FOR EXISTING TOP SOIL TO BE REUSED AND OR IMPORTED MATERIAL.

ALL PLANTING BEDS TO BE FILLED WITH SOIL AND CROWNED ABOVE ADJACENT LAWN OR IMPROVED AREAS. ALL PLANTING BEDS TO BE MULCHED WITH AGED PINE BARK MULCH TO A DEPTH OF THREE (3) INCHES.

CAUTION SHALL BE USED NOT TO EXTEND MULCH LAYER ABOVE SOIL LEVEL AT TRUNKS/STEMS OF INSTALLED PLANT MATERIAL.

PROVIDE FIVE (5) FOOT DIAMETER MULCH CIRCLE AROUND ALL INDIVIDUAL TREE PLANTINGS AND CONTINUOUS MULCH BED AROUND SHRUB PLANTINGS.

**PLANTING SCHEDULE**

DECIDUOUS TREES	QTY	BOTANICAL NAME / COMMON NAME	SIZE
ARO	8	ACER RUBRUM 'OCTOBER GLORY' TM / OCTOBER GLORY MAPLE	3-3.5" CAL.
AFJ	4	ACER X FREEMANII 'JEFFSRED' / AUTUMN BLAZE MAPLE	3-3.5" CAL.
PPG	38	PICEA PUNGENS GLAUCA / COLORADO BLUE SPRUCE	6-7' HT. / B&B
PSW	35	PINUS STRIBUS / WHITE PINE	6-7' HT. / B&B
QPP	5	QUERCUS PALUSTRIS / PIN OAK	3-3.5" CAL.
TON	76	THUJA OCCIDENTALIS 'DARK GREEN' / DARK AMERICAN ARBORVITAE	7-8' HT. / B&B



RESTORATION MIX FOR MOIST SITES  
MINIMUM ORDER: 3 LBS

SPECIES: VIRGINIA WILD RYE, (ELYMUS VIRGINICUS), CREEPING RED FESCUE, (FESTUCA RUBRA), LITTLE BLUESTEM, (SCHIZACHYRIUM SCOPARIUM), BIG BLUESTEM, (ANDROPOGON GERARDII), FOX SEDGE, (CAREX VULPINOIDEA), SWITCH GRASS, (PANICUM VIRGATUM), ROUGH BENTGRASS, (AGROSTIS SCABRA), NEW ENGLAND ASTER, (ASTER NOVAE-ANGLIAE), BONESET, (EUPATORIUM PERFORIATUM), GRASS LEAVED GOLDENROD, (EUTHAMIA GRAMINIFOLIA), GREEN BULRUSH, (SCIRPUS ATROVIRENS), BLUE VERVAIN, (VERBENA HASTATA), SOFT RUSH, (JUNCUS EFFUSUS), WOOL GRASS, (SCIRPUS CYPERINUS).

FOR MORE INFORMATION, CONTACT NEW ENGLAND WETLAND PLANTS, INC. (413)548-800 OR 820 WEST STREET, AMHERST, MA 01002

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LESLIE D. FANGER, RLA DATE  
LANDSCAPE ARCHITECT

**PLANNED  
RESIDENTIAL  
DEVELOPMENT (PRD)**

IN  
BEDFORD  
MASSACHUSETTS  
(MIDDLESEX COUNTY)

**FOX RUN ROAD  
LANDSCAPE PLAN  
AND NOTES**

JULY 1, 2016

**REVISIONS:**

NO.	DATE	DESC.

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JOB. NO: 23271.00

SHEET L-100

FIELD STREET  
UNIMPROVED - 40' WIDE

RAND STREET  
UNIMPROVED - 40' WIDE

GREEN STREET  
UNIMPROVED - 40' WIDE