

Comprehensive Permit Plans
Needham Mews Residential Development
692 & 744 Greendale Avenue - Needham, MA

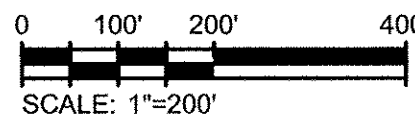
One Grant Street
Framingham, MA 01701
PHONE: (508) 903-2000 FAX: (508) 903-2001



www.tetrattech.com



SITE CONTEXT MAP



ZONING ANALYSIS: DISTRICT - SINGLE RESIDENCE A		
ITEM	REQUIRED	PROVIDED
MINIMUM LOT AREA	43,560 S.F.	262,175 S.F.
MINIMUM LOT FRONTAGE	150'	616'
FRONT SETBACK	30'	14.7'
SIDE SETBACK	25'	25.1'
REAR SETBACK	15'	30.9'
MAXIMUM F.A.R.	NO REQUIREMENT	2.07
MAXIMUM % LOT COVERAGE	NO REQUIREMENT	38%
MAXIMUM STORIES	2 1/2	BLDG A,B,C - 4 BLDG D,E - 5
MAXIMUM HEIGHT	35' (ROOF RIDGE ELEV. TO AVERAGE GRADE)	BLDG A - 44 BLDG B - 45 BLDG C - 45 BLDG D - 72 BLDG E - 69

UNIT DENSITY SUMMARY	
NUMBER OF UNITS	300
LOT AREA (ACRES)	6.02
UNITS/ACRE	49.8

LOT COVERAGE SUMMARY		
ITEM	AREA (SF)	% OF LOT AREA
TOTAL SITE AREA	262,175	N/A
PROVIDED BUILDING AREA	98,783	38%
PROVIDED DRIVEWAY & PARKING AREAS	50,596	19%
PROVIDED SIDEWALK AREA	13,487	5%
PROVIDED OPENSACE	99,309	38%

PARKING SUMMARY - 300 DWELLING UNITS	
	PARKING RATIO
REQUIRED NUMBER OF PARKING SPACES	1.5 SPACES PER DWELLING UNIT (SEE NOTE 1)
PROVIDED NUMBER OF PARKING SPACES	1.7 SPACES PER DWELLING UNIT = 510 SPACES
REQUIRED NUMBER OF BIKE STORAGE AREAS	1 PER 20 PARKING SPACES = 25.5
PROVIDED NUMBER OF BIKE STORAGE AREAS	26

- NOTES:
- (1) SECTION 5.1.2 REQUIRED PARKING OF THE ZONING BYLAW DOES NOT PROVIDE A REQUIRED NUMBER OF SPACES FOR MULTIFAMILY USES. SECTION 5.1.4 OFF-STREET PARKING REQUIREMENTS FOR MULTI-FAMILY STRUCTURES REQUIRES 1.5 SPACES PER DWELLING UNIT FOR MULTIFAMILY USES IN AN THE APARTMENT DISTRICT.
- (2) PARKING SPACE DIMENSIONS PROVIDED:
90 DEGREE STANDARD SPACES 9'x18'
PARALLEL STANDARD SPACES 9'x22'
90 DEGREE HANDICAP SPACES 13'x18'
PARALLEL HANDICAP SPACES 14x22'
- (3) ADEQUATE OFF-STREET LOADING FACILITIES AND SPACE WITH UNIMPEDED ACCESS WILL BE PROVIDED IN ACCORDANCE WITH SECTION 5.1.3(b).

APPLICANT:
GREENDALE AVENUE VENTURE LLC
C/O MILL CREEK RESIDENTIAL TRUST, LLC
15 NEW ENGLAND INDUSTRIAL PARK
BURLINGTON, MA 01803
TEL: 781-685-4698

PROJECT ATTORNEY:
GOULSTON & STORRS
400 ATLANTIC AVENUE
BOSTON, MA 02110
TEL: 617-482-1776

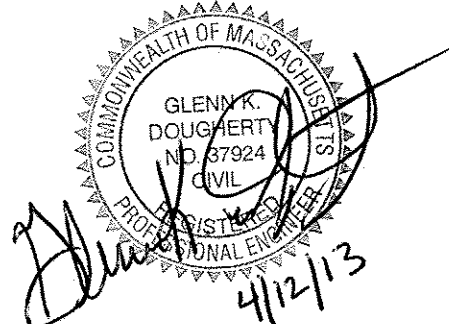
ARCHITECT:
THE ARCHITECTURAL TEAM
50 COMMANDANT'S WAY AT ADMIRAL'S HILL
CHELSEA, MA 02150
TEL: 617-889-4402

LANDSCAPE ARCHITECT:
STANTEC
141 PORTLAND STREET
BOSTON, MA 02114
TEL: 617-523-8103

TRAFFIC ENGINEER:
VANASSE & ASSOCIATES, INC.
10 NEW ENGLAND BUSINESS CENTER DRIVE
ANDOVER, MA 01810
TEL: 978-474-8800

PROJECT LOCATION:
692 & 744 Greendale Avenue
Needham, MA

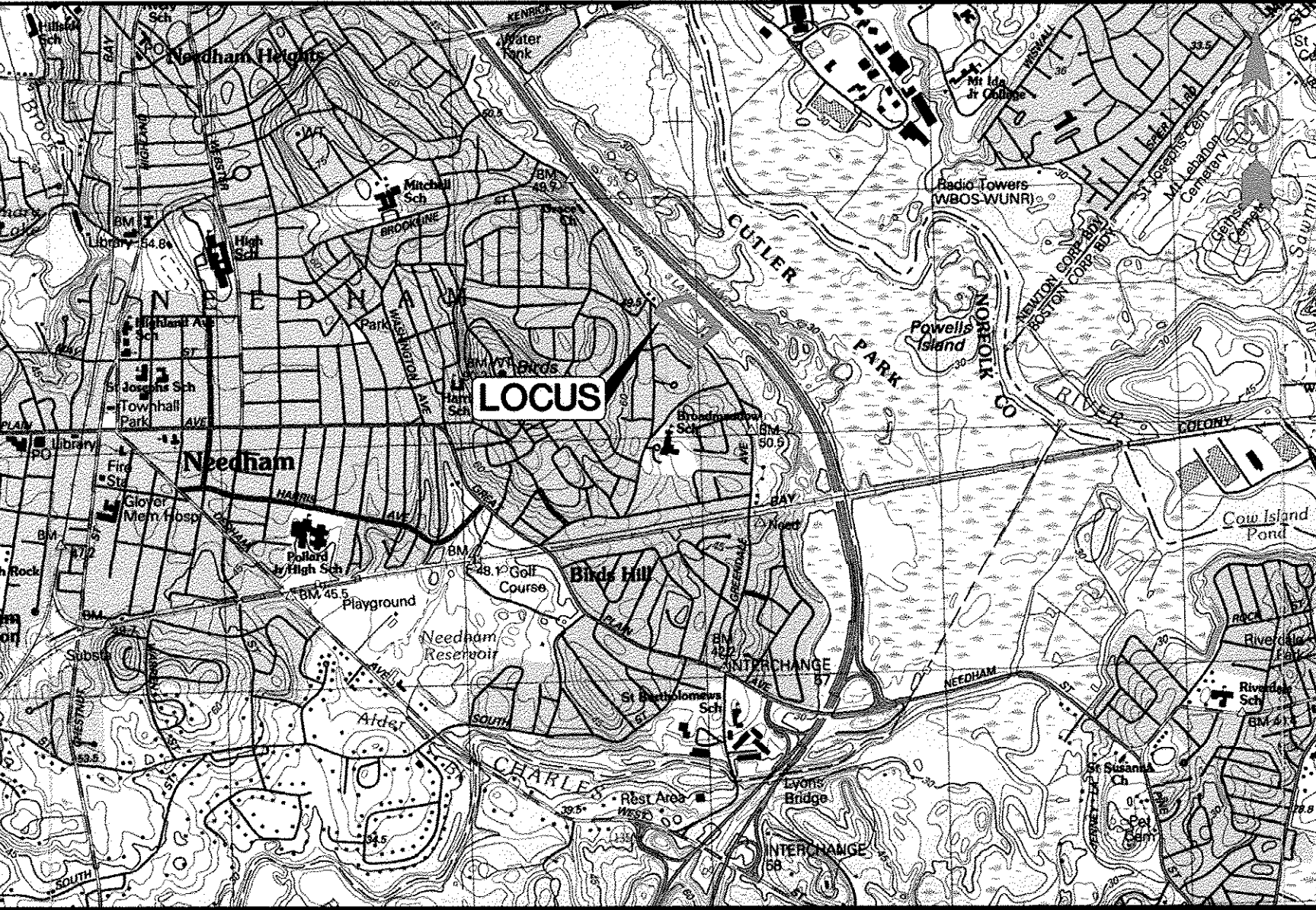
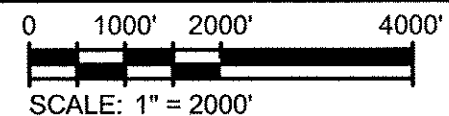
Tt PROJECT No.:
143-82806-13003



DATE: APRIL 12, 2013

REVISED:

USGS MAP:



PLAN REFERENCES

"PLAN OF LAND NEEDHAM, MASS." DATED JAN. 3, 2002 PREPARED BY NEEDHAM SURVEY ASSOCIATES, INC.

"PLAN OF LAND NEEDHAM--MASS." DATED JUNE 10, 2000 PREPARED BY NEEDHAM SURVEY ASSOCIATES, INC.

"TOWN OF NEEDHAM, MASS DEPT. OF PUBLIC WORKS, EASEMENT TO BE ACQUIRED IN NEEDHAM, MASS., GREENDALE AVE TO ROUTE 128" DATED JUNE 1959.

"PLAN OF LAND IN NEEDHAM, MASS." DATED SEPT. 18, 1937 BY E. WORTHINGTON ENGINEER. PLAN BOOK 2159 PAGE 225.

"PLAN OF LAND IN NEEDHAM, MASS SHOWING DRAIN EASEMENT TO BE ACQUIRED BY THE TOWN", DATED OCTOBER 26, 1990 BY CHENEY ENGINEERING CO., INC., PLAN BOOK 395 NO. 791-1990.

"PLAN OF LAND IN NEEDHAM, MASS. DATED FEB. 18, 1964 BY CHENEY ENGINEERING CO., PLAN NO. 335 OF 1964 PLAN BOOK 4151 PAGE 442.

STATE LAYOUT NO. 4548, 1957 DISCONTINUANCE OF STATE HIGHWAY ON GREENDALE AVENUE.

LAND COURT PLAN 31133A.

"PLAN OF LAND IN NEEDHAM, MASS" DATED MAY 4, 1936 BY FRANK L. CHENEY, PLAN BOOK 2109 PAGE 372.

"PLAN OF LAND IN NEEDHAM, MASS." DATED JULY 20, 1961 BY CHENEY ENGINEERING CO., PLAN NO. 13 OF 1962 PLAN BOOK 3957 PAGE 484.

STATE LAYOUT NO. 4062, 1953 ALTERATION ROUTE 128

LEGEND

UTILITY POLE	○
WATER VALVE	WV
FIRE HYDRANT	+
BENCHMARK	BM
CATCH BASIN	CB
SEWER MANHOLE	SMH
GAS VALVE	GV
DRAIN MANHOLE	DMH
NOW OR FORMERLY	N/F
EXISTING SPOT ELEVATION	× 161.7
EXISTING CONTOUR	---
OVERHEAD WIRES	---
WATER LINE	---
GAS LINE	---
SANITARY SEWER	---
STORM DRAIN	---

LOCUS INFORMATION

ASSESSORS MAP 18 PARCELS 42, 43 & 44

LOCUS IS WITHIN FEMA FLOOD ZONE X AS SHOWN ON COMMUNITY PANEL #255215 0004 C DATED JUNE 5, 1989.

ZONING SUMMARY

ZONING DISTRICT: SRA SINGLE RESIDENCE A

MIN. LOT SIZE	43,560 S.F.
MIN. LOT FRONTAGE	150'
MIN. FRONT SETBACK	30'
MIN. SIDE SETBACK	25'
MIN. REAR SETBACK	15'
MAX. BUILDING HEIGHT	35'

OWNERS OF RECORD

ASSESSORS MAP 18, PARCELS 43 & 44
VINCENT P. & MARY D. BORIS
692 GREENDALE AVENUE
NEEDHAM, MA 02192

ASSESSORS MAP 18, PARCELS 42
CHRISTOPHER A. MacDONALD
744 GREENDALE AVENUE
NEEDHAM, MA 02192

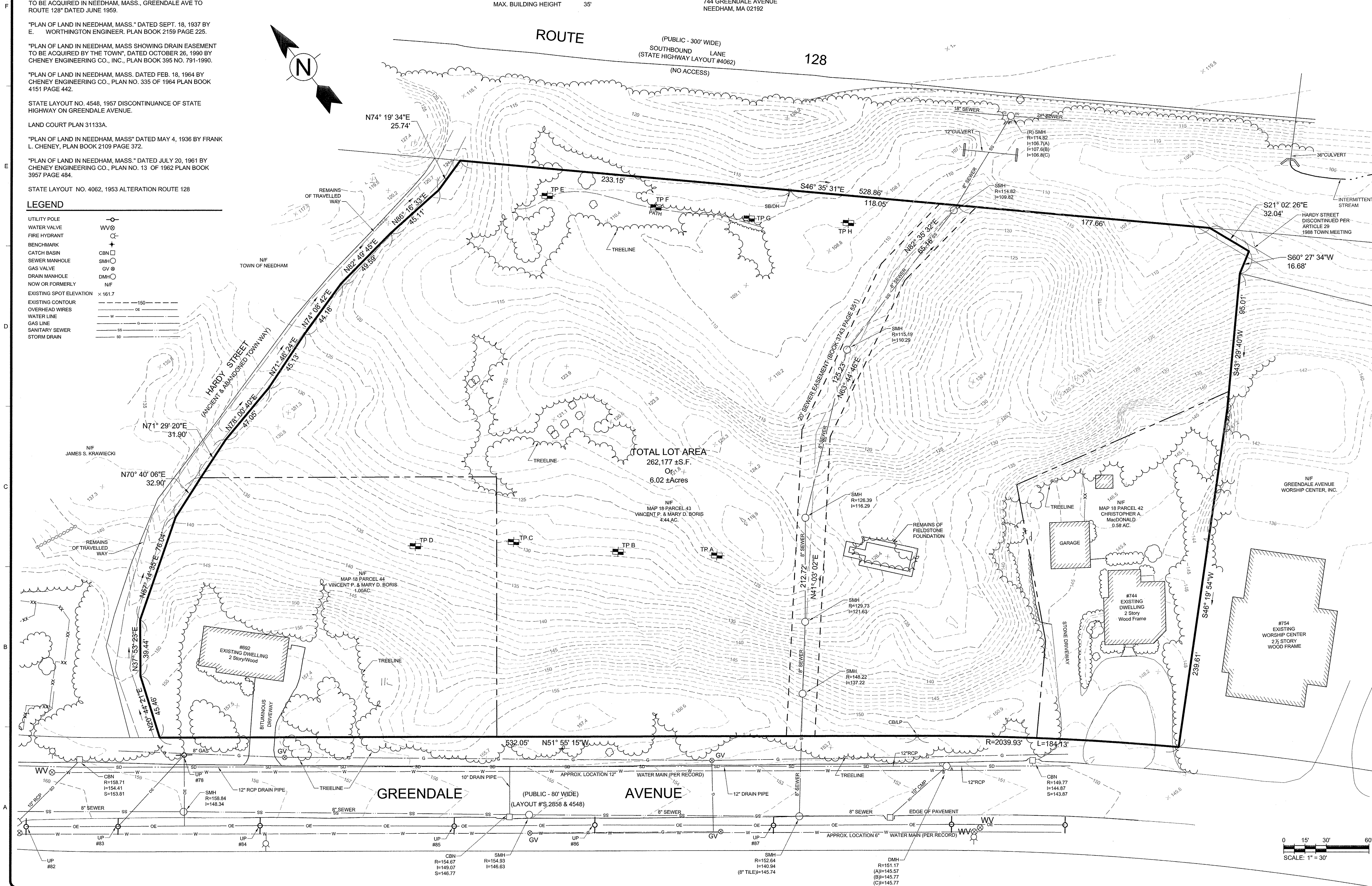
REFERENCE

ASSESSORS MAP 18, PARCELS 43 & 44
DEED BOOK 2985 PAGE 600

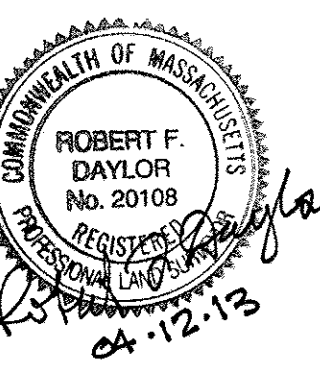
ASSESSORS MAP 18, PARCEL 42
DEED BOOK 2473 PAGE 329

NOTE:

1. HARDY STREET AS SHOWN ON THIS PLAN IS A SO-CALLED "ANCIENT TOWN WAY". IT IS PRESENTLY UNPASSABLE. IN SOME SECTIONS IT WAS TAKEN BY THE MASSACHUSETTS HIGHWAY DEPARTMENT FOR THE CONSTRUCTION OF ROUTE 128 AND IN OTHER SECTIONS IT HAS BEEN ABANDONED BY TOWN MEETING ACTION. IT HAS NO LAYOUT. THIS PLAN SHOWS THE REMNANT CART PATH STILL PHYSICALLY VISIBLE ON THE GROUND AS LOCATED BY FIELD SURVEYS.



TETRA TECH



MARK	DATE	DESCRIPTION
1	4/12/13	Site Development Plans

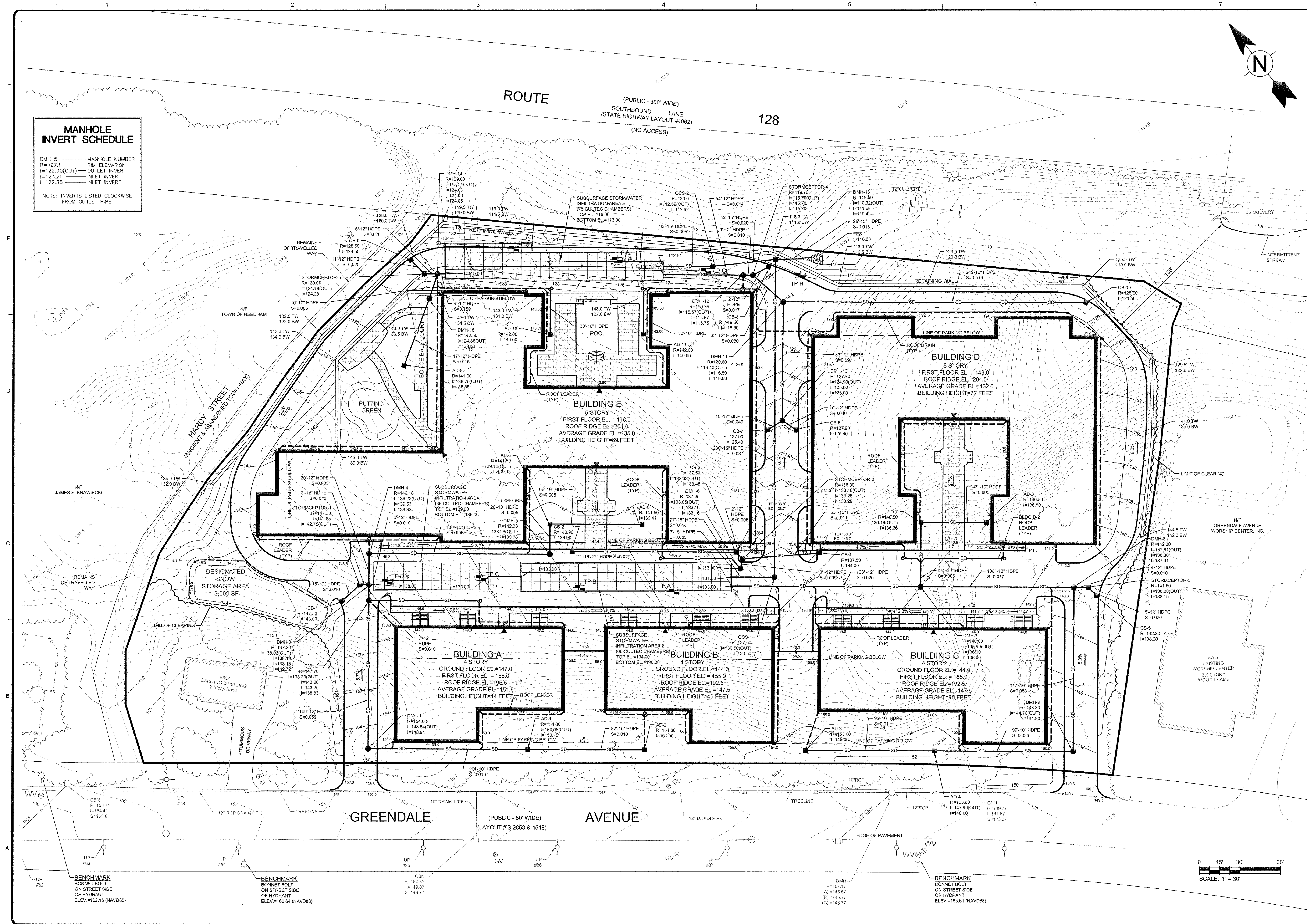
Client: Greendale Avenue Ventures LLC
Proj. Loc.: Needham, Massachusetts

Project No.: 143-82806-13003
Designed By: G.K.D.
Drawn By: J.L.P.
Checked By: R.D.A.

C-1

Bar Measures 1 inch

4/11/2013 10:27:36 AM - P:\82806\143-82806-13003\CAD\SHETFILES\C-3 GRADING & DRAINAGE PLAN.DWG - PAPPAS, JUD



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One Grant Street
Framingham, MA 01701
PHONE: (508) 903-2000 FAX: (508) 903-2001

4/12/13

BY	G.K.D.

MARK	DATE	DESCRIPTION
1	4/12/13	Site Development Plans

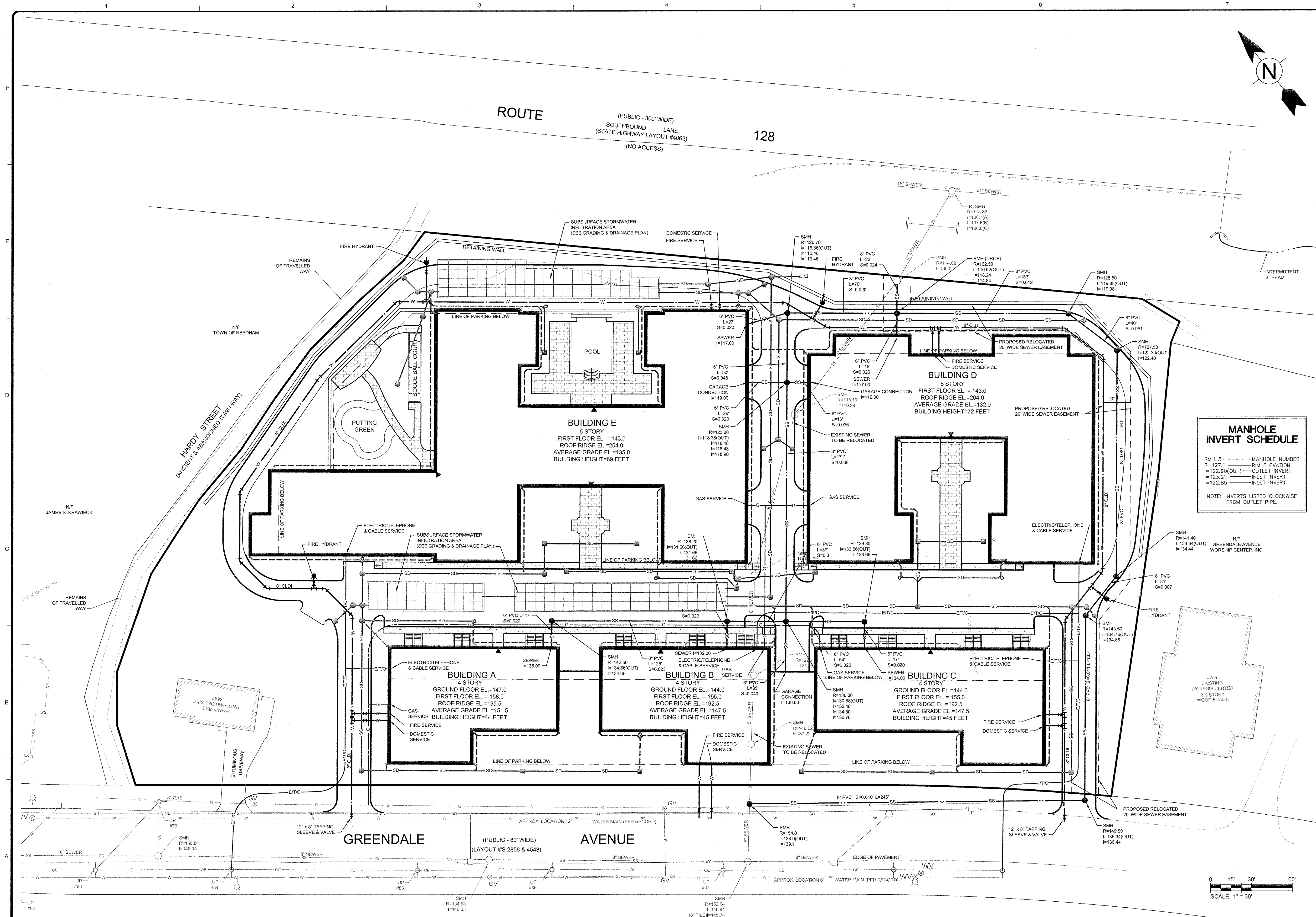
Client: Greendale Avenue Venture LLC
Proj. Loc.: Needham, Massachusetts

Project No.: 143-82806-13003
Designed By: G.K.D.
Drawn By: J.L.P.
Checked By: R.D.A.

C-3

Bar Measures 1 inch

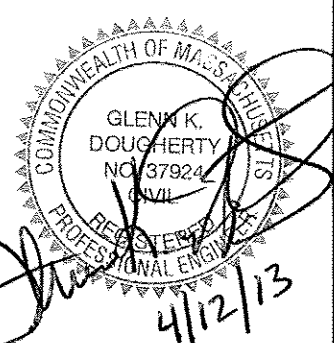
4/12/2013 10:27:59 AM - P:\82806-13003\CADD\SHSHEET\SC-4 UTILITY PLAN.DWG - PAPPAS, JUD



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Framingham, MA 01701
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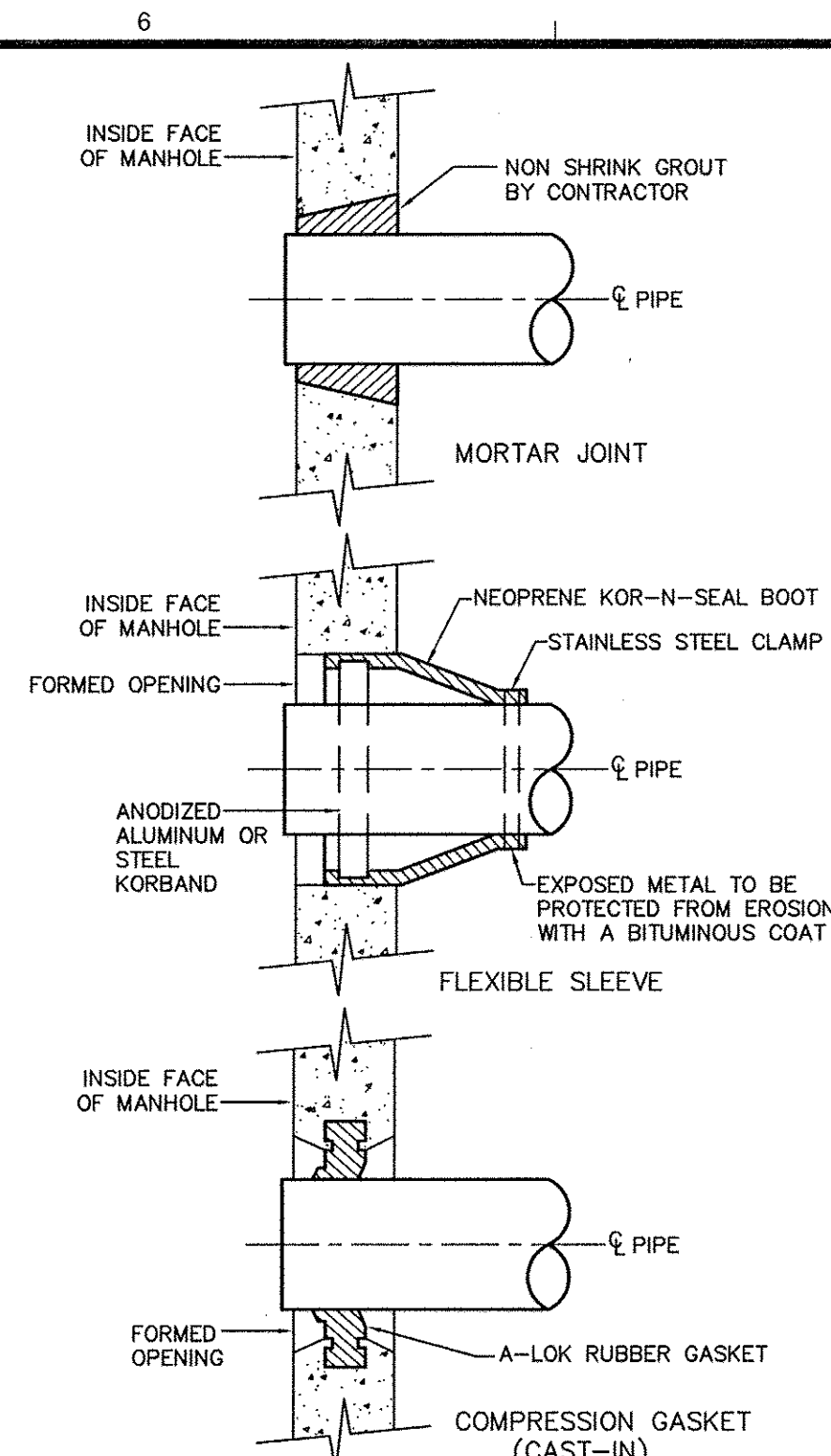
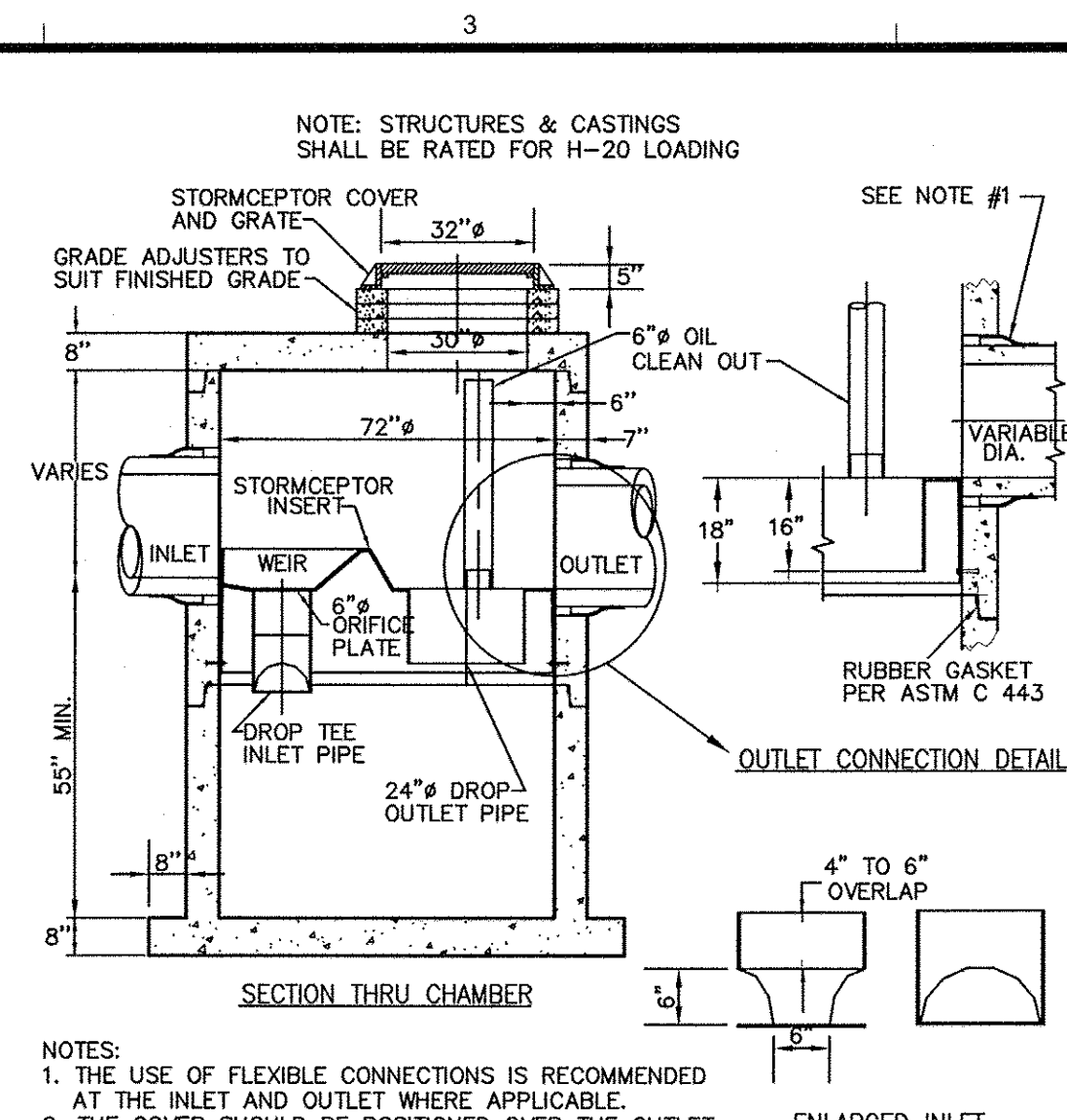
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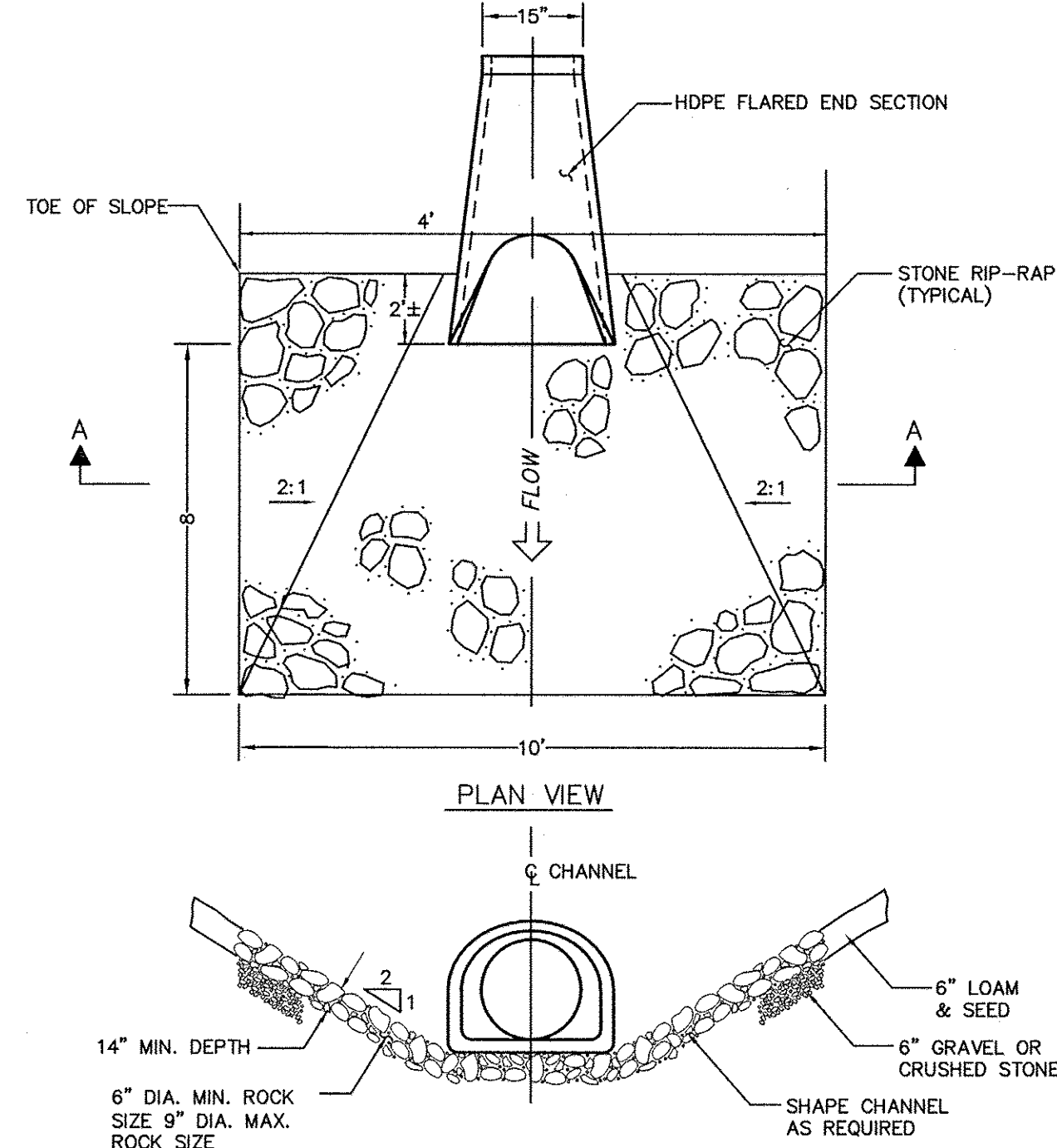
C-4

Bar Measures 1 inch

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
CalcPts	Illuminance	Fc	1.21	6.9	0.0	N.A.	N.A.
Roadway/Parkin	Illuminance	Fc	1.98	6.9	0.0	N.A.	N.A.
Walkway Area	Illuminance	Fc	0.85	2.3	0.2	4.25	11.50



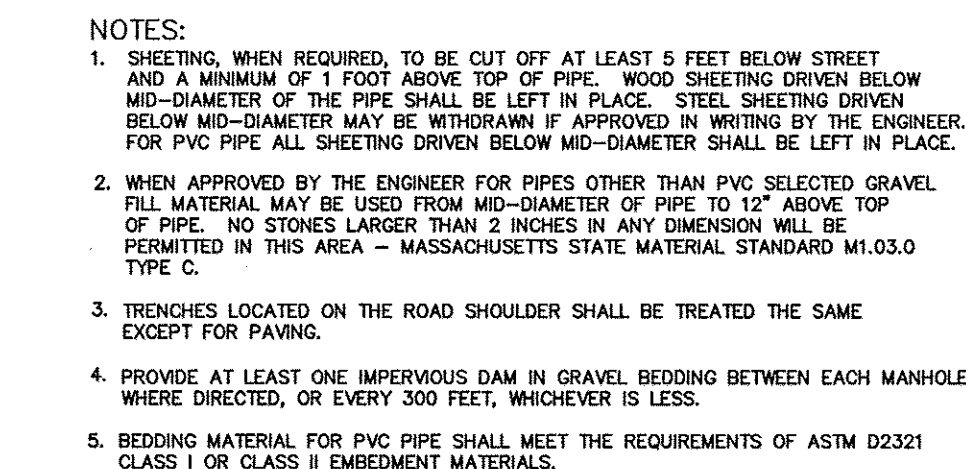
(900 US Gallon Capacity)
NOT TO SCALE



NOT TO SCALE



PIPE SIZE (IN.)	'A' (FT.)
8-12	0.7
15-18	0.8
24-30	1.0
36-48	1.5
48-72	2.0



NOT TO SCALE



CULTEC RECHARGER® 900HD PRODUCT SPECIFICATIONS

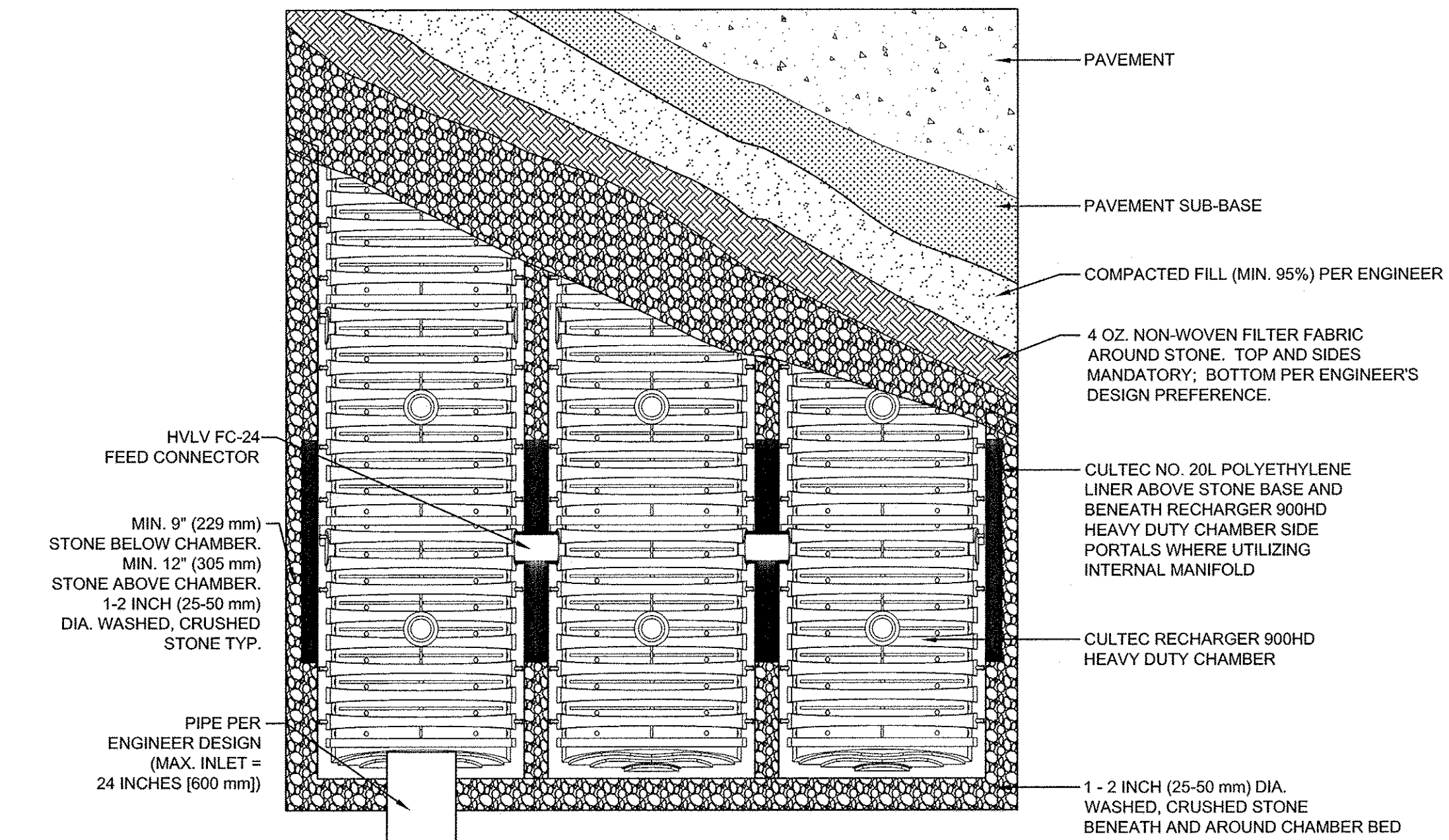
GENERAL
CULTEC RECHARGER® 900HD CHAMBERS ARE DESIGNED FOR UNDERGROUND STORMWATER MANAGEMENT. THE CHAMBERS MAY BE USED FOR RETENTION, RECHARGING, DETENTION OR CONTROLLING THE FLOW OF ON-SITE STORMWATER RUNOFF.

CHAMBER PARAMETERS

- THE CHAMBERS WILL BE MANUFACTURED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
- THE CHAMBER WILL BE VACUUM THERMOFORMED OF BLACK HIGH MOLECULAR WEIGHT HIGH DENSITY POLYETHYLENE (HMWHDPE).
- THE CHAMBER WILL BE ARCHED IN SHAPE.
- THE CHAMBER WILL BE OPEN-BOTTOMED.
- 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
- THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC RECHARGER® 900 HD SHALL BE 48.0 INCHES (1219 MM) TALL, 78.0 INCHES (1981 MM) WIDE AND 9.25 FEET (2819 mm) LONG. THE INSTALLED LENGTH OF A JOINED RECHARGER® 900HD SHALL BE 7 FEET (2.13 m).
- MAXIMUM INLET OPENING ON THE CHAMBER ENDWALL IS 24 INCHES (600 MM).
- THE CHAMBER WILL HAVE TWO SIDE PORTALS TO ACCEPT CULTEC HVLV™ FC-24 FEED CONNECTORS TO CREATE AN INTERNAL MANIFOLD. THE NOMINAL DIMENSIONS OF EACH SIDE PORTAL WILL BE 10.0 INCHES (254 MM) HIGH BY 12.5 INCHES (318 MM) WIDE. MAXIMUM ALLOWABLE PIPE SIZE IN THE SIDE PORTAL IS 10 INCHES (250 MM).
- 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.
- THE NOMINAL STORAGE VOLUME OF THE RECHARGER® 900HD CHAMBER WILL BE 17.62 FT³ / FT (1.64 M³ / M) - WITHOUT STONE. THE NOMINAL STORAGE VOLUME OF A JOINED RECHARGER® 900HD SHALL BE 123.34 FT³ / UNIT (3.49 M³ / UNIT) - WITHOUT STONE.
- THE NOMINAL STORAGE VOLUME OF THE HVLV™ FC-24 FEED CONNECTOR WILL BE 0.913 FT³ / FT (0.085 M³ / M) - WITHOUT STONE.
- THE RECHARGER® 900HD CHAMBER WILL HAVE THIRTY-FOUR DISCHARGE HOLES BORED INTO THE SIDEWALLS OF THE UNIT'S CORE TO PROMOTE LATERAL CONVEYANCE OF WATER.
- THE RECHARGER® 900HD CHAMBER SHALL HAVE 10 CORRUGATIONS.
- 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.
- THE RECHARGER® 900RHD STAND ALONE UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO FULLY FORMED INTEGRAL ENDWALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS.
- THE RECHARGER® 900SHD 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 14 INCHES (356 MM) HIGH X 34.5 INCHES (876 MM) WIDE.
- THE RECHARGER® 900IHD 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 27.6 INCHES (701 MM) HIGH X 56.3 INCHES (1430 MM) WIDE.
- THE RECHARGER® 900HD 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.
- 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® 900 HD AND ACT AS CROSS FEED CONNECTIONS.
- CHAMBERS MUST HAVE HORIZONTAL STIFFENING FLEX REDUCTION STEPS BETWEEN THE RIBS.
- THE CHAMBER WILL BE DESIGNED TO WITHSTAND AASHTO H-25 LOAD RATING WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.
- HEAVY DUTY UNITS ARE DESIGNATED BY A COLORED STRIPE FORMED INTO THE PART ALONG THE LENGTH OF THE CHAMBER.
- 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.
- THE UNITS MAY BE TRIMMED TO CUSTOM LENGTHS BY CUTTING BACK TO ANY CORRUGATION ON THE LARGE RIB END.
- THE CHAMBER SHALL BE MANUFACTURED IN AN ISO 9001:2000 CERTIFIED FACILITY.

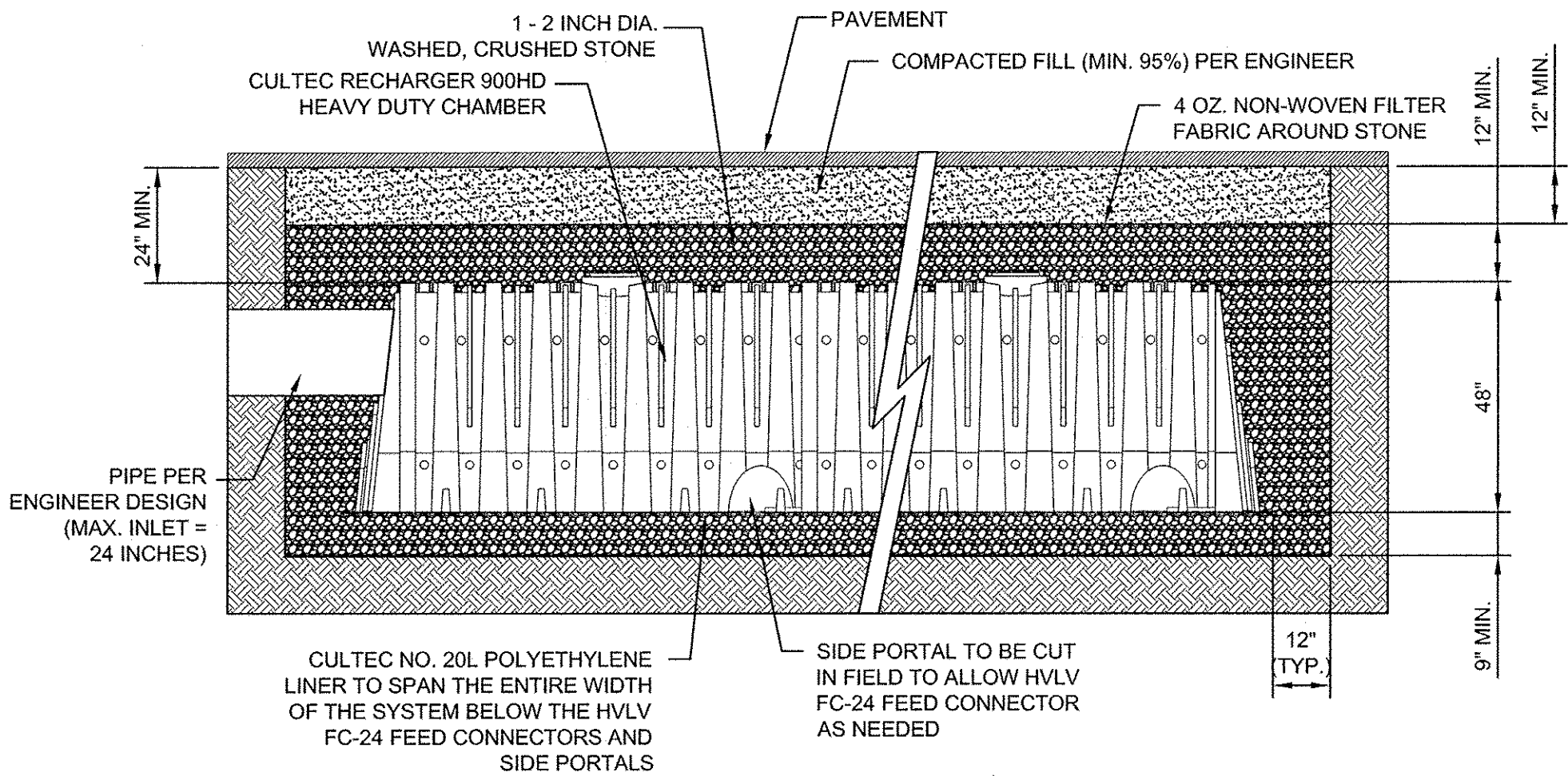
ELEVATIONS TABLE

		RECHARGE AREA		
		#1	#2	#3
MINIMUM COVER / FINISHED GRADE PAVEMENT (18" FROM TOP OF CHAMBER TO F.G. PAVEMENT)		140.50	135.50	117.50
E	TOP OF STONE	139.50	134.50	116.50
D	TOP OF CHAMBER	139.00	134.00	116.00
C	BASE OF CHAMBER	135.00	130.00	112.00
B	BASE OF FOUNDATION STONE	134.25	129.25	111.25
A	SEASONAL HIGH GROUNDWATER	124.4	121.5	99.0



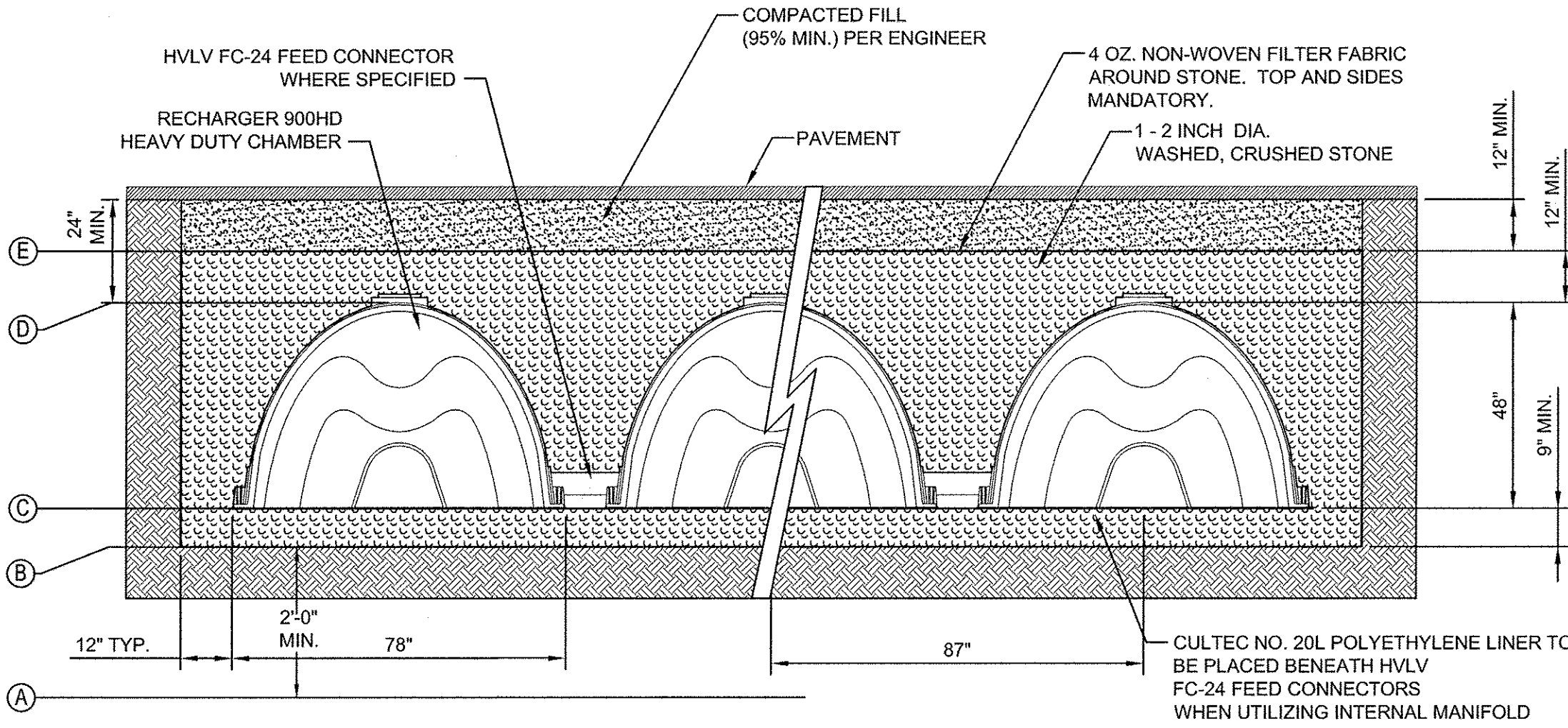
CULTEC RECHARGER 900HD HEAVY DUTY PLAN VIEW

NOT TO SCALE



CULTEC INTERNAL MANIFOLD DETAIL

NOT TO SCALE



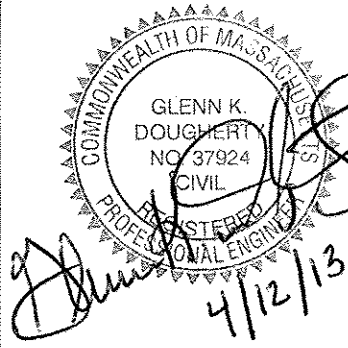
GENERAL NOTES
RECHARGER 900HD BY CULTEC, INC. OF BROOKFIELD, CT.
REFER TO CULTEC, INC.'S CURRENT RECOMMENDED
INSTALLATION GUIDELINES.
USE RECHARGER 900HD HEAVY DUTY FOR TRAFFIC AND/OR
H-25 APPLICATIONS.

ALL RECHARGER 900HD HEAVY DUTY UNITS ARE
MARKED WITH A COLOR STRIPE FORMED INTO THE
PART ALONG THE LENGTH OF THE CHAMBER.
ALL RECHARGER 900HD CHAMBERS MUST BE
INSTALLED IN ACCORDANCE WITH ALL APPLICABLE
LOCAL, STATE AND FEDERAL REGULATIONS.

CULTEC RECHARGER 900HD HEAVY DUTY TYPICAL CROSS SECTION

NOT TO SCALE

TETRA TECH



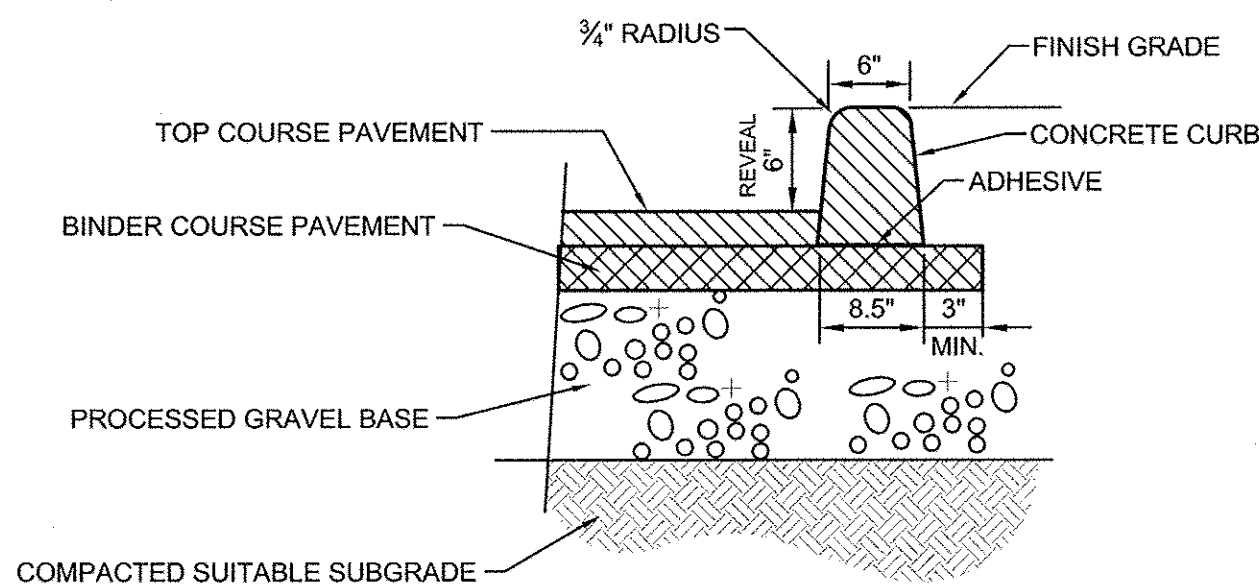
MARK	DATE	DESCRIPTION
1	4/12/13	Site Development Plans

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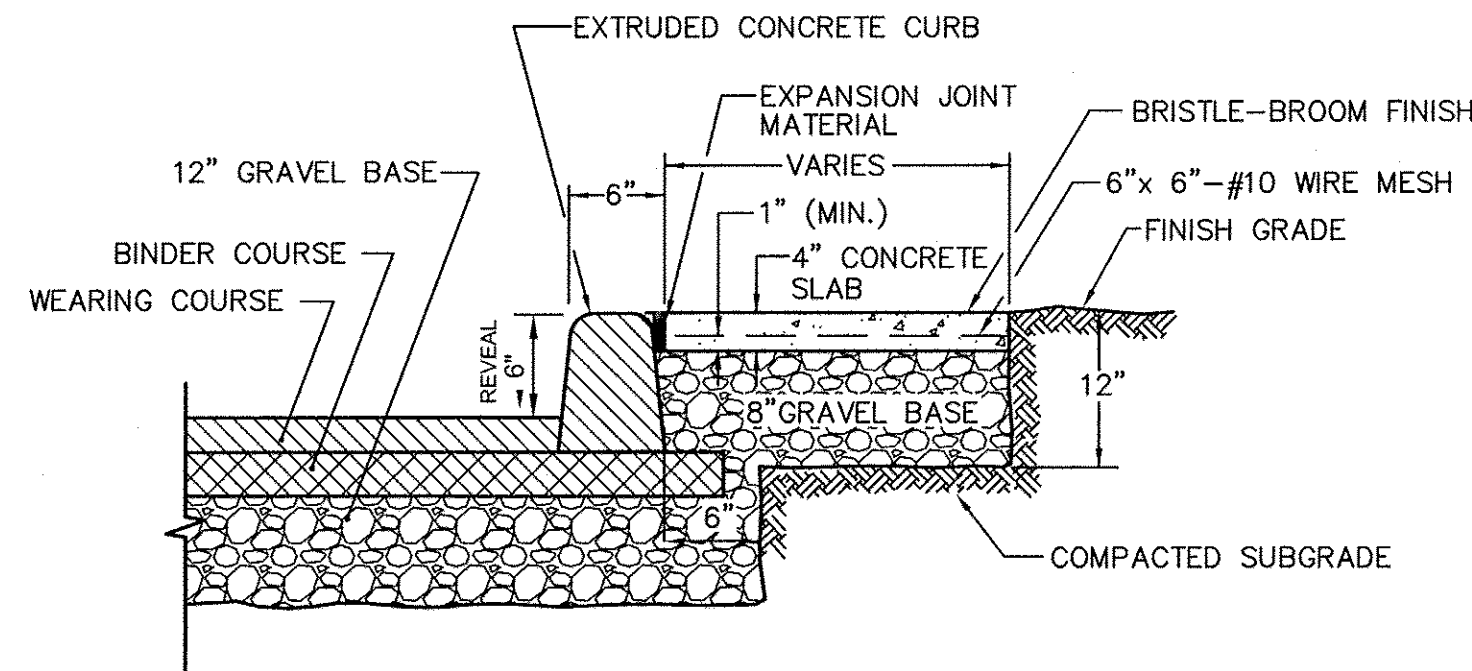
Project No.: 143-82806-13003
Designed By: G.K.D.
Drawn By: J.L.P.
Checked By: R.D.A.

C-8

Bar Measures 1 inch

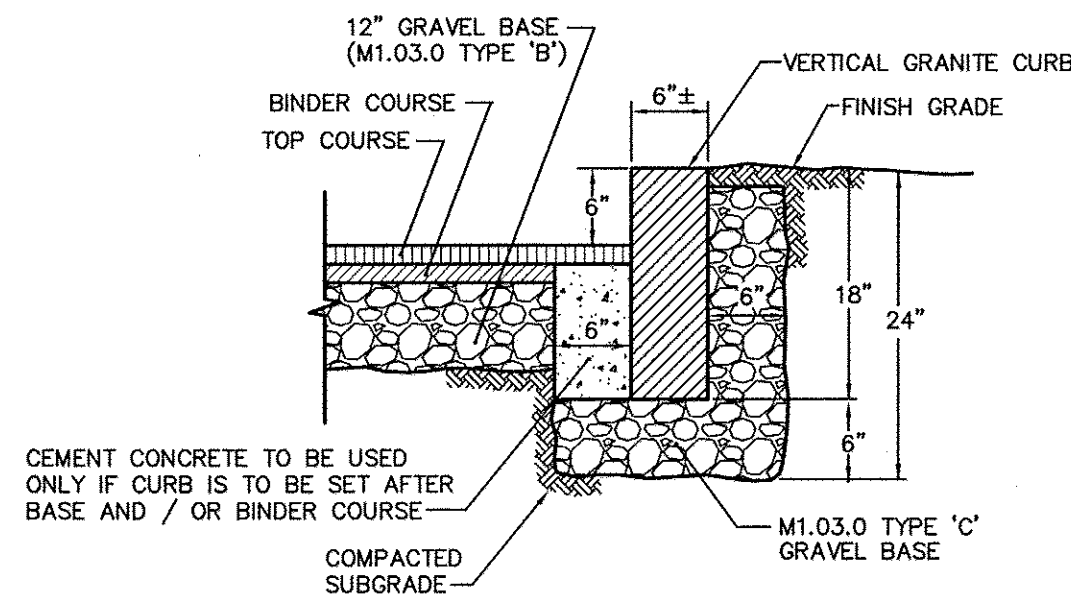


EXTRUDED CONCRETE CURB
NOT TO SCALE



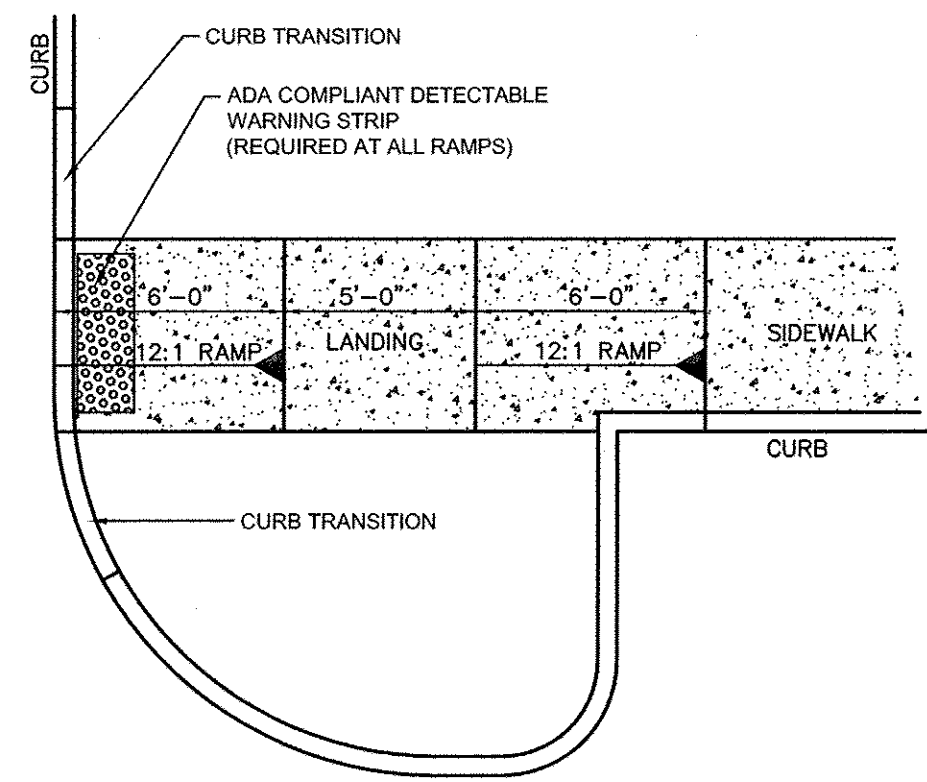
- NOTE:
- 1.) CONCRETE WALK CROSS SLOPE IS PREFERRED AT 1.5% AND SHALL NOT EXCEED 2.0%
 - 2.) CURB AND SIDEWALK ARE TO BE CONSTRUCTED IN ACCORDANCE WITH EACH RESPECTIVE DETAIL.
 - 3.) EXPANSION JOINT FILLER SEALANT TO BE TREMCO VULKEM 245 TWO PART POURABLE POLYURETHANE SEALANT OR APPROVED EQUAL, INSTALLED PER MANUFACTURER'S INSTRUCTIONS.

CURB & CONCRETE SIDEWALK
NOT TO SCALE



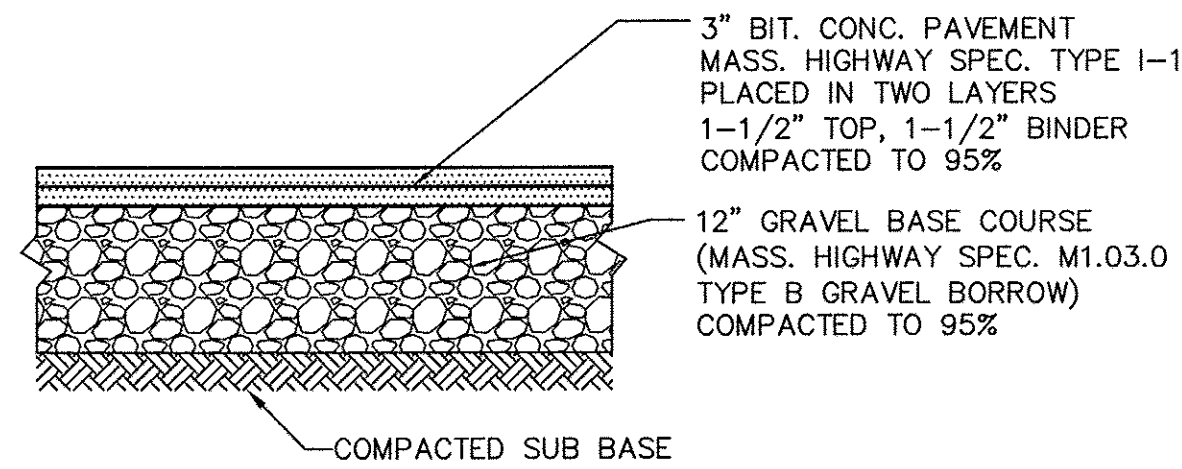
NOTE:
CEMENT CONCRETE BACKING TO BE PROVIDED AT ALL JOINTS AND AT CURB MID SECTION FOR SPANS GREATER THAN 3 FEET. CONCRETE BACKING TO BE PLACED FROM BASE TO WITHIN 9 INCHES OF GRADE AND SPAN 1 FOOT AT JOINTS AND 1.5 FEET AT MID SECTION.

VERTICAL GRANITE CURB
NOT TO SCALE

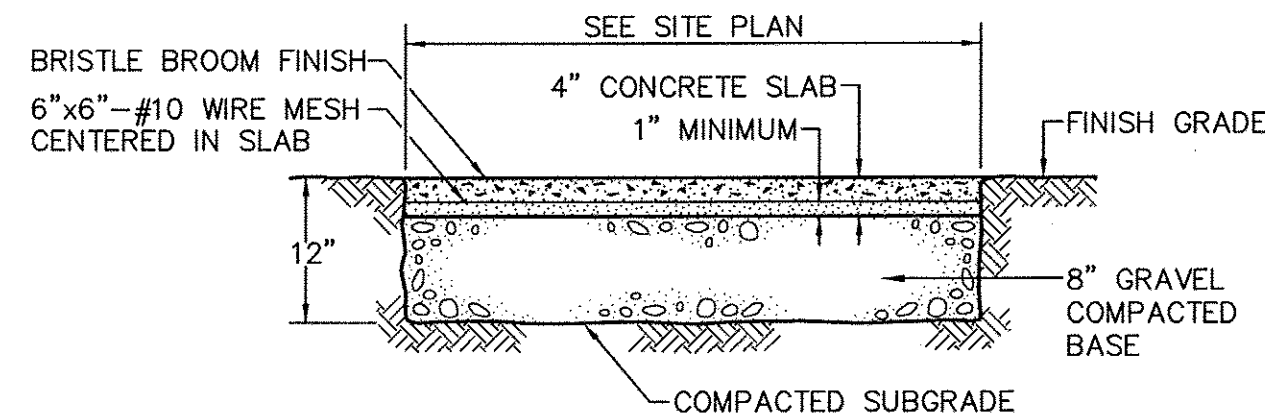


- NOTES:
- 1.) THE DETECTABLE WARNING SHALL BE A CAST-IN-PLACE COMPOSITE PANEL PAYER SYSTEM AS MANUFACTURED BY ADA SOLUTIONS, INC. COLOR SHALL BE BRICK RED.
 - 2.) TRANSITIONS FROM CURB CUTS TO WALKS, GUTTERS, OR STREETS SHALL BE FLUSH.
 - 3.) IF TRANSITION EXCEEDS .075FT/FT, THE TRANSITION MUST BE 0\"/>

WHEEL CHAIR RAMP AT DRIVE
NOT TO SCALE

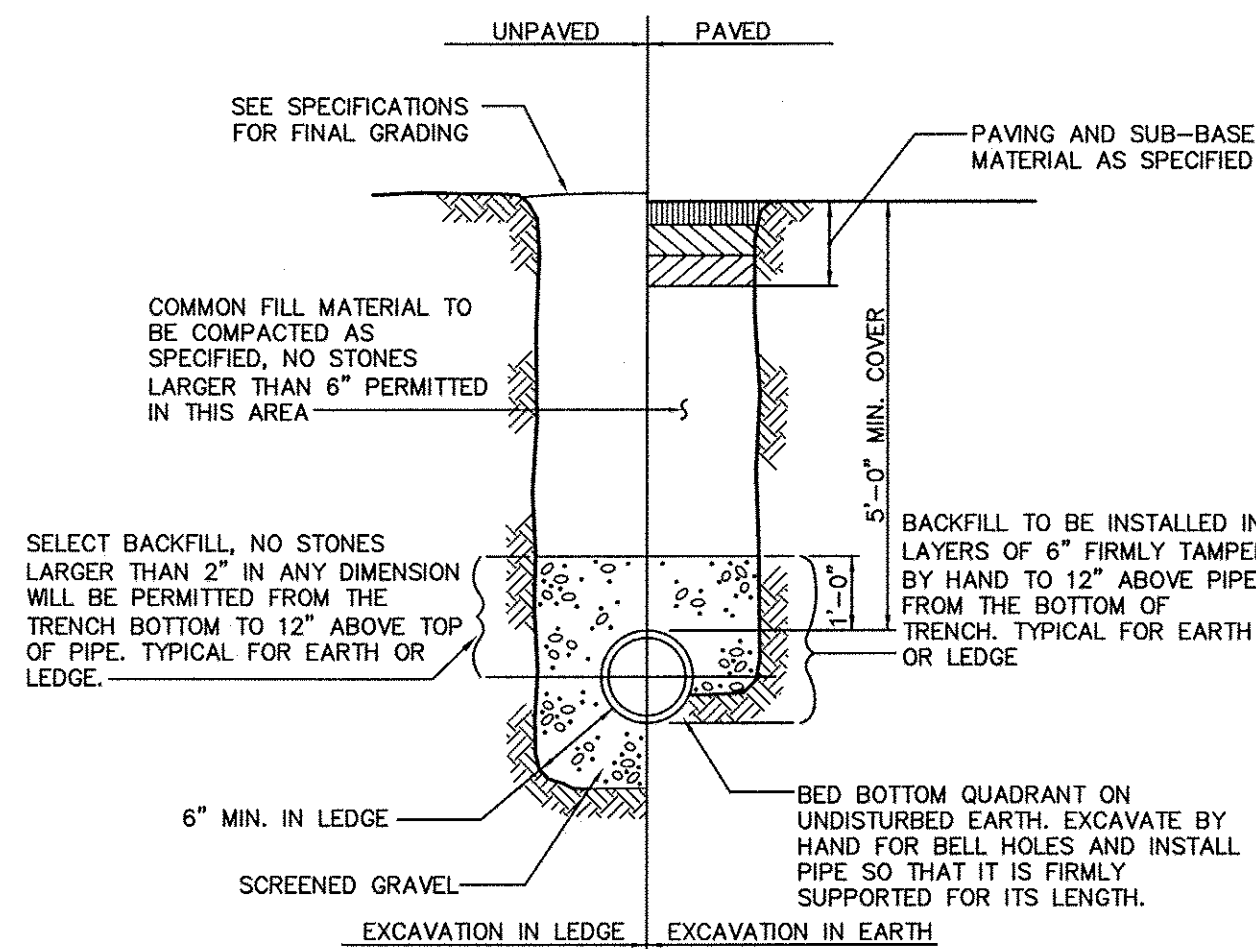


PAVEMENT SECTION
NOT TO SCALE

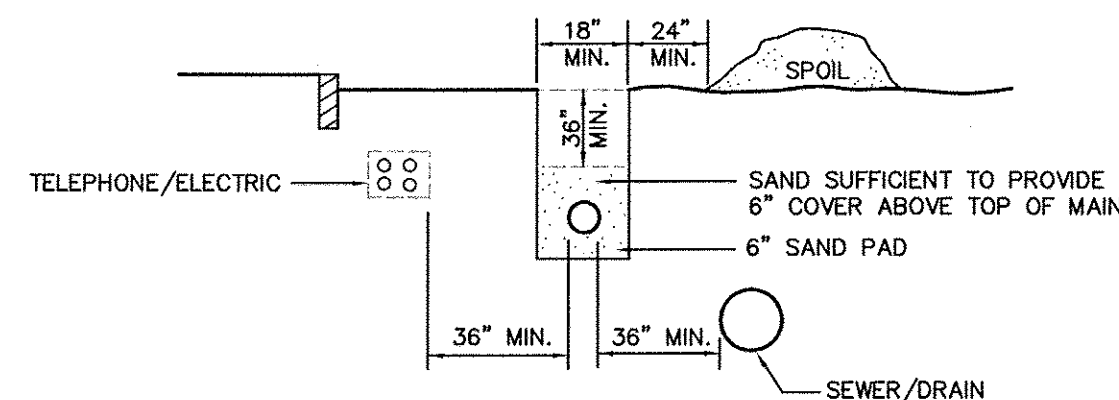


NOTE:
CROSS SLOPE IS PREFERRED AT 1.5% AND SHALL NOT EXCEED 2.0%

CEMENT CONCRETE WALK
NOT TO SCALE



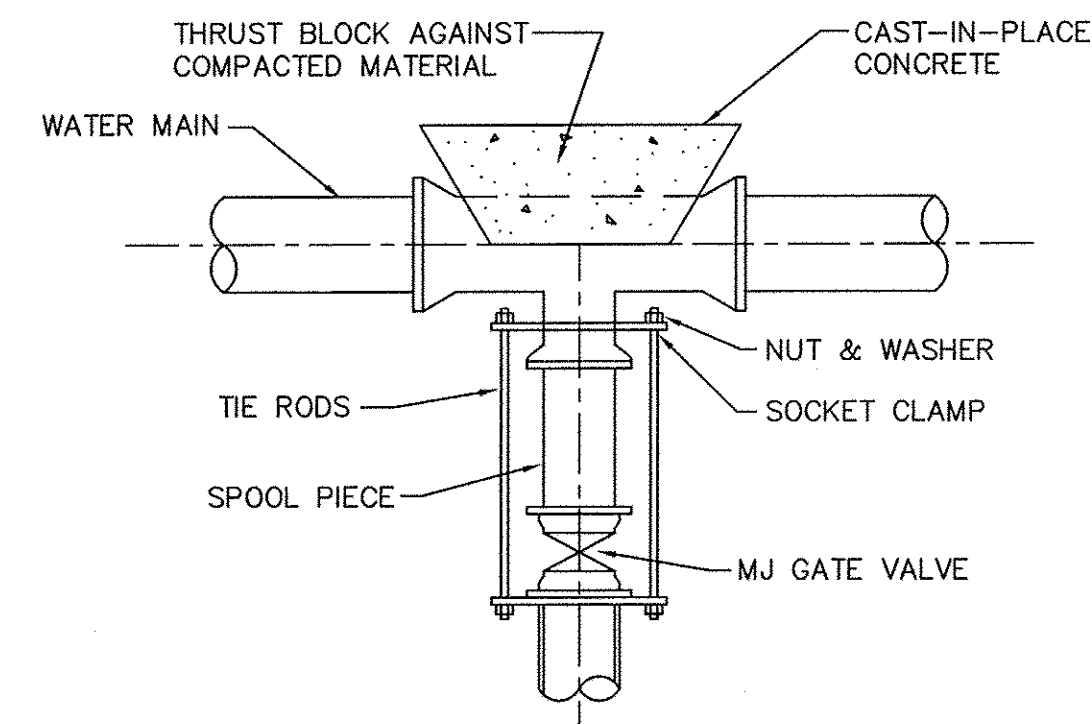
CEMENT LINED DUCTILE IRON (CLDI) PIPE TRENCH
NOT TO SCALE



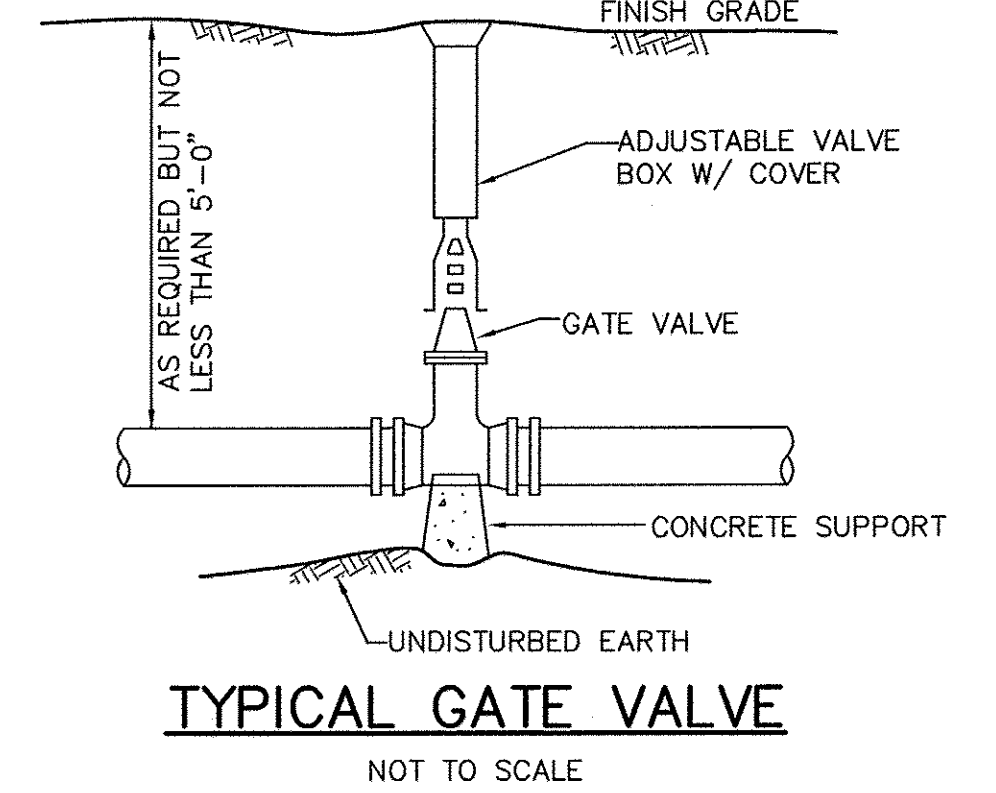
NOTE:
MINIMUM COVER FOR SERVICE LINES IS 24\"/>

GAS COMPANY TO PROVIDE AND INSTALL GAS MAIN. GENERAL CONTRACTOR SHALL PROVIDE EXCAVATION, SAND BEDDING AND BACKFILL IN ACCORDANCE WITH GAS COMPANY REQUIREMENTS. FINAL LOCATION OF GAS METERS TO BE COORDINATED WITH ARCHITECT AND GAS COMPANY.

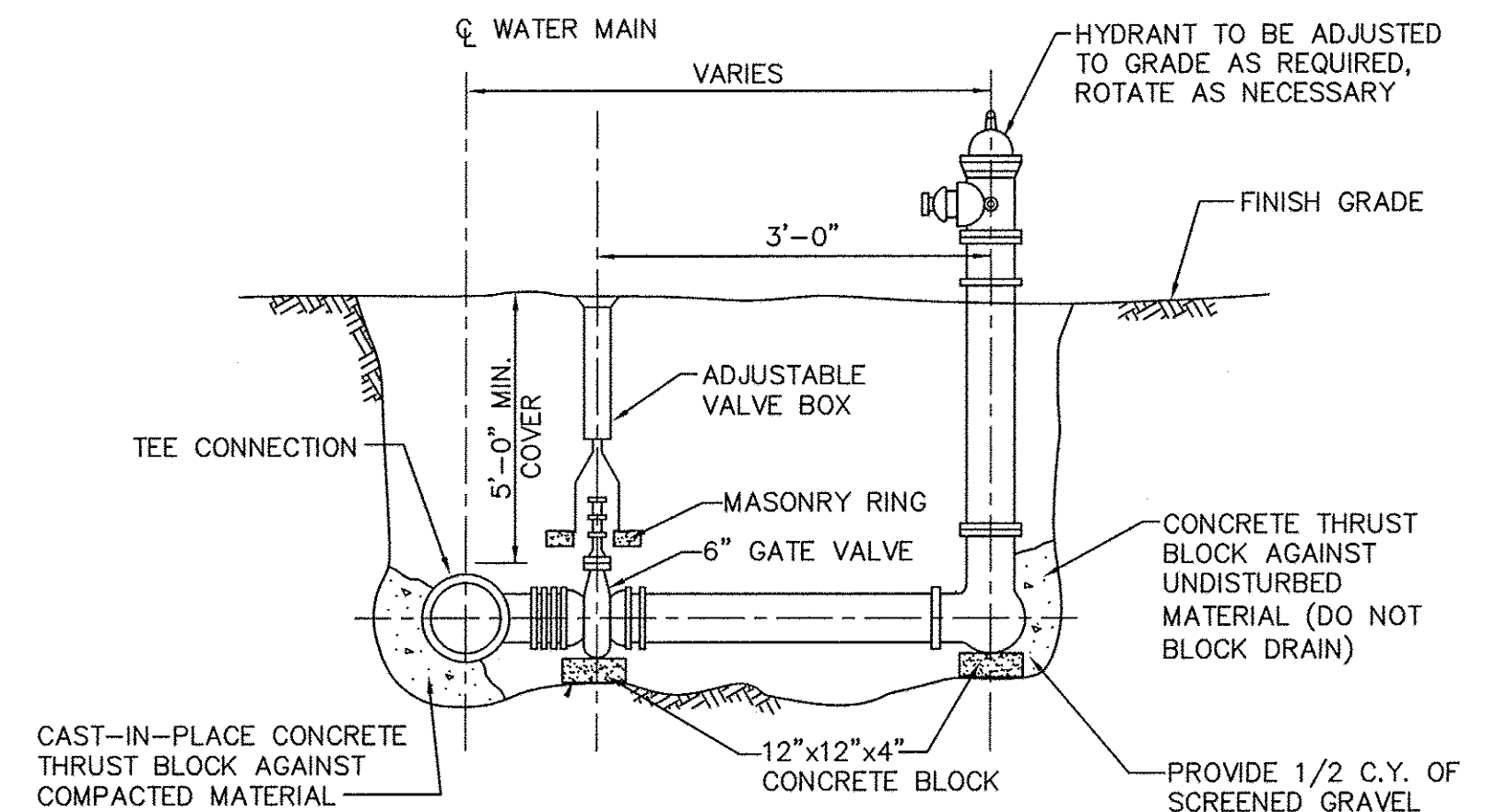
GAS MAIN TRENCH
NOT TO SCALE



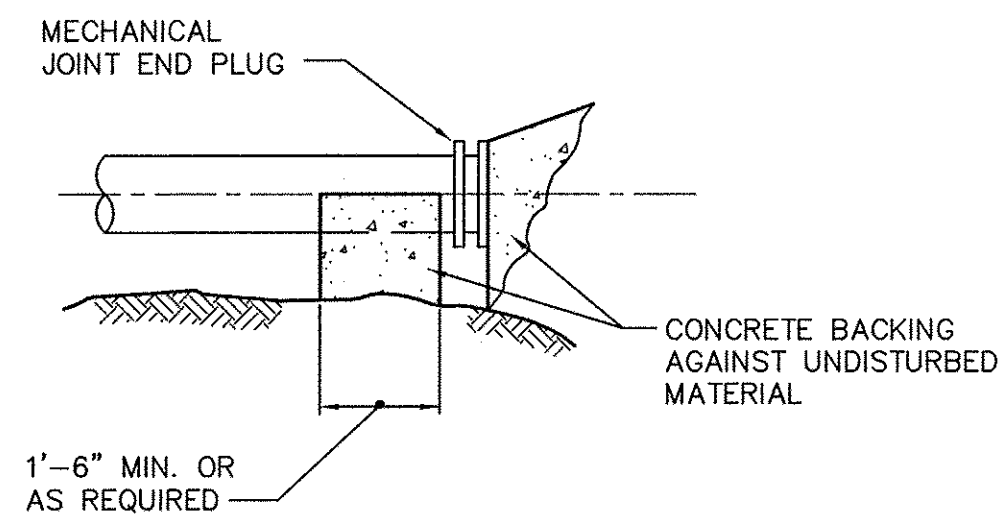
TYPICAL VALVE CONNECTION
RESTRAINED JOINT TEE
NOT TO SCALE



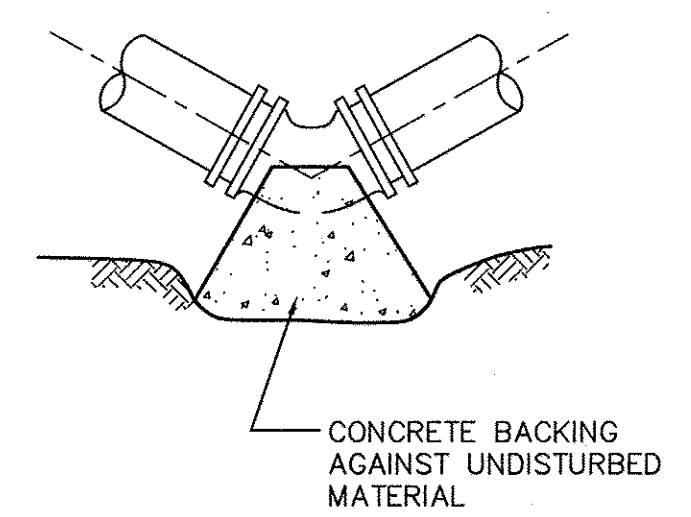
TYPICAL GATE VALVE
NOT TO SCALE



TYPICAL HYDRANT AND VALVE
NOT TO SCALE



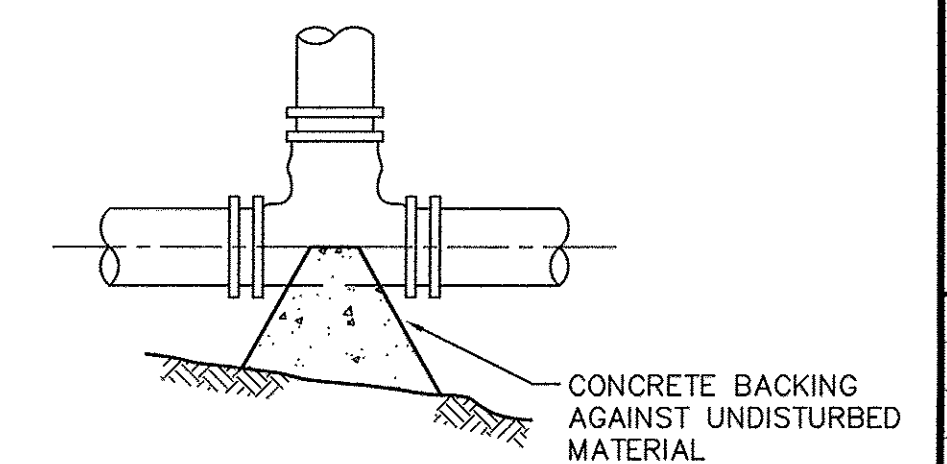
TYPICAL PLUG



TYPICAL BEND

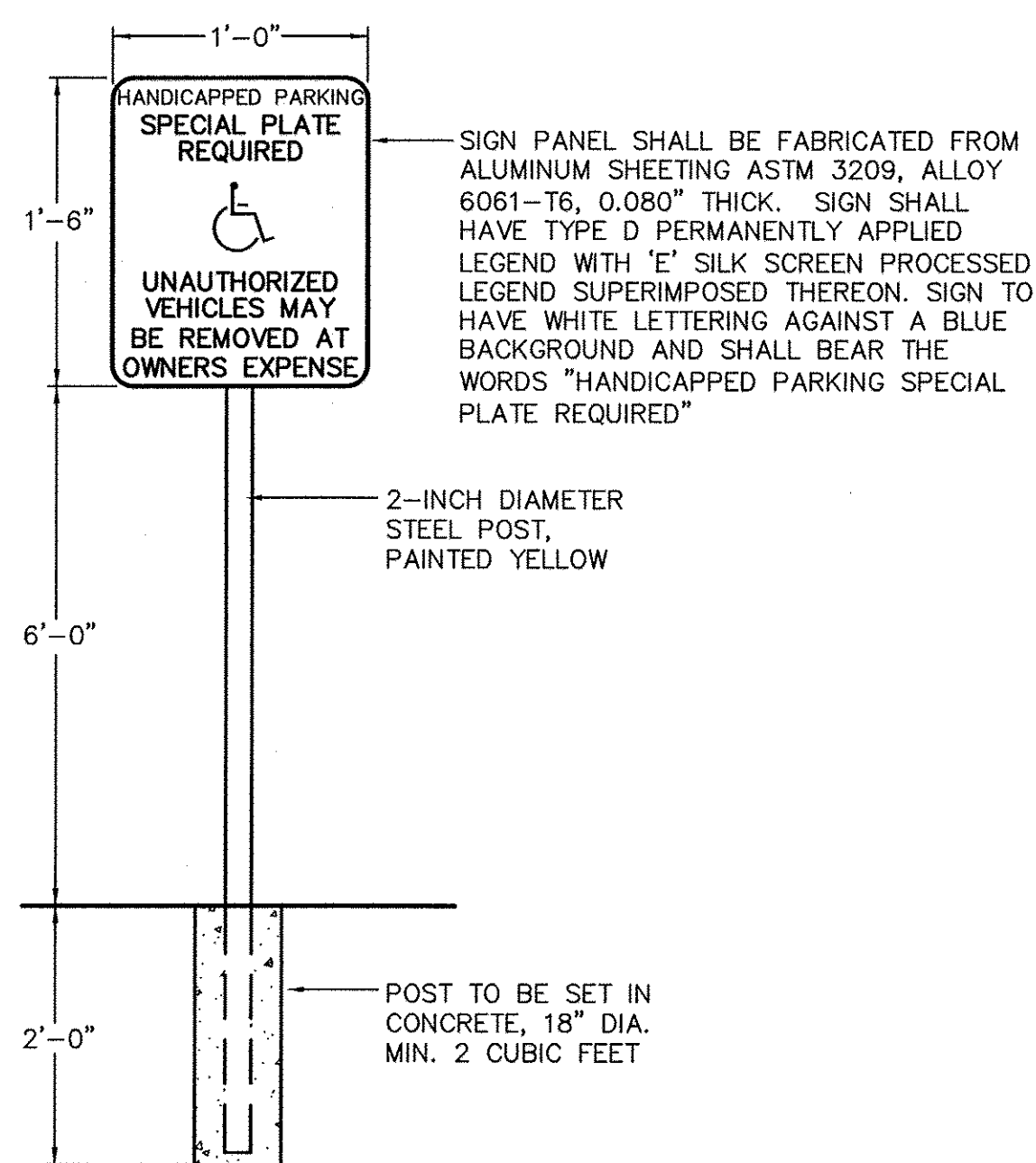
TABLE OF BEARING AREAS IN SQUARE FEET AGAINST UNDISTURBED MATERIAL FOR WATER MAIN FITTINGS			
SIZE OF MAIN (IN.)	45° BEND	TEES & PLUGS	22 1/2° BEND
8" & LESS	4	5	2
10"	6	8	3
12"	9	12	5
16"	12	16	7

CONCRETE THRUST BLOCKS
NOT TO SCALE

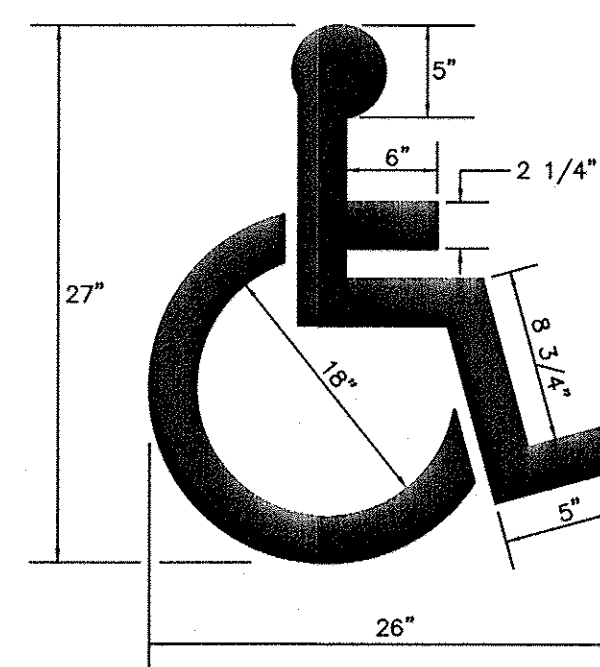


TYPICAL TEE

- 3) DUCTILE IRON PIPE SHALL BE CEMENT LINED, COAL TAR ENAMEL, DOUBLE COATED, PUSH-ON TYPE JOINT, AND SHALL CONFORM TO A21.51 (AWWA C151) CLASS 52 FOR SIZES 4 INCH THROUGH 12 INCH.
- 4) DUCTILE IRON FITTINGS SHALL CONFORM TO ANSI/AWWA C153/A21.53-84 (DUCTILE IRON COMPACT FITTINGS) PRESSURE RATING 350 PSI.
- 5) GATE VALVES AND TAPPING SLEEVE VALVES SHALL BE RESILIENT SEATED VALVES CONFORMING TO THE REQUIREMENTS OF AWWA STANDARD C509. THE VALVE SHALL OPEN LEAD AND BE PRESSURE RATED FOR 250 PSI WORKING PRESSURE.
- 6) VALVE BOXES SHALL BE THE 2 PIECE SPLIT TYPE, 5 1/4 INCH I.D., FLANGE LOCATED AT THE TOP OF THE BOX, COVER MARKED "WATER" EQUAL TO TYPE CURRENTLY BEING USED BY THE TOWN.
- 7) WATER PRESSURE REQUIREMENTS AND THE ACTUAL WATER PRESSURE TO BE PROVIDED AT THE BUILDING SHALL BE DETERMINED BY OTHERS.
- 8) THE CONTRACTOR WILL FURNISH AND INSTALL 1 1/4" CTS DOMESTIC WATER LINES AND WATER METERS AS SPECIFIED BY THE WATER DISTRICT.
- 9) WATER LINES MUST BE A MINIMUM OF (18) INCHES ABOVE SEWER LINES. IN ADDITION, ONE FULL LENGTH OF WATER MAIN MUST BE CENTERED ON ONE FULL LENGTH OF SEWER LINE SO THAT ALL JOINTS WILL BE AS FAR FROM THE SEWER AS POSSIBLE.
- 10) WATER SYSTEMS SHALL BE CONSTRUCTED IN ACCORDANCE WITH U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, PHS (PUBLIC HEALTH SERVICE) MANUAL OF INDIVIDUAL WATER SYSTEMS, PHS PUBLICATION NO. 24, REVISED 1962, WASHINGTON, GPO (GOVERNMENT PRINTING OFFICE), 1963 AND ANY APPLICABLE CURRENT STATE AND FEDERAL REGULATIONS.
- 11) CHLORINATION SHALL BE IN ACCORDANCE WITH THE AWWA STANDARD C601 DISINFECTING WATER MAINS.
- 12) ALL PIPELINES SHALL BE GIVEN COMBINED PRESSURE AND LEAKAGE TESTS AT THE DIRECTION OF THE TOWN WATER DEPARTMENT. HYDROSTATIC AND LEAKAGE TEST SHALL BE MADE IN ACCORDANCE WITH AWWA STANDARD C600 SECTION 4. HYDROSTATIC TESTS SHALL BE MADE AT 1.5 TIMES THE WORKING PRESSURE, BUT NOT LESS THAN 150 PSI FOR A PERIOD OF NOT LESS THAN 2 HOURS IN ACCORDANCE WITH THE ABOVE AWWA STANDARD.
- 13) INSTALLATION OF WATER UTILITIES TO BE IN CONFORMANCE WITH THE WATER DISTRICT STANDARDS.
- 14) WHENEVER POSSIBLE WATER MAINS CROSSING SEWERS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 18" BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF THE SEWER.
- 15) SHOULD LOCAL CONDITIONS PREVENT AN 18" SEPARATION, BOTH THE WATER MAIN AND THE SEWER SHALL BE ENCASED IN CONCRETE ON EITHER SIDE OF THE CROSSING (SEE DETAIL).



NOT TO SCALE



NOT TO SCALE

- 1) THIS SET OF PLANS HAS BEEN PREPARED FOR PURPOSES OF MUNICIPAL AGENCY REVIEW AND APPROVAL. THIS SET OF PLANS SHALL NOT BE UTILIZED AS CONSTRUCTION DOCUMENTS UNTIL ALL CONDITIONS OF APPROVAL HAVE BEEN SATISFIED ON THE DRAWINGS AND EACH DRAWING HAS BEEN REVISED TO INDICATE "ISSUED FOR CONSTRUCTION."
- 2) THE SEQUENCE OF ALL EXCAVATION OPERATIONS SHALL BE SUCH AS TO INSURE THE MOST EFFICIENT UTILIZATION OF EXISTING LEDGE EMBANKMENTS AND THE USE OF A MINIMUM AMOUNT OF BORROW. PRIOR TO ANY LEDGE REMOVAL, THE LEDGE AREA SHALL BE PARTIALLY OR COMPLETELY STRIPPED OF OVERBURDEN AS DIRECTED BY THE ENGINEER.
- 3) ALL SLOPES WHICH ARE 3 FT HORIZONTAL TO 1 FT VERTICAL OR FLATTER MAY BE GRASSED SLOPES. ALL SLOPES STEEPER THAN 3 FT HORIZONTAL TO 1 FT VERTICAL SHALL RECEIVE A SLOPE STABILIZATION GEOTEXTILE FABRIC (2:1) OR A RIP-RAP SLOPE TREATMENT (1:1) UNLESS OTHERWISE NOTED ON THE GRADING PLANS.
- 4) THE TOWN AND ALL UTILITY COMPANIES MUST BE NOTIFIED BY THE CONTRACTOR AT LEAST 48 HOURS PRIOR TO CONSTRUCTION. LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE ONLY AND ARE TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR AT THE TIME OF CONSTRUCTION. ALL UNDERGROUND UTILITIES SHOWN WERE COMPILED ACCORDING TO AVAILABLE RECORD PLANS FROM THE VARIOUS UTILITY COMPANIES AND PUBLIC AGENCIES AND AREA, APPROXIMATE ONLY. THE OWNER & TETRA TECH ASSUME NO RESPONSIBILITY FOR DAMAGE INCURRED AS A RESULT OF UTILITIES OMITTED OR INACCURATELY SHOWN.
- 5) WHILE WORKING IN THE VICINITY OF AN EXISTING UTILITY, REFER TO THE FOLLOWING: ALL UNDERGROUND UTILITIES SHOWN WERE COMPILED ACCORDING TO AVAILABLE RECORD PLANS FROM THE VARIOUS UTILITY COMPANIES AND PUBLIC AGENCIES AND ARE APPROXIMATE ONLY. SEE CHAPTER 370, ACTS OF 1963, MASSACHUSETTS GENERAL LAWS. WE ASSUME NO RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES OMITTED OR INACCURATELY SHOWN. BEFORE PLANNING FUTURE CONNECTIONS, THE APPROPRIATE PUBLIC ENGINEERING DEPARTMENT SHALL BE CONTACTED AND THE PROPOSED UTILITY WORK SHALL BE COORDINATED. DIG SAFE NUMBER; 1-888-344-7233.
- 6) THE CONTRACTOR SHALL GIVE TWENTY-FOUR (24) HOUR NOTICE TO PERTINENT TOWN DEPARTMENTS BEFORE COMMENCING ANY WORK.
- 7) ALL AREAS DISTURBED BY THE CONTRACTOR SHALL BE RESTORED TO EQUAL OR BETTER CONDITION. (SEE PLANTING AND EROSION CONTROL PLANS). ALL FINISHED SURFACES SHALL BE GRADED SMOOTHLY AND EVENLY.
- 8) AT THE COMPLETION OF THE CONTRACTOR'S OPERATION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING ALL DRAINAGE FACILITIES (NEW AND/OR EXISTING) OF DEBRIS. DRAINAGE SWALES AND STORMWATER BASINS SHALL BE CLEANED FOLLOWING CONSTRUCTION.
- 9) DO NOT SCALE PLANS. DUE TO REPROGRAPHIC STRETCH, PRINTS MAY NOT SCALE ACCURATELY.

21) THE CONTRACTOR MUST CLEAN ALL NEW & EXISTING DRAINAGE STRUCTURES PRIOR TO PROJECT CLOSEOUT.

- 1) DRAINAGE PIPE SHALL BE HIGH DENSITY POLYETHYLENE (HDPE) BY ADS OR APPROVED EQUAL.
- 2) PRECAST CONCRETE MANHOLES SHALL CONFORM TO ASTM DESIGNATION C478. CONCRETE REQUIREMENTS SHALL BE 4000 PSI.
- 3) DRAIN MANHOLE FRAME AND COVER SHALL BE MODEL LC 258-3-000 MARKED WITH THE WORD "DRAIN" AS MANUFACTURED BY E.L. LEBARON COMPANY.
- 4) AT ALL POINTS OF INTERSECTION BETWEEN STORM DRAIN LINES AND SEWER LINES, ONE FULL LENGTH OF SEWER LINE MUST BE CENTERED OVER THE DRAIN LINE SO THAT BOTH JOINTS WILL BE AS FAR FROM THE DRAIN AS POSSIBLE.
- 5) INSTALL STEPS IN ACCORDANCE WITH ASTM C-478, 12" O.C. IN ALL CATCHBASINS AND DRAIN MANHOLES DEEPER THAN 4 FEET.
- 6) MANHOLE AND PIPE JOINT/CONNECTION SHALL BE NEOPRENE KOR-N-SEAL BOOT OR APPROVED EQUAL.
- 7) ANY AND ALL UTILITY WORK SHALL BE DONE IN ACCORDANCE WITH THE TOWN OF NEEDHAM RULES AND REGULATIONS GOVERNING SAME.

- 1) SPECIFICATIONS: A WORK SHALL BE IN ACCORDANCE WITH THE ELECTRIC COMPANY'S STANDARDS. THE NATIONAL ELECTRICAL SAFETY CODE, AND STATE AND LOCAL CODE REQUIREMENTS.
- 2) APPROVAL: CONTRACTOR SHALL OBTAIN APPROVAL OF PLAN BY THE WIRE INSPECTOR AND THE ELECTRIC COMPANY. PLANS SHALL SHOW THE LOCATION OF CONDUITS AND THEIR TYPE, SIZE, AND NUMBER.
- 3) PROVIDE ALL EXCAVATION AND BACK FILLING WORK REQUIRED FOR THE INSTALLATION OF ALL ELECTRIC FACILITIES. THIS SHALL INCLUDE EXCAVATING FOR CONDUITS, MANHOLES, AND/OR JUNCTION ENCLOSURES, AND PADS.
- 4) INSTALL ALL GROUNDING MATERIALS (IE. WIRE, GROUND, RODS, CONNECTORS, ETC.) AS SPECIFIED BY ELECTRIC COMPANY.



NOT TO SCALE

[illegible]

Client: Greendale Avenue Venture LLC
 Proj. Loc.: Needham, Massachusetts

Comprehensive Permit Plans
 692 & 744 Greendale Avenue - Needham, Massachusetts

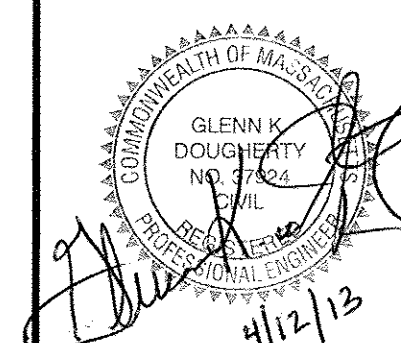
Detail Sheet

Project No.:	143-82806-13003
Designed By:	G.K.D.
Drawn By:	J.L.P.
Checked By:	R.D.A.

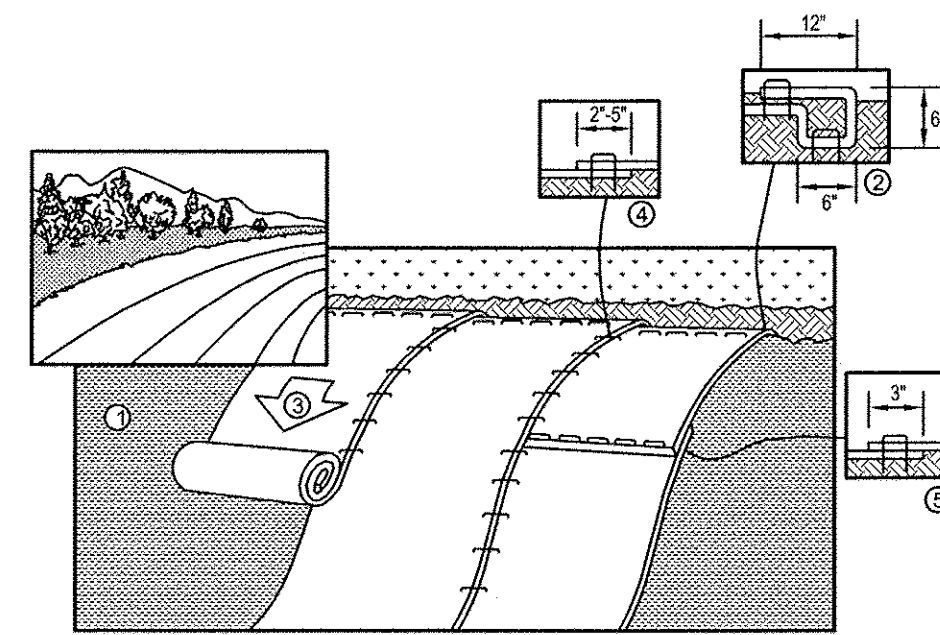
C-10

Bar Measures 1 inch

www.tetratotech.com
One Grant Street
Framingham, MA 01701
(98) 903-2000 FAX: (508) 903-2001

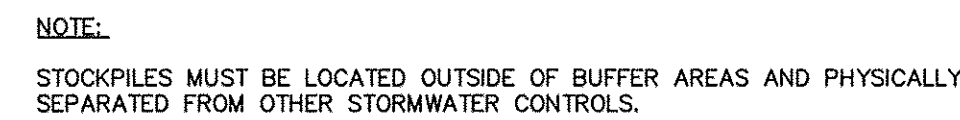


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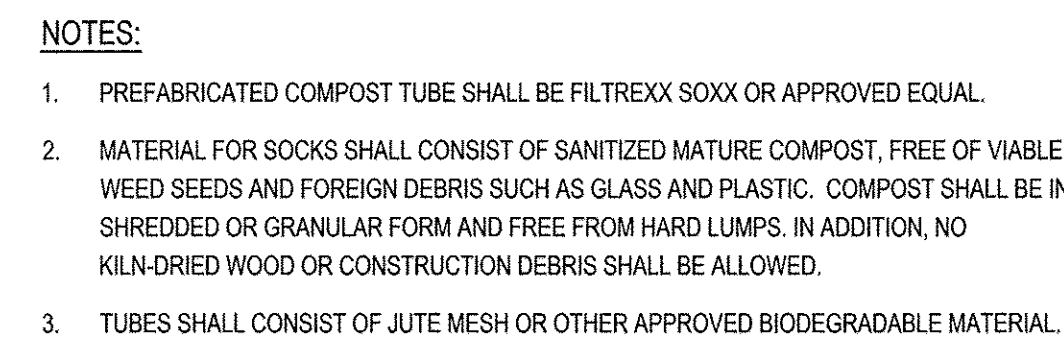


- NOTE:**
- IN LOOSE SOIL CONDITIONS THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY ANCHOR THE BLANKETS

NOT TO SCALE



NOT TO SCALE



NOT TO SCALE

Maintenance Requirements: Tubes must be inspected for sediment accumulation. If there is excessive ponding behind the filter tube or accumulated sediment reaches the top of the tube, an additional tube should be added on top or in front of the existing filter tube in these areas. An adequate reserve of tubes must be kept on site at all times for emergency and/or routine replacement. Tubes shall be removed only after exposed soils in the contributing drainage area achieve final stabilization.



NOT TO SCALE



- NOTE: PLAN FOR 8 PARKING AREA LIGHTS.

POLE LENGTH (FT.)	BASE BURIAL DEPTH "H" (FT.)	REINFORCE ROD LENGTH (FT.)
10	5	4.5
27	8	7.5



NOT TO SCALE