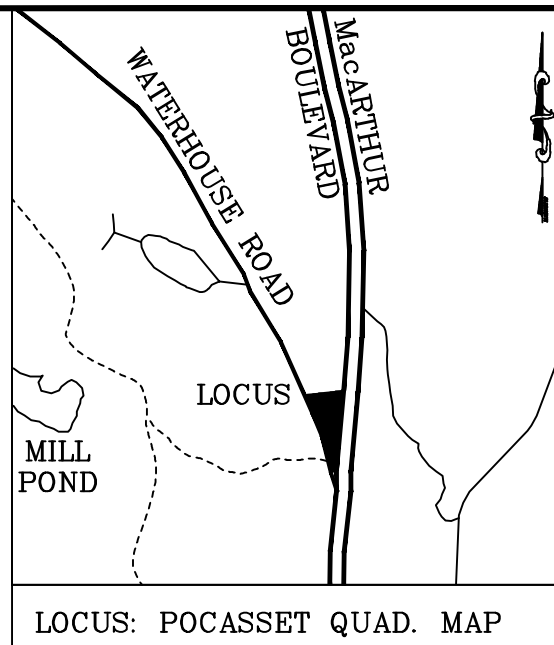


NOTES:

MAP: 27 PARCEL 184 & 185  
ZONING: B-4  
FLOOD ZONE: X  
PLAN REFERENCE: BOOK 581 PAGE 28  
NOTE: THIS SITE IS NOT LOCATED IN A WATER RESOURCE PROTECTION DISTRICT  
ZONING INTENSITY OF USE SCHEDULE:  
LOT AREA: (MIN. 40,000 S.F.) 195,397 S.F.  
LOT FRONTAGE: (MIN. 150') 324.54'  
LOT FRONT YARD: (MIN. 30') 254.63'  
LOT SIDE AND REAR: (MIN. 30') 33.13'  
LOT OPEN SPACE: (MIN. 40%)



TOTAL LOT AREA: 195,397 S.F.  
TOTAL LOT COVERAGE: 91,244 S.F. (47.3%)  
LOT COVERAGE BY PAVEMENT: 65,325 S.F. (33.43%)  
LOT COVERAGE BY STRUCTURES: 27,120 S.F. (13.88%)

EXISTING DISTURBED AREA: 123,513 S.F. (2.84 Ac.)(63.2%)  
EXISTING UNDISTURBED AREA: 71,884 S.F. (1.65 Ac.)(36.6%)  
EXISTING UNDISTURBED AREA TO BE DISTURBED: 37,732 S.F. (.87 Ac.)(19.3%)  
PROPOSED AREA TO REMAIN UNDISTURBED: 34,152 S.F. (.78 Ac.)(17.5%)  
PROPOSED AREA ON THE BERM TO BE REPLANTED: 10,087 S.F. (.23 Ac.)(5.2%)

TOTAL PARKING AREA: 57,931 S.F.  
REQUIRED INTERNAL PLANTING AREAS: 1,159 S.F.  
PROVIDED INTERNAL PLANTING AREAS: 6,475 S.F.  
TREES REQUIRED: 39  
SHRUBS REQUIRED: 154

PARKING SPACES REQUIRED: 153 (92% of 30,000 + 180)  
PARKING SPACES PROVIDED: 153  
HANDICAP SPACES REQUIRED: 6 (5 PLUS 1 VAN ACCESSIBLE)  
HANDICAP SPACES PROVIDED: 6 (5 PLUS 1 VAN ACCESSIBLE)

ALL STUMPS SHALL BE REMOVED AND DISPOSED OF OFF SITE.

ALL BERMS ARE TO BE PLACED AS PART OF THE BINDER COURSE.

ALL BITUMINOUS CONCRETE AREAS SHALL HAVE A COMBINED MINIMUM DEPTH OF 4".  
2 1/2" BINDER COURSE AND A 1 1/2" TOP COARSE. ALL BITUMINOUS CONCRETE SHALL COMPLY WITH THE STANDARD SPECIFICATIONS OF MASS DEPT. OF PUBLIC WORKS.

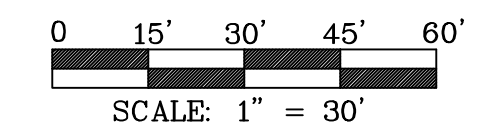
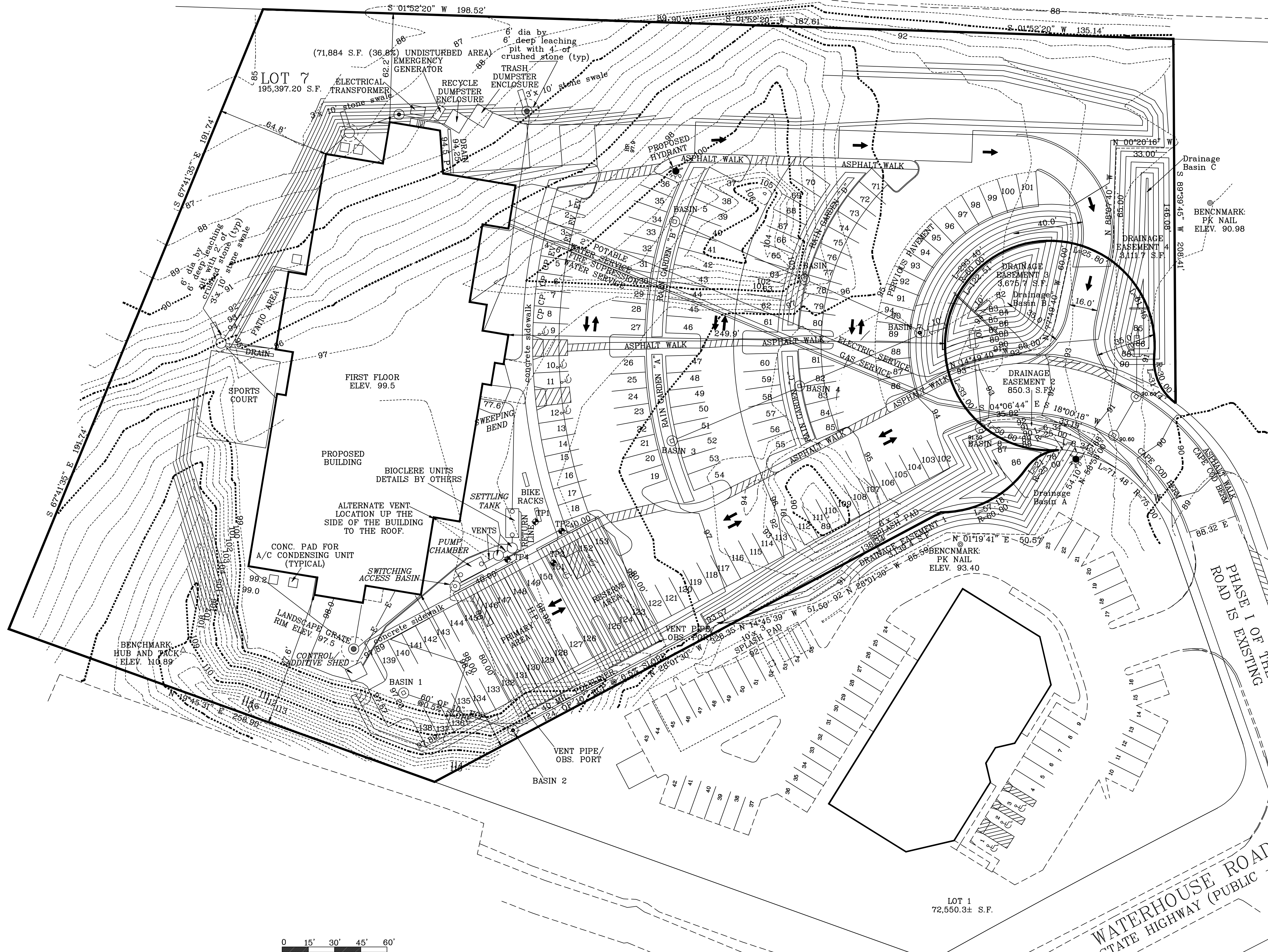
USED LeBARON R 3701 HOODS SHALL BE USED ON THE CATCHBASINS. IF ADS N-12 PIPE IS ALL FRAMES, GRATES, AND MANHOLES ARE TO MEET MHD STANDARDS. TYPE F FRAMES ARE TO BE USED BEING THAT THE BASINS ARE AT THE LOW POINT IF CONCRETE PIPES ARE USED. LeBARON R 3701 HOODS SHALL BE USED ON THE CATCHBASINS. IF ADS N-12 PIPE IS USED, A 90° ELBOW CAN BE USED.

CATCHBASIN FRAMES SHALL BE SET FLUSH WITH THE BINDER COURSE.

PERMANENTLY MOUNTED HANDICAPPED PARKING SIGNS MUST BE PLACED AT A HEIGHT OF 5' TO 8' ABOVE GRADE. ALSO, A VAN ACCESSIBLE SIGN MUST BE MOUNTED BELOW THE HANDICAPPED SIGN ON SPACES 9 AND 10.

THE SIZE, COLOR AND PATTERN OF THE STRIPING IN THE CROSSWALKS SHALL BE DETERMINED BY THE TRANSPORTATION ENGINEER.

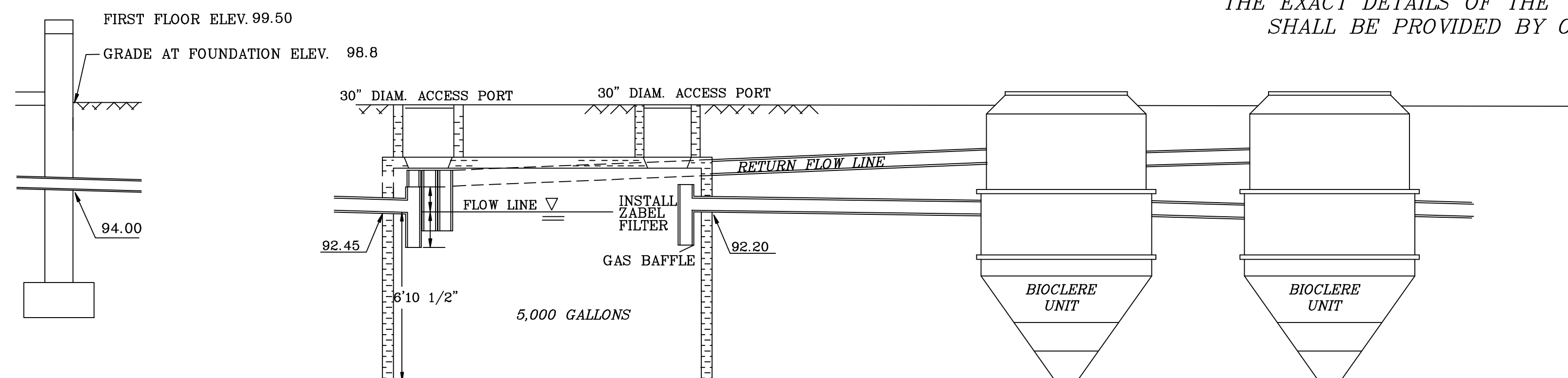
THE RESERVE AREA SHOULD BE CONSIDERED AN ALTERNATE CONSTRUCTION OPTION AT THE INITIAL CONSTRUCTION PHASE.



WATERHOUSE ROAD  
STATE HIGHWAY (PUBLIC - 80' WIDE)

PROPOSED SITE PLAN	
PREPARED FOR	
CDS	
OF	
LOT 7 TECHNOLOGY PARK DRIVE	
BOURNE, MA	
J.E. LANDERS-CAULEY, P.E.	
CIVIL ENVIRONMENTAL ENGINEERING	
P.O. BOX 364 WEST FALMOUTH, MA 02574	
(508) 540 - 7733 ph.	
(508) 540 - 3344 fax	
ASS. # 27.0-TBD	DATE: 06/29/16
SCALE: 1" = 30'	DRAWN BY: JDR
JOB NO. 1019-0616	SHEET: 1 OF 6

THE EXACT DETAILS OF THE "BIOCLEAR"  
SHALL BE PROVIDED BY OTHERS

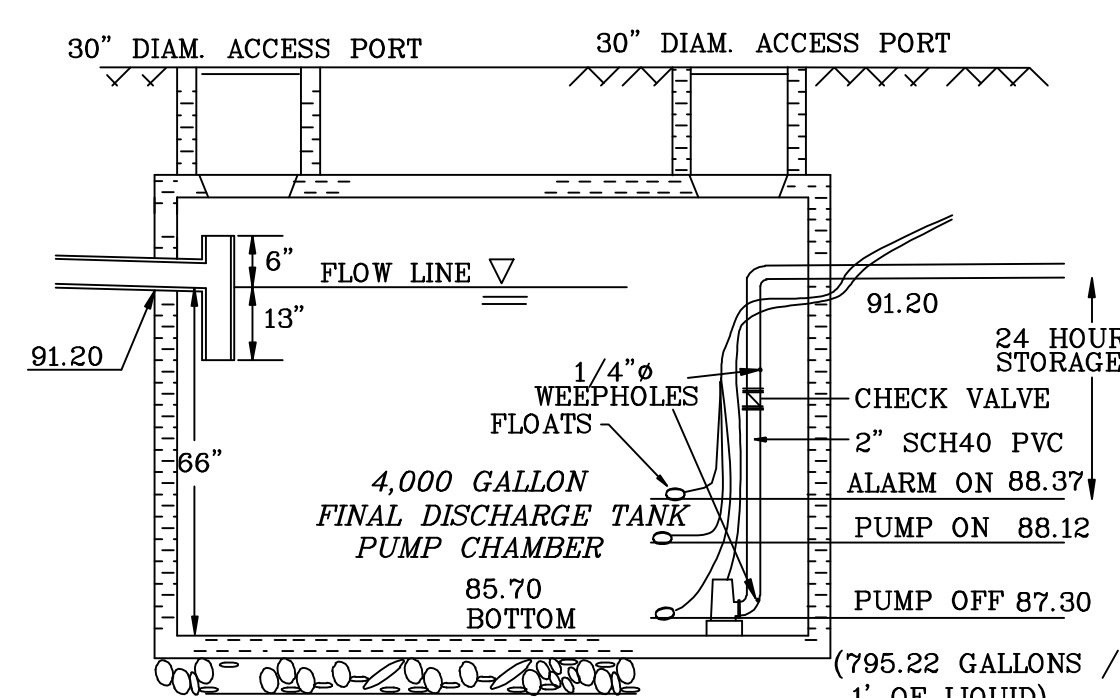


**ANOXIC/EQUALIZATION TANK**

N.T.S.

THE SPECIFICATIONS, INSTALLATION AND MAINTENANCE OF THE SEWERAGE SYSTEM COMPONENTS PROVIDED BY THE MANUFACTURER SHALL BE ENGINEERED AND WARRANTED BY THE MANUFACTURER.

ALTERNATING DUPLEX PUMP SYSTEM.  
EACH PUMP SHALL HAVE A QUICK RELEASE AND BE MOUNTED ON A SLIDING RAIL SYSTEM.



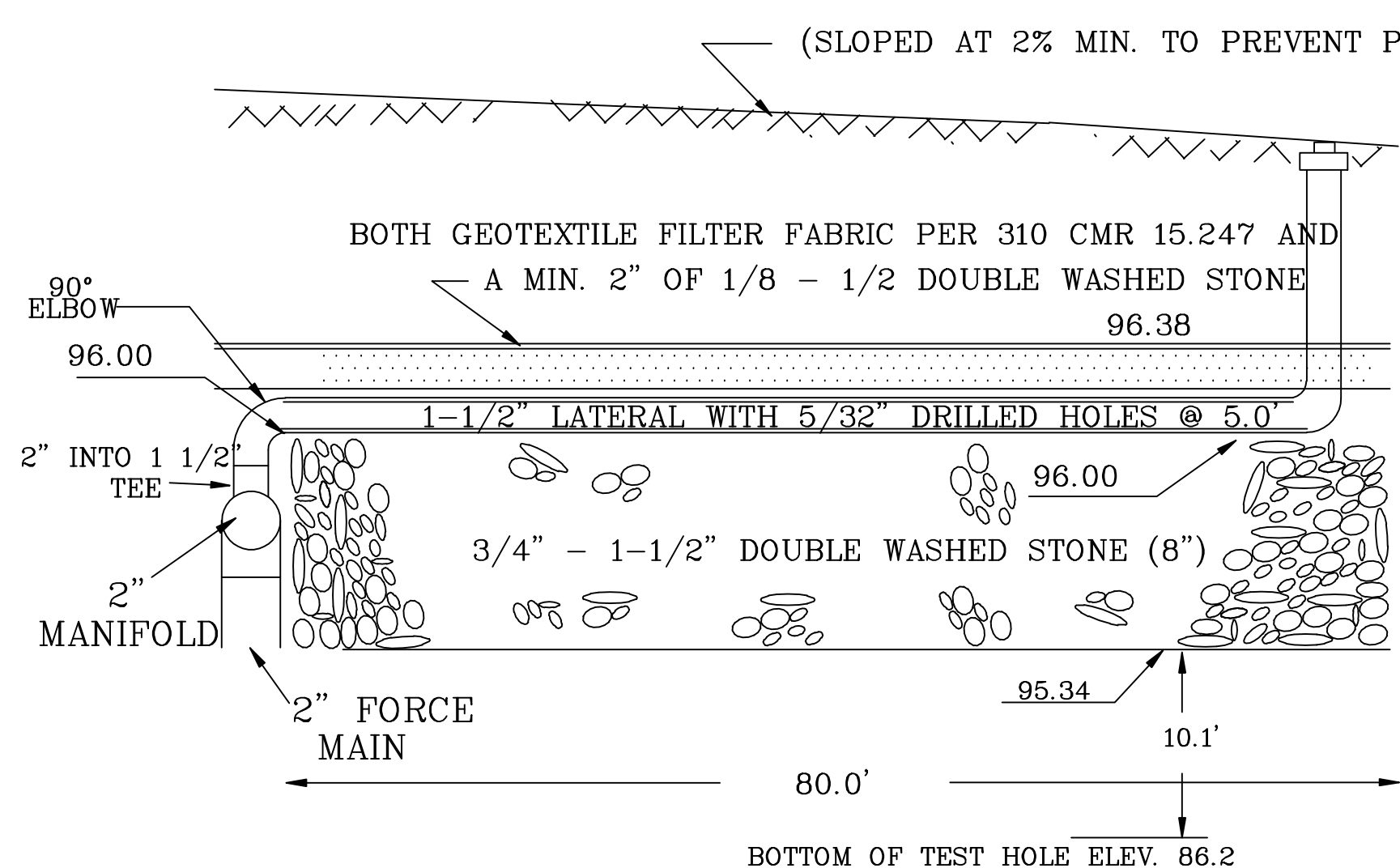
**PUMP CHAMBER DETAILS**

N.T.S.

TO BE SET ON 6" OF CRUSHED STONE PLACED ON A COMPACTED LEVEL BASE USE DUPLEX .75 HP GOULDS PUMPS OR APPROVED EQUIVALENT

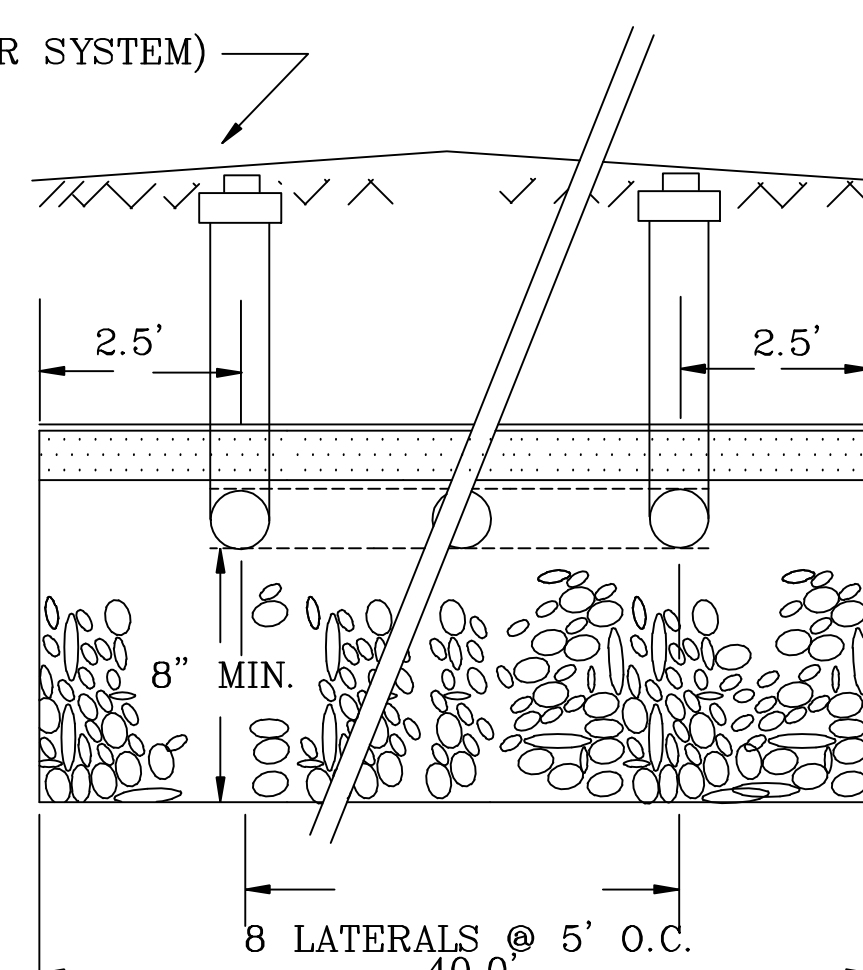
**SEPTIC SYSTEM SPECIFICATIONS TABLE:**

- GENERAL LEACHING AREA: (SEE LAYOUT)  
 LENGTH: 80.0 FEET  
 WIDTH: 40.0 FEET  
 STONE THICKNESS: 8 INCHES(MIN.)  
 DESIGN AREA: 3,200.0 SF
- GENERAL PUMP CHAMBER: (4,000)  
 CHAMBER SIZE: 4,000 GAL  
 GALLONS PER DOSE TOTAL: 562.5 GAL
- 24 HOUR STORAGE CAPACITY: 2,250 GAL  
 PUMP SIZE (GENERAL): 2 @ .75 HP
- PRESSURE DOSE SPECIFICATIONS:  
 PERFORMANCE SIZE: 5/32 INCH.  
 PERFORMANCE SPACING: 5 FEET  
 PERFORATIONS PER LATERAL: 15 HOLES
- LATERAL LENGTH: 78.0 FEET  
 LATERAL SPACING: 5 FEET  
 LATERAL DIAMETER: 1-1/2 INCH Ø.
- MANIFOLD LENGTH: 35 FEET  
 MANIFOLD DIAMETER: 2 INCHES  
 FORCE MAIN LENGTH: 6' FEET



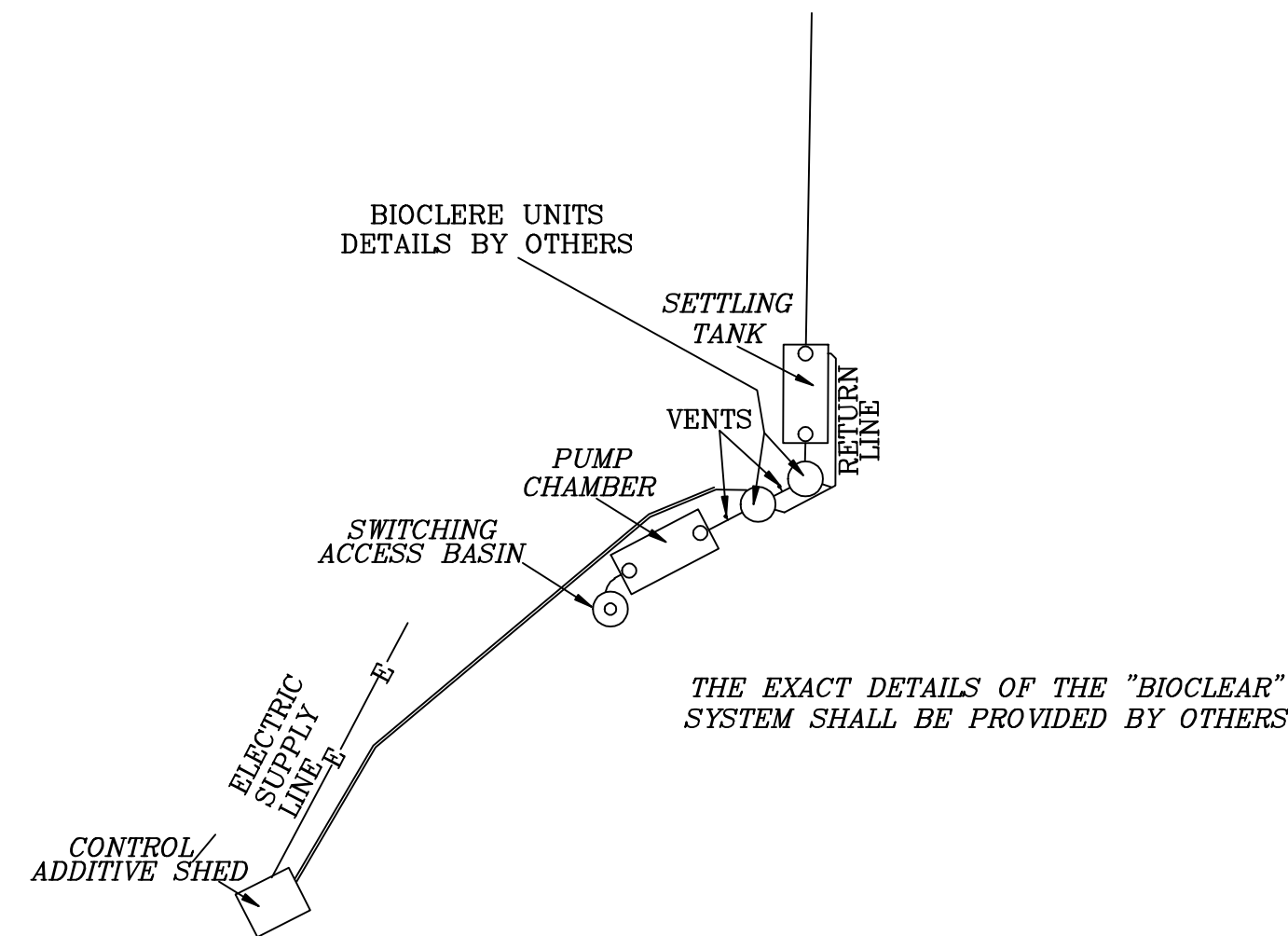
**LEACH FIELD PROFILE**

N.T.S.



**END VIEW**

N.T.S.



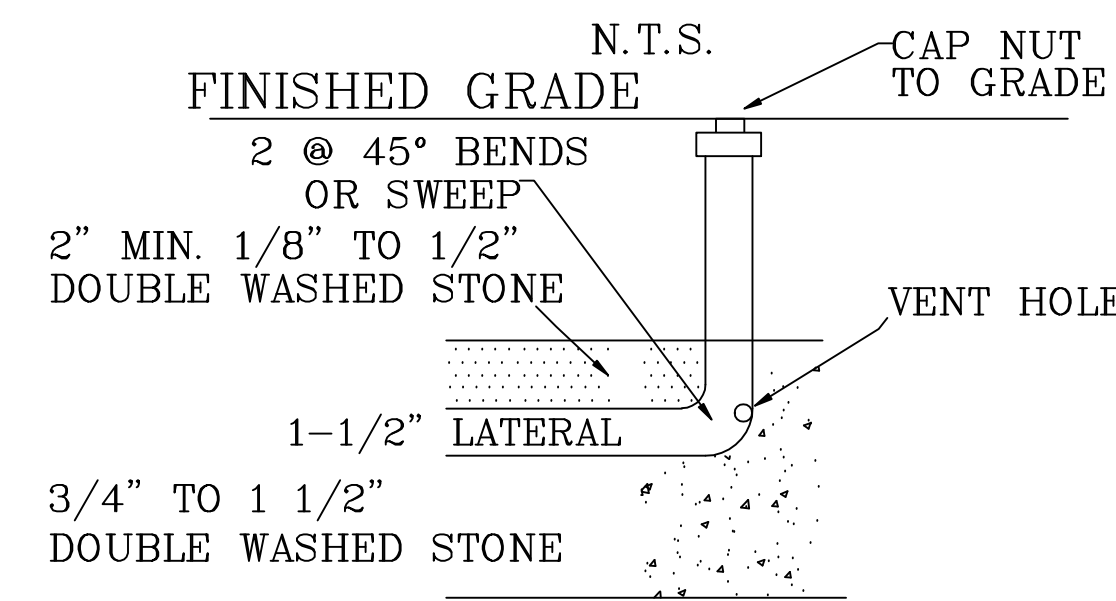
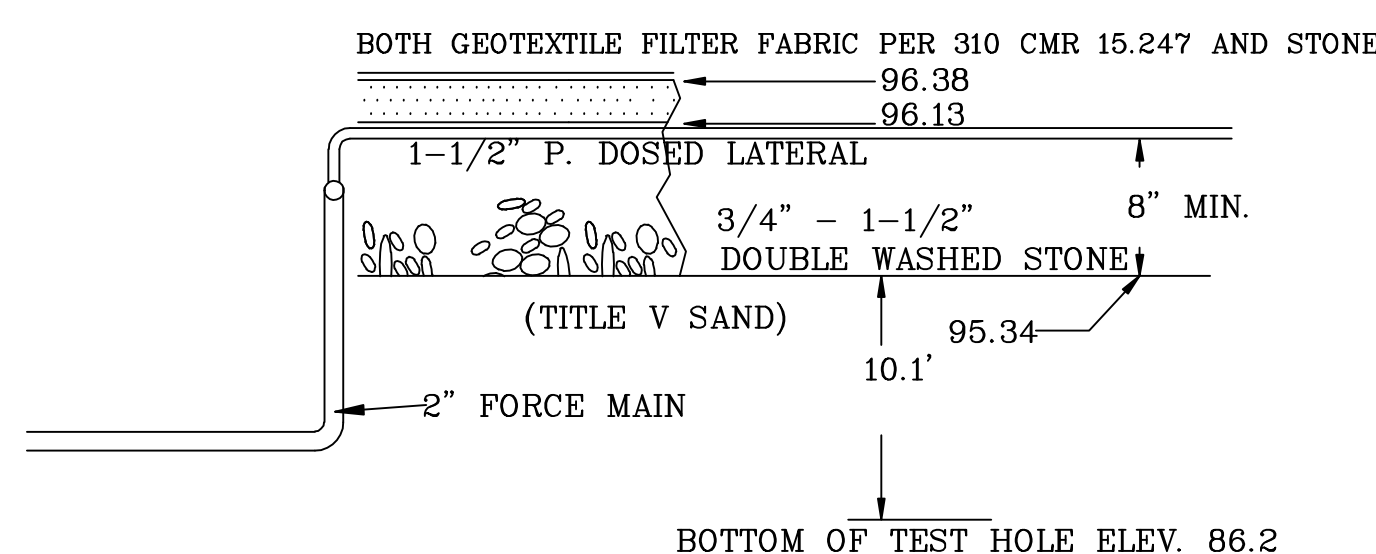
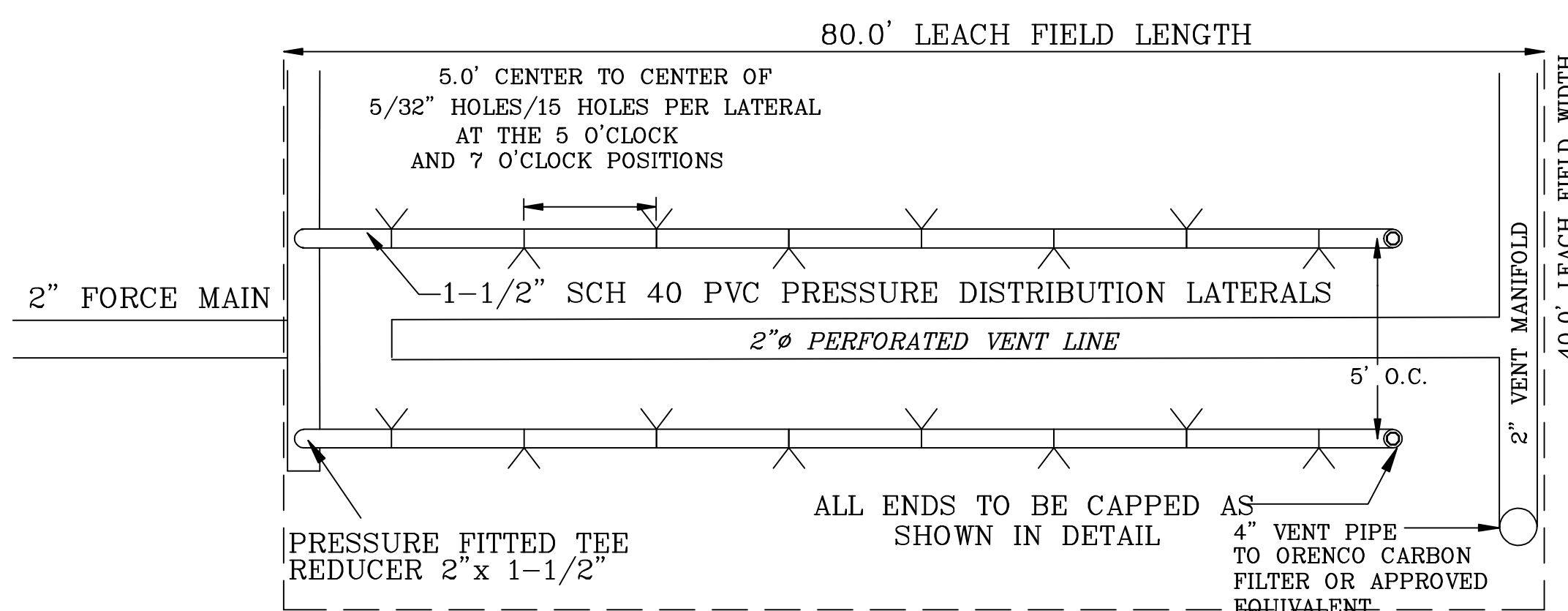
**DETAIL OF SYSTEM**

N.T.S.

**TEST PIT DATA**

INSPECTOR: T. GAURINO PERFORMED BY: J.E. CAULEY P.E.  
 DATE: FEB. 11, 2016

TEST PIT # : 1	TEST PIT # : 2	TEST PIT # : 3	TEST PIT # : 4
EL. TOP = 96.6	EL. TOP = 96.2	EL. TOP = 96.6	EL. TOP = 97.2
OBS. H2O EL. = NONE	OBS. H2O EL. = NONE	OBS. H2O EL. = NONE	OBS. H2O EL. = NONE
PERC RATE = < 2 MPI	PERC RATE = < 2 MPI	PERC RATE = < 2 MPI	PERC RATE = < 2 MPI
0" STONE PARKING AREA/PAD	0" C1 MED-FINE SAND 10YR 6/4	0" C1 MED-FINE SAND 6/4	0" C1 MED-FINE SAND 6/4
4" C1 MED-FINE SAND 10YR 6/4	20" C1 MED-FINE SAND 6/4	30" C1 MED-FINE SAND 6/4	30" C1 MED-FINE SAND 6/4
32" C2 GRAVEL			
36" C3 MEDIUM SAND 10YR 7/3	120" C2 MEDIUM SAND 10YR 7/3	120" C2 MEDIUM SAND 10YR 7/3	120" C2 MEDIUM SAND 10YR 7/3



**GENERAL NOTES:**

- NO HEAVY EQUIPMENT OVER SYSTEM.
- DISTRIBUTION BOX TO BE PRECAST REINFORCED CONCRETE UNITS, WITH AN H-20 CAPACITY.
- ALL SYSTEM COMPONENTS SHALL BE INSTALLED IN ACCORDANCE TO REVISED TITLE V OF THE STATE ENVIRONMENTAL CODE, MINIMUM REQUIREMENTS FOR THE SUBSURFACE DISPOSAL OF SANITARY SEWAGE.
- ANY CHANGES TO THIS PLAN MUST BE APPROVED BY THE BOARD OF HEALTH AND THE ENGINEER.
- AT THE COMPLETION OF CONSTRUCTION, PRIOR TO BACKFILLING, THE BOARD OF HEALTH AND ENGINEER SHALL BE NOTIFIED FOR INSPECTION AND LOCATION FOR AS BUILT PLAN PREPARATION.
- PITCH ALL SEWER LINES 1/4" PER FOOT UNLESS INDICATED OTHERWISE.
- INSTALLER TO LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.
- INSTALLER TO PROVIDE AT LEAST ONE OBSERVATION PORT.
- INSTALLER TO CONTACT THIS FIRM TO CONFIRM SOIL CONDITIONS DURING SYSTEM INSTALLATION.
- ALL SEPTIC SYSTEM COMPONENTS TO BE CONFIRMED BY SURVEY, INCLUDING BUT NOT LIMITED TO, THE BOTTOM OF LEACHING AREA, SYSTEM COMPONENT LOCATIONS AND PIPE INVERTS.
- ALL PIPING SHALL BE PROVIDED WITH THRUST BLOCKING OR FIRMLY SECURED TO PREVENT WATER HAMMER.

**SEPTIC SYSTEM NOTES**

- All electrical permits and connections are to be obtained and made by a licensed electrician.
- Where required the contractor will remove all loam, subsoil and other unsuitable material in the area beneath and for 2 feet on all sides of the leaching facility. The contractor shall replace all unsuitable material with clean coarse sand free from clay, fines or other unsuitable material. Replacement material to have an in-place perc rate of two minutes or less.
- Subsurface septic system components shall not be back filled or otherwise concealed from view until a final inspection AND instrument survey to locate the components has been conducted by the approving and the ENGINEER.
- All covers shall be marked with magnetic marking tape.
- All backfill/fill material immediately adjacent to and under the s.a.s. must comply with specifications outlined in Title V.
- All material above and to the side of the s.a.s. and its components must be free of stone larger than 3", organic material and debris.
- Those portions of the s.a.s. under walkways, roads or parking shall be backfilled with material that complies with Mass DPW specifications.
- An audio and visual alarm must be provided and placed in an obvious location and be set to sound when the effluent level reaches the bottom of the 24 hour storage in the pump chamber.

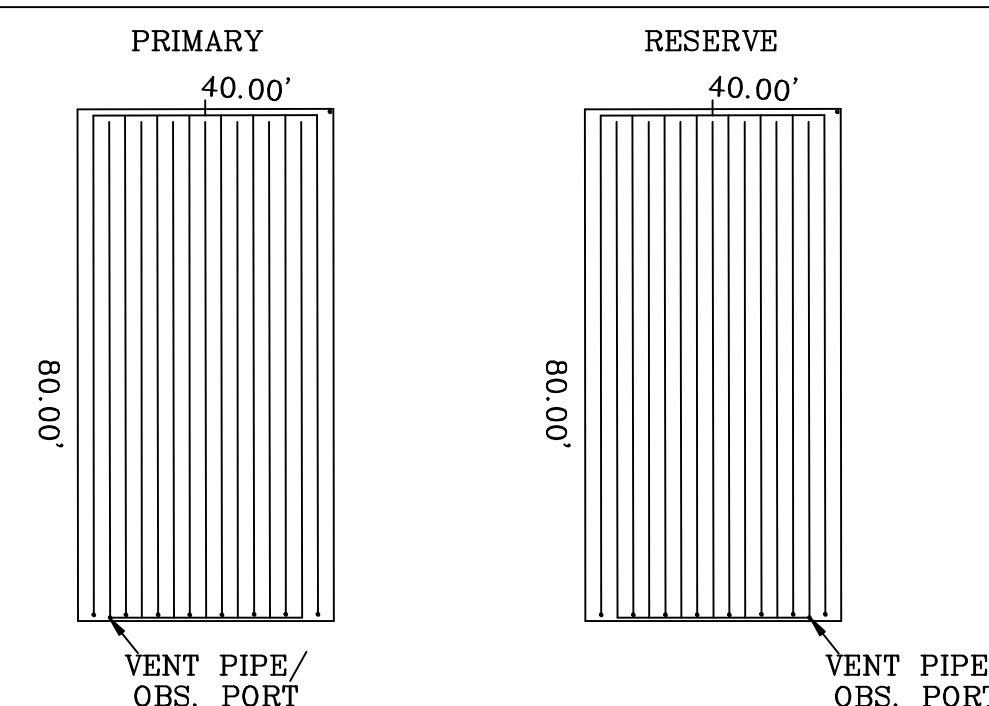
**CAPACITY REQUIRED**

30,000 S.F. PROFESSIONAL OFFICE:  
 30,000 + 1,000 x 75 = 2,250 GPD

**CAPACITY PROVIDED**

SYSTEM SIZE (PRIMARY): 40x80 = 3,200 S.F.  
 3,200 x .74 = 2,368.0 GPD

SYSTEM SIZE (RESERVE): 40x80 = 3,200 S.F.  
 3,200 x .74 = 2,368.0 GPD



**SEPTIC SYSTEM DETAIL SHEET**

PREPARED FOR  
 CDS  
 OF  
 LOT 7 TECHNOLOGY PARK DRIVE  
 BOURNE, MA

J.E. LANDERS-CAULEY, P.E.  
 CIVIL ENVIRONMENTAL ENGINEERING  
 P.O. BOX 364 WEST FALMOUTH, MA 02574  
 (508) 540 - 7733 PH.  
 (508) 540 - 3344 FAX

ASS # 27.0-TBD DATE: 06/29/16  
 SCALE: 1" = N.T.S. DRAWN BY: JDR  
 JOB NO. 1019-0616 SHEET: 2 OF 6

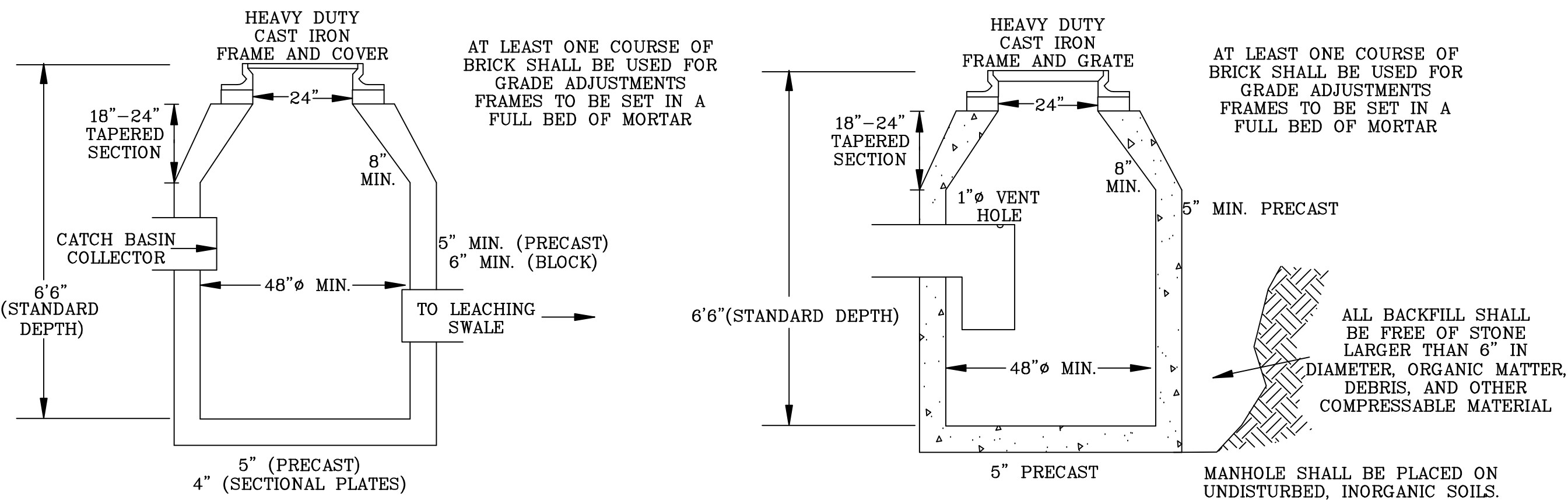
**NOTES:**

PRIOR TO ANY CONSTRUCTION, SILT FENCE AND HAYBALES SHALL BE PROPERLY INSTALLED AT ALL DOWN GRADIENT LOCATIONS.

ALL UTILITIES SHALL BE INSTALLED AND ROADWAY CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE TOWN OF BOURNE AND THE MASS. DEPT. OF PUBLIC WORKS STANDARD SPECIFICATIONS, UNLESS APPROVED OTHERWISE.

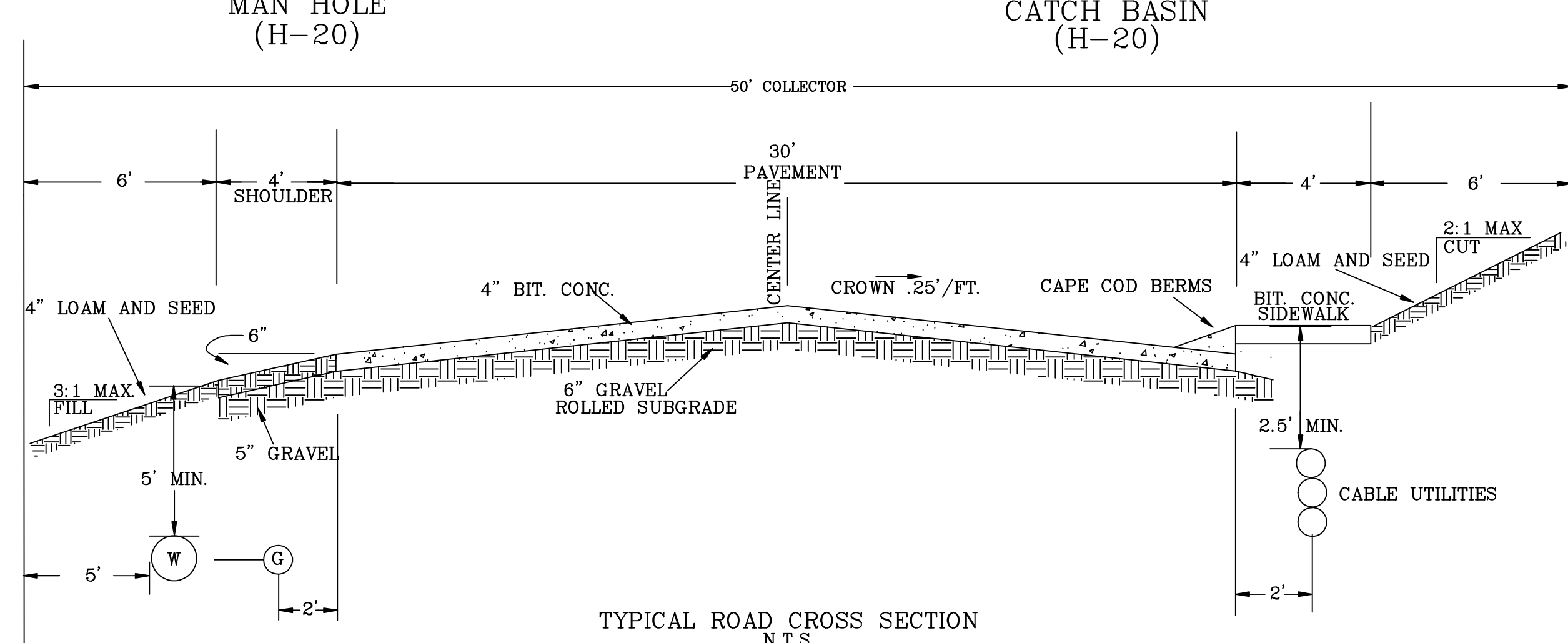
INSTALLED WATER MAINS SHALL BE DESIGNED IN ACCORDANCE WITH ALL CURRENT TOWN OF BOURNE DEPT. OF PUBLIC WORKS(DPW) SPECIFICATIONS AND INSTALLED UNDER THE SUPERVISION OF THE DPW.

THRUST BLOCK RESTRAINTS ARE REQUIRED FOR THRUST CONTROL AT BENDS, TEES, AND REDUCERS ON THE WATER MAIN, AND SHALL BE INSTALLED IN ACCORDANCE WITH THE SPECIFICATIONS OF THE BOURNE DEPARTMENT OF PUBLIC WORKS, UNLESS OTHER METHODS ARE APPROVED (BY THE DPW).

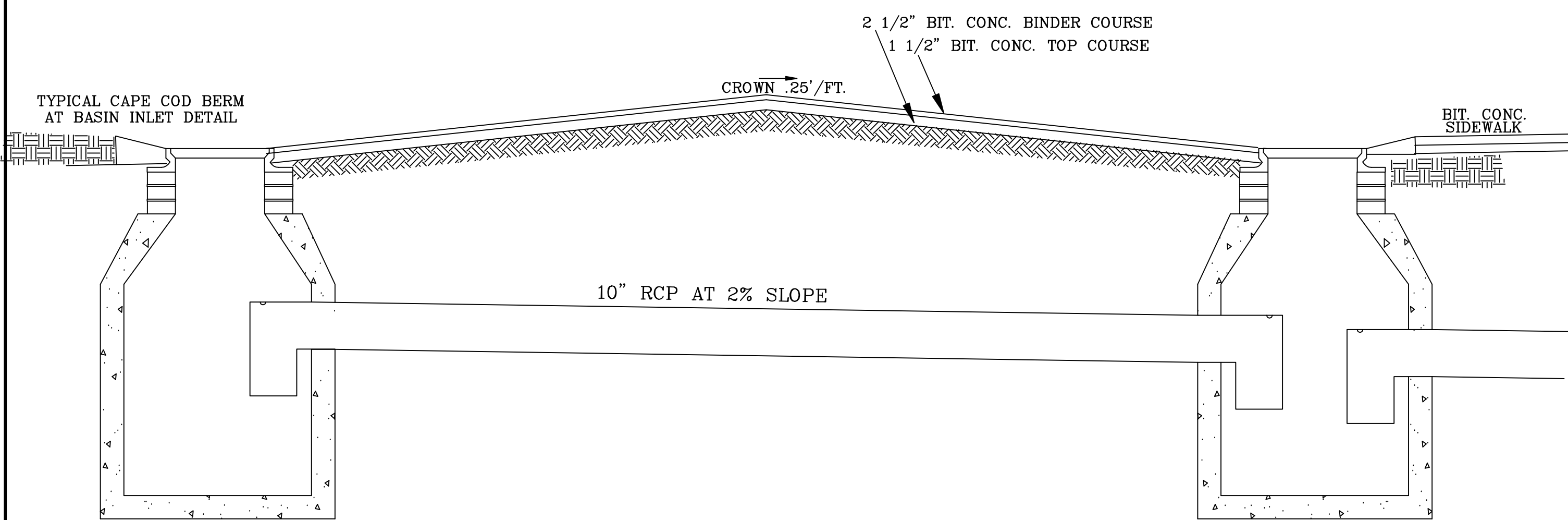


PRECAST CONCRETE OR CONCRETE BLOCK MAN HOLE (H-20)

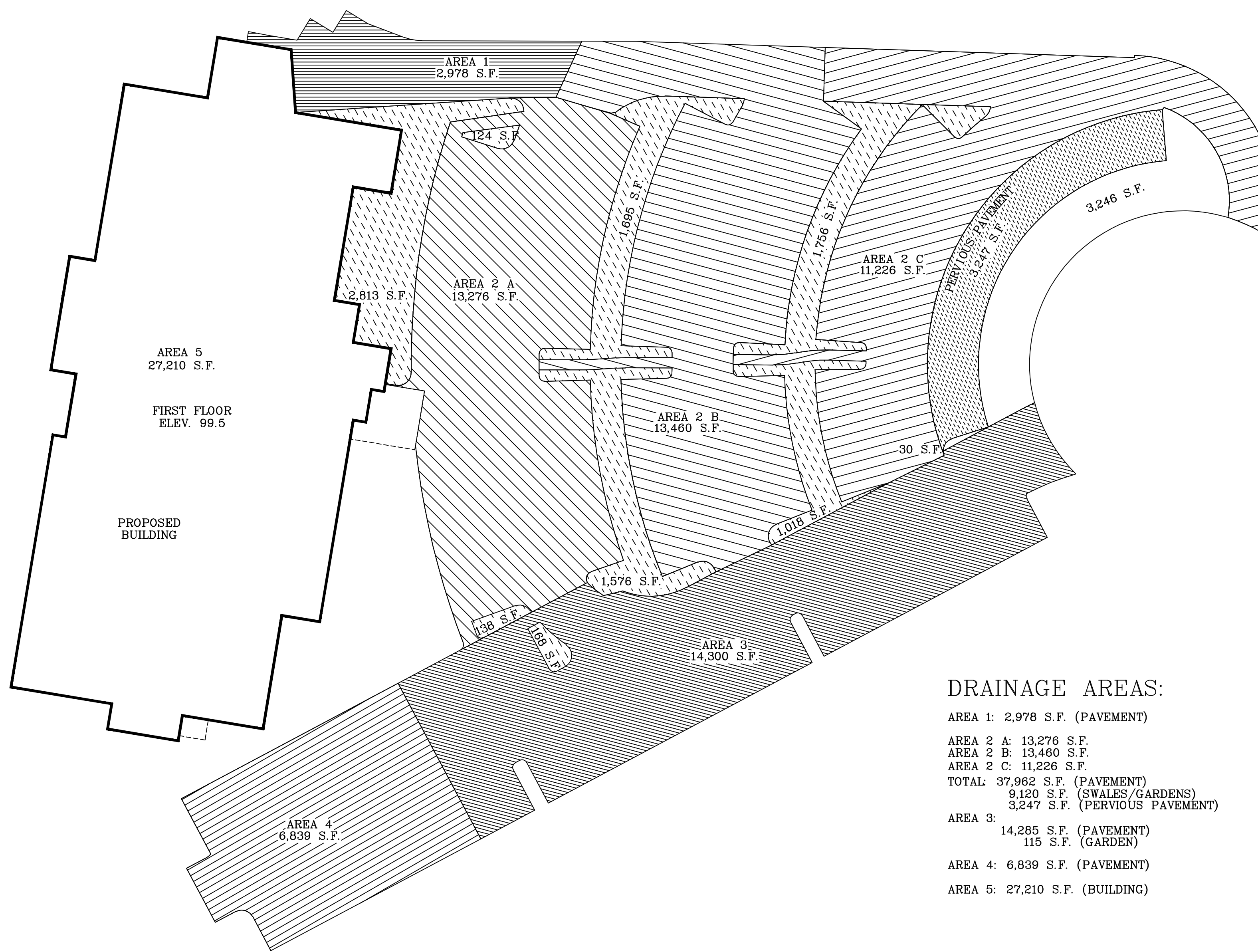
PRECAST CONCRETE CATCH BASIN (H-20)



TYPICAL ROAD CROSS SECTION N.T.S.

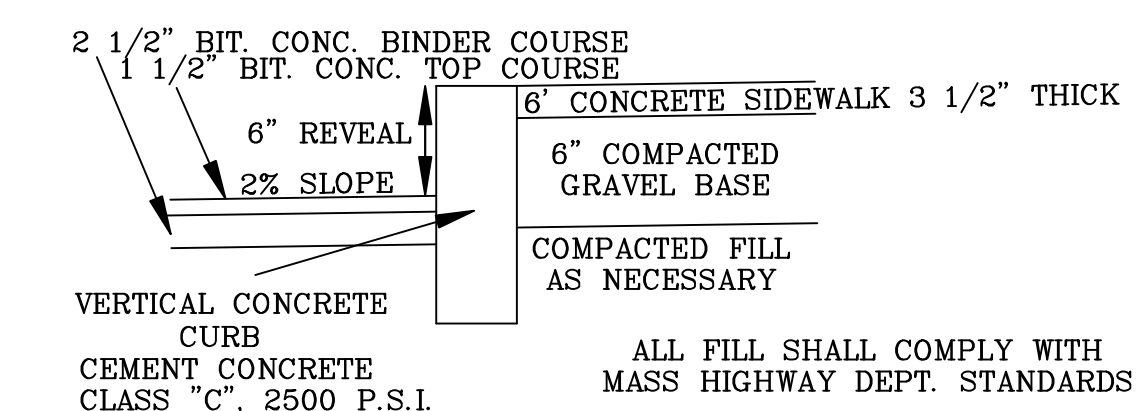


TYPICAL CAPE COD BERM AT BASIN INLET DETAIL

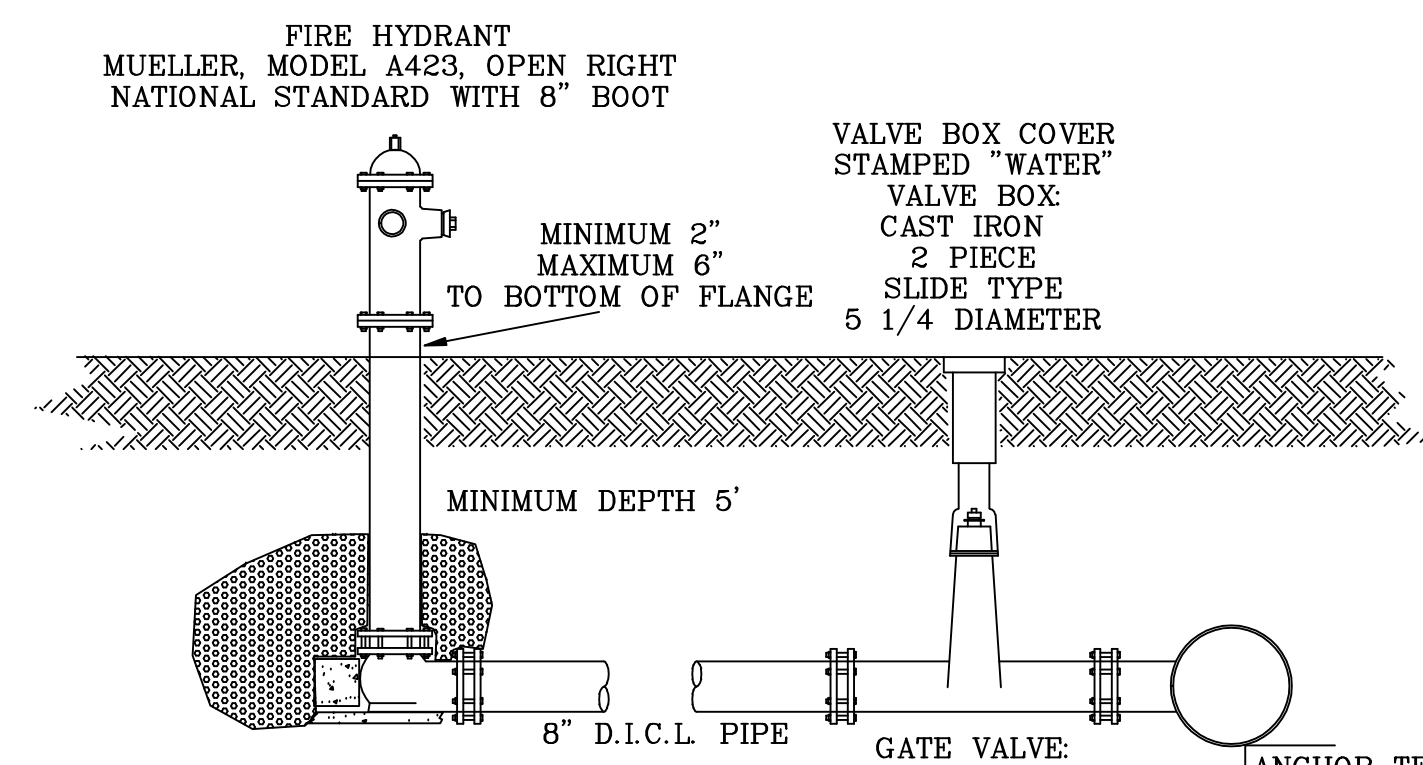


**DRAINAGE AREAS:**

- AREA 1: 2,978 S.F. (PAVEMENT)
- AREA 2 A: 13,276 S.F.
- AREA 2 B: 13,460 S.F.
- AREA 2 C: 11,226 S.F.
- TOTAL: 37,962 S.F. (PAVEMENT)
- 9,120 S.F. (SWALES/GARDENS)
- 3,247 S.F. (PERVIOUS PAVEMENT)
- AREA 3: 14,285 S.F. (PAVEMENT)
- 115 S.F. (GARDEN)
- AREA 4: 6,839 S.F. (PAVEMENT)
- AREA 5: 27,210 S.F. (BUILDING)

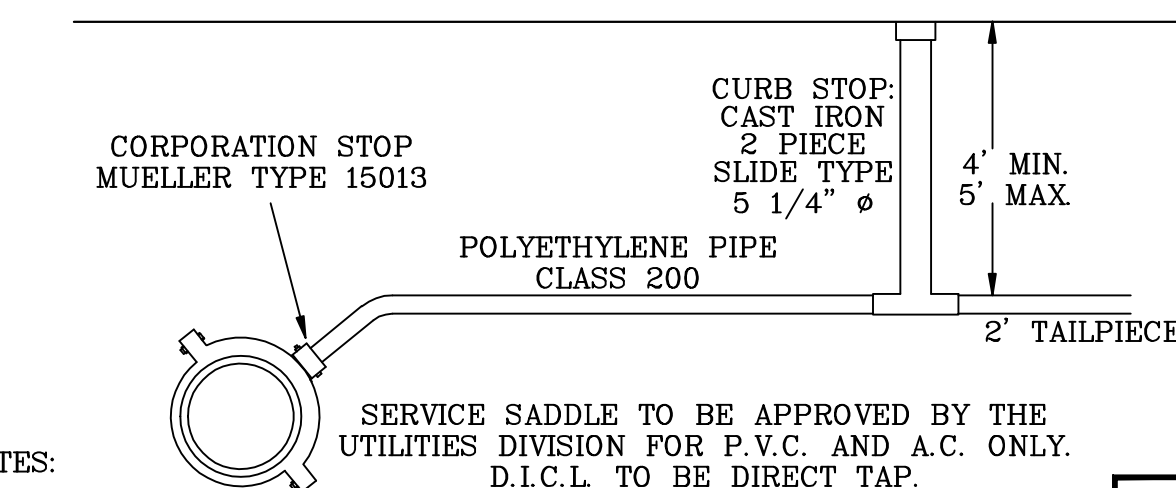


VERTICAL CURB DETAIL IN FRONT OF BUILDING N.T.S.



- A. HYDRANT TO BE SET ON A FLAT STONE.
- B. THRUST BLOCKS TO BE SET IN UNDISTURBED SOIL AT THE HYDRANT AND THE ANCHOR TEE.
- C. PLACE 1/2 CUBIC YARD OF 3/4" STONE AROUND HYDRANT DRAIN TO AT LEAST 6" ABOVE THE DRAIN HOLES.

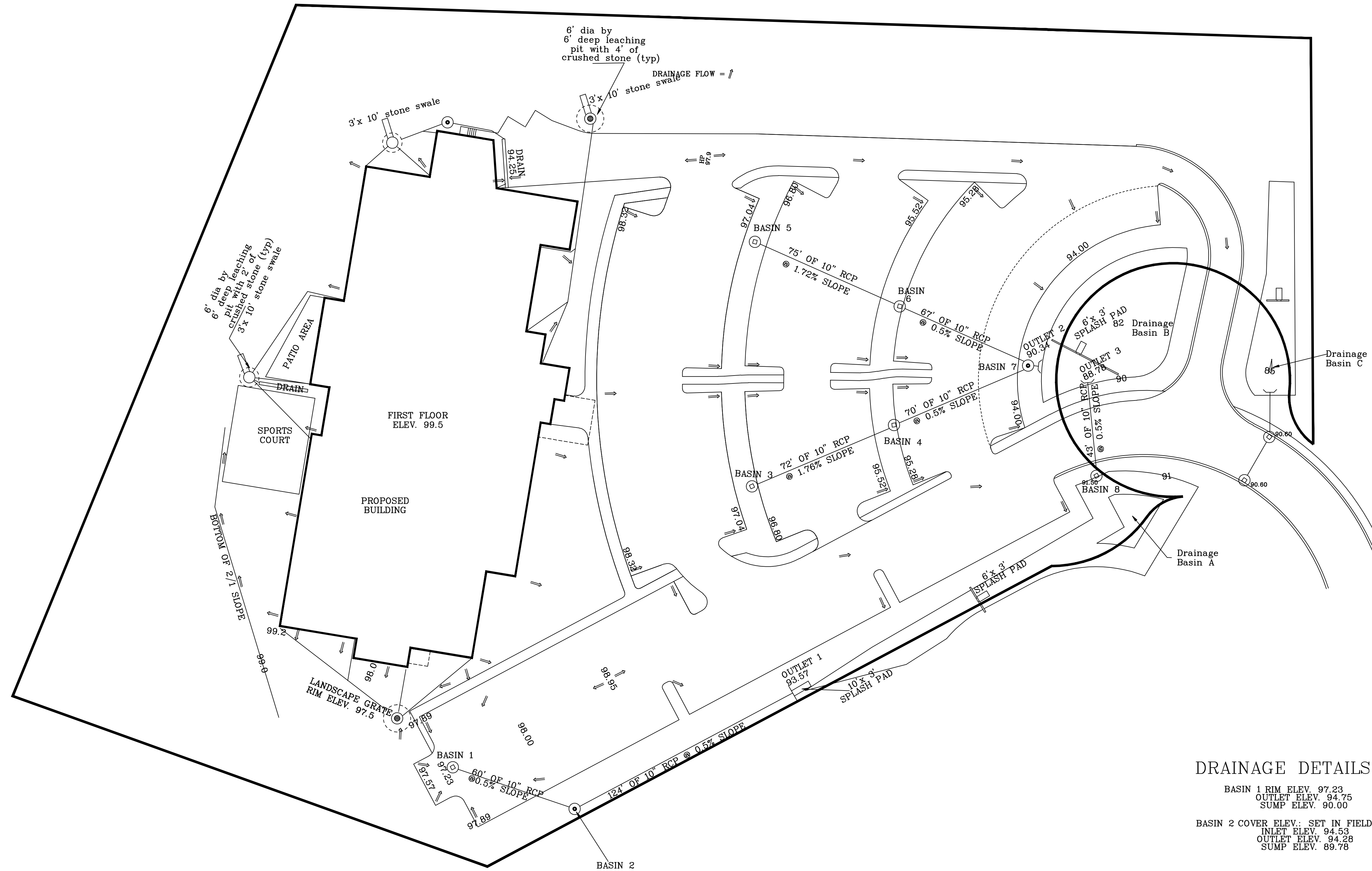
FIRE HYDRANT N.T.S.



- NOTES:
- A. BACKFILL SHALL BE NATIVE MATERIAL COMPACTED TO A DENSITY OF NOT LESS THAN 90% RELATIVE COMPACTION.
- B. SPECIAL ATTENTION MUST BE GIVEN TO BACKFILL AROUND WATER MAIN AND UNDER SERVICE PIPE.

TYPICAL WATER SERVICE INSTALLATION N.T.S.

<b>DETAIL SHEET</b>	
PREPARED FOR CDS OF LOT 7 TECHNOLOGY PARK DRIVE BOURNE, MA	
J.E. LANDERS-CAULEY, P.E. CIVIL ENVIRONMENTAL ENGINEERING P.O. BOX 364 WEST PALMOUTH, MA 02574 (508) 540 - 7733 ph. (508) 540 - 3344 fax	
ASS.# 27.0-TBD	DATE: 06/29/16
SCALE: 1" = N/A	DRAWN BY: JDR
JOB NO. 1019-0616	SHEET: 3 OF 6

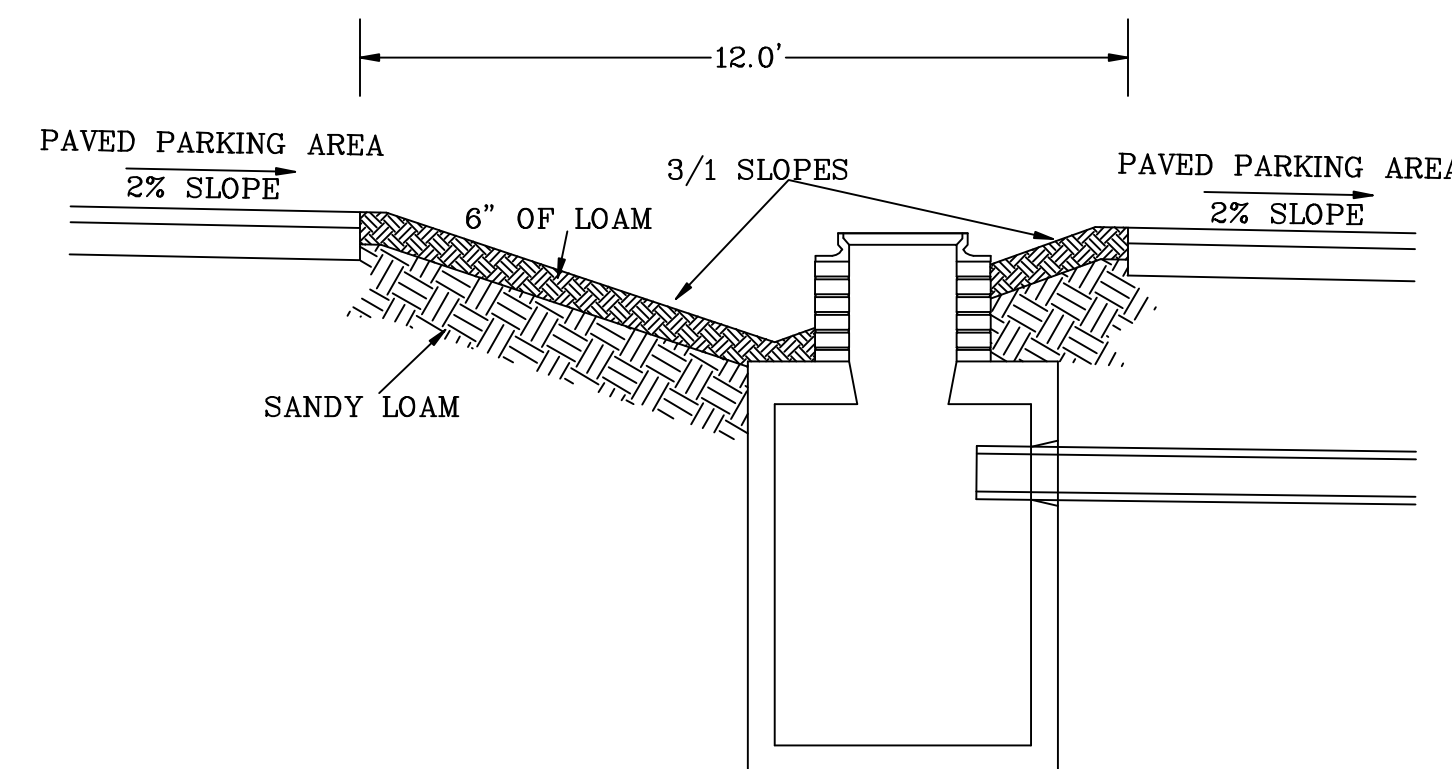


**NOTES:**

ALL PIPING FOR ROOF DRAINAGE SHALL BE 6" SCHEDULE 40 PVC AT A SLOPE OF 0.01 OR GREATER.  
 ALL SPLASH PADS AND STONE SWALES SHALL BE 3"-6" NATIVE CRUSHED STONE 8" DEEP BY 36" WIDE. SEE PLAN VIEW FOR LENGTH OF EACH SWALE OR PAD.

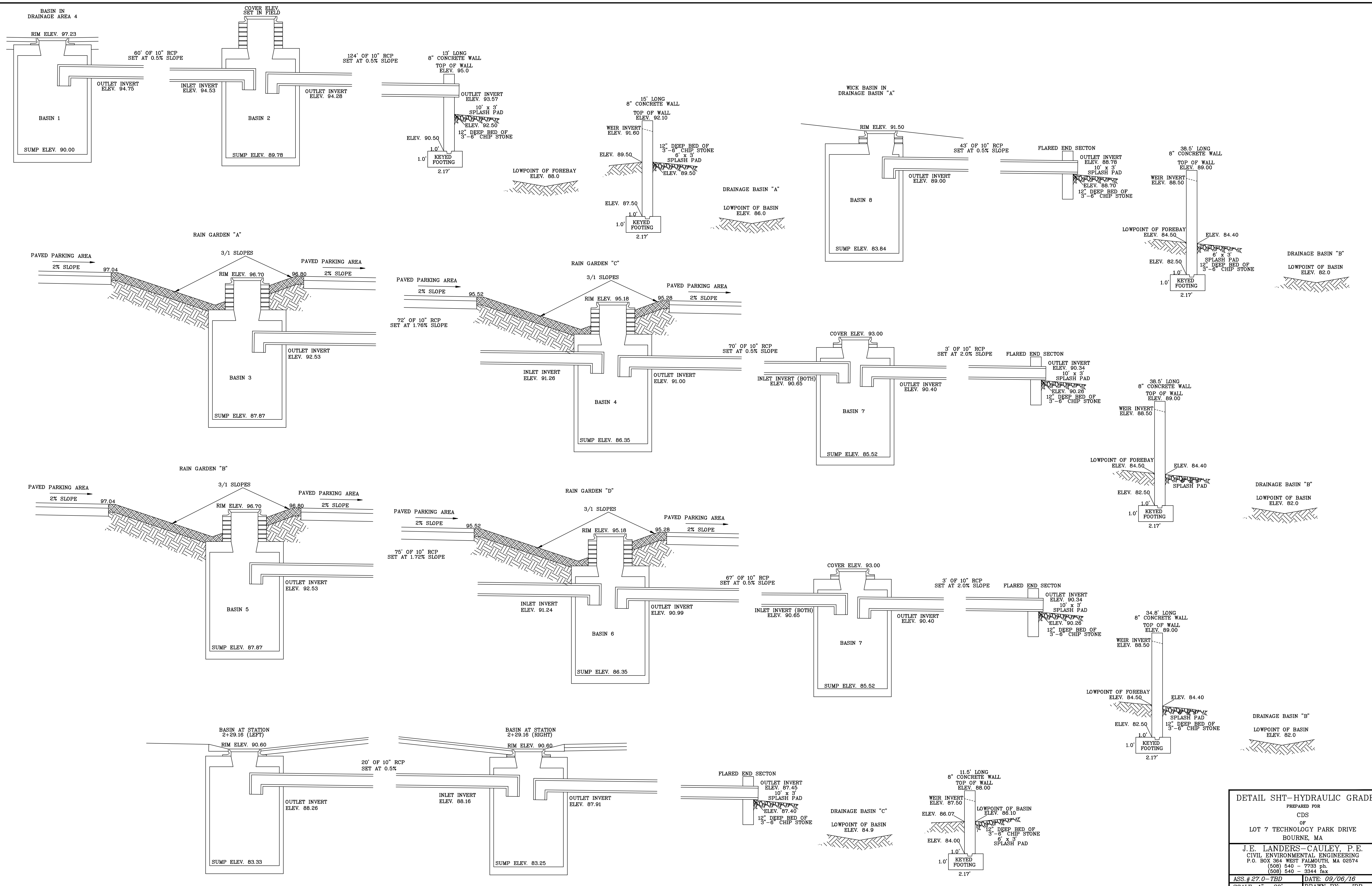
**DRAINAGE DETAILS:**

- BASIN 1 RIM ELEV. 97.23  
 OUTLET ELEV. 94.75  
 SUMP ELEV. 90.00
- BASIN 2 COVER ELEV.: SET IN FIELD  
 INLET ELEV. 94.53  
 OUTLET ELEV. 94.28  
 SUMP ELEV. 89.78
- OUTLET 1 ELEV. 93.57
- BASIN 3 RIM ELEV. 96.70  
 OUTLET ELEV. 92.53  
 SUMP ELEV. 88.70
- BASIN 4 RIM ELEV. 95.18  
 INLET ELEV. 91.26  
 OUTLET ELEV. 91.00  
 SUMP ELEV. 87.00
- BASIN 5 RIM ELEV. 96.70  
 OUTLET ELEV. 92.53  
 SUMP ELEV. 88.70
- BASIN 6 RIM ELEV. 95.18  
 INLET ELEV. 91.24  
 OUTLET ELEV. 90.99  
 SUMP ELEV. 87.00
- BASIN 7 COVER ELEV. 93.00  
 INLET ELEV. 90.65 (BOTH)  
 OUTLET ELEV. 90.40  
 SUMP ELEV. 86.40
- OUTLET 2 ELEV. 90.34
- BASIN 8 RIM ELEV. 91.50  
 OUTLET ELEV. 89.00  
 SUMP ELEV. 84.50
- OUTLET 3 ELEV. 88.78

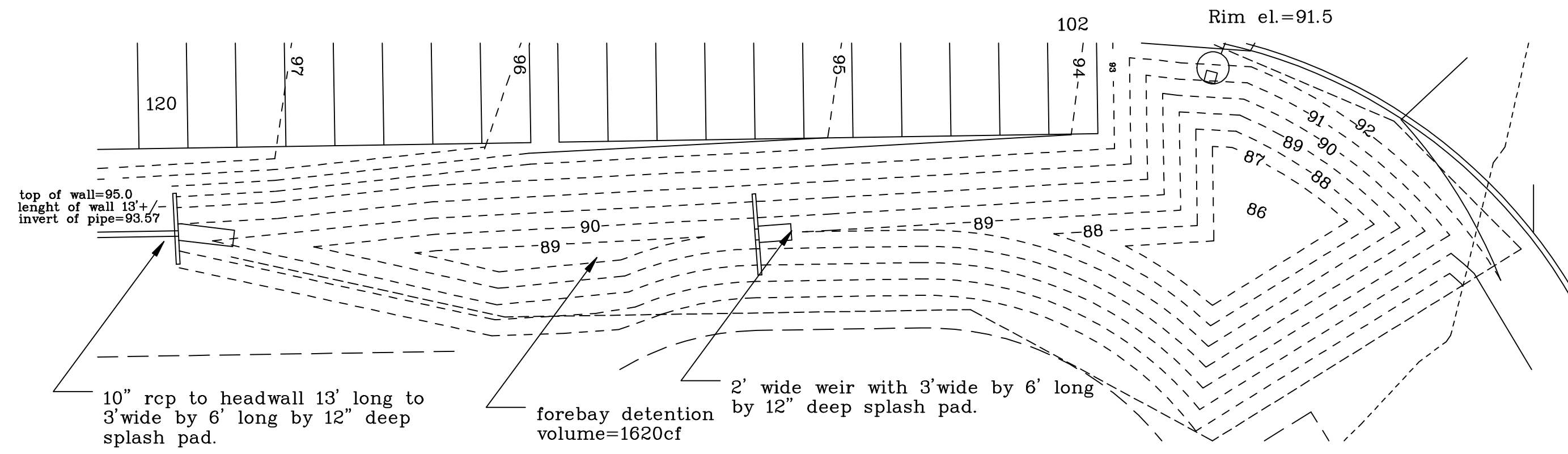


RAIN GARDEN CROSS SECTION  
 N.T.S.

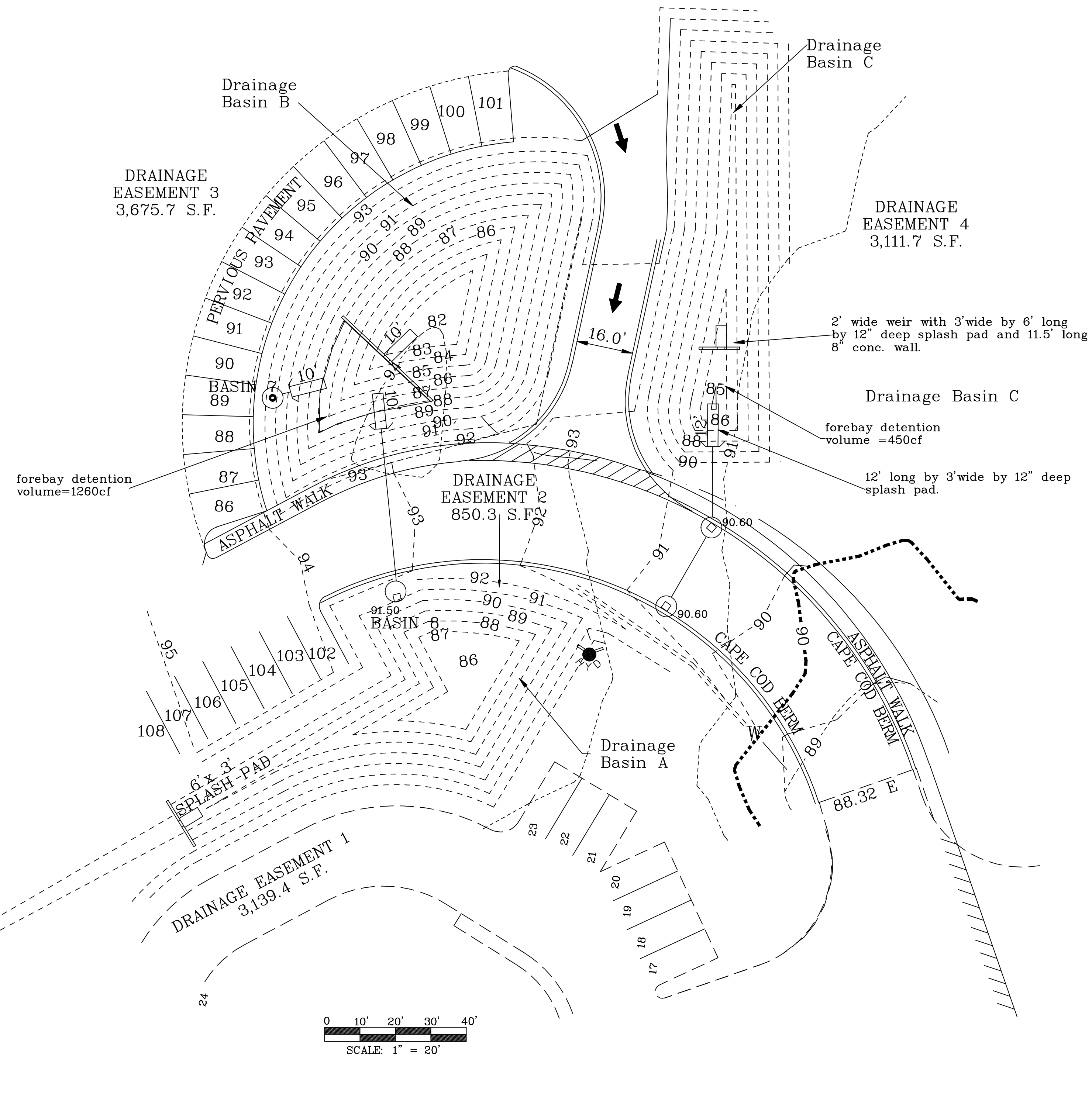
DETAIL SHEET	
PREPARED FOR CDS OF LOT 7 TECHNOLOGY PARK DRIVE BOURNE, MA	
J.E. LANDERS-CAULEY, P.E. CIVIL ENVIRONMENTAL ENGINEERING P.O. BOX 364 WEST FALMOUTH, MA 02574 (508) 540 - 7733 ph. (508) 540 - 3344 fax	
ASS. # 27.0-TBD	DATE: 06/29/16
SCALE: 1" = 30'	DRAWN BY: JDR
JOB NO. 1019-0616	SHEET: 4 OF 6



<b>DETAIL SHT-HYDRAULIC GRADE</b>	
PREPARED FOR CDS OF LOT 7 TECHNOLOGY PARK DRIVE BOURNE, MA	
J.E. LANDERS-CAULEY, P.E. CIVIL ENVIRONMENTAL ENGINEERING P.O. BOX 364 WEST PALMOUTH, MA 02574 (508) 540 - 7733 ph. (508) 540 - 3344 fax	
ASS.# 27.0-TBD	DATE: 09/06/16
SCALE: 1" = 30'	DRAWN BY: JDR
JOB NO. 1019-0616	SHEET: 5 OF 6



Drainage Basin A



DETAIL SHT-DRAINAGE BASINS	
PREPARED FOR CDS OF LOT 7 TECHNOLOGY PARK DRIVE BOURNE, MA	
J. E. LANDERS-CAULEY, P.E. CIVIL ENVIRONMENTAL ENGINEERING P.O. BOX 364 WEST PALMOUTH, MA 02574 (508) 540 - 7733 ph. (508) 540 - 3944 fax	
ASS.# 27.0-TBD	DATE: 09/06/16
SCALE: 1" = 20'	DRAWN BY: JDR
JOB NO. 1019-0616	SHEET: 6 OF 6

**From:** [Eliza Cox](#)  
**To:** [Jonathon Idman](#); [Jeffrey Ribeiro](#)  
**Subject:** FW: CDS  
**Date:** Friday, September 9, 2016 12:17:49 PM  
**Attachments:** [1019-sht1.pdf](#)  
[1019-sht2.pdf](#)  
[1019-sht3.pdf](#)  
[1019-sht5.pdf](#)  
[1019-sht6.pdf](#)  
[drainage-Lots 2 and 3 Waterhouse.doc](#)

---

Hi Jon and Jeff,

I see the engineer sent this directly to Monica last night and there is a follow-up plan from today which I'll send in a minute.

Just wanted to forward so that you both also have for the file.

Thanks,  
Liza



**Eliza Cox**  
Nutter McClennen & Fish LLP  
Direct / 508-790-5431

**From:** jlandersca@aol.com [mailto:jlandersca@aol.com]  
**Sent:** Thursday, September 08, 2016 8:10 PM  
**To:** monica.mejia@capecodcommission.org; Eliza Cox <ECox@nutter.com>  
**Subject:** CDS

Good afternoon Monica,

Attached are pdf of the revised plans, and a letter of certification from my office. As I understand it, the landscape plans prepared by RESCOM have been submitted and approved.

The plans have been revised to depict what you have asked for—details of the forebays, weirs and swales. As to clarify the drainage flow we have prepared hydraulic grade profiles for the four drainage patterns—the road; the westerly catch basins, swale, forebay and detention area for watershed 3 and 4; and the profiles for watershed areas 2a, 2b and 2c which likewise drain from the rain gardens, to catch basins, to a forebay and detention area.

If you have any questions please e-mail me.

jack landers-cauley

This Electronic Message contains information from the law firm of Nutter, McClennen & Fish, LLP, which may be privileged and confidential. The information is intended to be for the use of the addressee only. If you have received this communication in error, do not read it. Please delete it from your system without copying it, and notify the sender by reply e-mail, so that our address record can be corrected. Thank you.