

**ZONING DISTRICT: Residence A**

MINIMUM LOT AREA = 40,000 S.F.  
MINIMUM CONTINUOUS LOT FRONTAGE = 160 FEET

FRONT YARD SETBACK= 40 FEET  
SIDE YARD SETBACK = 25 FEET  
REAR YARD SETBACK = 50 FEET

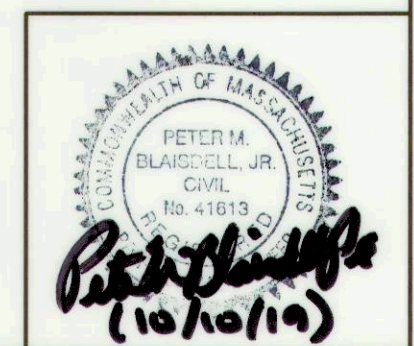
MAXIMUM BUILDING HEIGHT = 35 FEET  
MAXIMUM BUILDING HEIGHT = 2.5 STORIES  
MAXIMUM BUILDING AREA = 20%

**LEGEND OF ABBREVIATIONS**  
SBDH - STONE BOUND DRILL HOLE  
DH - DRILL HOLE  
(FND) - FOUND

NORTH READING  
COMMUNITY PLANNING COMMISSION

*Wann R...*  
*William B...*  
*Christopher H...*

DATE: Oct 15, 2019



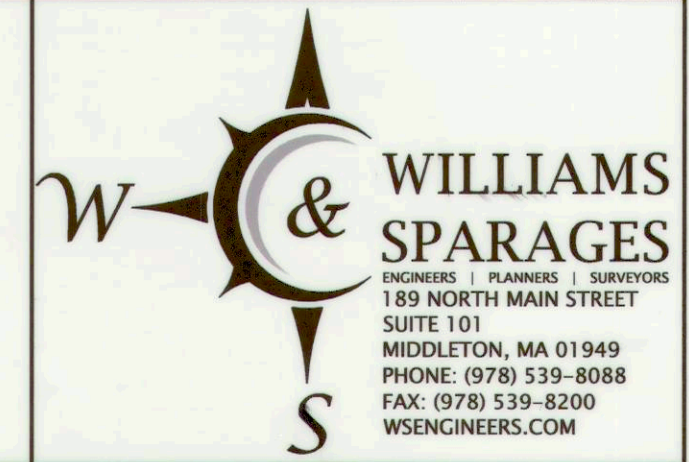
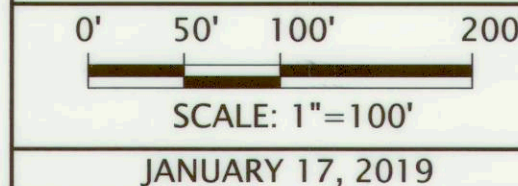
4		
3	PEER REVIEW COMMENTS	8/20/2019
2	PEER REVIEW COMMENTS	7/26/2019
1	PEER REVIEW COMMENTS	3/25/2019
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**INDEX SHEET  
GRAND LEGACY  
NORTH READING, MA**

**OWNER & APPLICANT:**  
77 ELM STREET LLC  
PO BOX 548  
NORTH READING, MA 01864

**DEED REFERENCE:**  
BOOK 71352 PAGE 399

**ASSESSORS REFERENCE:**  
MAP 78 LOT 79 & 89



**INDEX SHEET 1 OF 1**

**SHEET 1 OF 14**

CLERKS CERTIFICATION ON THE PLAN

DATE: \_\_\_\_\_

I, \_\_\_\_\_ CLERK OF THE TOWN OF NORTH READING, DO HEREBY CERTIFY THAT THE NOTICE OF APPROVAL OF THIS PLAN BY THE COMMUNITY PLANNING COMMISSION HAS BEEN RECEIVED AND RECORDED AT THIS OFFICE AND THAT NO APPEAL WAS RECEIVED DURING THE TWENTY DAYS NEXT AFTER SUCH RECEIPT AND RECORDING OF SAID NOTICE.

\_\_\_\_\_  
TOWN CLERK

- NOTES:
1. PROPERTY DOES NOT LIE WITHIN A FLOOD HAZARD AREA (ZONE A) AS SHOWN ON FLOOD INSURANCE RATE MAP NUMBER 25017C0308E, EFFECTIVE DATE JUNE 4, 2010.
  2. PROPERTY DOES NOT LIE WITHIN THE AQUIFER PROTECTION DISTRICT.

- PLAN SET INDEX**
- SHEET 1: INDEX SHEET
  - SHEET 2: DEFINITIVE PLAN
  - SHEET 3: DEFINITIVE PLAN (CPC DECISION)
  - SHEET 4: DEFINITIVE PLAN & PROFILE
  - SHEET 5: TOPOGRAPHIC PLAN (EXISTING CONDITION)
  - SHEET 6: TOPOGRAPHIC PLAN (PROPOSED CONDITION)
  - SHEET 7: DEMOLITION & EROSION CONTROL PLAN
  - SHEET 8: CONSTRUCTION LAYOUT PLAN
  - SHEETS 9-14: CONSTRUCTION DETAILS

I CERTIFY THAT I HAVE CONFORMED WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS IN PREPARING THIS PLAN.

*Peter M. Blawie, Jr.*  
WILLIAMS & SPARAGES, LLC



I CERTIFY THAT I HAVE CONFORMED WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS IN PREPARING THIS PLAN.

*John F. O'Rourke III*  
WILLIAMS & SPARAGES LLC

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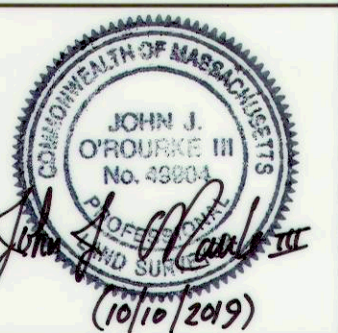
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NORTH READING  
COMMUNITY PLANNING COMMISSION

*Walter R. ...*  
*Christy B. ...*

DATE: *Oct 15, 2019*

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- - DENOTES A GRANITE STONE BOUND WITH A DRILL HOLE TO BE SET BY THE OWNER UNLESS OTHERWISE NOTED.



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**DEFINITIVE PLAN  
GRAND LEGACY  
NORTH READING, MA**

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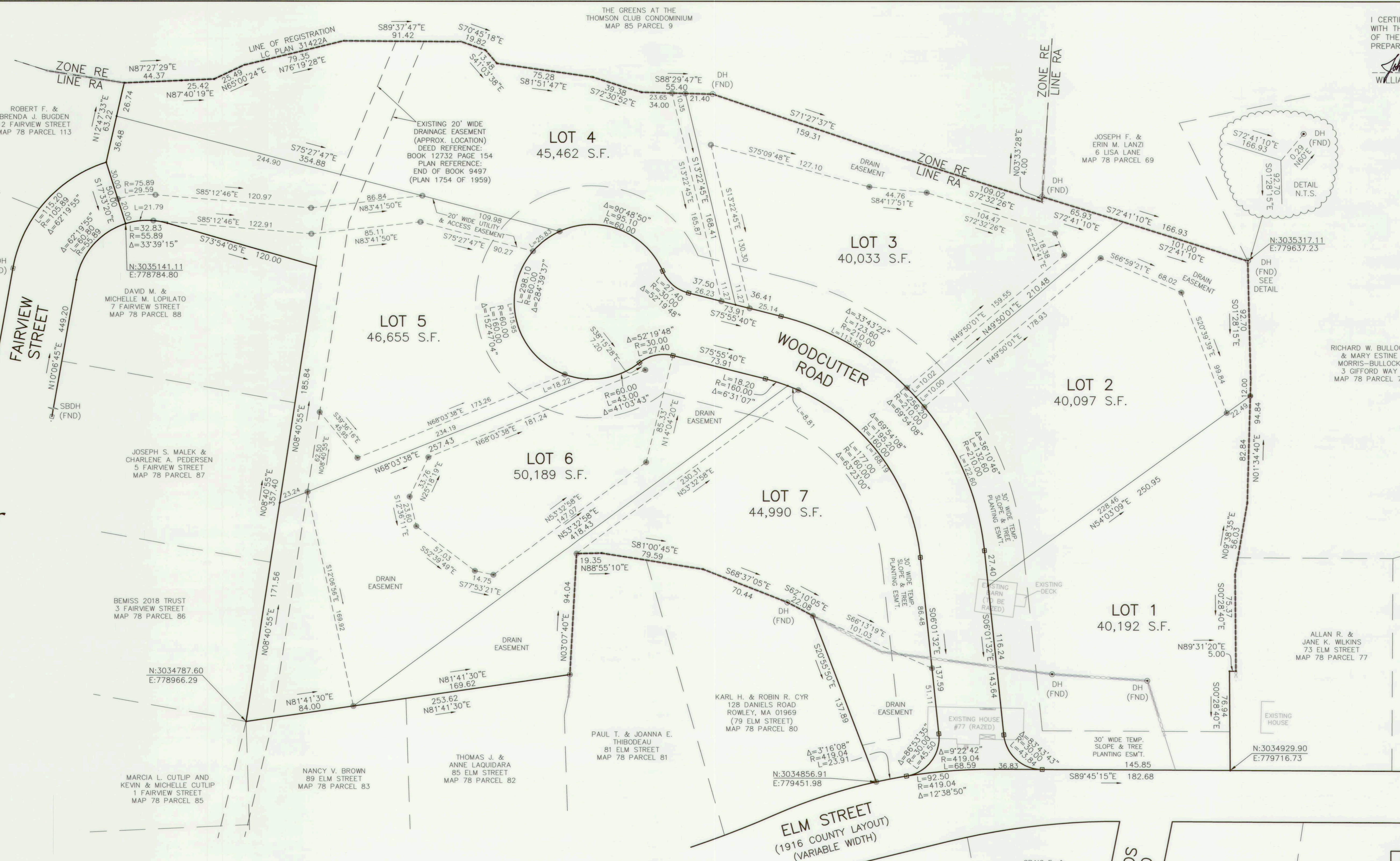
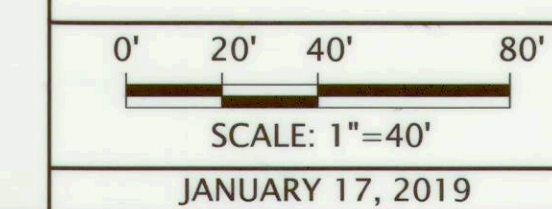
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PLAN SHEET 1 OF 2

SHEET 2 OF 14



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TOWN CLERK

**AREA TABULATION:**

TOTAL PARCEL: 343,384 S.F.  
TOTAL OF 7 LOTS: 307,622 S.F.  
TOTAL OF ROADWAY: 35,762 S.F.  
TOTAL OF EASEMENTS: 76,254± S.F.  
(INCLUDES PROPOSED AND EXISTING EASEMENTS)

(LOT 2 DRAIN EASEMENT: 8,832 S.F.)  
(LOT 3 DRAIN EASEMENT: 12,517 S.F.)  
(LOT 4 DRAIN EASEMENT: 1,671 S.F.)  
(\*LOT 4 DRAINAGE EASEMENT: 2,292± S.F.)  
(LOT 5 DRAIN EASEMENT: 3,100 S.F.)  
(LOT 5 UTILITY & ACCESS EASEMENT: 6,651 S.F.)  
(\*LOT 5 DRAINAGE EASEMENT: 5,060± S.F.)  
(LOT 6 DRAIN EASEMENT: 24,603 S.F.)  
(\*LOT 6 DRAINAGE EASEMENT: 3,488± S.F.)  
(LOT 7 WEST DRAIN EASEMENT: 10,195 S.F.)  
(LOT 7 EAST DRAIN EASEMENT: 6,843 S.F.)

\*: DENOTES EXISTING DRAINAGE EASEMENT

**PLAN REFERENCES:**

1916 COUNTY LAYOUT (ELM STREET)  
PLAN NO. 60 OF 1957  
PLAN NO. 1754 OF 1959  
PLAN NO. 279 OF 1960  
PLAN NO. 1844 OF 1960  
LC PLAN 31422A  
PLAN NO. 784 OF 1996  
PLAN NO. 483 OF 2002  
(FILED AT MIDDLESEX SOUTH REGISTRY OF DEEDS)

**LEGEND OF ABBREVIATIONS**  
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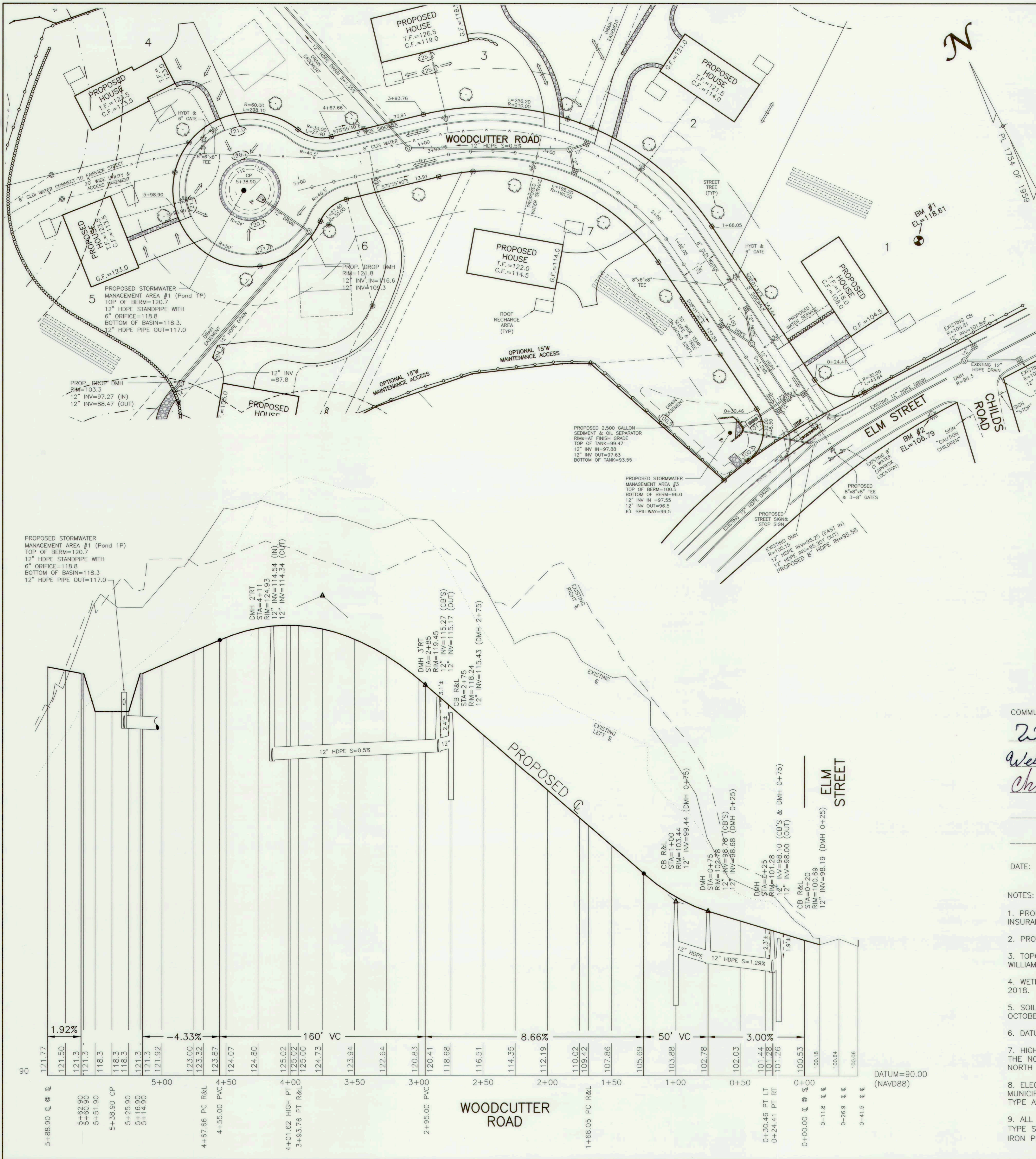
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- PROPERTY DOES NOT LIE WITHIN THE AQUIFER PROTECTION DISTRICT.
- NORTHING (N) AND EASTING (E) COORDINATES SHOWN AT SELECTED BOUNDARY CORNERS REFER TO THE MASSACHUSETTS 2001 STATE PLANE COORDINATE SYSTEM IN FEET.

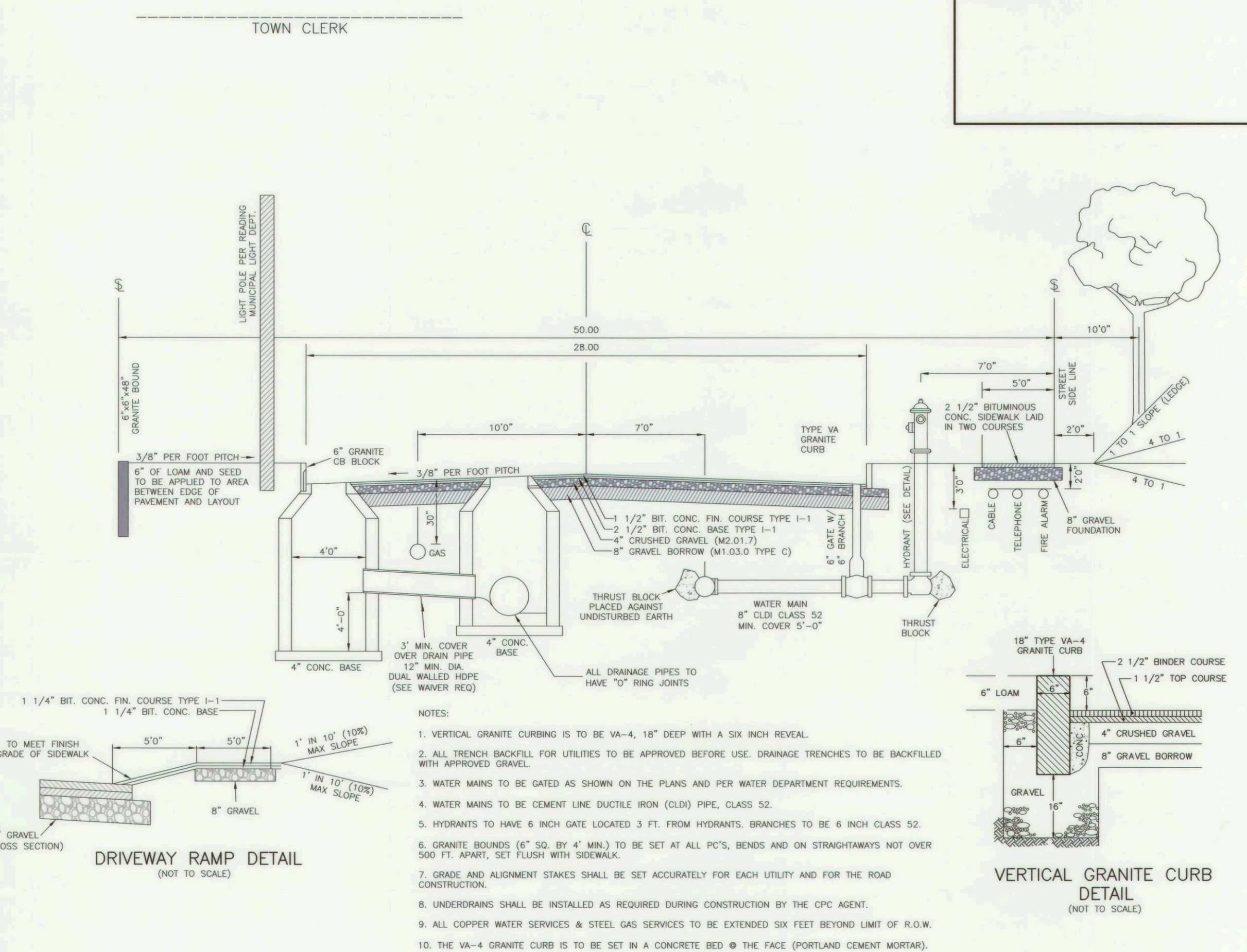








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DURING THE TWENTY DAYS NEXT AFTER SUCH RECEIPT AND RECORDING  
OF SAID NOTICE.



NORTH READING  
COMMUNITY PLANNING COMMISSION  
*Walter P. ...*  
*Christopher A. ...*

DATE: 10-15-19

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  4. WETLANDS SHOWN ON THIS PLAN FLAGGED BY WILLIAMS & SPARAGES, LLC ON AUGUST 29, 2018.
  5. SOIL TESTING CONDUCTED BY WILLIAMS & SPARAGES, LLC FROM SEPTEMBER 20, 2018 TO OCTOBER 31, 2018 AND WITNESSED BY THE NORTH READING BOARD OF HEALTH.
  6. DATUM FOR ELEVATIONS SHOWN IS NAVD88.
  7. HIGH WATER MARK HAS BEEN DETERMINED THROUGH TEST HOLE PROGRAM WITNESSED BY THE NORTH READING BOARD OF HEALTH. TEST HOLE DATA IS ON FILE AT OFFICE OF THE NORTH READING BOARD OF HEALTH.
  8. ELECTRIC LAYOUT AND STREET LIGHT LOCATIONS TO BE DETERMINED BY THE READING MUNICIPAL LIGHT DEPARTMENT. STREET LIGHTS SHALL BE INSTALLED TO CONFORM TO THE TYPE AND STYLE AS REQUIRED BY THE DEPARTMENT OF PUBLIC WORKS.
  9. ALL DRAINAGE PIPES SHALL BE DUAL WALL HDPE PIPE CONFORMING TO AASHTO M294 TYPE S OR TYPE SP FOR 12" DIAMETER OR GREATER IN INTERIOR DIAMETER AND DUCTILE IRON PIPE SHALL BE USED FOR INTERIOR DIAMETERS LESS THAN 12".

- BENCHMARKS: (NAVD88)
- #1) TOP DRILL HOLE REAR LOT 1 - ELEV=118.61
  - #2) SPINDLE HYDRANT AT INTERSECTION ELM STREET AND CHILDS ROAD - ELEV=106.79
  - #3) SPINDLE HYDRANT AT END FAIRVIEW STREET (REAR LOT 3) - ELEV=91.26 (SEE TOPO SHEET 2 OF 2 FOR LOCATION)

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**DEFINITIVE PLAN & PROFILE**  
**GRAND LEGACY**  
NORTH READING, MA

**OWNER & APPLICANT:**  
77 ELM STREET LLC  
PO BOX 548  
NORTH READING, MA 01864

**DEED REFERENCE:**  
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MAP 78 LOT 79 & 89

**WILLIAMS & SPARAGES**  
INCORPORATED ENGINEERS & SURVEYORS  
189 NORTH MAIN STREET  
SUITE 101  
MIDDLETON, MA 01949  
PHONE: (978) 539-8088  
FAX: (978) 539-8200  
WSENGINEERS.COM

SCALE: 1"=40' (HOR) & 4' (VERT)  
JANUARY 17, 2019

PROFILE SHEET 1 OF 1  
SHEET 4 OF 14









BENCHMARKS: (NAVD88)

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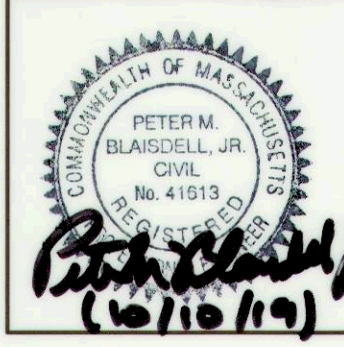
*Barbara Williams*  
WILLIAMS & SPARAGES, LLC

NORTH READING  
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*Warr R. Pearl*  
*Wells O'Brien*  
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- LEGEND**
- EXISTING SPOT ELEVATION
  - EXISTING CONTOUR
  - PROPOSED CONTOUR
  - PROPOSED SPOT ELEVATION
  - DRAIN MANHOLE
  - CATCH BASIN
  - WETLANDS
  - 100' BWV BUFFER
  - 75' BWV BUFFER
  - 12' NO DISTURB
  - UTILITY POLE
  - PROPOSED WATER LINE
  - PROPOSED STREET TREE
  - TEST HOLE
  - SILT FENCE (& LIMIT OF WORK)
  - EXISTING RETAINING WALL
  - MAIL BOX
  - HYDRANT
  - PAINTED GAS LINE
  - PROPOSED GAS LINE
  - APPROXIMATE WELL LOCATION

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TOWN CLERK

**BUFFER ZONE TABLE**

LOT #	AREA (SF)	DISTURBANCE (SF) (75% MAX)	IMPERVIOUS (SF) (22% MAX)
1	1,130	1,033 (91.4%)	0 (0%)
2	12,386	11,847 (95.6%)	0 (0%)
3	545	351 (64.4%)	0 (0%)
4	24,324	8,771 (36.1%)	997 (4.1%)
5	24,335	16,756 (68.9%)	662 (2.7%)
6	28,087	14,711 (52.4%)	1,850 (6.6%)
7	5,128	3,271 (63.8%)	0 (0%)
TOTAL	95,935	56,740 (59.1%)	3,509 (3.7%)

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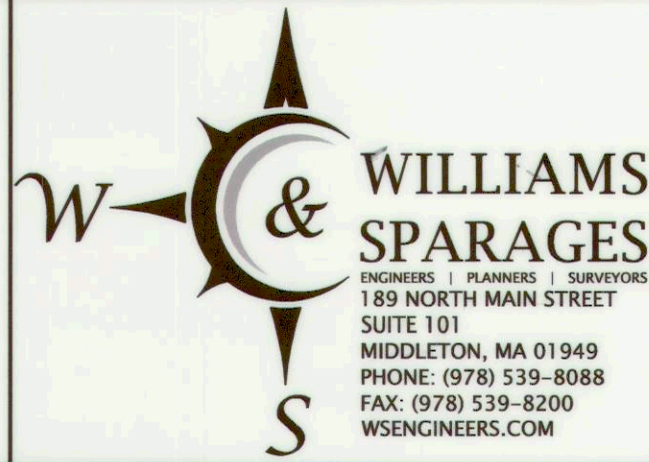
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**TOPOGRAPHIC PLAN  
GRAND LEGACY (PROPOSED CONDITION)  
NORTH READING, MA**

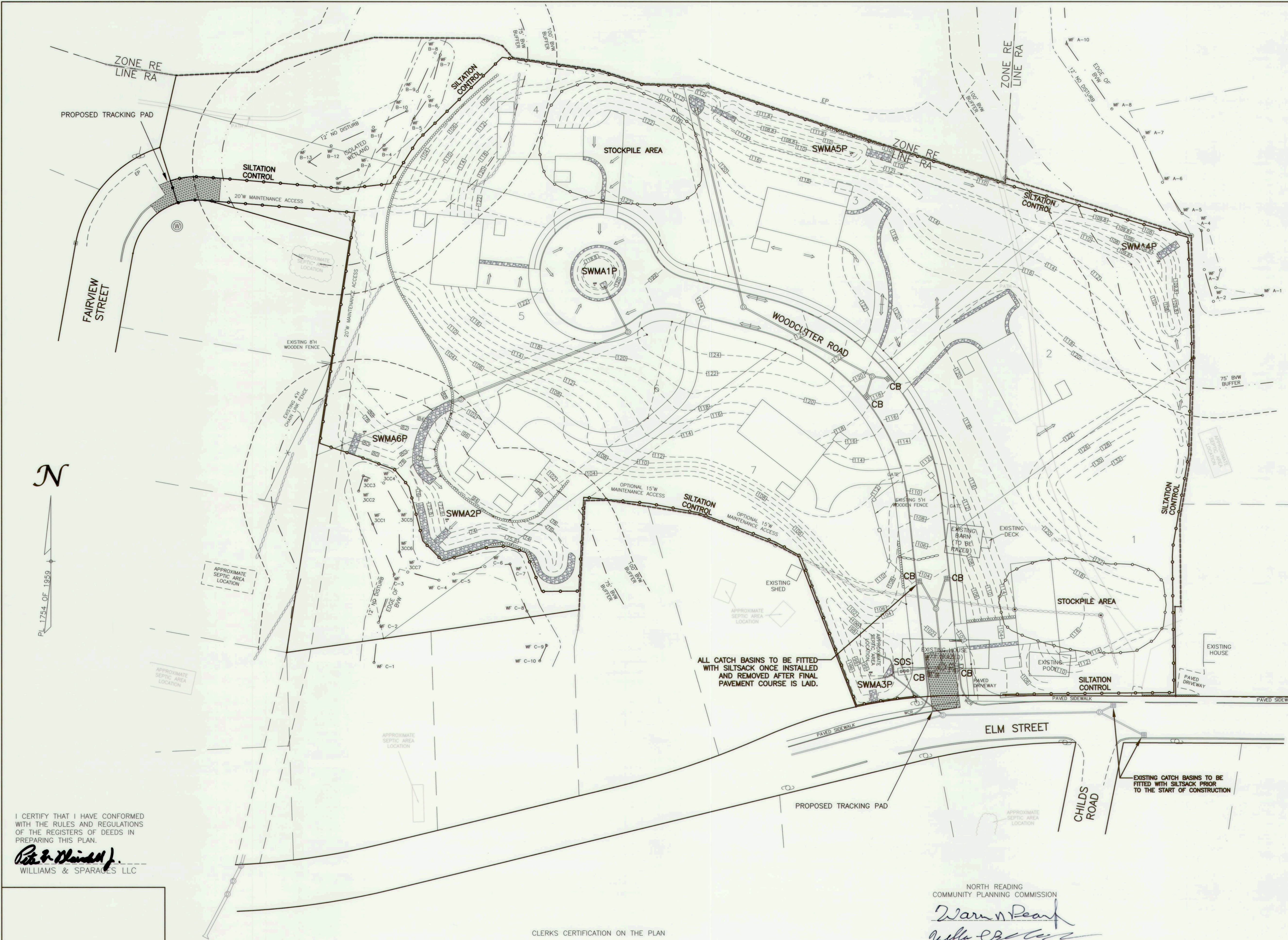
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- CONSTRUCTION SEQUENCE/GENERAL NOTES:**
1. CONDUCT PRE-CONSTRUCTION MEETING WITH CONSERVATION COMMISSION AGENT AND OTHER TOWN REPRESENTATIVES AS REQUIRED.
  2. INSTALL CONSTRUCTION ENTRANCE, SILTFENCE AND SILTSACKS AS SHOWN ON THE APPROVED PLANS. THE EROSION CONTROL LINE SHALL BE INSPECTED BY THE CONSERVATION COMMISSION AGENT PRIOR TO THE COMMENCEMENT OF CLEARING AND EARTH-MOVING ACTIVITIES.
  3. ESTABLISH ADDITIONAL LIMITS OF WORK WITH SURVEY MARKERS TO DELINEATE THE LIMIT OF CLEARING AS REQUIRED.
  4. CLEAR AND GRUB THE PROPOSED PROJECT AREA IN ITS ENTIRETY. THIS WORK MUST BE COMPLETED BEFORE STRIPPING AND STOCKPILING THE TOPSOIL.
  5. STRIP AND STOCKPILE TOPSOIL FOR LATER USE.
  6. STORMWATER MANAGEMENT AREAS (SWMAs) SHALL BE CONSTRUCTED AS SHOWN ON THE APPROVED PLANS. THE SWMAs WILL REMAIN "OFF-LINE" FOR THE DURATION OF THE CONSTRUCTION ACTIVITIES UNTIL SUCH TIME AS THE TRIBUTARY AREAS HAVE BECOME STABILIZED WITH VEGETATION AND/OR HARD TOP SURFACES. THE SURFACES OF THE SWMAs WILL BE TREATED AS SHOWN ON THE APPROVED PLANS AS SOON AS POSSIBLE TO ACHIEVE STABILIZATION.
  7. GAS, WATER, DRAINAGE, ELECTRIC AND COMMUNICATIONS PIPELINES AND STRUCTURES SHALL BE INSTALLED AS SHOWN ON THE APPROVED PLANS. CONNECTIONS TO THE SWMAs SHALL BE MADE AT THIS TIME, HOWEVER, THE STRUCTURES ARE TO REMAIN "OFF-LINE". CONNECTIONS TO THE EXISTING UTILITIES ON ELM STREET AND THE WATER LINE LOOP TO FAIRVIEW STREET SHALL BE MADE AT THIS TIME.
  8. THE ROADWAY AND SIDEWALK GRADES SHALL BE BROUGHT TO THE SUB-BASE ELEVATION. ROADWAY GRAVEL SHALL BE BROUGHT TO THE SITE AND PLACED WITH A GRADER.
  9. THE ROADWAY AND SIDEWALK SHALL BE PAVED WITH A BINDER COURSE OF BITUMINOUS CONCRETE. AT THIS TIME THE CATCH BASINS SHALL GO ON-LINE AND SHALL BE FITTED WITH A SILTSACK FOR THE REMAINDER OF THE PROJECT.
  10. HOUSE CONSTRUCTION SHALL BEGIN FOLLOWING LOT RELEASES FROM THE TOWN. DURING THIS ON-GOING WORK, ALL DISTURBED AREAS AWAY FROM THE HOUSE CONSTRUCTION ACTIVITIES WILL BE LOAMED AND SEEDED TO STABILIZE AS MUCH OF THE SITE AS POSSIBLE.
  11. AFTER THE HOMES HAVE BEEN CONSTRUCTED, CURBING SHALL BE INSTALLED IN ACCORDANCE WITH THE APPROVED PLANS.
  12. ANY REMAINING DISTURBED AREAS SHALL BE LOAMED, SEEDED AND STABILIZED. THE CATCH BASINS, DRAIN MANHOLES, SEDIMENT AND OIL SEPARATOR AND SWMAs SHALL BE CLEANED AT THIS TIME.
  13. INSTALL THE STREET TREES AS SHOWN ON THE APPROVED PLANS.
  14. THE FINISH COURSE OF PAVEMENT SHALL BE INSTALLED NEXT WHICH SHOULD BE THE FINAL STAGE OF CONSTRUCTION.

- STORMWATER FLOW CONTROL/DEWATERING:**
1. ONCE CONSTRUCTION ACTIVITIES COMMENCE, SEDIMENT LADEN STORMWATER RUNOFF MUST BE CONTROLLED ON SITE WITH SILTFENCE (OR APPROVED EQUAL) TO PROTECT DOWN-STREAM AREAS.
  2. IT IS IMPORTANT TO PERFORM MORE FREQUENT INSPECTIONS OF THE SILTFENCE DURING THE INITIAL EARTH-MOVING PHASE TO HELP PREVENT "BLOW-OUTS" OF THE SEDIMENT BEYOND THE SILTFENCE LIMITS.
  3. THE APPROVED CONSTRUCTION PERIOD POLLUTION PREVENTION PLAN (CPPP) AND THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) SHOULD BE KEPT ON-SITE AND FOLLOWED ACCORDING TO THE RECOMMENDED SCHEDULES AND PROCEDURES.
  4. SURFACE DRAINAGE SHALL BE DIRECTED AWAY FROM EXCAVATIONS DURING HOUSE CONSTRUCTION TO PREVENT THE BEARING SURFACE TO BE SOFTENED BY WATER FLOW OR PUDDLING.
  5. RAPID FLOW OF WATER MAY SCOUR SOILS AND UNDERMINE FOUNDATIONS, THEREFORE SURFACE WATER PROTECTION SUCH AS EARTH BERMS MAY BE USED AS NECESSARY AT THE EDGE OF THE EXCAVATION.
  6. SHOULD DEWATERING BE REQUIRED DURING CONSTRUCTION ACTIVITIES THAT MAY ACCUMULATE IN EXCAVATIONS, A SUMP PUMP MAY BE USED TO REMOVE THE WATER.
  7. THE CONTRACTOR SHALL DISCHARGE ACCUMULATED WATER ONTO A 10'x10'x6" CRUSHED-STONE BED (2" DIAMETER) TO PREVENT EROSION AND SCOURING OR INTO A "DIRT BAG" (OR APPROVED EQUAL).
  8. THE CONTRACTOR SHALL MAINTAIN POSITIVE SLOPE AND OUTFALL OF ANY FOUNDATION DRAIN SYSTEMS.
  9. THE CONTRACTOR SHALL CONSTRUCT THE STORMWATER MANAGEMENT SYSTEM AS SHOWN ON THE APPROVED PLANS.

I CERTIFY THAT I HAVE CONFORMED WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS IN PREPARING THIS PLAN.

*Robert J. Williams*  
WILLIAMS & SPARGES LLC

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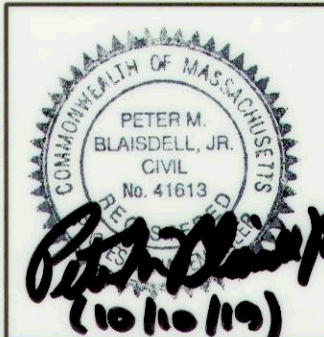
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SCALE: 1"=40'  
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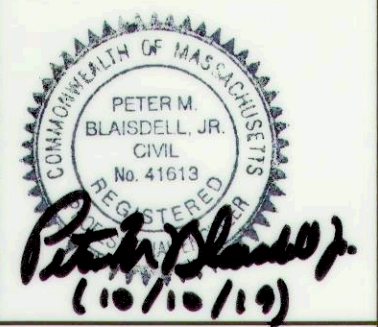
DEMO SHEET 1 OF 1  
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*Peter M. Blaisdell Jr.*  
WILLIAMS & SPARAGES LLC



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*Warr R. Pearl*  
*Julio B. ...*  
*Christophe D. ...*

DATE: 10-15-19

# LEGEND

- EXISTING SPOT ELEVATION  
EXISTING CONTOUR  
PROPOSED CONTOUR  
PROPOSED SPOT ELEVATION  
DRAIN MANHOLE  
CATCH BASIN  
WETLANDS  
100' BWV BUFFER  
75' BWV BUFFER  
12' NO DISTURB  
UTILITY POLE  
PROPOSED WATER LINE  
PROPOSED STREET TREE  
TEST HOLE  
SILT FENCE (& LIMIT OF WORK)  
EXISTING RETAINING WALL  
MAIL BOX  
HYDRANT  
PAINTED GAS LINE  
PROPOSED GAS LINE  
APPROXIMATE WELL LOCATION

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TOWN CLERK

## NOTES:

- PROPERTY DOES NOT LIE WITHIN A FLOOD HAZARD AREA (ZONE A) AS SHOWN ON FLOOD INSURANCE RATE MAP NUMBER 25017C0308E, EFFECTIVE DATE JUNE 4, 2010.
- PROPERTY DOES NOT LIE WITHIN THE AQUIFER PROTECTION DISTRICT.
- TOPOGRAPHY SHOWN IS COMPILED FROM AN ACTUAL FIELD SURVEY PERFORMED BY WILLIAMS & SPARAGES, LLC FROM SEPTEMBER 2018 TO JANUARY 2019.
- WETLANDS SHOWN ON THIS PLAN FLAGGED BY WILLIAMS & SPARAGES, LLC ON AUGUST 29, 2018.
- SOIL TESTING CONDUCTED BY WILLIAMS & SPARAGES, LLC FROM SEPTEMBER 20, 2018 TO OCTOBER 31, 2018 AND WITNESSED BY THE NORTH READING BOARD OF HEALTH.
- DATUM FOR ELEVATION SHOWN IS NAVD88.
- HIGH WATER MARK HAS BEEN DETERMINED THROUGH TEST HOLE PROGRAM WITNESSED BY THE NORTH READING BOARD OF HEALTH. TEST HOLE DATA IS ON FILE AT OFFICE OF THE NORTH READING BOARD OF HEALTH.
- ELECTRIC LAYOUT AND STREET LIGHT LOCATIONS TO BE DETERMINED BY THE READING MUNICIPAL LIGHT DEPARTMENT. STREET LIGHTS SHALL BE INSTALLED TO CONFORM TO THE TYPE AND STYLE AS REQUIRED BY THE DEPARTMENT OF PUBLIC WORKS.

4		
3	PEER REVIEW COMMENTS	8/20/2019
2	PEER REVIEW COMMENTS	7/26/2019
1	PEER REVIEW COMMENTS	3/25/2019
NO.	DESCRIPTION	DATE

## CONSTRUCTION LAYOUT PLAN GRAND LEGACY (PROPOSED CONDITION) NORTH READING, MA

OWNER & APPLICANT:  
77 ELM STREET LLC  
PO BOX 548  
NORTH READING, MA 01864

DEED REFERENCE:  
BOOK 71352 PAGE 399

ASSESSORS REFERENCE:  
MAP 78 LOT 79 & 89

0' 20' 40' 80'

SCALE: 1"=40'

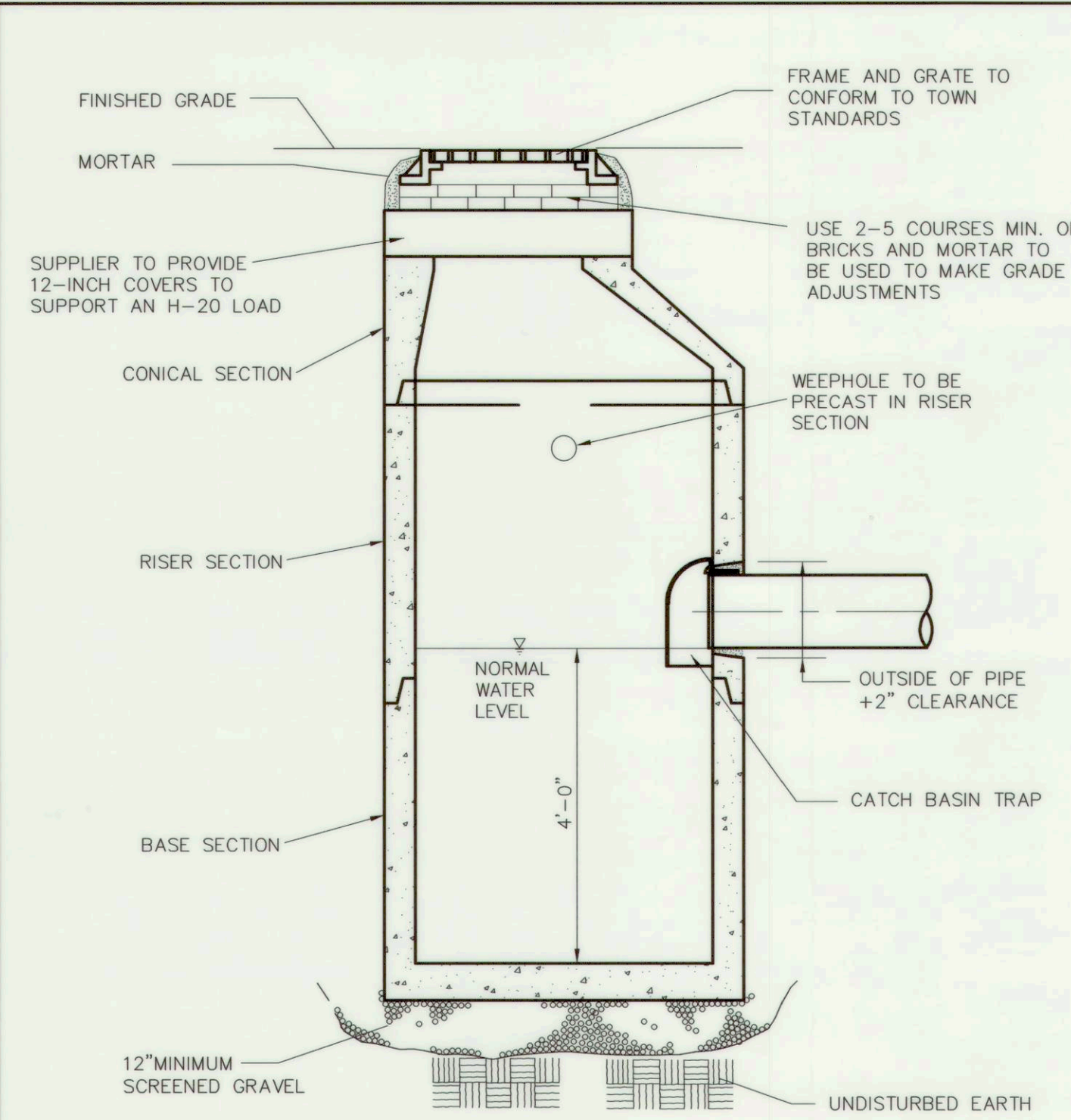
JANUARY 17, 2019



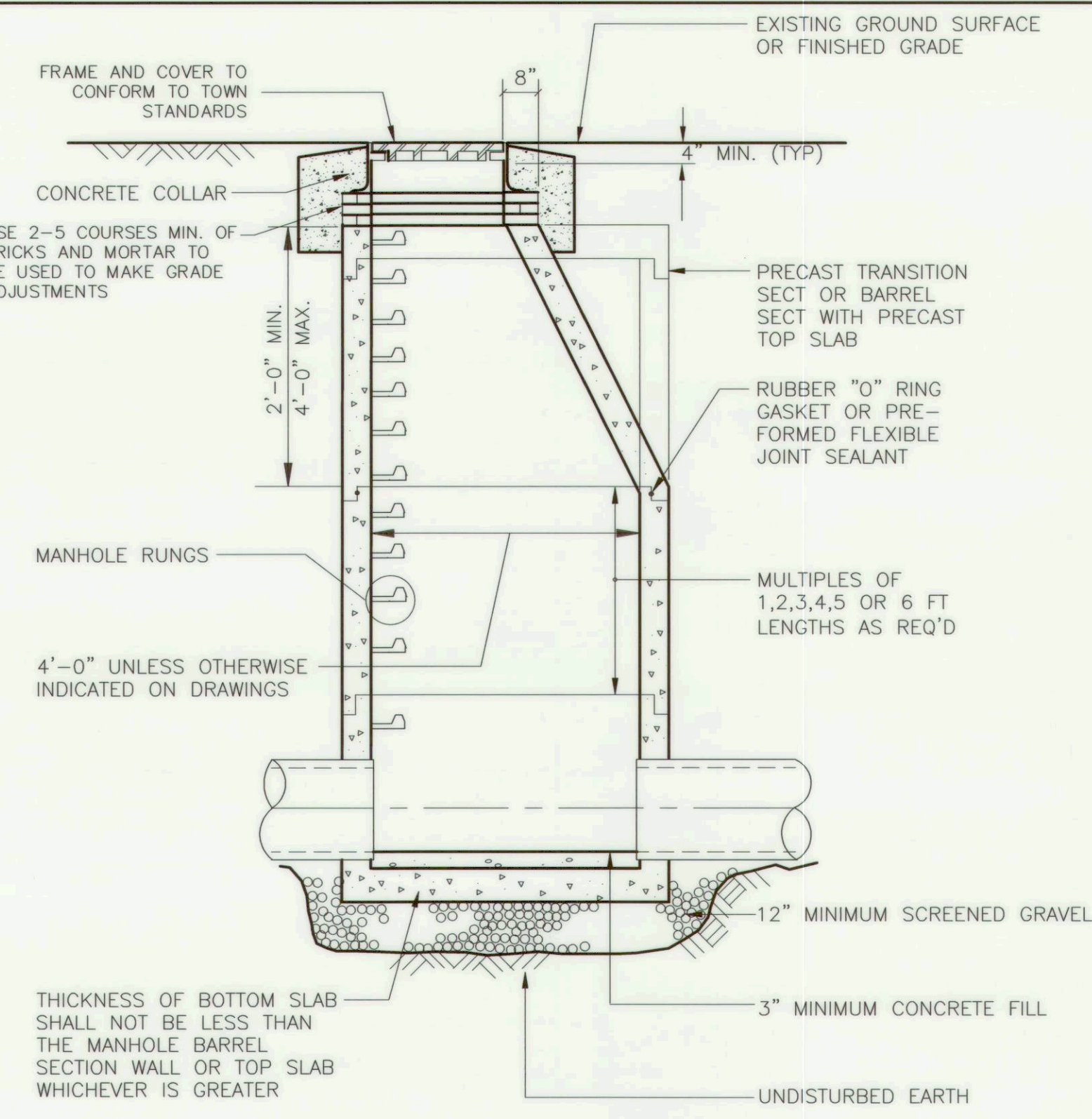
LAYOUT SHEET 1 OF 1

SHEET 8 OF 14



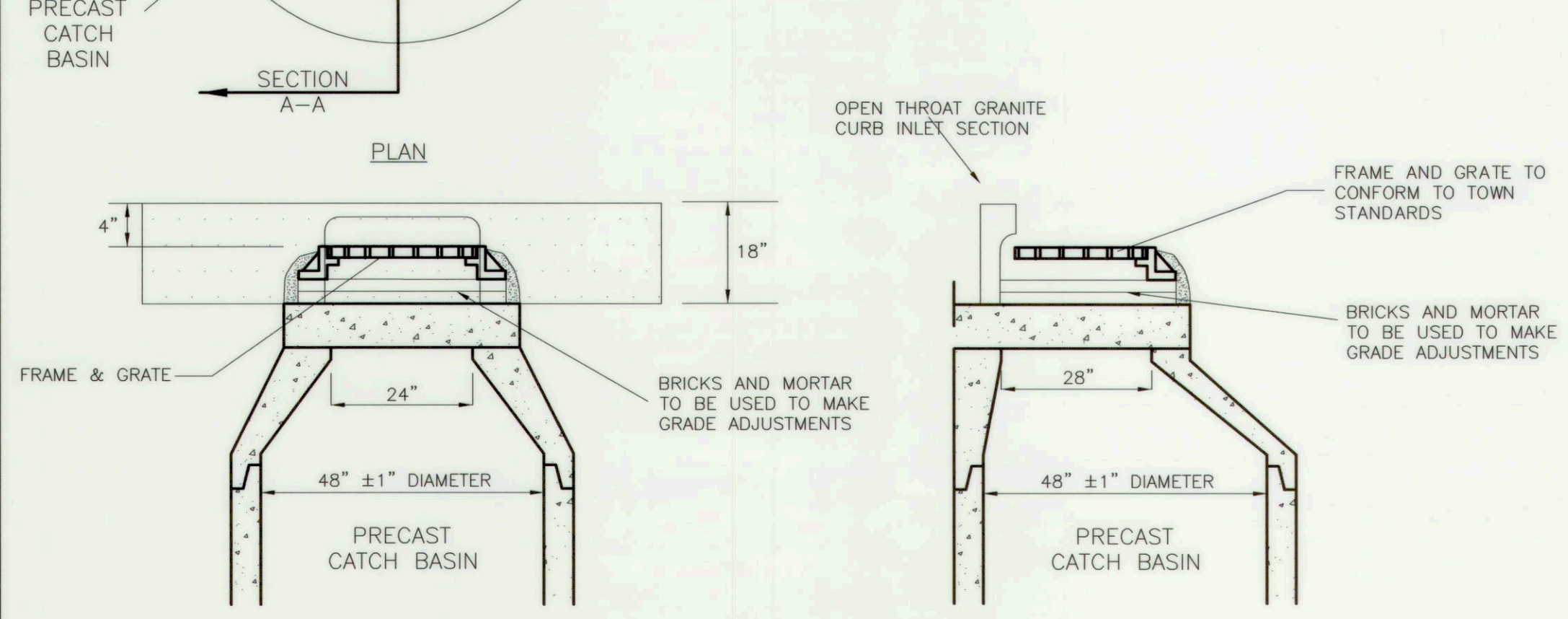
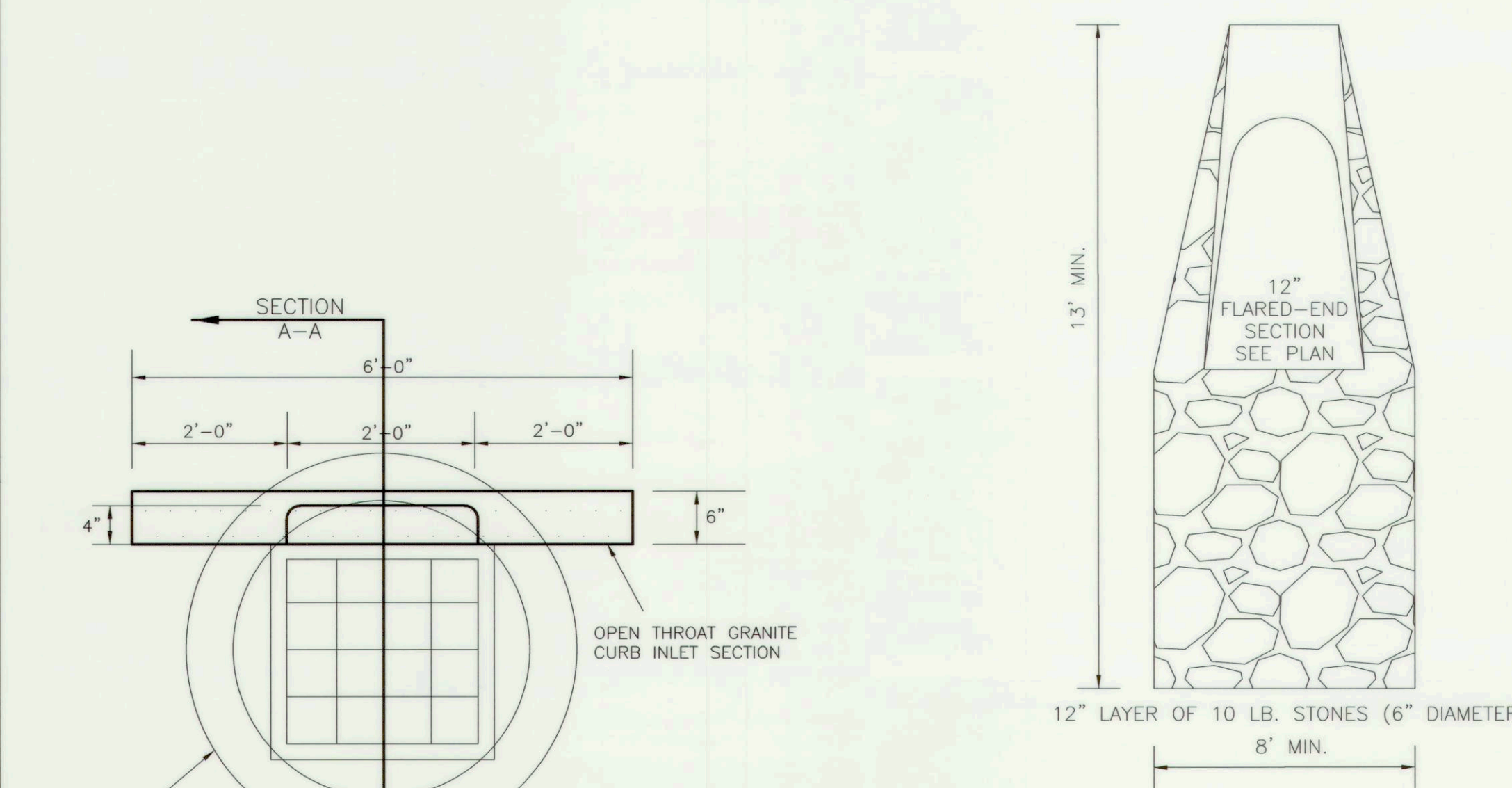


PRECAST CATCH BASIN  
DETAIL  
(NOT TO SCALE)

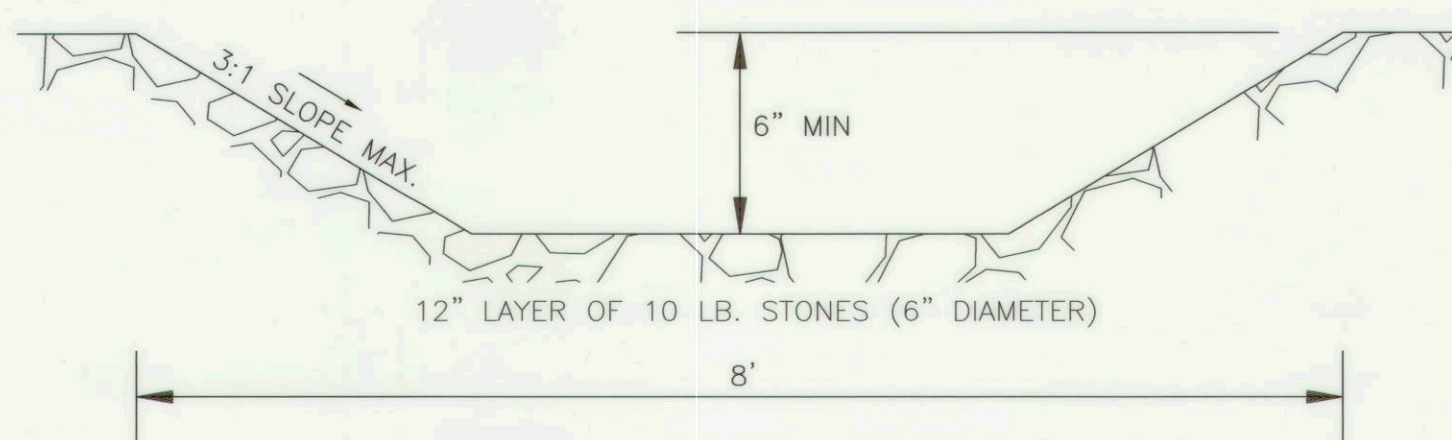


PRECAST DRAIN MANHOLE  
DETAIL  
(NOT TO SCALE)

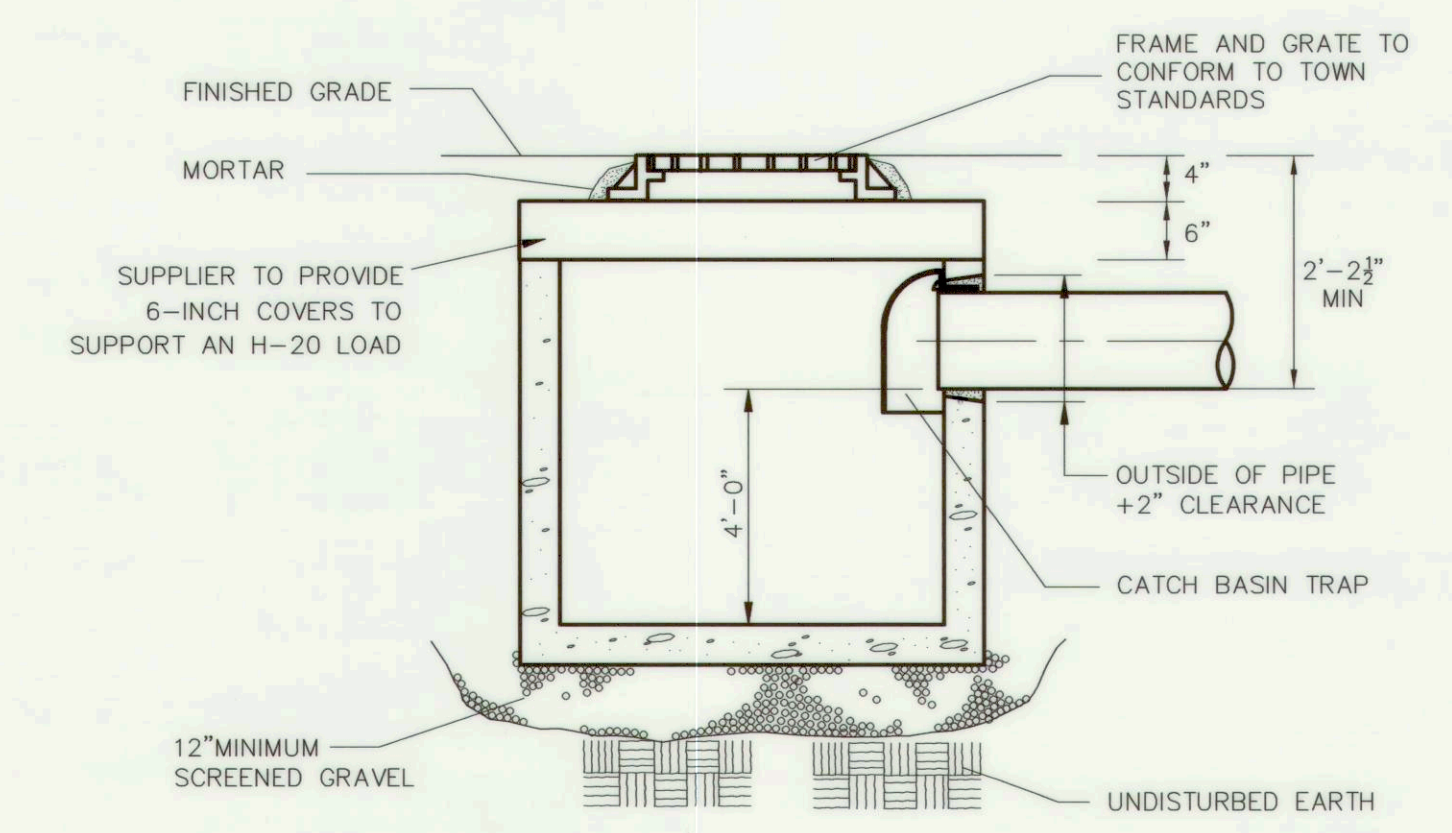
RIP-RAP APRON AT PIPE OUTLETS  
(NOT TO SCALE)



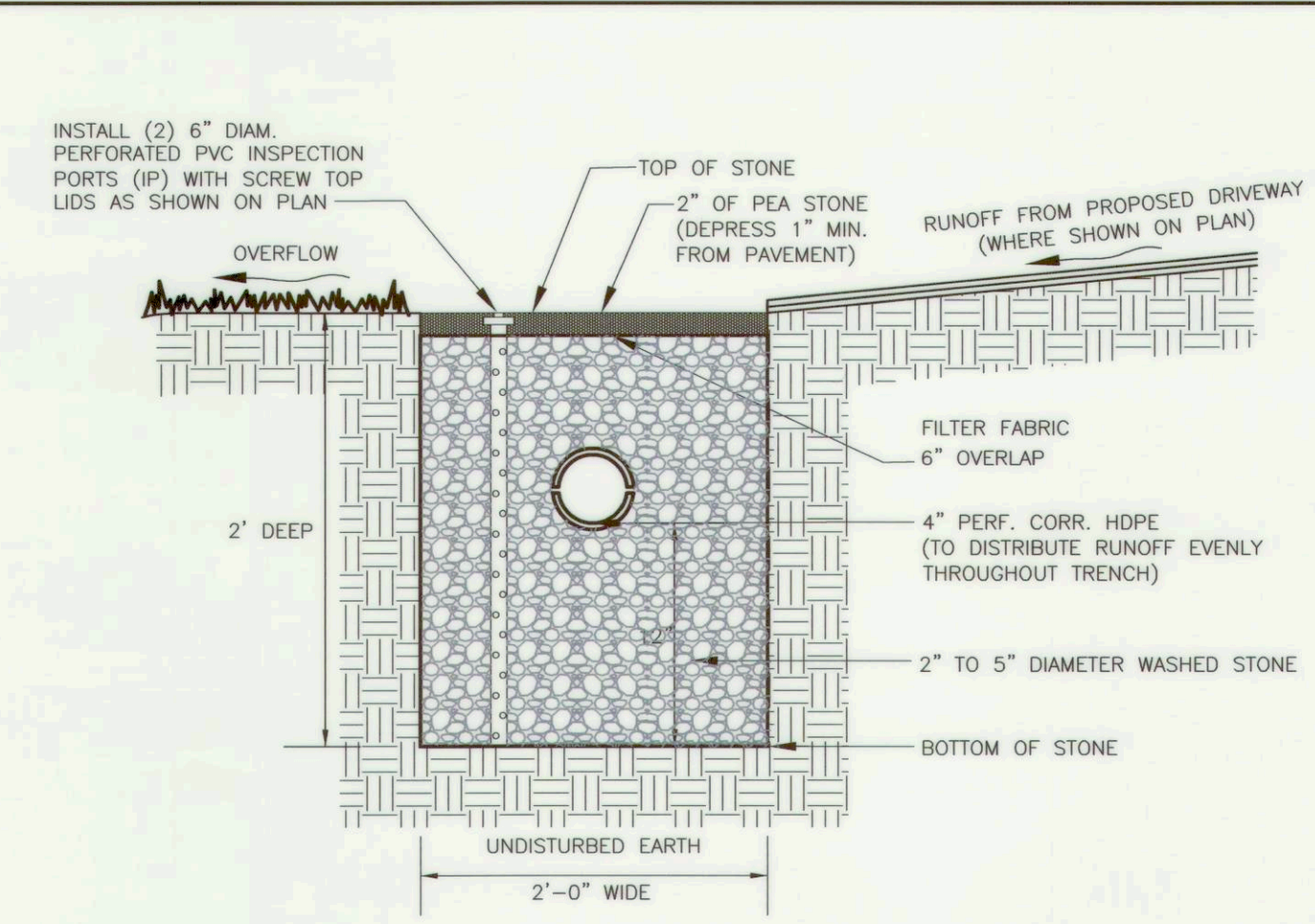
GRANITE CURB INLET DETAIL  
(NOT TO SCALE)  
SINGLE GRATE



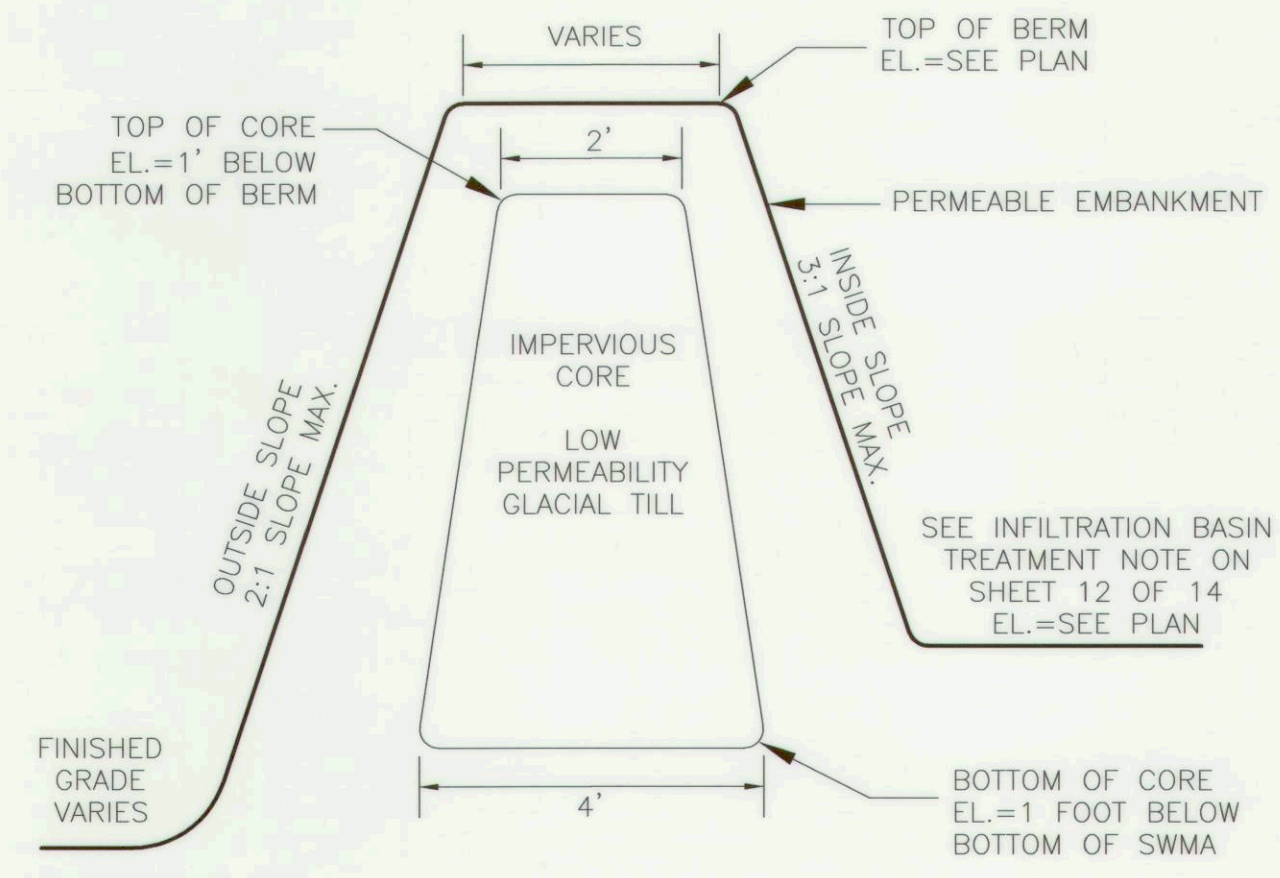
STONE SWALE FROM DROP DMH  
INTO SWMA2  
(NOT TO SCALE)



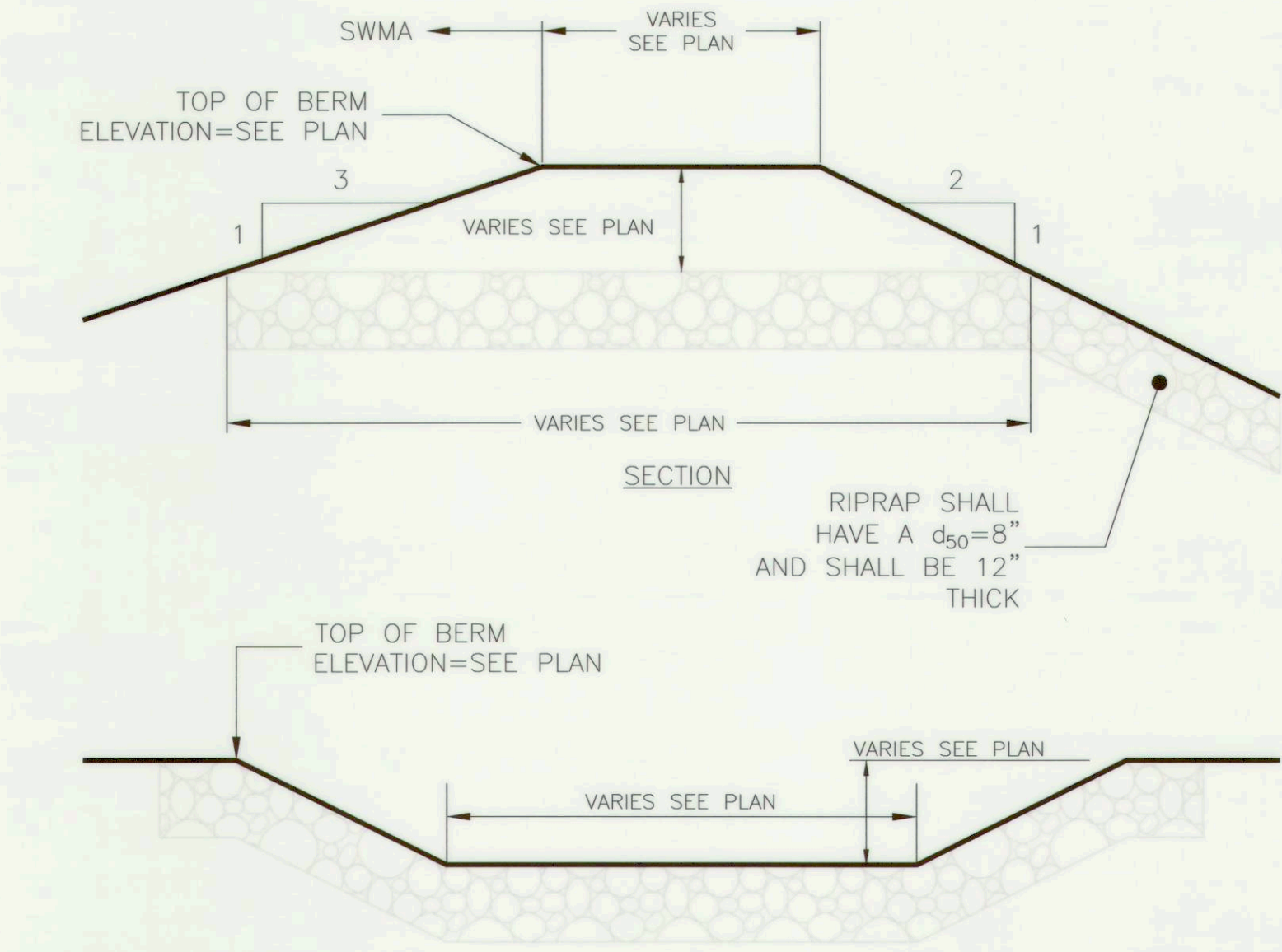
PRECAST SHALLOW CATCH BASIN  
DETAIL  
(NOT TO SCALE)



STONE TRENCH FOR  
DRIVEWAY RUNOFF  
DETAIL  
(NOT TO SCALE)



INFILTRATION BASIN  
EARTH BERM CONSTRUCTION  
(NOT TO SCALE)

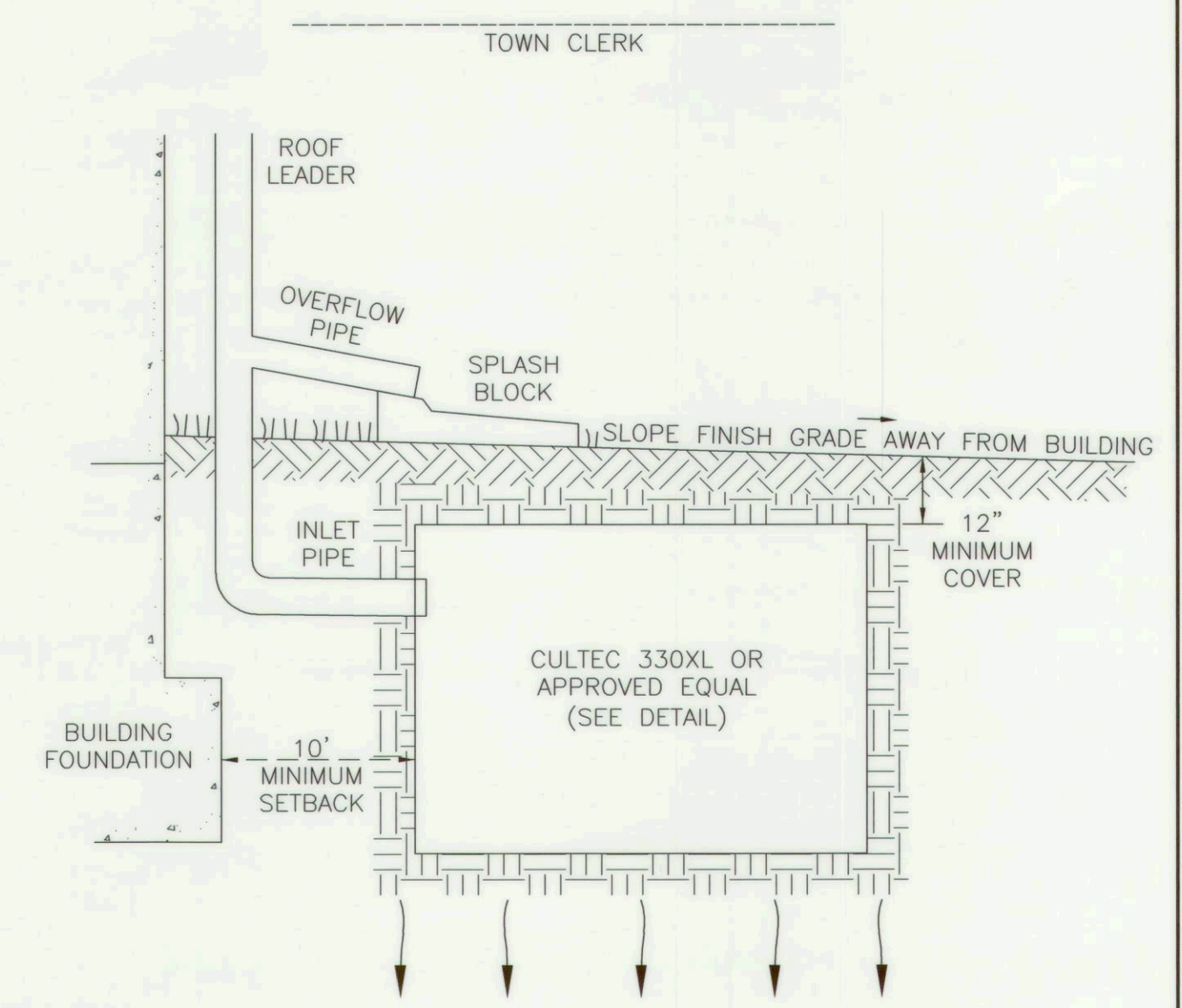


STONE SPILLWAY DETAIL  
(NOT TO SCALE)

NORTH READING  
COMMUNITY PLANNING COMMISSION  
*Wynn Peck*  
*Walter B. B...*  
*Christy O'Neil*  
DATE: 10-15-19

I CERTIFY THAT I HAVE CONFORMED  
WITH THE RULES AND REGULATIONS  
OF THE REGISTERS OF DEEDS IN  
PREPARING THIS PLAN.  
*William & Sparag...*  
WILLIAMS & SPARAG...

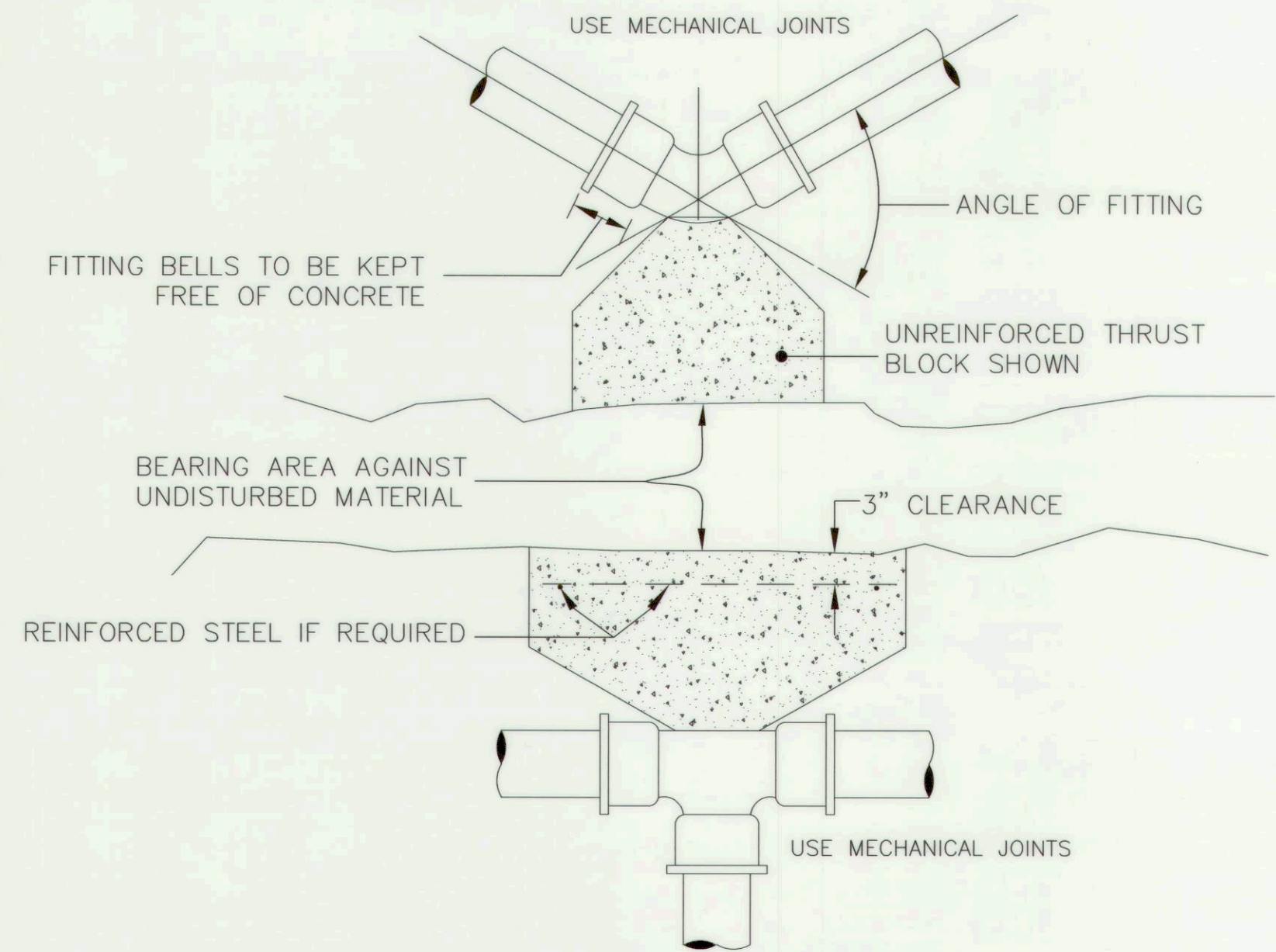
CLERKS CERTIFICATION ON THE PLAN  
DATE: \_\_\_\_\_  
I, CLERK OF THE TOWN OF NORTH  
READING, DO HEREBY CERTIFY THAT THE NOTICE OF APPROVAL OF THIS  
PLAN BY THE COMMUNITY PLANNING COMMISSION HAS BEEN RECEIVED  
AND RECORDED AT THIS OFFICE AND THAT NO APPEAL WAS RECEIVED  
DURING THE TWENTY DAYS NEXT AFTER SUCH RECEIPT AND RECORDING  
OF SAID NOTICE.



PROPOSED ROOF LEADER  
OVERFLOW DETAIL  
(NOT TO SCALE)

4	PEER REVIEW COMMENTS	8/20/2019
3	PEER REVIEW COMMENTS	7/26/2019
2	PEER REVIEW COMMENTS	3/25/2019
1	PEER REVIEW COMMENTS	
NO.	DESCRIPTION	DATE
CONSTRUCTION DETAILS GRAND LEGACY NORTH READING, MA		
OWNER & APPLICANT: 77 ELM STREET LLC PO BOX 548 NORTH READING, MA 01864 DEED REFERENCE: BOOK 71352 PAGE 399 ASSESSORS REFERENCE: MAP 78 LOT 79 & 89		
WILLIAMS & SPARAGES 189 NORTH MAIN STREET SUITE 101 MIDDLETON, MA 01949 PHONE: (978) 539-8088 FAX: (978) 539-8200 WSENGINEERS.COM		
SCALE: NOT TO SCALE		DETAIL SHEET 1 OF 6
JANUARY 17, 2019		SHEET 9 OF 14

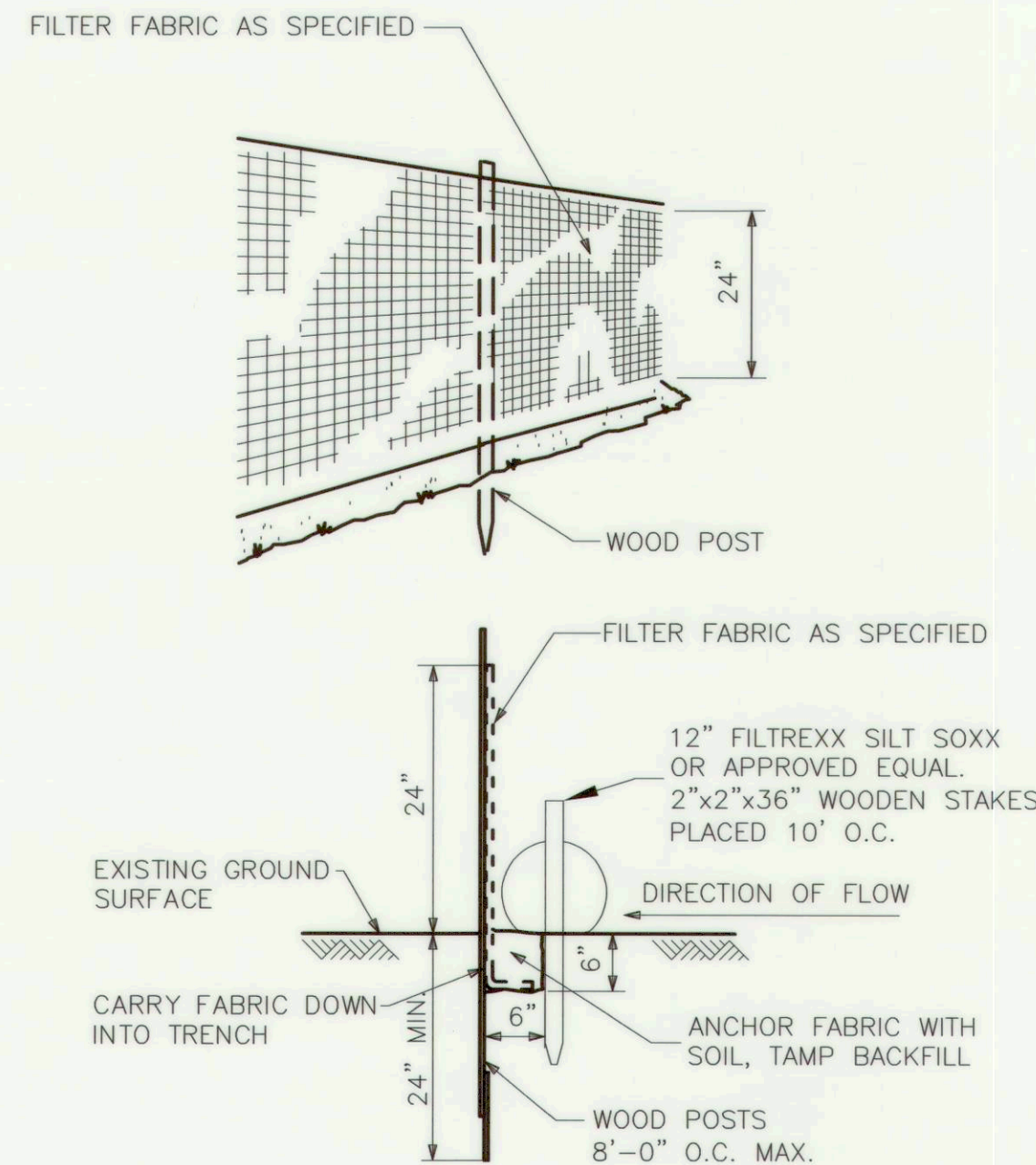




NOTE: THRUST BLOCKS TO BE 3000 P.S.I. CONCRETE PLACED AGAINST UNDISTURBED MATERIAL.

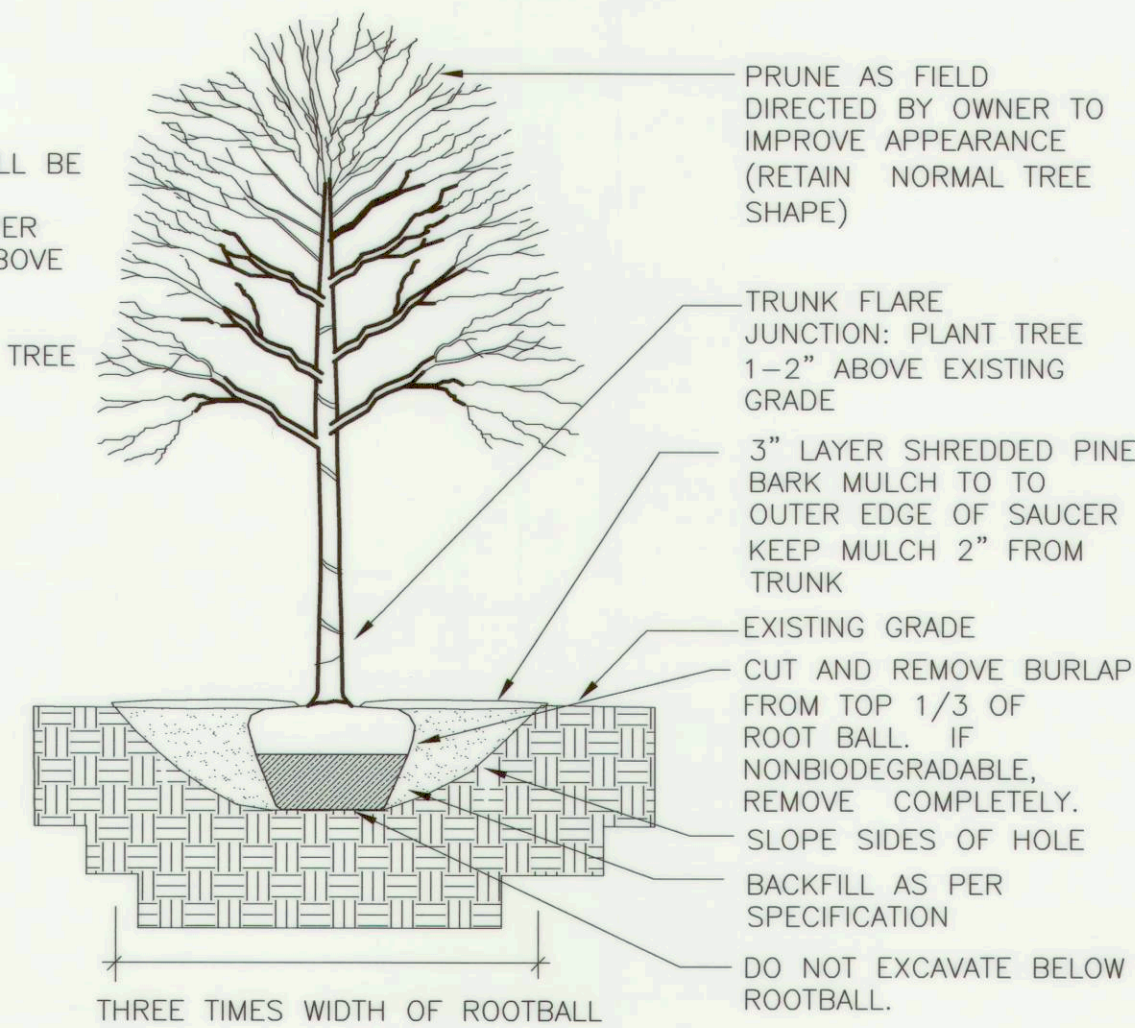
MINIMUM BEARING FACE AREA FOR CONCRETE THRUST BLOCK				
PIPE DIAMETER INCHES	6 in.	8 in.	10 in.	12 in.
HYDRANTS, PLUGS, CAPS, AND TEES (S.F.)	4	6	9	13
90° (S.F.)	8	12	19	26
45° (S.F.)	5	8	13	18
22 1/2° (S.F.)	3	5	7	10

THRUST BLOCK DETAIL  
(NOT TO SCALE)

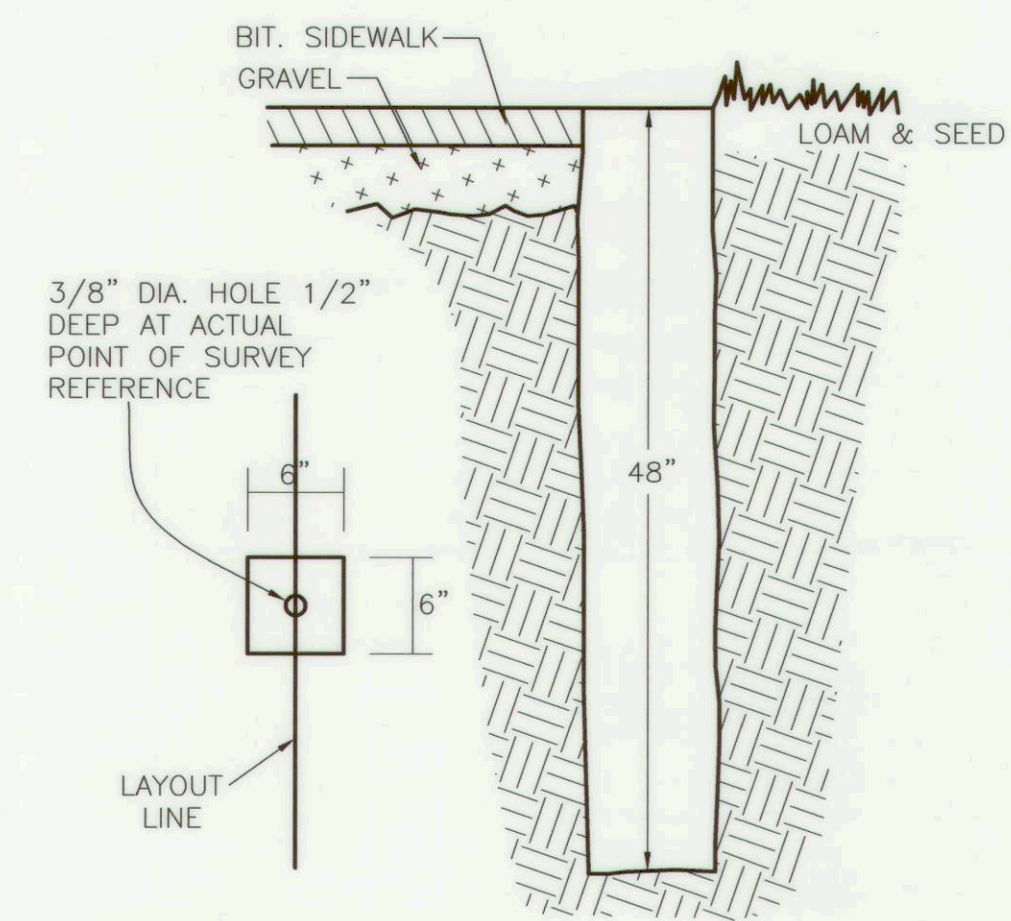


SILTFENCE W/SILT "SOXX" DETAIL  
(NOT TO SCALE)

STREET TREES SHALL BE 12'-FT IN HEIGHT, 2-INCHES IN CALIPER MEASURED 4'-FT ABOVE THE FINISH GRADE. SPECIES SHALL BE APPROVED BY THE TREE WARDEN.



DECIDUOUS TREE PLANTING DETAIL  
(NOT TO SCALE)



GRANITE BOUND DETAIL  
(NOT TO SCALE)

I CERTIFY THAT I HAVE CONFORMED WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS IN PREPARING THIS PLAN.

*William Blaisdell Jr.*

WILLIAMS & SPARAGES LLC

CLERKS CERTIFICATION ON THE PLAN  
DATE: \_\_\_\_\_

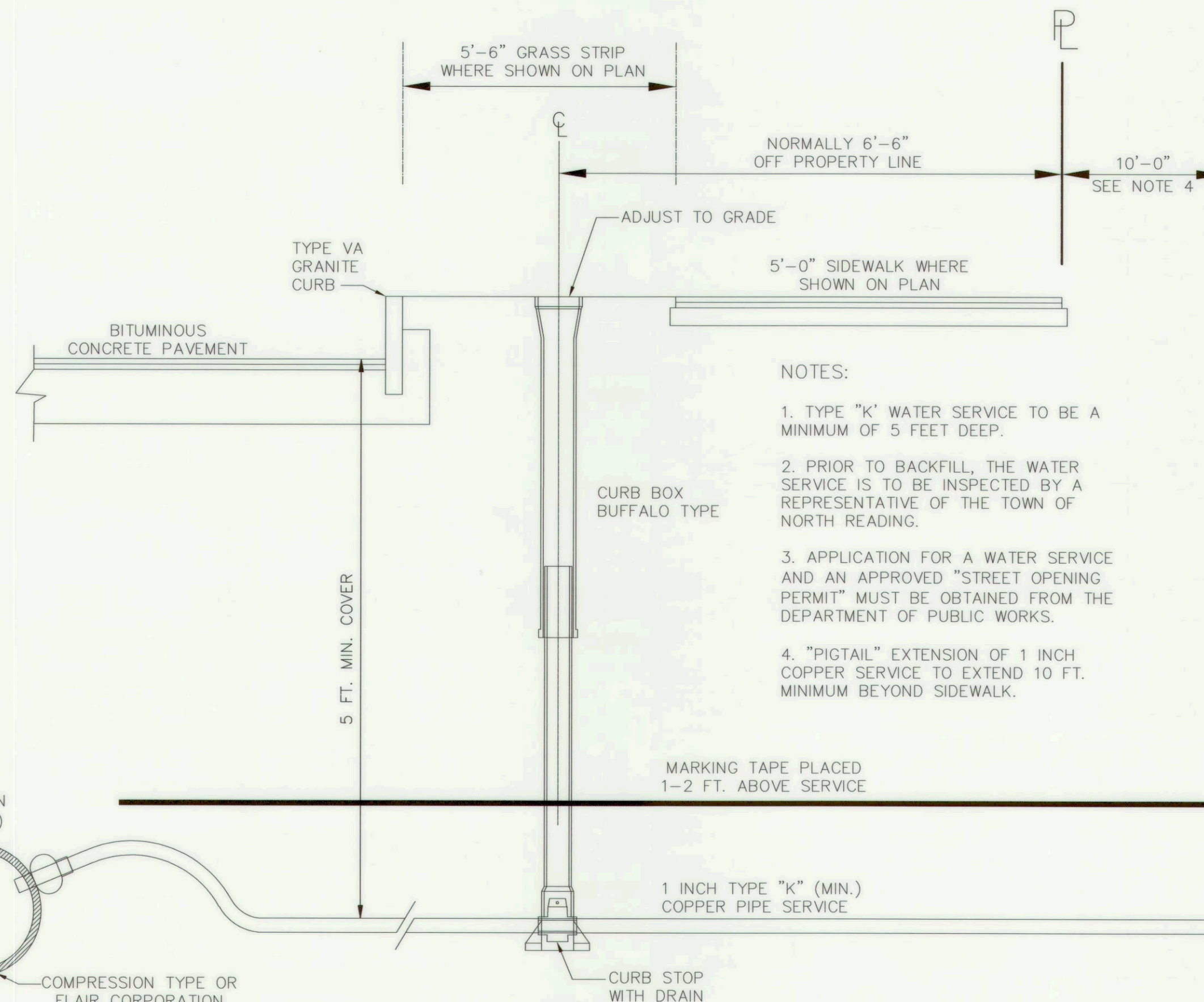
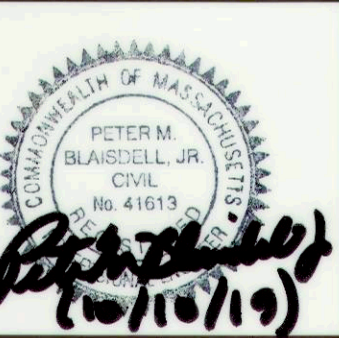
I, \_\_\_\_\_, CLERK OF THE TOWN OF NORTH READING, DO HEREBY CERTIFY THAT THE NOTICE OF APPROVAL OF THIS PLAN BY THE COMMUNITY PLANNING COMMISSION HAS BEEN RECEIVED AND RECORDED AT THIS OFFICE AND THAT NO APPEAL WAS RECEIVED DURING THE TWENTY DAYS NEXT AFTER SUCH RECEIPT AND RECORDING OF SAID NOTICE.

TOWN CLERK

NORTH READING  
COMMUNITY PLANNING COMMISSION

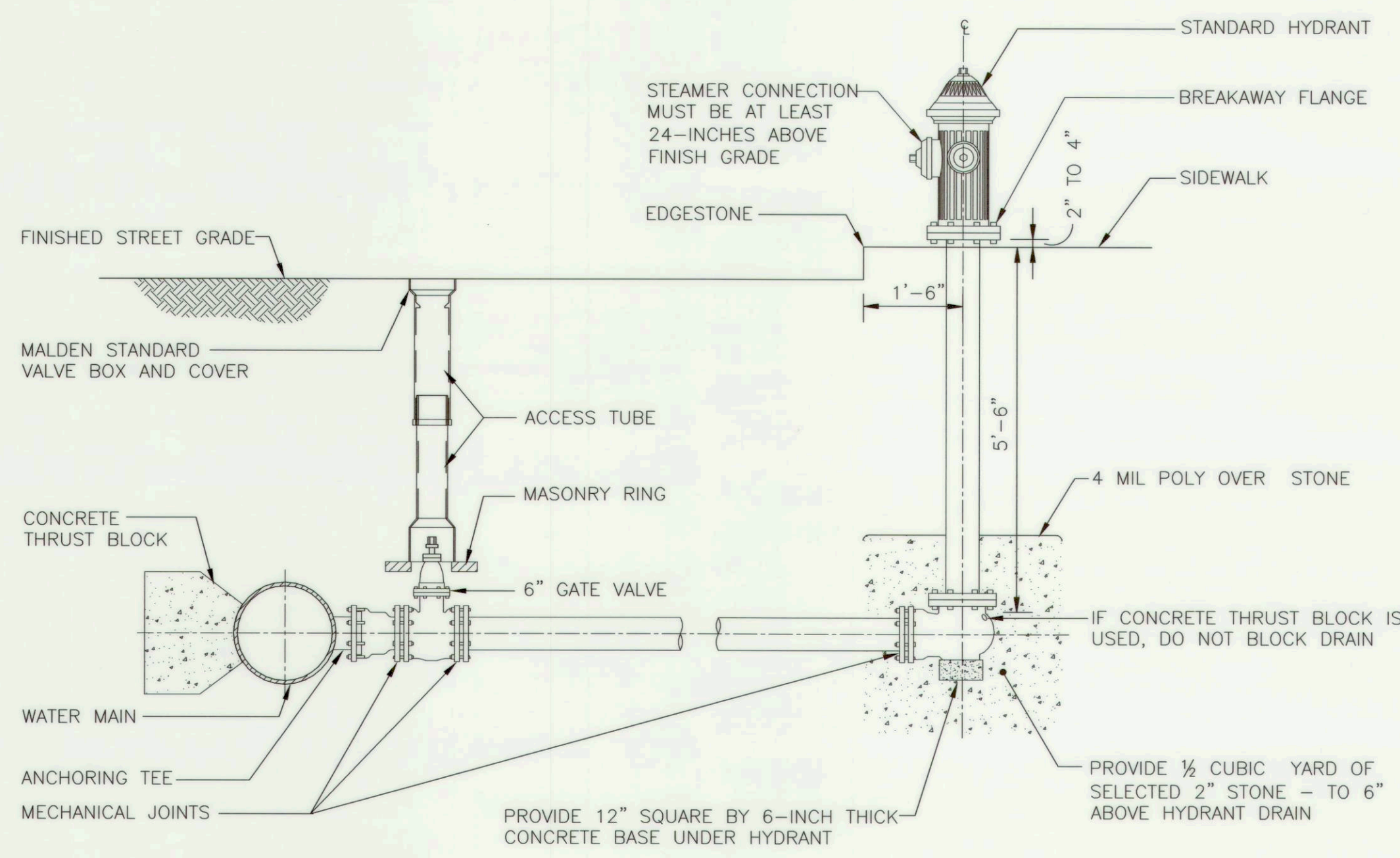
*Walter P. Blaisdell Jr.*  
*Christopher D. Hays*

DATE: 10-15-19



TYPICAL WATER SERVICE DETAIL  
(NOT TO SCALE)

NOTE: WATER SERVICE TO CONFORM TO THE TOWN OF NORTH READING STANDARDS SEE SCHEDULE G



TYPICAL FIRE HYDRANT CONNECTION FOR HIGH OR LOW SERVICE LINE DETAIL  
(NOT TO SCALE)

NOTE: CONCRETE THRUST BLOCK TO BE USED ONLY WHERE IT WILL BEAR ON UNDISTURBED EARTH. USE RESTRAINED JOINT FITTINGS (MEGALUG OR APPROVED EQUAL) WHERE CONCRETE THRUST BLOCK IS UNACCEPTABLE. SIZE OF BLOCK OR MEGALUG TO BE DESIGNED FOR 1.5 TIMES NORMAL OPERATING PRESSURE.

NO.	DESCRIPTION	DATE
4	PEER REVIEW COMMENTS	8/20/2019
3	PEER REVIEW COMMENTS	7/26/2019
2	PEER REVIEW COMMENTS	3/25/2019

CONSTRUCTION DETAILS  
GRAND LEGACY  
NORTH READING, MA

OWNER & APPLICANT:  
77 ELM STREET LLC  
PO BOX 548  
NORTH READING, MA 01864

DEED REFERENCE:  
BOOK 71352 PAGE 399

ASSESSORS REFERENCE:  
MAP 78 LOT 79 & 89



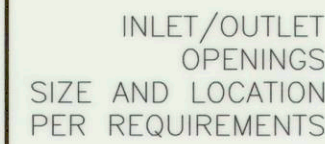
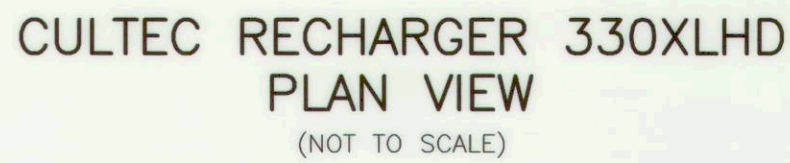
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JANUARY 17, 2019

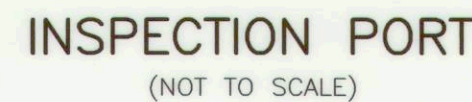
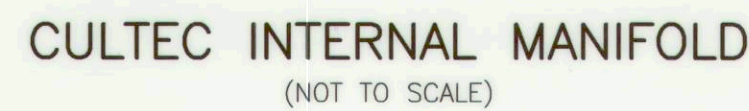
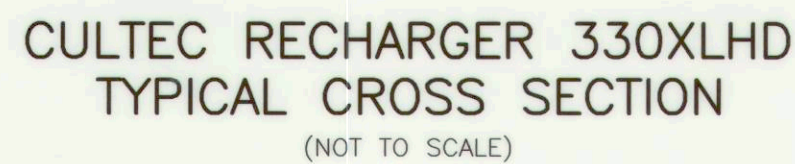
DETAIL SHEET 2 OF 6

SHEET 10 OF 14





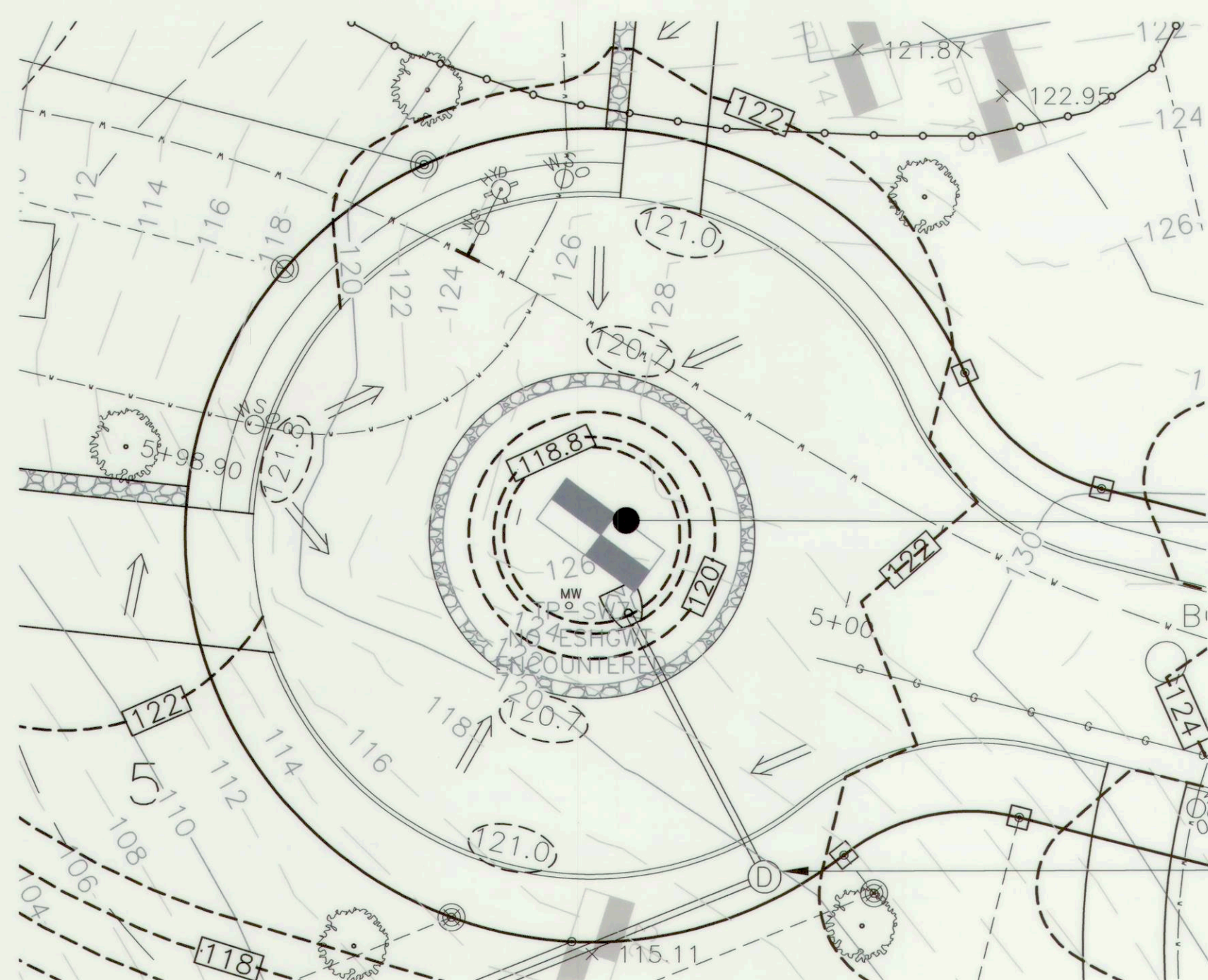
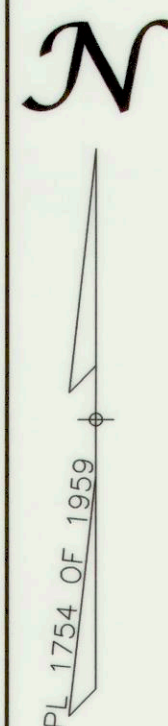
- 2500 GALLON SEDIMENT AND OIL SEPARATOR  
(NOT TO SCALE)

SHEET 11 OF 14

100

DATE: 10-15-19

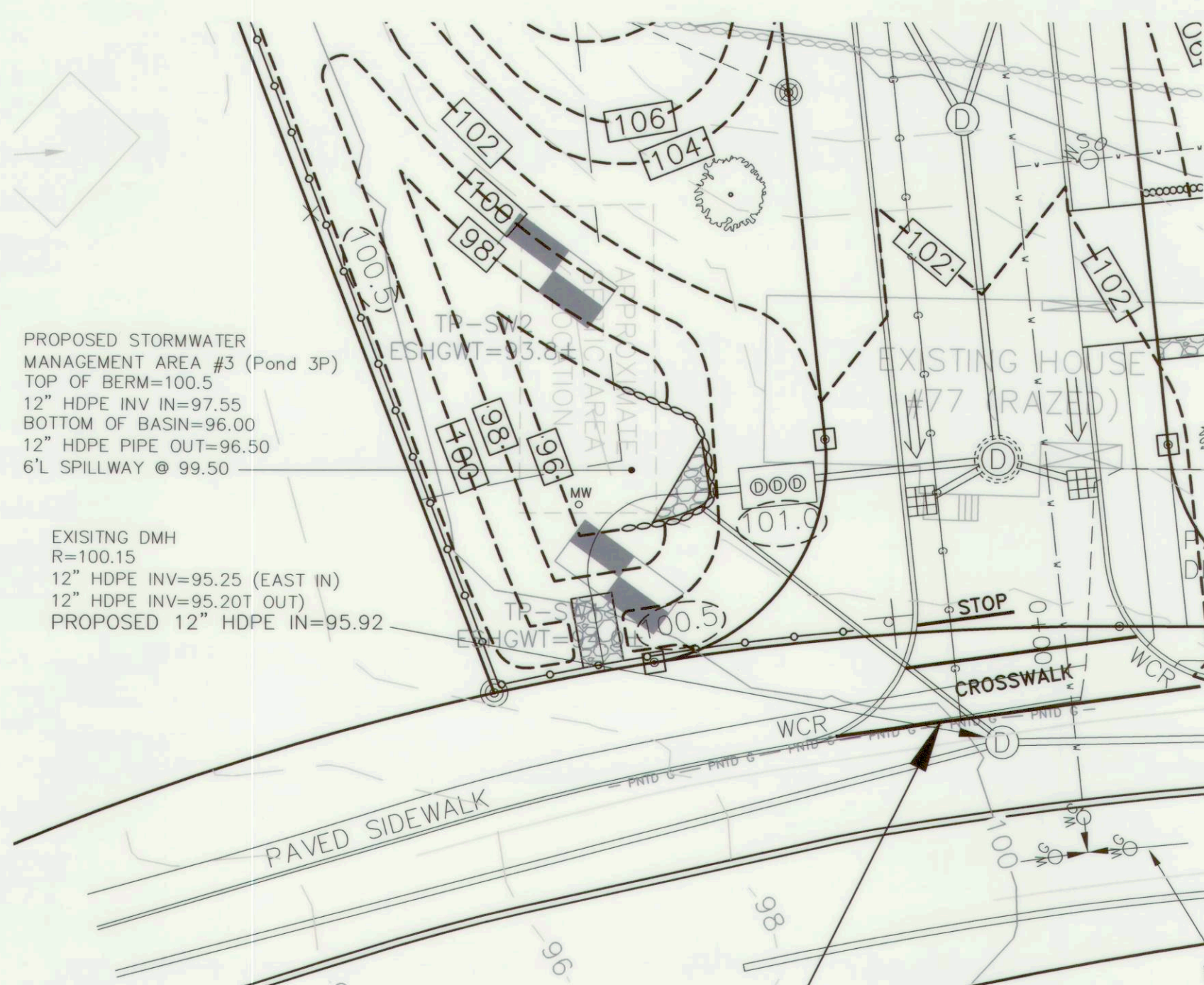




SWMA #1 (HydroCAD Pond 1P)

PROPOSED STORMWATER  
MANAGEMENT AREA #1  
(Pond 1P)  
TOP OF BERM=120.7  
12" HDPE STANDPIPE WITH  
6" ORIFICE=118.8  
BOTTOM OF BASIN=118.3  
12" HDPE PIPE OUT=117.0

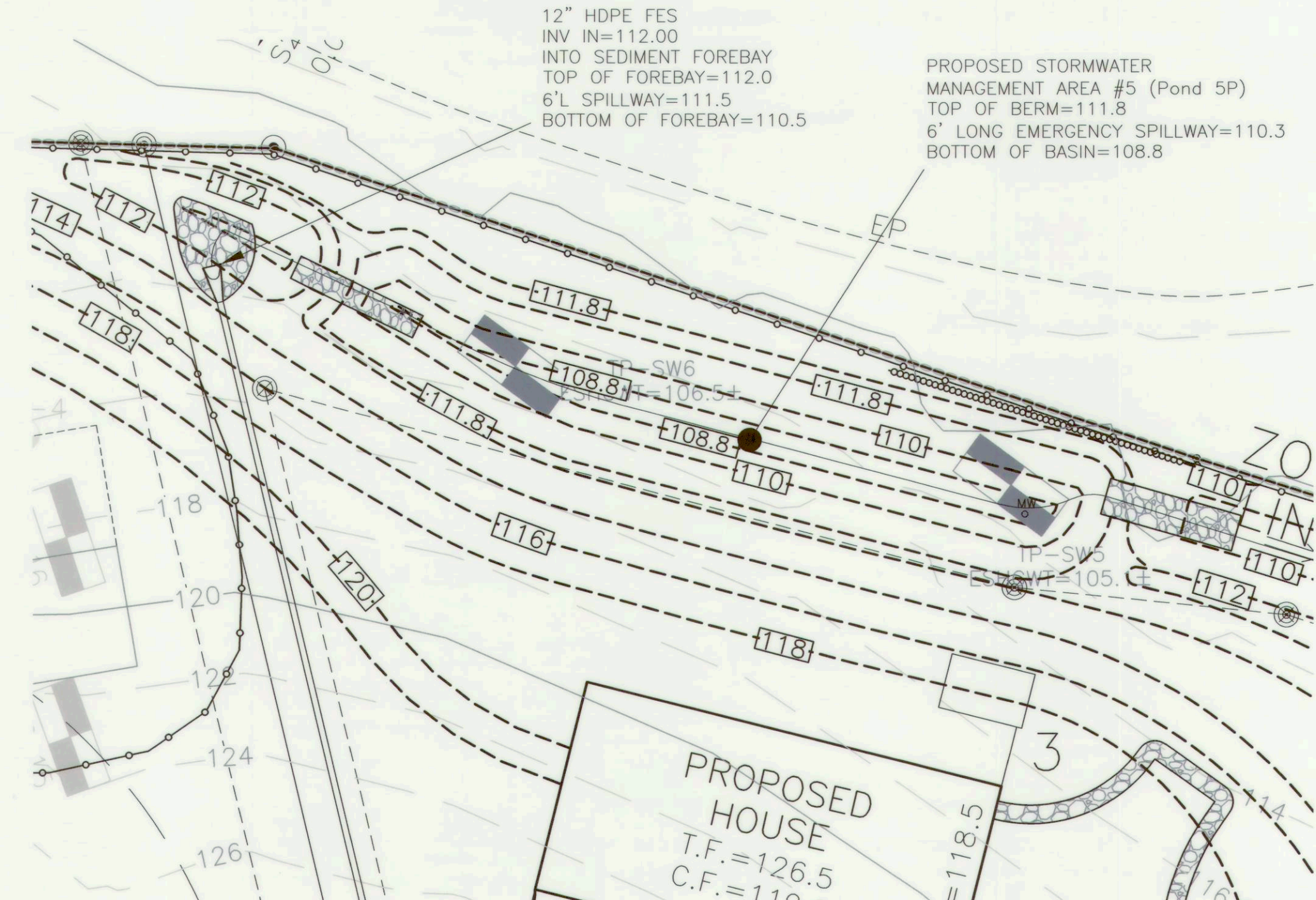
PROP. DROP DMH  
RIM=121.8  
12" INV IN=116.6  
12" INV=109.3



SWMA #3 (HydroCAD Pond 3P)

PROPOSED STORMWATER  
MANAGEMENT AREA #3 (Pond 3P)  
TOP OF BERM=100.5  
12" HDPE INV IN=97.55  
BOTTOM OF BASIN=96.00  
12" HDPE PIPE OUT=96.50  
6" L SPILLWAY @ 99.50

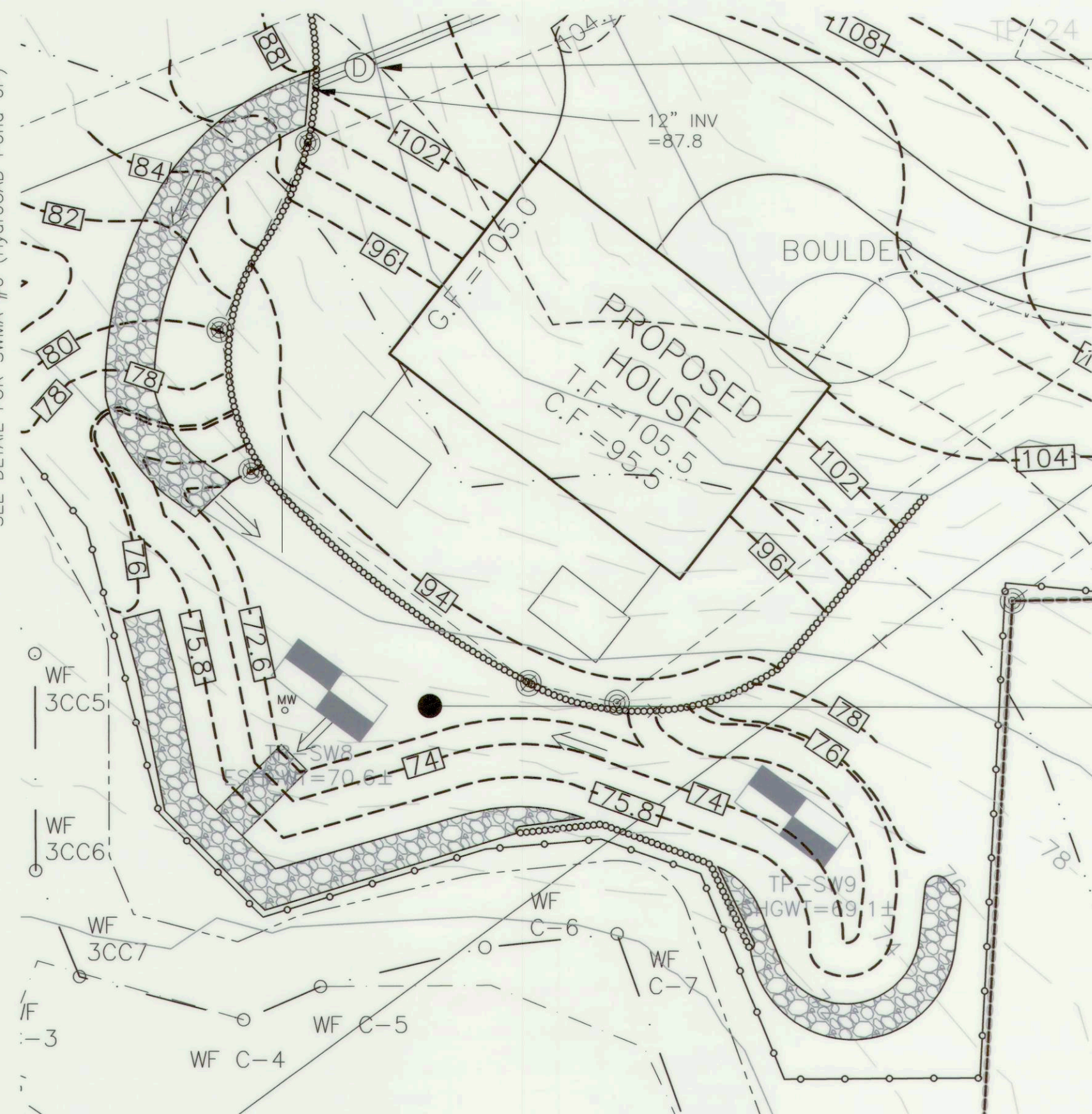
EXISTING DMH  
R=100.15  
12" HDPE INV=95.25 (EAST IN)  
12" HDPE INV=95.20 (OUT)  
PROPOSED 12" HDPE IN=95.92



SWMA #5 (HydroCAD Pond 5P)

12" HDPE FES  
INV IN=112.00  
INTO SEDIMENT FOREBAY  
TOP OF FOREBAY=112.0  
6" L SPILLWAY=111.5  
BOTTOM OF FOREBAY=110.5

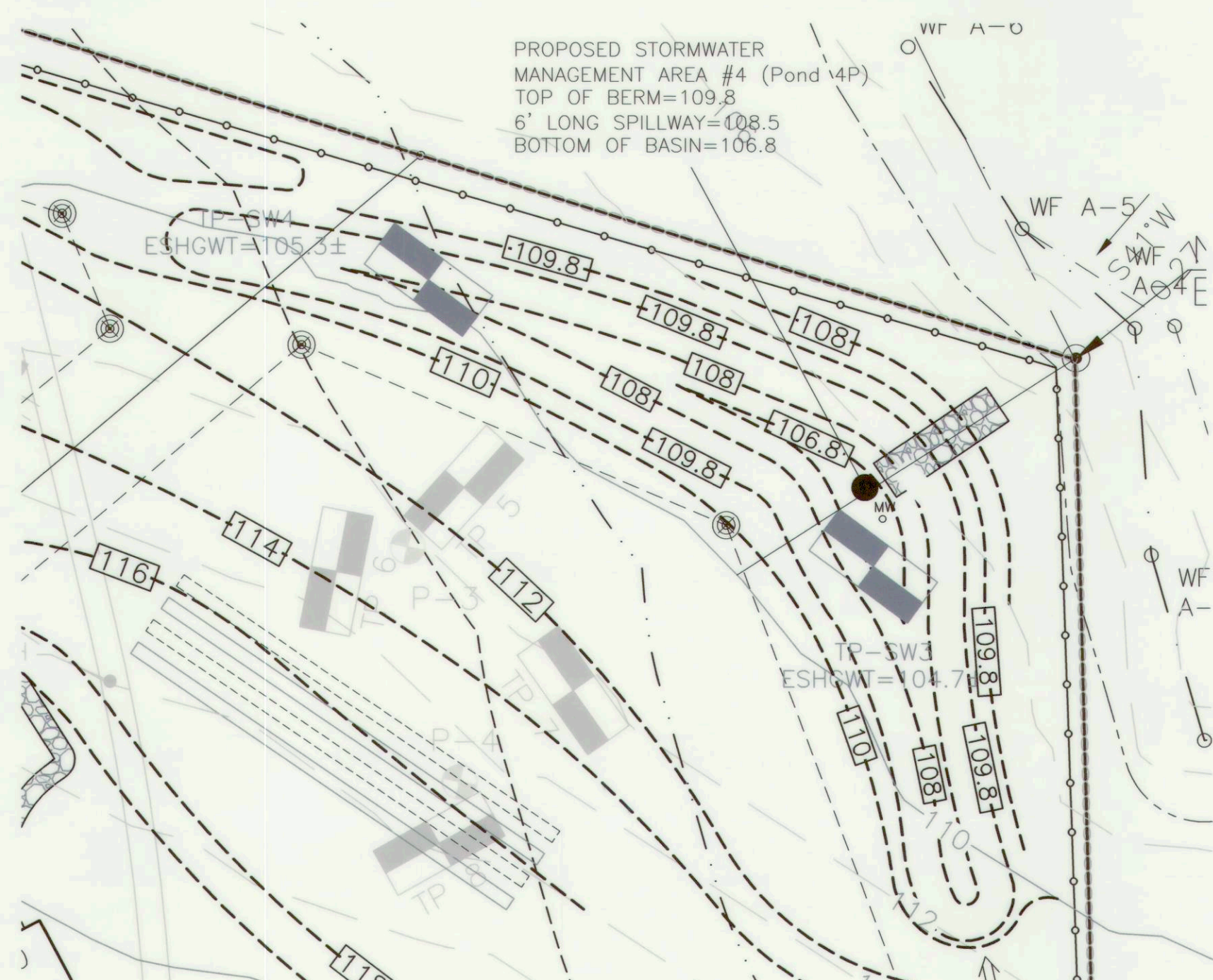
PROPOSED STORMWATER  
MANAGEMENT AREA #5 (Pond 5P)  
TOP OF BERM=111.8  
6" LONG EMERGENCY SPILLWAY=110.3  
BOTTOM OF BASIN=108.8



SWMA #2 (HydroCAD Pond 2P)

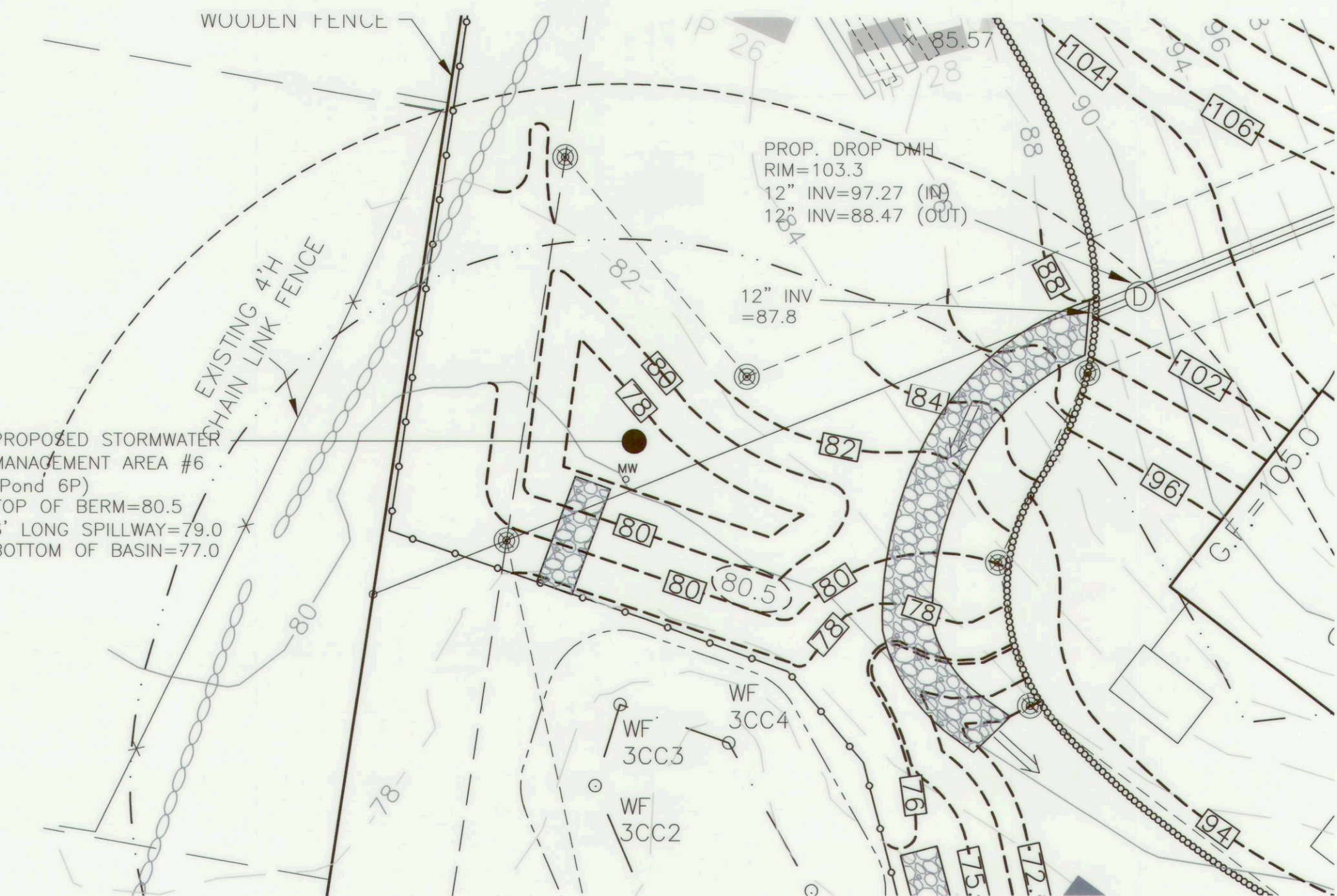
PROP. DROP DMH  
RIM=103.3  
12" INV=97.27 (IN)  
12" INV=88.47 (OUT)

PROPOSED STORMWATER  
MANAGEMENT AREA #2  
(Pond 2P)  
TOP OF BERM=75.8  
6" LONG SPILLWAY=74.3  
BOTTOM OF BERM=72.6



SWMA #4 (HydroCAD Pond 4P)

PROPOSED STORMWATER  
MANAGEMENT AREA #4 (Pond 4P)  
TOP OF BERM=109.8  
6" LONG SPILLWAY=108.5  
BOTTOM OF BASIN=106.8



SWMA #6 (HydroCAD Pond 6P)

PROPOSED STORMWATER  
MANAGEMENT AREA #6  
(Pond 6P)  
TOP OF BERM=80.5  
6" LONG SPILLWAY=79.0  
BOTTOM OF BASIN=77.0

SEE DETAIL FOR SWMA #2 (HydroCAD Pond 2P)

I CERTIFY THAT I HAVE CONFORMED  
WITH THE RULES AND REGULATIONS  
OF THE REGISTERS OF DEEDS IN  
PREPARING THIS PLAN.

*Peter M. Blaisdell, Jr.*  
WILLIAMS & SPARGES LLC

CLERK OF THE TOWN OF NORTH  
READING, DO HEREBY CERTIFY THAT THE NOTICE OF APPROVAL OF THIS  
PLAN BY THE COMMUNITY PLANNING COMMISSION HAS BEEN RECEIVED  
AND RECORDED AT THIS OFFICE AND THAT NO APPEAL WAS RECEIVED  
DURING THE TWENTY DAYS NEXT AFTER SUCH RECEIPT AND RECORDING  
OF SAID NOTICE.

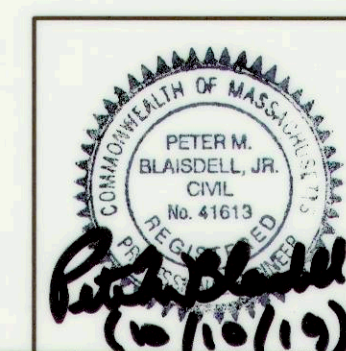
TOWN CLERK

INFILTRATION BASIN SURFACE TREATMENT NOTE:  
AFTER THE BASIN FLOORS ARE SHAPED, PLACE SOIL ADDITIVES ON THE BASIN FLOOR TO  
AMEND THE SOIL. THE SOIL ADDITIVES SHALL INCLUDE COMPOST, PROPERLY AGED TO KILL  
ANY SEED STOCK CONTAINED WITHIN THE COMPOST. DO NOT PUT BIOSOLIDS IN THE COMPOST.  
MIX NATIVE SOILS THAT WERE EXCAVATED FROM THE A OR B HORIZONS TO CREATE THE BASIN  
WITH THE COMPOST, AND THEN SCARIFY THE NATIVE MATERIALS AND COMPOST INTO THE  
PARENT MATERIAL USING A CHISEL PLOW OR ROTARY DEVICE TO A DEPTH OF 12 INCHES.  
IMMEDIATELY AFTER CONSTRUCTING THE BASIN, STABILIZE ITS BOTTOM AND SIDE SLOPES WITH  
A DENSE TURF OR WATER-TOLERANT GRASS. USE LOW-MAINTENANCE, RAPIDLY GERMINATING  
GRASSES, SUCH AS FESCUES. THE SELECTED GRASSES MUST BE CAPABLE OF SURVIVING IN  
BOTH WET AND DRY CONDITIONS. DO NOT USE SOD, WHICH CAN PREVENT ROOTS FROM  
DIRECTLY CONTACTING THE UNDERLYING SOIL. DURING THE FIRST TWO MONTHS, INSPECT THE  
NEWLY ESTABLISHED VEGETATION SEVERAL TIMES TO DETERMINE IF ANY REMEDIAL ACTIONS  
(E.G. RESEEDING, IRRIGATING) ARE NECESSARY.

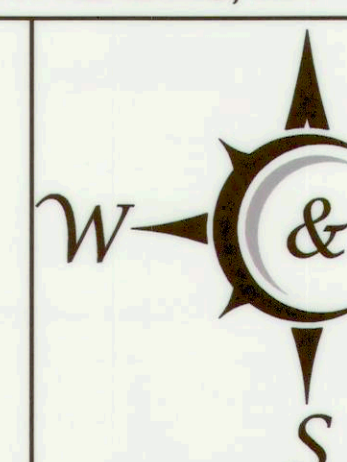
NORTH READING  
COMMUNITY PLANNING COMMISSION

*Warren R. Bond*  
*Andie S. Bond*  
*Christopher D. Bond*

DATE: 10-15-19



NO.	DESCRIPTION	DATE
4		
3	PEER REVIEW COMMENTS	8/20/2019
2	PEER REVIEW COMMENTS	7/26/2019
1	PEER REVIEW COMMENTS	3/25/2019

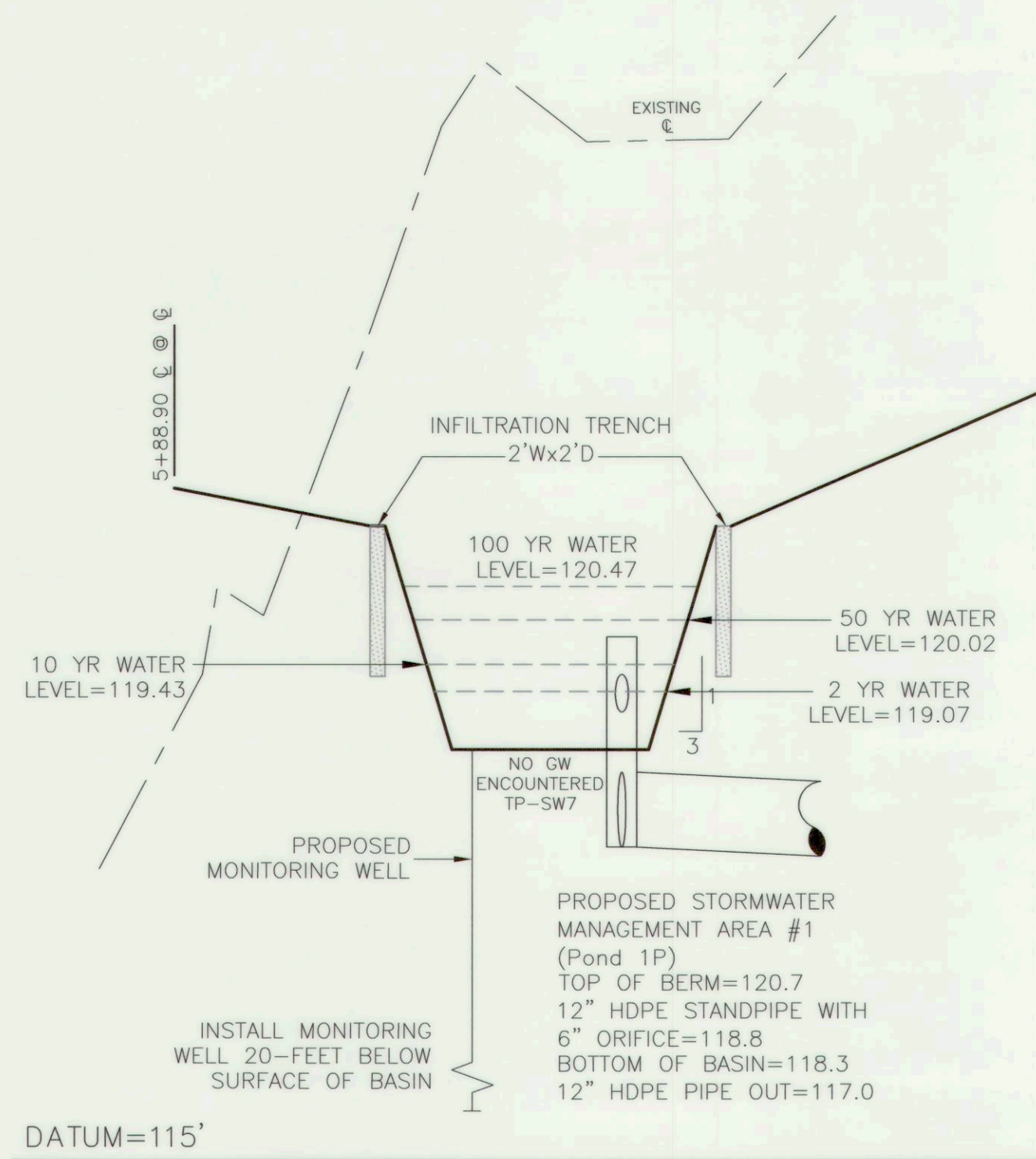
<b>CONSTRUCTION DETAILS</b> <b>GRAND LEGACY</b> NORTH READING, MA	
<b>OWNER &amp; APPLICANT:</b> 77 ELM STREET LLC PO BOX 548 NORTH READING, MA 01864	 <b>WILLIAMS &amp; SPARGES</b> ENGINEERS   PLANNERS   SURVEYORS 188 NORTH MAIN STREET SUITE 101 MIDDLETON, MA 01949 PHONE: (978) 539-8088 FAX: (978) 539-8200 WSENGINEERS.COM
<b>DEED REFERENCE:</b> BOOK 71352 PAGE 399 <b>ASSESSORS REFERENCE:</b> MAP 78 LOT 79 & 89	
<b>DETAIL SHEET 4 OF 6</b>	
<b>SHEET 12 OF 14</b>	

0' 10' 20' 40'

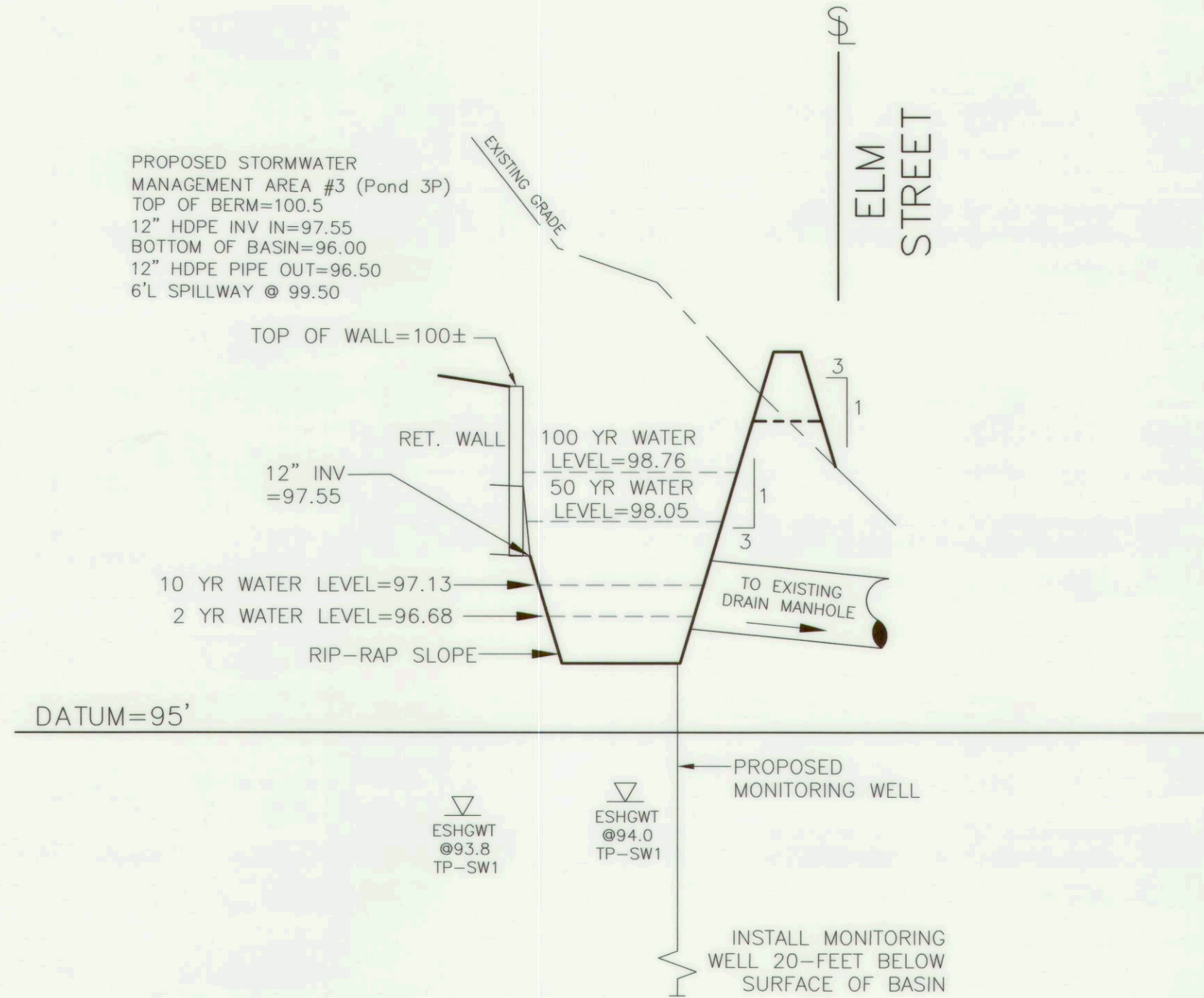
SCALE: 1"=20'

JANUARY 17, 2019

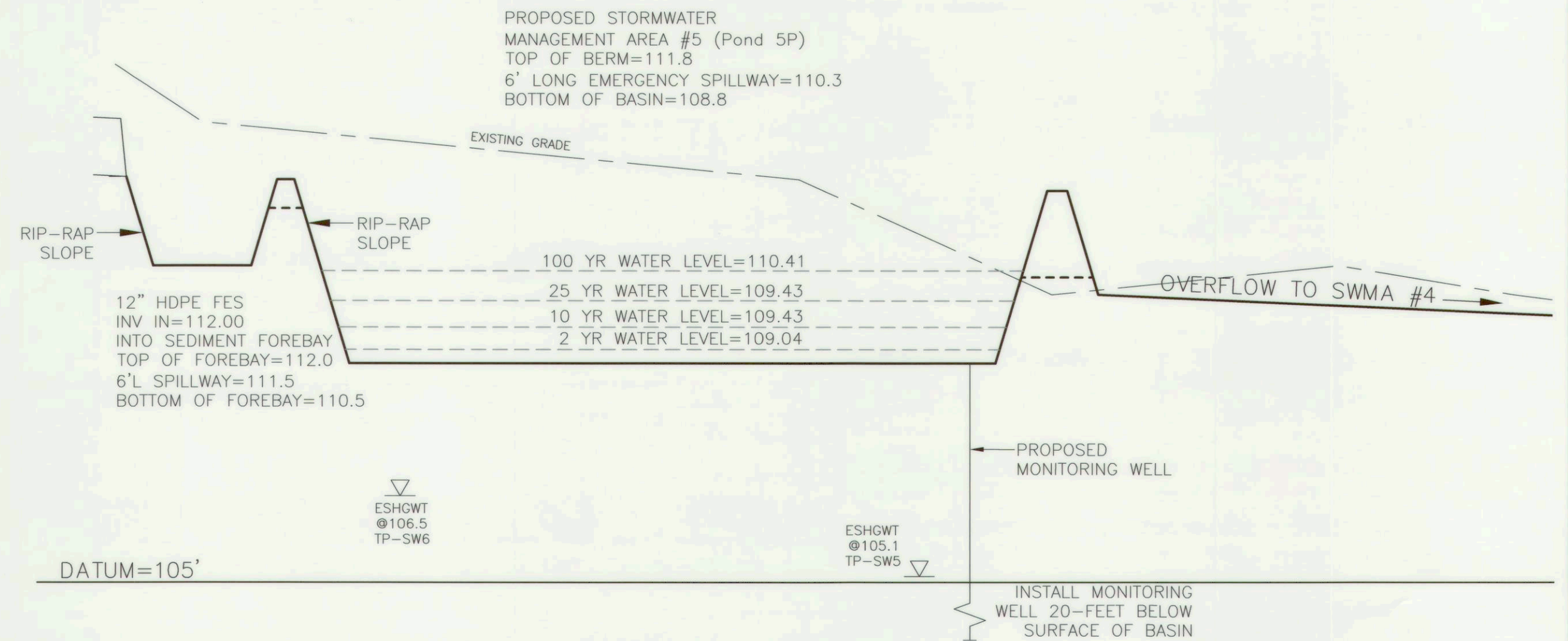




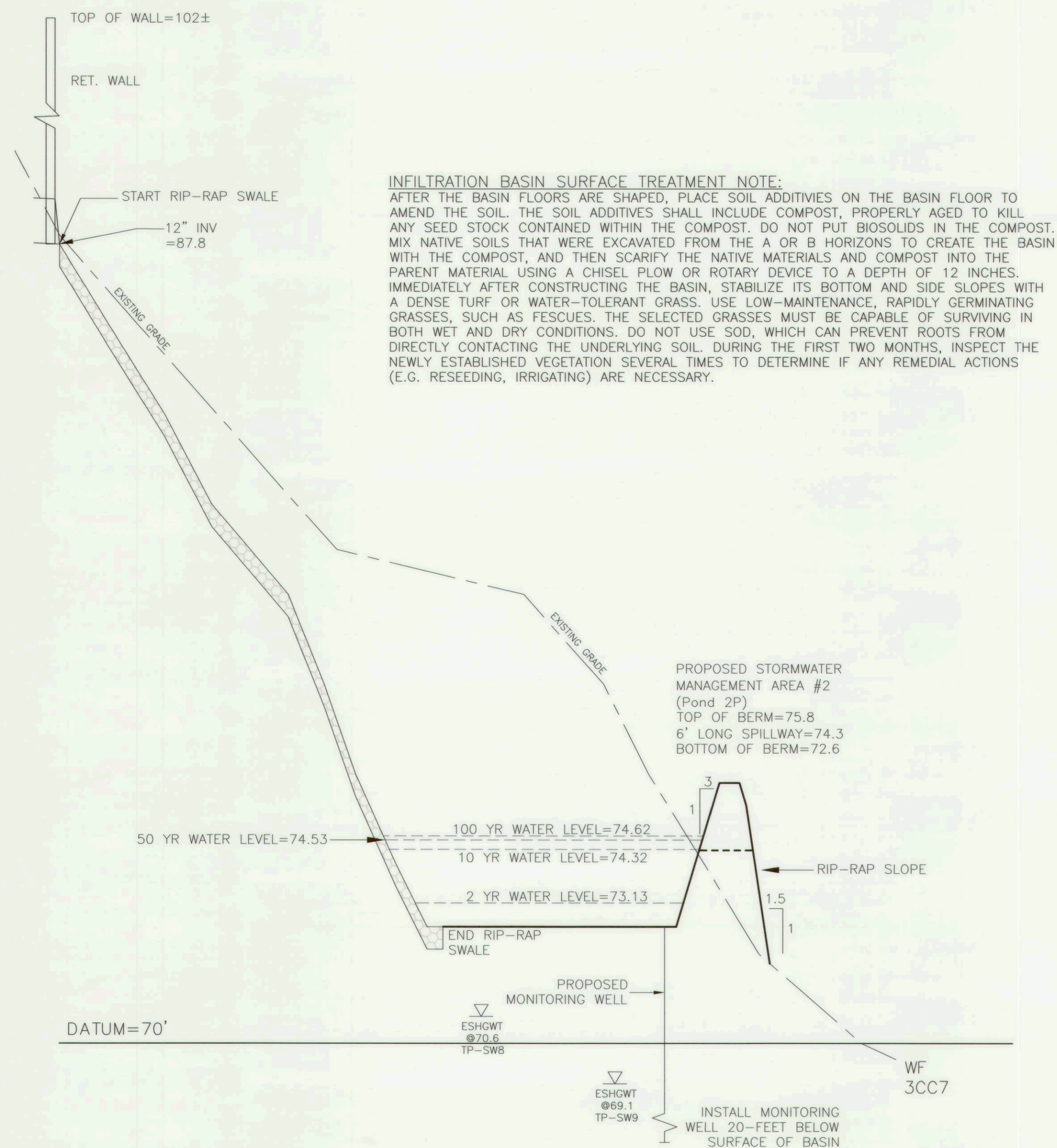
SECTION THROUGH SWMA #1 (HydroCAD Pond 1P)



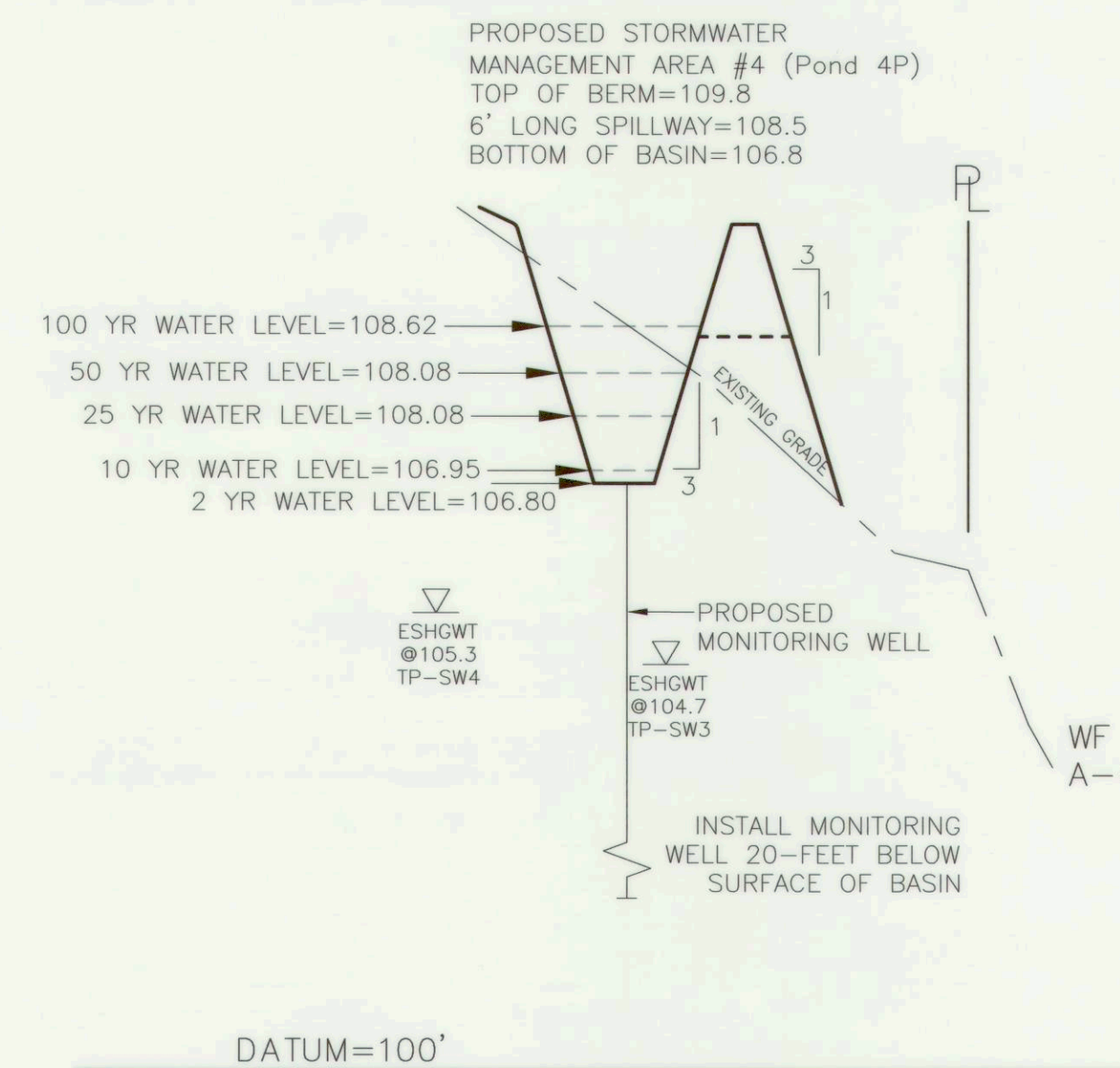
SECTION THROUGH SWMA #3 (HydroCAD Pond 3P)



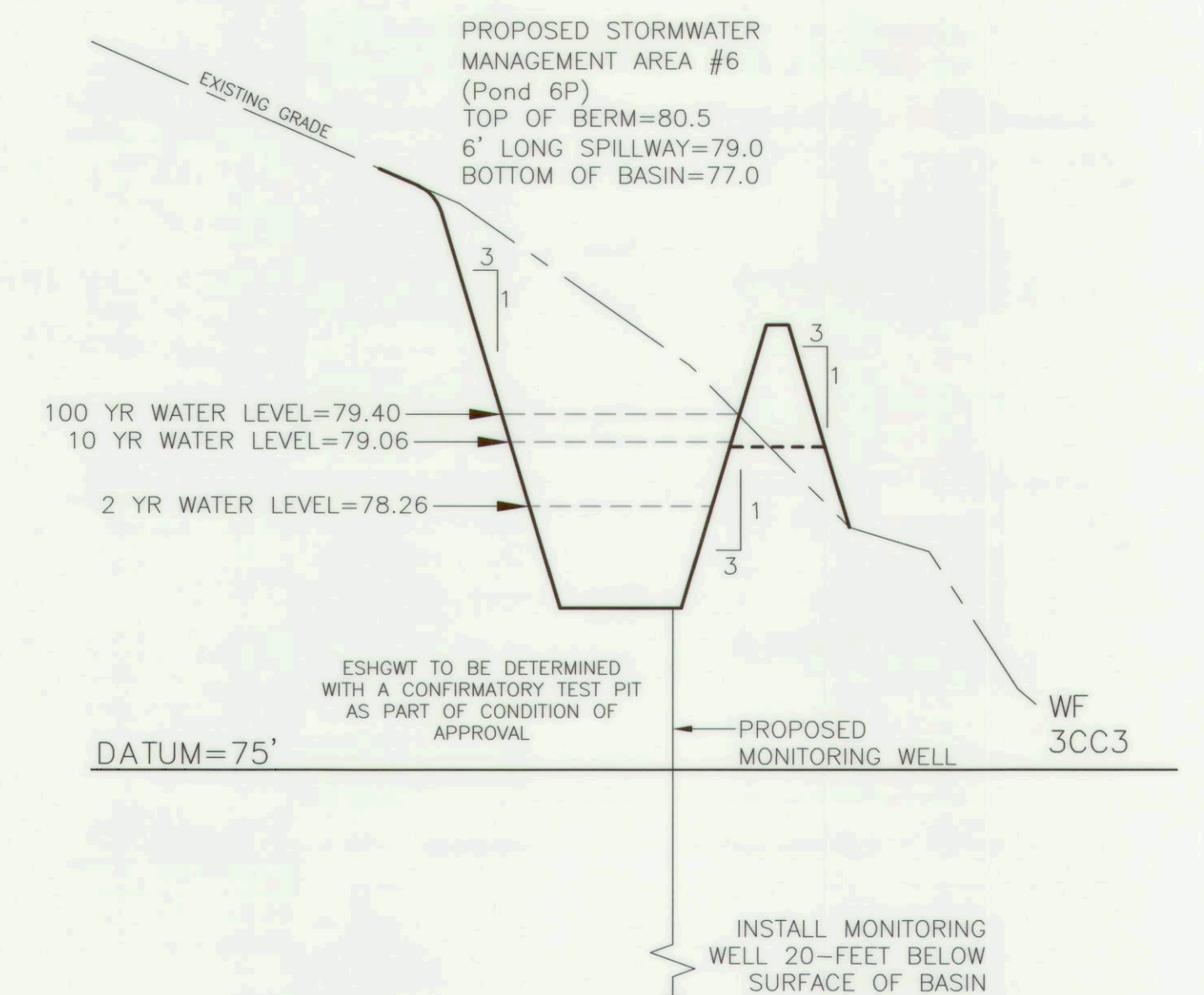
SECTION THROUGH SWMA #5 (HydroCAD Pond 5P)



SECTION THROUGH SWMA #2 (HydroCAD Pond 2P)



SECTION THROUGH SWMA #4 (HydroCAD Pond 4P)



SECTION THROUGH SWMA #6 (HydroCAD Pond 6P)

I CERTIFY THAT I HAVE CONFORMED WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS IN PREPARING THIS PLAN.

*Peter M. Blaisdell, Jr.*

WILLIAMS & SPARAGOS LLC

CLERKS CERTIFICATION ON THE PLAN

DATE: \_\_\_\_\_

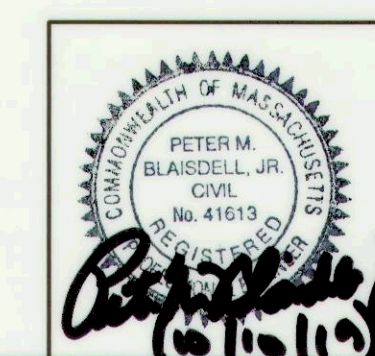
I, \_\_\_\_\_, CLERK OF THE TOWN OF NORTH READING, DO HEREBY CERTIFY THAT THE NOTICE OF APPROVAL OF THIS PLAN BY THE COMMUNITY PLANNING COMMISSION HAS BEEN RECEIVED AND RECORDED AT THIS OFFICE AND THAT NO APPEAL WAS RECEIVED DURING THE TWENTY DAYS NEXT AFTER SUCH RECEIPT AND RECORDING OF SAID NOTICE.

\_\_\_\_\_  
TOWN CLERK

NORTH READING  
COMMUNITY PLANNING COMMISSION

*Warren Reed*  
*William O. Reed*  
*Christy A. Hill*

DATE: 10-15-19



NO.	DESCRIPTION	DATE
4		
3	PEER REVIEW COMMENTS	8/20/2019
2	PEER REVIEW COMMENTS	7/26/2019
1	PEER REVIEW COMMENTS	3/25/2019

<b>CONSTRUCTION DETAILS</b> <b>GRAND LEGACY</b> NORTH READING, MA		 <b>WILLIAMS &amp; SPARAGOS</b> ENGINEERS   PLANNERS   SURVEYORS 189 NORTH MAIN STREET SUITE 101 MIDDLETON, MA 01949 PHONE: (978) 539-8088 FAX: (978) 539-8200 WSENGINEERS.COM
OWNER & APPLICANT: 77 ELM STREET LLC PO BOX 548 NORTH READING, MA 01864	DEED REFERENCE: BOOK 71352 PAGE 399	
ASSESSORS REFERENCE: MAP 78 LOT 79 & 89	SCALE: 1"=20' HOR & 2' VERT JANUARY 17, 2019	
DETAIL SHEET 5 OF 6		SHEET 13 OF 14



BEFORE CONSTRUCTION MAY TAKE PLACE, THE APPLICANT SHALL SUBMIT FINAL ENGINEERED RETAINING WALL DESIGNS TO THE BUILDING INSPECTOR FOR APPROVAL AND ISSUANCE OF A BUILDING PERMIT

Diagram illustrating the cross-section of a retaining wall foundation, showing various layers and components:

- 8" LOW PERMEABLE SOIL** (SEE GRADING PLAN)
- 48"** (Height of the wall above the foundation)
- 24 I** (Top layer of concrete blocks)
- 24 M** (Middle layer of concrete blocks)
- 24 M** (Middle layer of concrete blocks)
- 24 M** (Middle layer of concrete blocks)
- 24 M** (Middle layer of concrete blocks)
- 24 M** (Middle layer of concrete blocks)
- 24 M** (Middle layer of concrete blocks)
- 24 M** (Middle layer of concrete blocks)
- 24 M** (Middle layer of concrete blocks)
- 24 B** (Bottom layer of concrete blocks)
- 12" DRAINAGE ZONE (3/4" CRUSHED STONE)**
- FROM FACE OF BLOCK**
- 10.25-FT MIRAGRID 10XT GEOGRID**
- DRAIN TILE (4" MIN)**
- Emb. Varies (6" Min.)** (Embedment depth)
- VARIES** (Overall height of the wall)
- 3.6'** (Width of the foundation)
- UNREINFORCED CONCRETE OR CRUSHED STONE LEVELING PAD (6" MINIMUM THICKNESS)**
- FOUNDATION SOIL**
- MIRAFI 10XT MIRAGRID OR APPROVED EQUAL** (Geogrid material)

[illegible]

PROVIDE RAIL AS NECESSARY TO MEET MASSACHUSETTS BUILDING CODE REQUIREMENTS. RAIL INSERTS TO BE PROVIDED AT INTERVALS AS COORDINATED WITH GENERAL CONTRACTOR.

BATTER WALL @ 1 1/2" PER FOOT

MORTARED JOINTS

HEIGHT VARIES

20

6" (min)

COMPACTED SUBGRADE

2/3 HEIGHT

PROPOSED GRADE

CRUSHED STONE BACKFILL

7oz NON WOVEN GEOTEXTILE FABRIC

4" PERFORATED PVC DRAIN PIPE WITH OUTLETS TO GRADE AT 9' SPACING

SECTION VIEW

EXISTING GRADE

GEOTEXTILE FILTER FABRIC

6" MIN.

The diagram shows a cross-section of a road. A horizontal line represents the 'EXISTING GRADE'. Below this line, a layer of 'GEOTEXTILE FILTER FABRIC' is shown. The fabric is depicted as a series of small circles, representing its texture. Below the fabric, there is a layer of material, with a vertical dimension line indicating a minimum thickness of '6" MIN.'.

EXPANSION RESTRAINT

SIDE VIEW INSTALLED

1" REBAR FOR BAG REMOVAL FROM INLET  
(REBAR NOT INCLUDED)

OPTIONAL OVERFLOW

SILTSACK®

DUMP LOOPS  
(REBAR NOT INCLUDED)

CURB OPENING

OPTIONAL OVERFLOW

The diagram illustrates the Siltsack® system components and their assembly. It includes a side view of the installed system, showing the expansion restraint and the siltsack bag. The main exploded view shows the siltsack bag, dump loops, optional overflow, and curb opening. A separate view shows the siltsack bag with 1" rebar for removal from the inlet. The siltsack bag is shown with dump loops and optional overflow. The curb opening is shown with optional overflow. The siltsack bag is shown with dump loops and optional overflow.

Diagram illustrating the cross-section of a trench installation for a 4" perforated corrugated HDPE pipe. The diagram shows the following components and dimensions:

- FINISHED GRADE**: The top surface of the trench.
- LOW PERMEABLE GLACIAL TILL BACKFILL MATERIAL**: The material filling the trench above the pipe.
- 8" MIN**: Minimum depth of the backfill material above the pipe.
- GEOTEXTILE FABRIC (TYP)**: Fabric layer above the gravel.
- 6" OVERLAP**: Overlap dimension of the geotextile fabric.
- 3/8" TO 3/4" WASHED GRAVEL**: Gravel layer surrounding the pipe.
- 4" PERF. CORR. HDPE (HOLES FACING UP)**: The perforated corrugated HDPE pipe.
- 3"**: Depth of the gravel layer.
- DEPTH MAY VARY DEPENDING ON SITE CONDITION**: Note indicating that the gravel depth can vary.
- UNDISTURBED EARTH**: The bottom of the trench.
- 16" WIDE MIN.**: Minimum width of the trench.

(NOT TO SCALE)

NOTE: TO BE USED SHOULD SITE CONDITIONS WARRANT

I, \_\_\_\_\_, CLERK OF THE TOWN OF NORTH  
READING, DO HEREBY CERTIFY THAT THE NOTICE OF APPROVAL OF THIS  
PLAN BY THE COMMUNITY PLANNING COMMISSION HAS BEEN RECEIVED  
AND RECORDED AT THIS OFFICE AND THAT NO APPEAL WAS RECEIVED  
DURING THE TWENTY DAYS NEXT AFTER SUCH RECEIPT AND RECORDING  
OF SAID NOTICE.

Warm n Peace  
William & Bruce  
Christy & Ray

PETER M. BLAISDELL, JR.  
CIVIL  
No. 41613  
REGISTERED  
*Peter M. Blaisdell, Jr.*  
(10/10/11)

4		
3	PEER REVIEW COMMENTS	8/20/20
2	PEER REVIEW COMMENTS	7/26/20
1	PEER REVIEW COMMENTS	3/25/20
NO.	DESCRIPTION	DATE

**OWNER & APPLICANT:**  
77 ELM STREET LLC  
PO BOX 548  
NORTH READING, MA 01864


**DEED REFERENCE:**  
BOOK 71352 PAGE 399

**ASSESSORS REFERENCE:**  
MAP 78 LOT 79 & 89



SHEET 14 OF 14

I CERTIFY THAT I HAVE CONFORMED  
WITH THE RULES AND REGULATIONS  
OF THE REGISTERS OF DEEDS IN  
PREPARING THIS PLAN.

  
\_\_\_\_\_  
WILLIAMS & SPARGUES LLC