

RIVERWOOD ESTATES DEFINITIVE SUBDIVISION PLAN  
AT  
303 & 333 PERKINS ROW  
TOPSFIELD, MASSACHUSETTS  
(ASSESSOR'S MAPS 27 & 20, LOT 43)

RIVERWOOD ESTATES  
DEFINITIVE SUBDIVISION  
AT  
303 & 333 PERKINS ROW  
(ASSESSOR'S MAPS 27 & 20, LOT 43)  
TOPSFIELD, MASSACHUSETTS  
PREPARED FOR  
BURHANI, LLC

OCTOBER 16, 2017

SCALE: 1" = 100'  
0 50 100 200 400  
ZONING DISTRICT: INNER RESIDENTIAL AND  
AGRICULTURE (IRA) / OUTLYING RESIDENTIAL  
AND AGRICULTURAL (ORA)

The  
**Morin-Cameron**  
**GROUP, INC.**

CIVIL ENGINEERS | ENVIRONMENTAL CONSULTANTS  
LAND SURVEYORS | LAND USE PLANNERS  
66 ELM STREET, DANVERS, MASSACHUSETTS 01923  
P: 978-777-8586, F: 978-774-3488, W: WWW.MORINCAMERON.COM

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN  
PREPARED IN CONFORMANCE WITH THE RULES AND  
REGULATIONS OF THE REGISTERS OF DEEDS OF THE  
COMMONWEALTH OF MASSACHUSETTS.

*[Signature]*  
MASSACHUSETTS REGISTERED  
PROFESSIONAL  
10-16-17  
DATE

I, \_\_\_\_\_, CLERK OF THE TOWN OF  
TOPSFIELD, HEREBY CERTIFY THAT THE NOTICE OF  
APPROVAL OF THIS PLAN BY THE PLANNING BOARD  
WAS RECEIVED ON \_\_\_\_\_ AND RECORDED AT  
THIS OFFICE AND NO NOTICE OF APPEAL WAS  
RECEIVED DURING THE TWENTY DAYS NET FOLLOWING  
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DATE TOWN CLERK

APPROVED ON \_\_\_\_\_, SUBJECT TO  
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\_\_\_\_\_ AND RECORDED IN THE ESSEX  
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BOOK No. \_\_\_\_\_, PAGE No. \_\_\_\_\_

APPROVAL UNDER THE SUBDIVISION  
CONTROL LAW REQUIRED

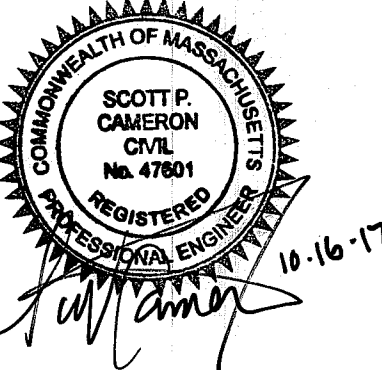
DATE OF APPLICATION: OCTOBER 17, 2017

DATE OF HEARING: \_\_\_\_\_

DATE OF APPROVAL: \_\_\_\_\_

DATE OF ENDORSEMENT: \_\_\_\_\_

TOPSFIELD PLANNING BOARD



COVER SHEET

DRAWING NO.  
1 OF 20

PROJ. #3460  
DRAWING: 3460 LAYOUT

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SCHEDULE OF PLAN SET DRAWINGS:

1. COVER SHEET
2. GENERAL NOTES, LEGEND, AND ABBREVIATIONS
3. INDEX PLAN AND KEY MAP
4. EXISTING CONDITIONS I
5. EXISTING CONDITIONS II
6. EXISTING CONDITIONS III
7. EXISTING CONDITIONS IV
8. EXISTING CONDITIONS V
9. LOTTING PLAN I
10. LOTTING PLAN II
11. ROAD GEOMETRY
12. SITE PLAN I
13. SITE PLAN II
14. ROAD PLAN AND PROFILE I
15. ROAD PLAN AND PROFILE II
16. DETAIL I
17. DETAIL II
18. DETAIL III
19. DETAIL IV
20. SOIL TEST LOGS

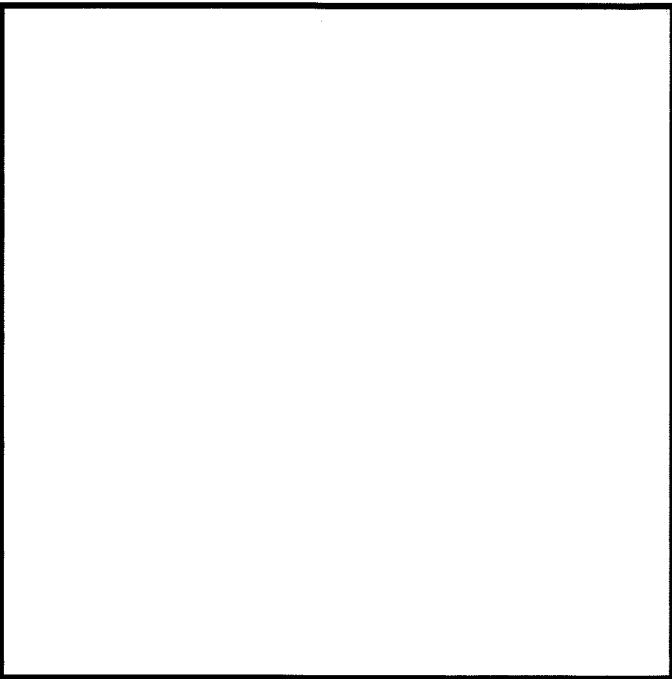
APPLICANT:  
BURHANI, LLC  
2500 MAIN STREET, SUITE 210  
TEWKSBURY, MA 01876

RECORD OWNER:  
IC ADVANTAGE, INC., RIYAZ ESMAIL,  
ZAHRA MUFADDAL & BURHANI, LLC  
2500 MAIN STREET, SUITE 210  
TEWKSBURY, MA 01876  
DEED BOOK 34547 PAGE 369

LOCUS MAP:  
1" = 600' ±



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LEGEND

	EXISTING	PROPOSED
CONTOURS		
MAJOR	---	---
MINOR	---	---
WATER MAIN OR SERVICE		W
DRAIN PIPE		D
ZONE LINE	---	---
PROPERTY BOUNDARY	---	---
INTERIOR LOT LINE	---	---
SIDEWALK	---	---
EDGE OF PAVEMENT	---	---
TREE LINE	---	---
LIMIT OF BVW	---	---
WETLAND PROTECTION DISTRICT	---	---
100' WETLAND BUFFER	---	---
100' RIVER FRONT BUFFER	---	---
200' RIVER FRONT BUFFER	---	---
STONE WALL	---	---
GAS LINE	---	G
UNDERGROUND ELECTRIC LINE	---	UGE
SOIL ABSORPTION FIELD	---	---
SCS SOIL BOUNDARY	---	---
FEMA ZONE AE	---	---
10-YR FLOOD ELEVATION	---	---
ZONE A	---	---
FENCE	---	---
EASEMENT	---	---
BUILDING	---	---
CATCH BASIN	---	---
DRAIN MANHOLE	---	---
FIRE HYDRANT	---	---
TREE	---	---
TEST PIT	---	---
WETLAND FLAG	---	---
MEAN ANNUAL HIGHWATER MARK	---	---
FLAG	---	---
STONE BOUND, FOUND	---	---
STONE BOUND, SET	---	---
IRON ROD	---	---
BENCH MARK	---	---

ABBREVIATIONS:

±	PLUS OR MINUS
APPROX.	APPROXIMATE
BK	BOOK
BVW	BORDERING VEGETATED WETLAND
CB	CONCRETE BOUND
CL	CENTERLINE
D	DIAMETER
DH	DRILL HOLE
ECSB	ESSEX COUNTY STONE BOUND
EP	EDGE OF PAVEMENT
FF	FIRST FLOOR
FND	FOUND
GAR	GARAGE
IP	IRON PIPE
LF	LINEAR FEET
MEA	MEASURED
N/F	NOW OR FORMERLY
N-S-E-W	NORTH-SOUTH-EAST-WEST
N.T.S.	NOT TO SCALE
PG	PAGE
P	PROPERTY LINE
REC	RECORD
SB	STONE BOUND
S.F.	SQUARE FEET
S.A.S.	SOIL ABSORPTION FIELD
ISF	IRREGULAR SHAPE FACTOR
MAHW	MEAN ANNUAL HIGH WATER
L	LENGTH
R	RADIUS
Δ	DELTA
ORA	OUTLYING RESIDENTIAL AND AGRICULTURAL
IRA	INNER RESIDENTIAL AND AGRICULTURAL
PROP.	PROPOSED
EXIST.	EXISTING
RET.	RETAINING
LA	LOT AREA
BA	BUILDABLE AREA
TYP.	TYPICAL
TBM	TEMPORARY BENCH MARK
TOF	TOP OF FOUNDATION
CLD	CEMENT LINED DUCTILE IRON
HDPE	HIGH DENSITY POLYURETHANE
MIN.	MINIMUM
MAX.	MAXIMUM
FT	FEET
STA	STATION
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PVC	POINT OF VERTICAL CURVATURE
ELEV.	ELEVATION
NAVD	NORTH AMERICAN VERTICAL DATUM

PLAN NOTES:

- ELEVATIONS ARE BASED ON NAVD 1988 AS OBTAINED BY GPS TRIANGULATION.
- TOPOGRAPHIC FEATURES AND LOCATIONS WERE OBTAINED FROM AN AERIAL SURVEY PERFORMED BY COL-EAST AND A PARTIAL FIELD SURVEY PERFORMED BY THE MORIN-CAMERON GROUP INC BETWEEN NOVEMBER 2016 AND APRIL 2017.
- PROPERTY LINE INFORMATION WAS OBTAINED FROM A FIELD SURVEY PERFORMED BY THE MORIN-CAMERON GROUP, INC. BETWEEN THE MONTHS OF NOVEMBER 2016 AND APRIL 2017.

WETLAND NOTE:

WETLAND RESOURCE AREAS WERE FLAGGED BY DEROSA ENVIRONMENTAL CONSULTING DURING THE MONTH OF NOVEMBER 2016 AND APPROVED IN AN ORDER OF RESOURCE AREA DELINEATION DATED MAY 11, 2017, DEP FILE #307-0752.

FLOOD NOTE:

- BY EXAMINATION OF THE CURRENTLY APPLICABLE FEMA FLOOD MAP A PORTION OF THIS PROPERTY IS LOCATED WITHIN A ZONE X (AREAS OF 0.2% ANNUAL CHANCE; AREAS OF 1% CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE) AS SHOWN ON THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL NO. 25009C402F, 25009C404F, 25009C406F AND 25009C408F WITH AN EFFECTIVE DATE OF JULY 3, 2012.

SITE PLAN NOTES:

- THE DEFINITIVE SUBDIVISION WAS DESIGNED AS A COMPREHENSIVE PLAN TAKING INTO CONSIDERATION THE DEVELOPMENT OF THE ROADWAY AND THE HOUSE LOTS.

THE GRADING PLAN SHALL BE ADHERED TO BY THE SITE CONTRACTOR FOR THE ROADWAY CONSTRUCTION. INDIVIDUAL LOT DEVELOPMENT SHOULD ALSO CONFORM TO THE SUBDIVISION GRADING PLAN TO THE EXTENT PRACTICABLE. IF DEVIATIONS FROM THE SUBDIVISION GRADING PLAN ARE PROPOSED, THE LOT DESIGN ENGINEER SHALL TAKE PRECAUTIONS TO ENSURE THAT THE INTENT OF THE ORIGINAL DESIGN IS MET AS A RESULT OF THE VARIED PLAN.

- AFTER CONSTRUCTION, AND DURING THE INITIAL VEGETATION ESTABLISHMENT PERIOD, THE SITE SHOULD BE INSPECTED AFTER EVERY RAINFALL UNTIL FULL STABILIZATION IS ACHIEVED.
- SUBDRAINS SHALL BE INSTALLED WITHIN ALL CUT AREAS.
- ALL HANDICAP CURB RAMPS, SIDEWALKS AND DRIVEWAY CURB CUTS SHALL COMPLY WITH 521 CMR: MASSACHUSETTS ARCHITECTURAL ACCESS BOARD REGULATIONS.

WATER SUPPLY NOTE:

- THE PARCEL IS NOT SITUATED IN A ZONE A: SURFACE DRINKING WATER SUPPLY OR AN IWP/ZONE II GROUNDWATER DRINKING WATER SUPPLY.

ZONING TABLES FOR CONVENTIONAL LOTS:

DIMENSIONS FOR INNER RESIDENTIAL & AGRICULTURAL ZONING DISTRICT (IRA)

SETBACK	REQUIRED
AREA	40,000 S.F. (1)
FRONTAGE	150 FT. (1)
DEPTH	150 FT.
WIDTH	120 FT. AT BUILDING LINE
FRONT	20 FT.
SIDE	15 FT.
REAR	40 FT.
HEIGHT/STORIES	35 FT./2.5
MAXIMUM BUILDING AREA	25%
MINIMUM OPEN SPACE	50%

DIMENSIONS FOR OUTLYING RESIDENTIAL & AGRICULTURAL ZONING DISTRICT (ORA)

SETBACK	REQUIRED
AREA	87,120 S.F.
FRONTAGE	200 FT.
DEPTH	200 FT.
WIDTH	160 FT. AT BUILDING LINE
FRONT	20 FT.
SIDE	20 FT.
REAR	40 FT.
HEIGHT/STORIES	35 FT./2.5
MAXIMUM BUILDING AREA	15%
MINIMUM OPEN SPACE	50%

ZONING TABLE NOTES:

- REQUIREMENT PURSUANT TO TOPSFIELD ZONING BYLAW REVISED THROUGH
- EACH LOT MUST FIT A 100' DIAMETER CIRCLE WHERE ONLY 10% OF THE CIRCLE IS WITHIN THE BUFFER ZONE TO A WETLAND RESOURCE AREA.
- THE MINIMUM BUILDABLE AREA IS 30,000 SF.
- SEE SECTION 4 OF THE TOPSFIELD ZONING BYLAW.

STORM DRAIN NOTES:

- STORMWATER CONVEYANCE PIPES SHALL BE HDPE, DOUBLE WALL, SMOOTH INTERIOR PIPE, CONFORMING H-20 LOADING CAPACITY UNLESS NOTED OTHERWISE.
- BACKFILL SHALL BE COMPACTED TO 95% PERCENT IN ACCORDANCE WITH ASTM DESIGNATION 1557-70, METHOD D.
- SHEETING, IF USED, SHALL BE REMOVED PRIOR TO BACKFILLING TRENCHES.
- UNSUITABLE SOIL BELOW THE INVERT SHALL BE REMOVED AND REPLACED WITH APPROVED MATERIAL AND SHALL NOT BE USED AS BACKFILL.
- UNSUITABLE MATERIALS SHALL BE REMOVED FROM BENEATH THE INFILTRATION FACILITIES AND REPLACED WITH CLEAN, GRANULAR FILL MEETING THE ASTM C33 SPECIFICATIONS (CONCRETE SAND).
- CATCH BASIN AND DRAIN MANHOLE RIM SIZES MAY NOT BE ILLUSTRATED TO SCALE.

GENERAL UTILITY NOTES:

- THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED UPON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DISSAFE" AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF UTILITIES AND THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION SHALL BE TAKEN BEFORE PROCEEDING WITH THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLAN.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING ALL CONTROL POINTS AND BENCHMARKS NECESSARY FOR THE WORK.
- THE CONTRACTOR SHALL COORDINATE WITH THE ELECTRIC, CABLE AND TELEPHONE COMPANIES TO VERIFY THE LOCATION, SIZE AND TYPE OF SAID UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL GIVE SAID UTILITY COMPANIES NO LESS THAN 72 HOURS ADVANCED NOTICE OF WHEN THE UTILITY LINES WILL BE INSTALLED.
- INDIVIDUAL UTILITY SERVICES FROM THE UTILITY MAIN TO THE EXTERIOR LINE OF THE R.O.W. SHALL BE CONSTRUCTED FOR EACH LOT WHETHER OR NOT THERE IS A BUILDING THEREON.
- HYDRANT CONNECTIONS FOR WATER USE DURING DEMOLITION SHALL BE COORDINATED WITH THE TOPSFIELD WATER DIVISION.
- COORDINATE BUILDING DEMOLITION WITH TOPSFIELD FIRE DEPARTMENT, CODE ADMINISTRATION AND BOARD OF HEALTH.

WATER AND SEPTIC NOTES:

- PROPOSED WATER SERVICE CONNECTIONS SHALL BE COORDINATED WITH THE TOPSFIELD WATER DEPARTMENT AND DEPARTMENT OF PUBLIC WORKS.
- ALL WATER MAINS SHALL BE INSTALLED WITH A MINIMUM OF 5' OF COVER.
- INSTALL THRUST BLOCKS OR APPROVED EQUIVALENT JOINT RESTRAINTS AT ALL WATER MAIN BENDS.
- AFTER COMPLETION OF THE NEW WATER MAINS AND WATER SERVICES AND BEFORE INITIAL PAVING, ALL UTILITIES SHALL BE TESTED IN THE PRESENCE OF THE TOPSFIELD WATER DEPARTMENT. ALL TESTING SHALL CONFORM TO THE TOPSFIELD WATER REGULATIONS AND SHALL BE IN COMPLIANCE WITH ASTM AND AWWA APPLICABLE REGULATIONS.
- EXISTING SEPTIC SYSTEMS SHALL BE ABANDONED IN ACCORDANCE WITH 310 CMR 15: TITLE 5 STANDARD REQUIREMENTS FOR THE SITING, CONSTRUCTION, INSPECTION, UPGRADE AND EXPANSION OF ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEMS AND FOR THE TRANSPORT AND DISPOSAL OF SEPTAGE.
- SOIL ABSORPTION SYSTEM AREAS FOR PROPOSED HOUSE LOTS AREA BASED ON A SIX (6) BEDROOM DESIGN FLOW OF 660 GALLONS PER DAY (GPD) IN ACCORDANCE WITH 310 CMR 15.00: STATE SANITARY CODE TITLE 5.

ROADWAY DESIGN REQUIREMENTS

REQUIREMENT	MINOR RESIDENTIAL
RIGHT-OF-WAY WIDTH	50 FT
MIN. GRADE	1%
MAX. GRADE	8%
INTERSECTION SEPARATION	125 FT
INTERSECTION RADII	25 FT
MINIMUM CENTERLINE RADII	150 FT
STOPPING SIGHT DISTANCE	200 FT
PASSING SIGHT DISTANCE	N/A

ROAD NOTES:

- THE PROPOSED ROAD IS CONSIDERED A "MINOR RESIDENTIAL" STREET.

EROSION AND SEDIMENTATION CONTROL:

WIDELY ACCEPTED PRACTICES FOR REDUCING EROSION AND SEDIMENTATION WILL BE EMPLOYED IN THE DEVELOPMENT OF THIS SITE. REFER TO THE STORMWATER POLLUTION PREVENTION PLAN FOR THE PROJECT.

- THE DEVELOPMENT OF THE SITE HAS BEEN PLANNED TO MATCH EXISTING DRAINAGE PATTERNS TO THE EXTENT PRACTICABLE.
- STEEP SLOPES, WHERE POSSIBLE, WILL NOT BE DISTURBED.
- NATURAL WETLANDS WILL BE PRESERVED AND PROTECTED EXCEPT AS DETAILED HEREIN, AND EXISTING VEGETATION WILL BE RETAINED AND PROTECTED TO THE EXTENT POSSIBLE.
- THE CONTRACTOR SHALL MINIMIZE THE AREA OF DISTURBED LAND TO THE EXTENT FEASIBLE.
- SEDIMENT CONTROL MEASURES WILL BE APPLIED TO CONTROL ANY SEDIMENTS THAT MAY BE PRODUCED AS A RESULT OF SITE CONSTRUCTION ACTIVITIES. EROSION AND DEPOSITION OF SEDIMENT WILL BE CLOSELY MONITORED DURING CONSTRUCTION.
- TEMPORARY EROSION CONTROL MEASURES WILL INCLUDE, BUT NOT BE LIMITED TO, FILTER FABRIC SILT FENCES, HAYBALE BARRIERS, SILT SOCKS, SEEDING AND MULCHING, SEEDED FILTER STRIPS AND SILT SACKS IN CATCH BASINS (EXISTING AND NEWLY INSTALLED).
- TOPSOIL STRIPPED FROM THE SITE WILL BE STOCKPILED FOR LOAMING AND SEEDING AT LATER CONSTRUCTION STAGES. THE STOCKPILES SHALL BE LOCATED SO AS TO ACT AS TEMPORARY DIVERSIONS, GENERALLY ON AN UPHILL SLOPE.
- SITE DEVELOPMENT WILL NOT COMMENCE UNTIL ALL TEMPORARY EROSION CONTROL MEASURES ARE IN PLACE. THESE MEASURES SHALL BE EMPLOYED UNTIL FINAL PAVING AND ADEQUATE VEGETATION HAS BEEN ESTABLISHED.
- THE TOPSFIELD CONSERVATION COMMISSION AND DEPARTMENT OF PUBLIC WORKS SHALL BE NOTIFIED AT LEAST 48 HOURS PRIOR TO CONSTRUCTION TO INSPECT EROSION CONTROLS TO BE IMPLEMENTED DURING CONSTRUCTION.
- THE CONSTRUCTION PHASE MUST COMPLY WITH THE ENVIRONMENTAL PROTECTION AGENCY (EPA) NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PROTOCOLS. AN EPA NOTICE OF INTENT SHALL BE SUBMITTED TO THE EPA AT LEAST 2 WEEKS PRIOR TO THE START OF CONSTRUCTION.

CONSTRUCTION SEQUENCE:

TO PREVENT EXCESSIVE EROSION AND SILTING, THE FOLLOWING CONSTRUCTION SEQUENCE COUPLED WITH OTHER WIDELY ACCEPTED PRINCIPLES FOR REDUCING EROSION AND SEDIMENTATION SHALL BE IMPLEMENTED IN THE DEVELOPMENT OF THE SITE.

- THE CONTRACTOR SHALL COORDINATE A PRE-CONSTRUCTION MEETING AT LEAST 48 HOURS PRIOR TO ANY CONSTRUCTION ACTIVITY WITH THE OWNER (OWNER'S REPRESENTATIVE), PLANNING DEPARTMENT REPRESENTATIVE AND ANY OTHER INTERESTED TOWN DEPARTMENT REPRESENTATIVES.
- STABILIZATION PRACTICES FOR EROSION AND SEDIMENT CONTROL SHALL BE INSTALLED PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES. PLACE EROSION CONTROLS AT LOCATIONS INDICATED ON THE SITE DEVELOPMENT PLANS.
- CONSTRUCT STABILIZED CONSTRUCTION ENTRANCES AT THE LOCATIONS NOTED.
- ALL CATCH BASINS SHALL BE PROTECTED WITH SILT SACK SEDIMENT TRAPS.
- IN PREPARING TO REMOVE PAVEMENT AND MATERIALS FROM THE WORK AREA ON THE SITE, CAREFUL CONSIDERATION SHOULD BE MADE TO THE EXTENT OF DISTURBANCE SO AS NOT TO DISTURB MORE OF THE SITE THAN WHAT IS INTENDED TO BE IMMEDIATELY DEVELOPED AND RE-STABILIZED.
- LOAM AND TOP SOIL EXCAVATED FROM THE WORK AREA SHALL BE HAULED FROM THE PROPERTY AND STOCK PILED AT A LOCATION TO BE DETERMINED BY THE SITE CONTRACTOR. IF MATERIALS ARE STOCKPILED ON THE SITE WHERE THEY WILL NOT INTERFERE WITH CONSTRUCTION ACTIVITIES, THEY SHALL BE LOCATED SO AS TO MINIMIZE THE POTENTIAL FOR EROSION INTO EXISTING DRAINAGE INFRASTRUCTURE. STOCKPILES SHALL BE STABILIZED WITH HAYBALES, SILT FENCING OR EQUIVALENT. STOCKPILES LEFT FOR GREATER THAN 14 DAYS SHALL BE SEEDED WITH AN EROSION CONTROL MIX.
- REMOVAL OF ALL DEBRIS OR MATERIAL FROM THE WORK AREA SHALL BE DISPOSED OF IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS UNDER THE OVERSIGHT OF A LICENSED SITE PROFESSIONAL (LSP).

WAIVERS:

- SECTION 5.12.3.e: WAIVER REQUESTED TO USE HDPE, DOUBLE WALLED, SMOOTH INTERIOR PIPE IN PLACE OF REINFORCED CONCRETE DRAIN PIPE.
- SECTION 5.3: WAIVER REQUESTED TO ALLOW 12" CURB INSTEAD OF 8" CURB.

ANTICIPATED PERMITS:

- DEFINITIVE SUBDIVISION
- TOPSFIELD STORMWATER AND EROSION CONTROL PERMIT
- SCENIC ROAD PERMIT
- EPA NPDES PERMIT

ZONING DISTRICTS:

- INNER RESIDENTIAL & AGRICULTURAL ZONING DISTRICT (IRA)
- OUTLYING RESIDENTIAL & AGRICULTURAL ZONING DISTRICT (ORA)
- GROUNDWATER PROTECTION DISTRICT
- IPSWICH RIVER PROTECTION DISTRICT

RIVERWOOD ESTATES  
DEFINITIVE SUBDIVISION

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PREPARED FOR  
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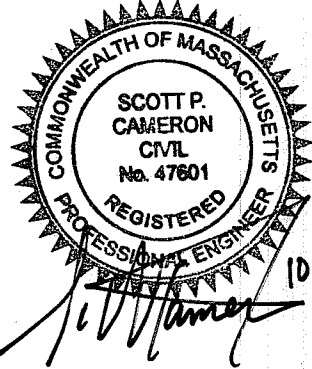
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\_\_\_\_\_

TOPSFIELD PLANNING BOARD



GENERAL NOTES,  
LEGEND &  
ABBREVIATIONS

DRAWING NO.

2 of 20



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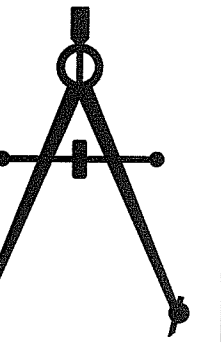
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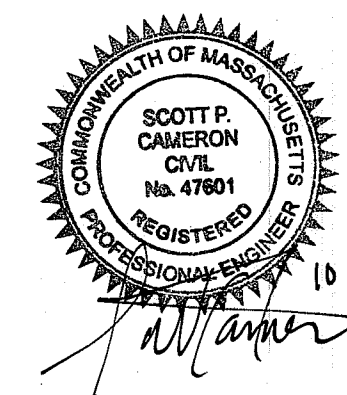
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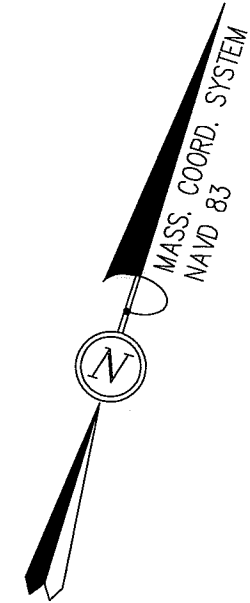
INDEX PLAN &  
KEY MAP

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SCALE: 1" = 40'  
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ZONING DISTRICT: INNER RESIDENTIAL AND  
AGRICULTURE (IRA) / OUTLYING RESIDENTIAL  
AND AGRICULTURAL (ORA)

The  
**Morin-Cameron**  
GROUP, INC.

CIVIL ENGINEERS | ENVIRONMENTAL CONSULTANTS  
LAND SURVEYORS | LAND USE PLANNERS  
66 ELM STREET, DANVERS, MASSACHUSETTS 01923  
P: 978-777-8586, F: 978-774-3488, W: WWW.MORINCAMERON.COM

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN  
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REGULATIONS OF THE REGISTERS OF DEEDS OF THE  
COMMONWEALTH OF MASSACHUSETTS.

*Peter J. McGoldrick* 10/16/17  
MASSACHUSETTS REGISTERED  
PROFESSIONAL LAND SURVEYOR DATE

I, \_\_\_\_\_ CLERK OF THE TOWN OF  
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DATE TOWN CLERK

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BOOK No. \_\_\_\_\_, PAGE No. \_\_\_\_\_

APPROVAL UNDER THE SUBDIVISION  
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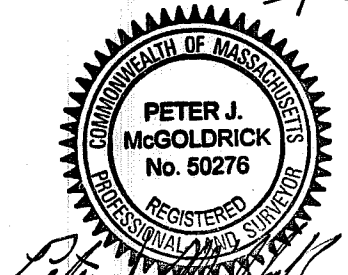
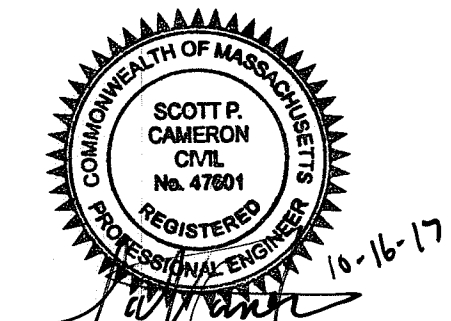
DATE OF APPLICATION: OCTOBER 17, 2017

DATE OF HEARING: \_\_\_\_\_

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DATE OF ENDORSEMENT: \_\_\_\_\_

TOPSFIELD PLANNING BOARD



PLAN KEY  
NOT TO SCALE

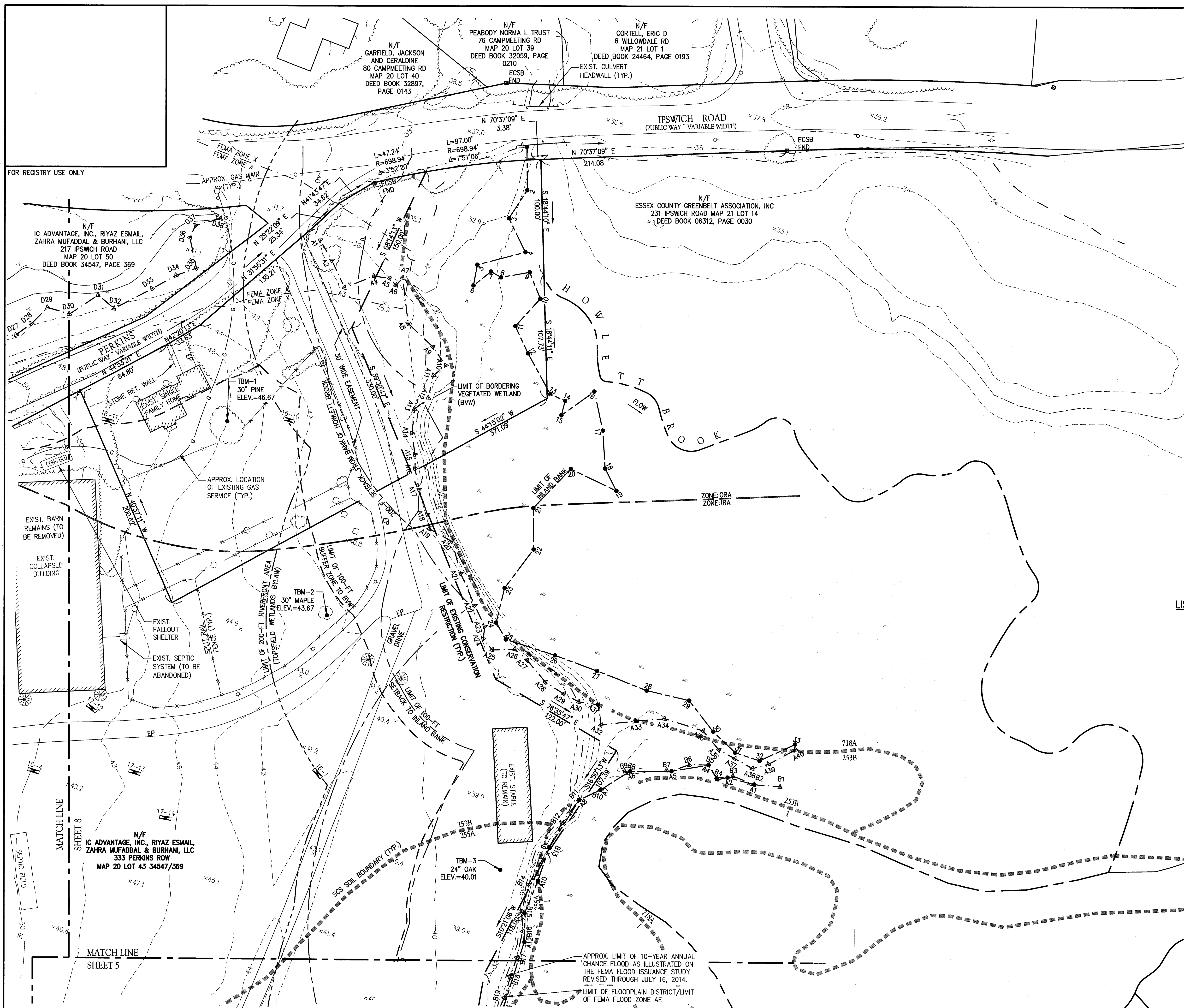
EXISTING  
CONDITIONS I

DRAWING NO.

4 OF 20

LIST OF BENCHMARKS (NAVD88 DATUM):

NUMBER	DESCRIPTION	ELEVATION
1	SPIKE 30" PINE	46.67
2	SPIKE 30" MAPLE	43.67
3	SPIKE 24" OAK	40.01
4	SPIKE 30" OAK	37.36
5	SPIKE 30" OAK	46.47
6	SPIKE 24" PINE	63.97
7	HEADBOLT (AT A IN AMERICAN) HYDRANT	61.78





RIVERWOOD ESTATES  
DEFINITIVE SUBDIVISION  
AT  
303 & 333 PERKINS ROW  
(ASSESSOR'S MAPS 27 & 20, LOT 43)  
TOPSFIELD, MASSACHUSETTS

PREPARED FOR  
BURHANI, LLC

OCTOBER 16, 2017

SCALE: 1" = 40'  
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*Scott P. Cameron* 10/16/17  
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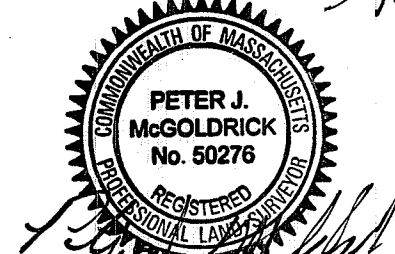
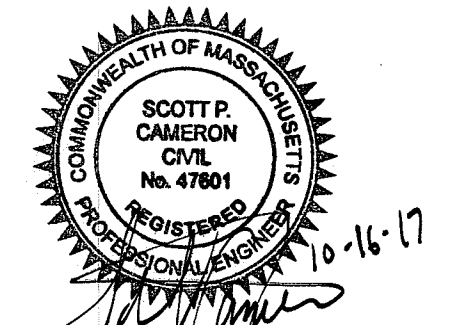
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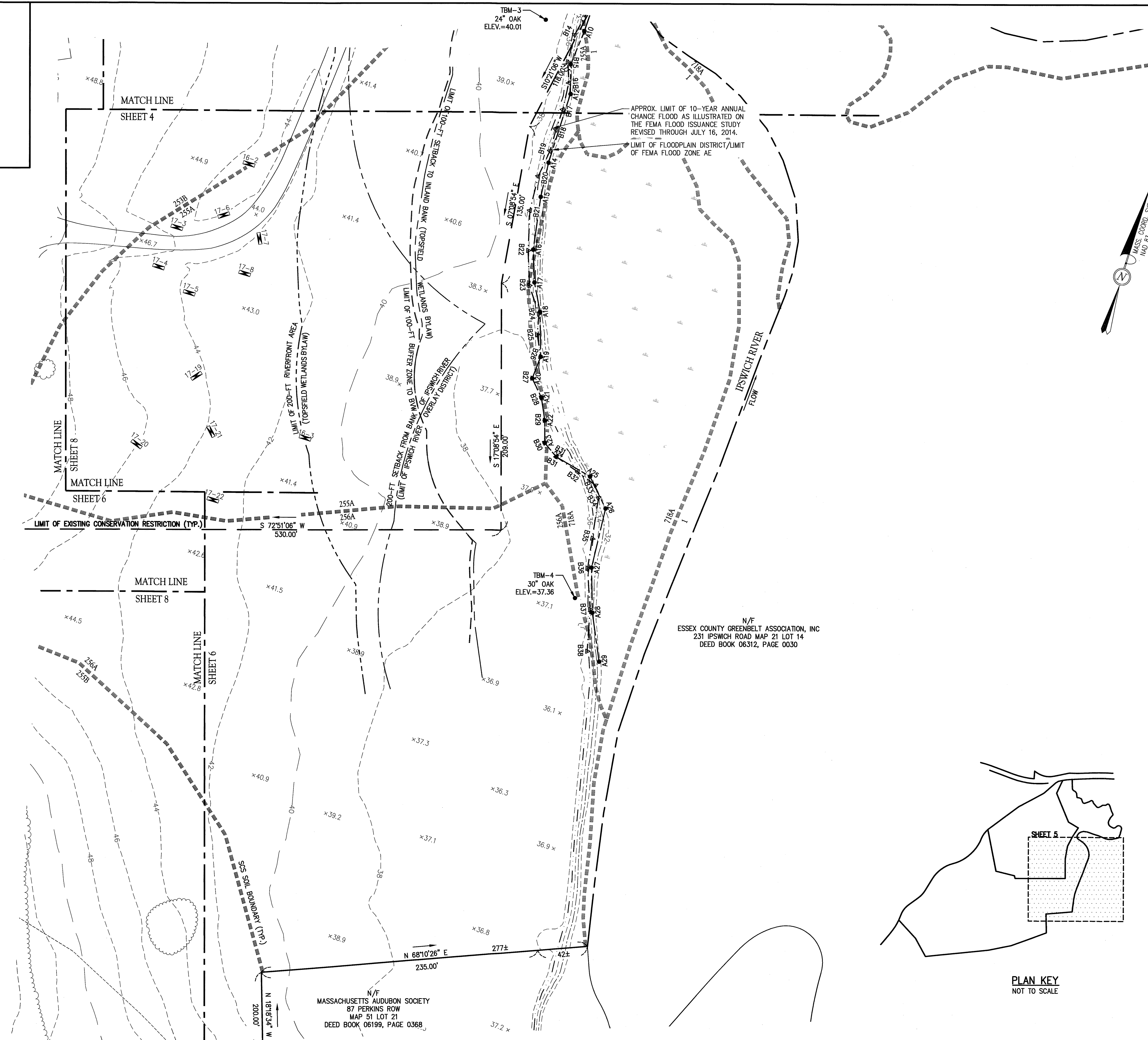


EXISTING  
CONDITIONS II

DRAWING NO.

5 OF 20

10/16/17  
PROJ. #3460  
DRAWING: 3460 LAYOUT



PLAN KEY  
NOT TO SCALE

FOR REGISTRY USE ONLY

RIVERWOOD ESTATES  
DEFINITIVE SUBDIVISION  
AT  
303 & 333 PERKINS ROW  
(ASSESSOR'S MAPS 27 & 20, LOT 43)  
TOPSFIELD, MASSACHUSETTS

PREPARED FOR  
BURHANI, LLC

OCTOBER 16, 2017

SCALE: 1" = 40'  
ZONING DISTRICT: INNER RESIDENTIAL AND  
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*Peter J. McGoldrick* 10/16/17  
MASSACHUSETTS REGISTERED  
PROFESSIONAL LAND SURVEYOR DATE

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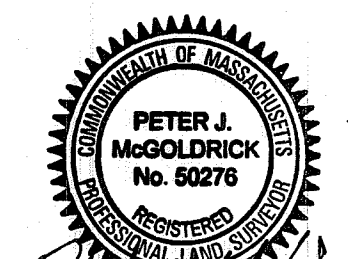
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TOPSFIELD PLANNING BOARD



PLAN KEY  
NOT TO SCALE

PROJ. #3460  
DRAWING: 3460 LAYOUT



EXISTING  
CONDITIONS III

DRAWING NO.

6 OF 20

FOR REGISTRY USE ONLY

APPROX. LIMIT OF FLOODPLAIN DISTRICT/LIMIT OF FEMA FLOOD  
ZONE A: AREA SUBJECT TO INUNDATION BY THE 1-PERCENT  
ANNUAL CHANCE FLOOD EVENT AS ILLUSTRATED ON THE FLOOD  
INSURANCE RATE MAP COMMUNITY PANEL NO. #25009C0-268F,  
WHICH HAS AN EFFECTIVE DATE OF JULY 3, 2012.

AREA OBSCURED DUE TO DENSE VEGETATION

N/F  
MASSACHUSETTS AUDUBON SOCIETY  
87 PERKINS ROW  
MAP 51 LOT 21  
DEED BOOK 06199, PAGE 0368



RIVERWOOD ESTATES  
DEFINITIVE SUBDIVISION  
AT  
303 & 333 PERKINS ROW  
(ASSESSOR'S MAPS 27 & 20, LOT 43)  
TOPSFIELD, MASSACHUSETTS

PREPARED FOR  
BURHANI, LLC

OCTOBER 16, 2017

SCALE: 1" = 40'  
0 20 40 80 160  
ZONING DISTRICT: INNER RESIDENTIAL AND  
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*Peter J. McGoldrick* 10/16/17  
MASSACHUSETTS REGISTERED  
PROFESSIONAL LAND SURVEYOR DATE

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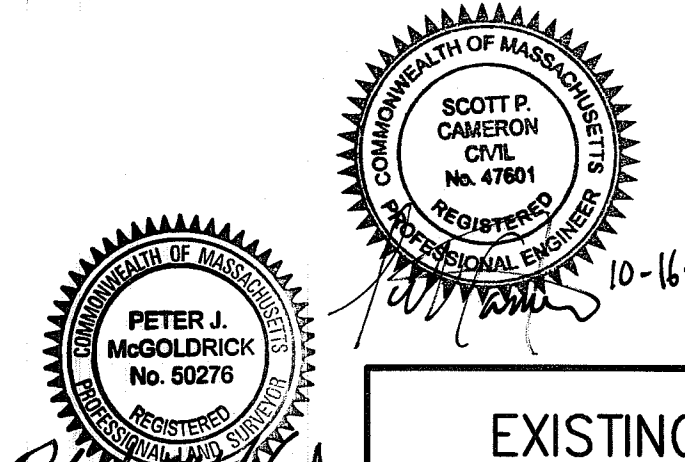
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TOPSFIELD PLANNING BOARD



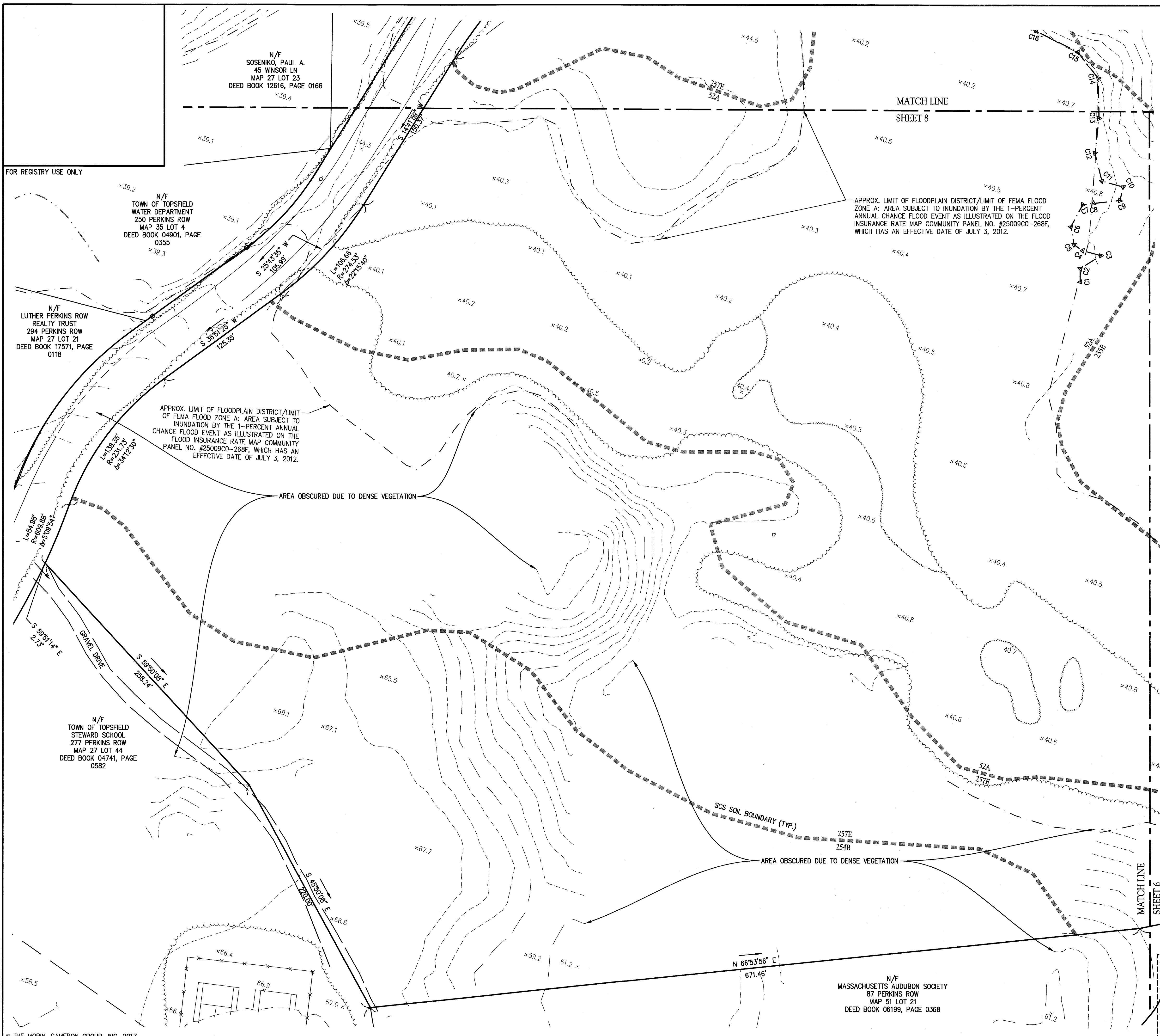
PLAN KEY  
NOT TO SCALE

PROJ. #3460  
DRAWING: 3460 LAYOUT

EXISTING  
CONDITIONS IV

DRAWING NO.

7 OF 20



FOR REGISTRY USE ONLY

N/F  
LUTHER PERKINS ROW  
REALTY TRUST  
294 PERKINS ROW  
MAP 27 LOT 21  
DEED BOOK 17571, PAGE  
0118

N/F  
SOSENKO, PAUL A.  
45 WINSOR LN  
MAP 27 LOT 23  
DEED BOOK 12616, PAGE 0166

N/F  
TOWN OF TOPSFIELD  
WATER DEPARTMENT  
250 PERKINS ROW  
MAP 35 LOT 4  
DEED BOOK 04901, PAGE  
0355

N/F  
TOWN OF TOPSFIELD  
STEWART SCHOOL  
277 PERKINS ROW  
MAP 27 LOT 44  
DEED BOOK 04741, PAGE  
0582

N/F  
MASSACHUSETTS AUDUBON SOCIETY  
87 PERKINS ROW  
MAP 51 LOT 21  
DEED BOOK 06199, PAGE 0368



RIVERWOOD ESTATES  
DEFINITIVE SUBDIVISION  
AT  
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PREPARED FOR  
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OCTOBER 16, 2017

SCALE: 1" = 40'  
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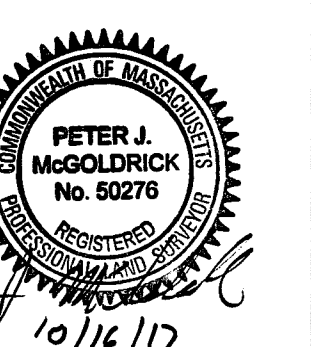
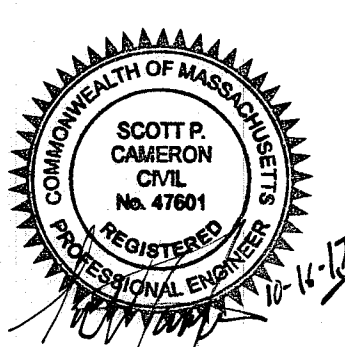
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TOPSFIELD PLANNING BOARD



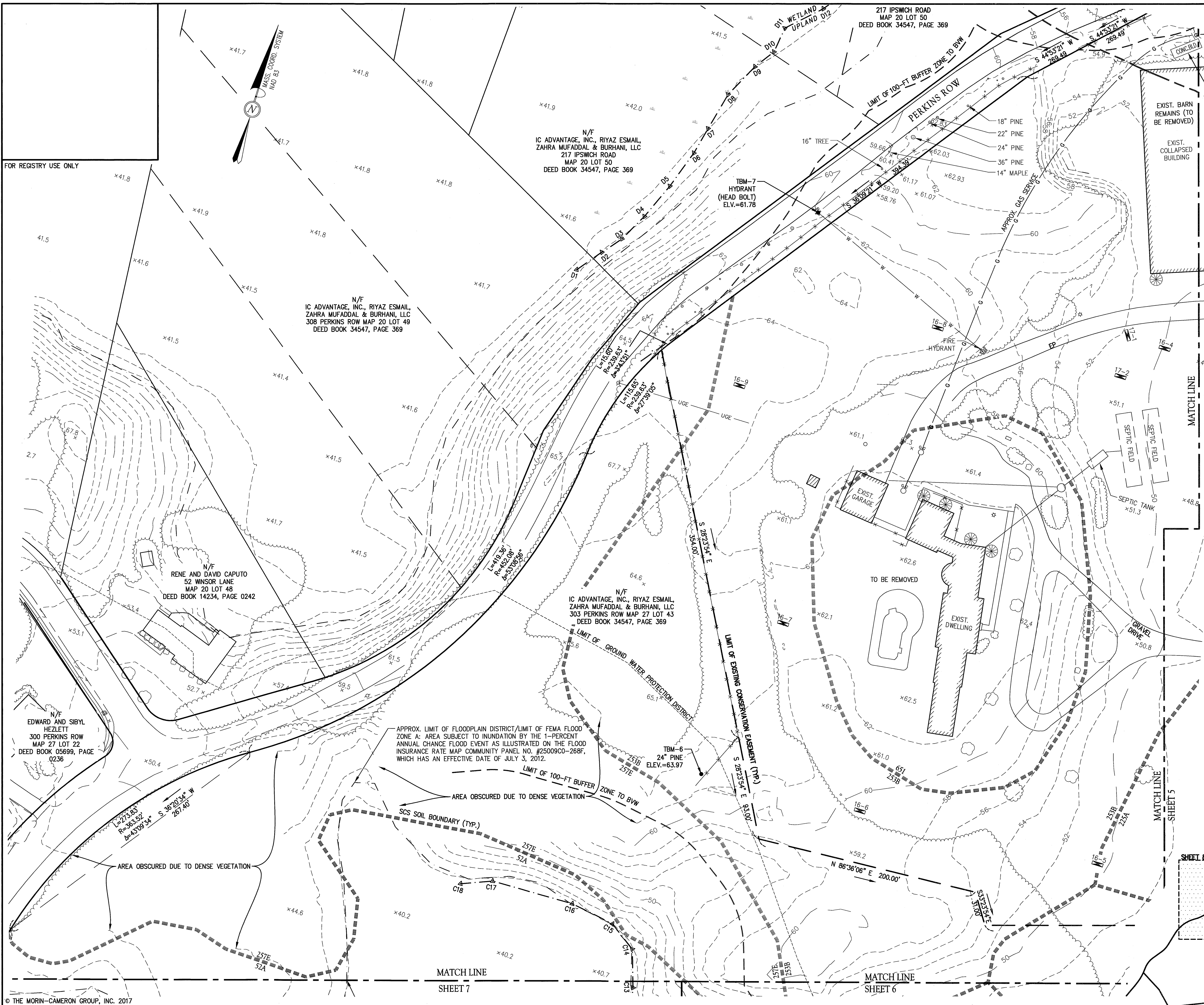
PLAN KEY  
NOT TO SCALE

EXISTING  
CONDITIONS V

DRAWING NO.

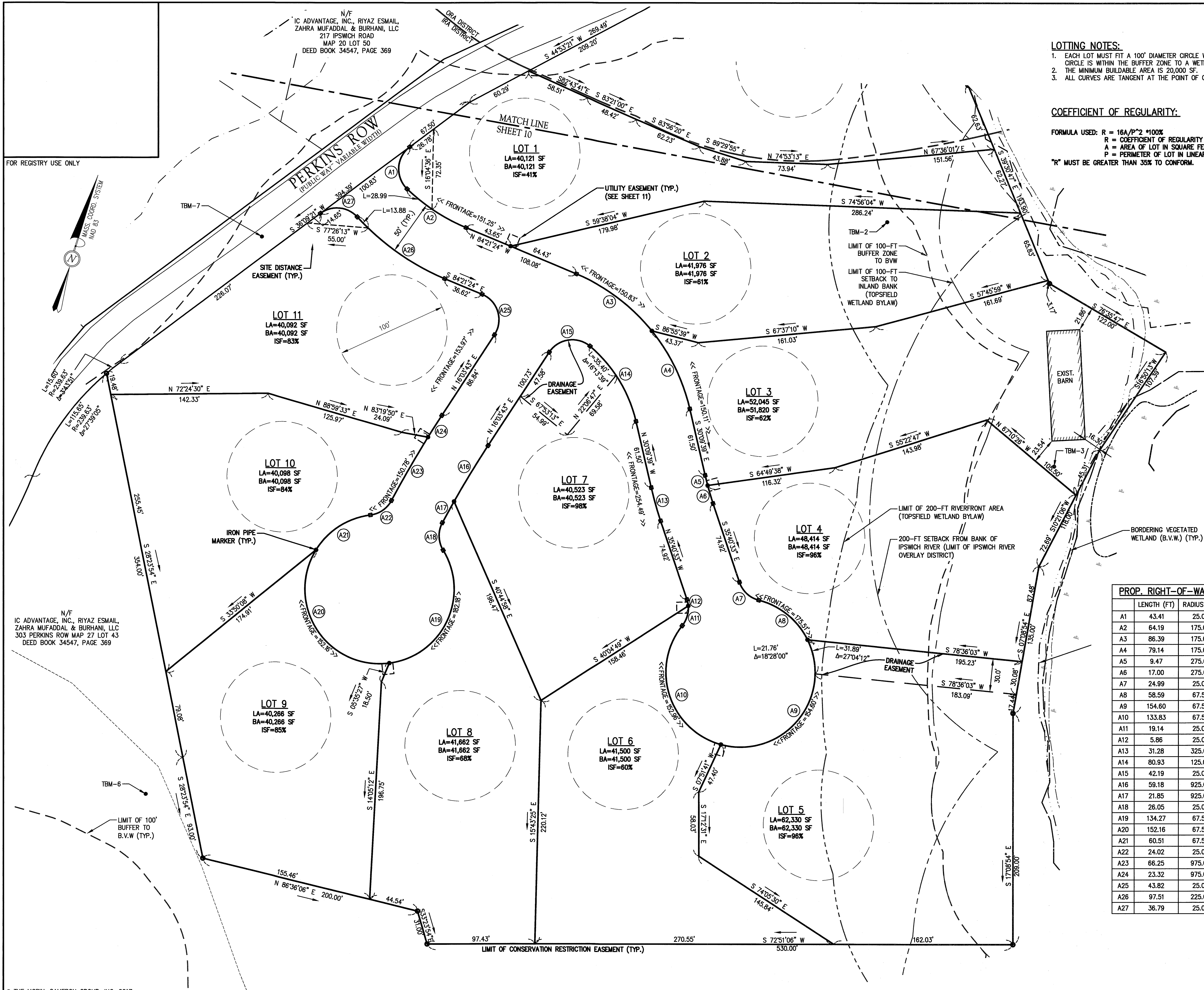
8 OF 20

PROJ. #3460  
DRAWING: 3460 LAYOUT



FOR REGISTRY USE ONLY





- LOTING NOTES:**
1. EACH LOT MUST FIT A 100' DIAMETER CIRCLE WHERE ONLY 10% OF THE CIRCLE IS WITHIN THE BUFFER ZONE TO A WETLAND RESOURCE AREA.
  2. THE MINIMUM BUILDABLE AREA IS 20,000 SF.
  3. ALL CURVES ARE TANGENT AT THE POINT OF CURVATURE.

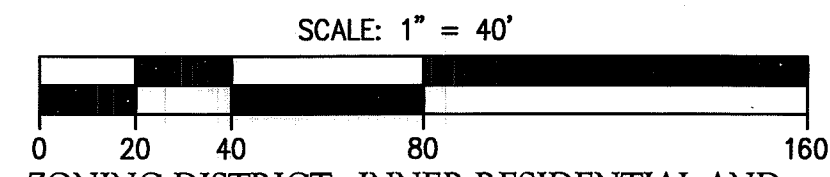
**COEFFICIENT OF REGULARITY:**

FORMULA USED:  $R = 16A/P^2 \times 100\%$   
R = COEFFICIENT OF REGULARITY  
A = AREA OF LOT IN SQUARE FEET  
P = PERIMETER OF LOT IN LINEAR FEET  
"R" MUST BE GREATER THAN 35% TO CONFORM.

**RIVERWOOD ESTATES  
DEFINITIVE SUBDIVISION**  
AT  
**303 & 333 PERKINS ROW**  
(ASSESSOR'S MAPS 27 & 20, LOT 43)  
**TOPSFIELD, MASSACHUSETTS**

PREPARED FOR  
**BURHANI, LLC**

OCTOBER 16, 2017



ZONING DISTRICT: INNER RESIDENTIAL AND  
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PROFESSIONAL LAND SURVEYOR

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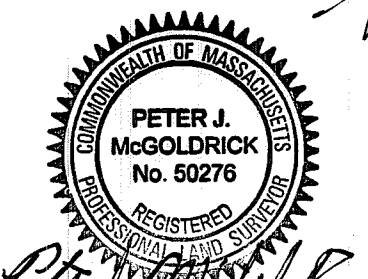
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TOPSFIELD PLANNING BOARD

PROP. RIGHT-OF-WAY ARC TABLE			
	LENGTH (FT)	RADIUS (FT)	DELTA
A1	43.41	25.00	94°29'49"
A2	64.19	175.00	21°00'55"
A3	86.39	175.00	28°17'04"
A4	79.14	175.00	25°54'41"
A5	9.47	275.00	01°58'22"
A6	17.00	275.00	03°32'32"
A7	24.99	25.00	57°16'46"
A8	58.59	67.50	49°44'10"
A9	154.60	67.50	131°13'43"
A10	133.83	67.50	113°35'40"
A11	19.14	25.00	43°51'37"
A12	5.86	25.00	13°25'09"
A13	31.28	325.00	5°30'54"
A14	80.93	125.00	37°05'47"
A15	42.19	25.00	96°40'51"
A16	59.18	925.00	3°39'53"
A17	21.85	925.00	1°21'11"
A18	26.05	25.00	59°42'10"
A19	134.27	67.50	113°58'32"
A20	152.16	67.50	129°09'22"
A21	60.51	67.50	51°21'59"
A22	24.02	25.00	55°02'27"
A23	66.25	975.00	3°53'35"
A24	23.32	975.00	1°22'13"
A25	43.82	25.00	100°25'07"
A26	97.51	225.00	24°49'51"
A27	36.79	25.00	84°19'07"



**LOTING PLAN I**

DRAWING NO.

9 OF 20

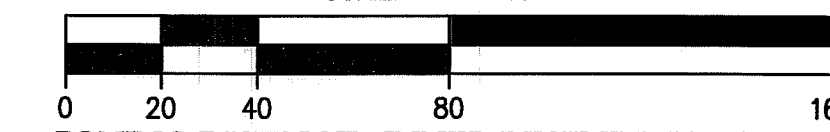
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(ASSESSOR'S MAPS 27 & 20, LOT 43)  
TOPSFIELD, MASSACHUSETTS

OCTOBER 16, 2017

SCALE: 1" = 40'



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*Peter M. Maher* 10/16/17  
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TOPSFIELD PLANNING BOARD

1. PLAN ENTITLED "PLAN OF LAND IN WILSFIELD, MA PROPERTY OF ROBERT W. AND KATHLEEN KATHREY BY DONOHUE AND PARKHURST, INC DATED FEBRUARY 16, 1993 AND SIGNED BY THE TOPSFIELD PLANNING BOARD FEBRUARY 16, 1993.
2. 1962 ESSEX COUNTY LAYOUT # 2947
3. 1935 ESSEX COUNTY LAYOUT # 2538
4. PLAN BOOK 136, PLAN 8
5. PLAN BOOK 125, PLAN 63
6. PLAN BOOK 124, PLAN 89
7. PLAN BOOK 99, PLAN 49
8. PLAN BOOK 98, PLAN 68
9. PLAN BOOK 96, PLAN 67
10. PLAN BOOK 95, PLAN 78
11. PLAN BOOK 87, PLAN 70
12. PLAN BOOK 85, PLAN 96
13. PLAN BOOK 64, PLAN 17
14. PLAN # 124 OF THE YEAR 1973
15. PLAN # 289 OF THE YEAR 1962

**DEED REFERENCES**

1. BOOK 34547, PAGE 369
2. BOOK 5958, PAGE 338
3. BOOK 5954, PAGE 413
4. BOOK 5040, PAGE 417
5. BOOK 4940, PAGE 171
6. BOOK 4919, PAGE 373
7. BOOK 4901, PAGE 355
8. BOOK 4733, PAGE 338
9. BOOK 6054, PAGE 306

LOTTING PLAN II

DRAWING NO.

10 of 20

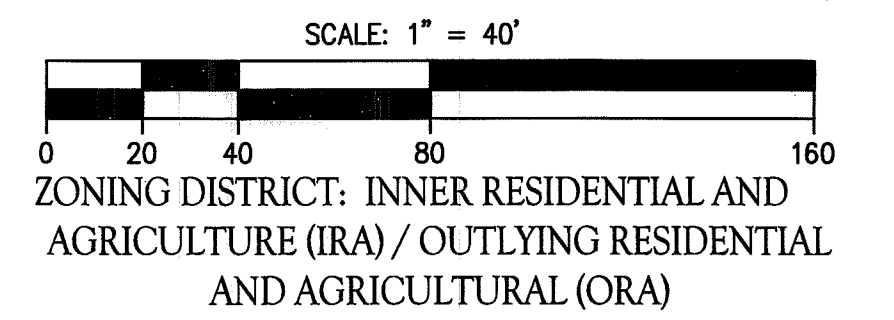
PROJ. #3460  
DRAWING: 3460 LAYOUT



RIVERWOOD ESTATES  
DEFINITIVE SUBDIVISION  
AT  
303 & 333 PERKINS ROW  
(ASSESSOR'S MAPS 27 & 20, LOT 43)  
TOPSFIELD, MASSACHUSETTS

PREPARED FOR  
BURHANI, LLC

OCTOBER 16, 2017



The  
**Morin-Cameron**  
**GROUP, INC.**

CIVIL ENGINEERS | ENVIRONMENTAL CONSULTANTS  
LAND SURVEYORS | LAND USE PLANNERS  
66 ELM STREET, DANVERS, MASSACHUSETTS 01923  
P: 978-777-8586, F: 978-774-3488, W: WWW.MORINCAMERON.COM

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN  
PREPARED IN CONFORMANCE WITH THE RULES AND  
REGULATIONS OF THE REGISTERS OF DEEDS OF THE  
COMMONWEALTH OF MASSACHUSETTS.

*Scott P. Cameron* 10/16/17  
MASSACHUSETTS REGISTERED  
PROFESSIONAL ENGINEER DATE

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

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BOOK No. \_\_\_\_\_, PAGE No. \_\_\_\_\_

APPROVAL UNDER THE SUBDIVISION  
CONTROL LAW REQUIRED

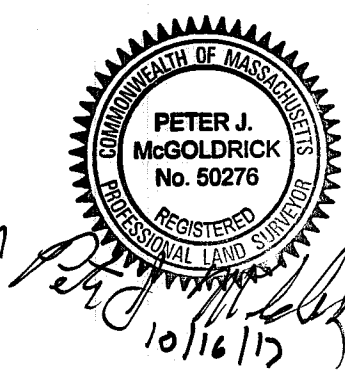
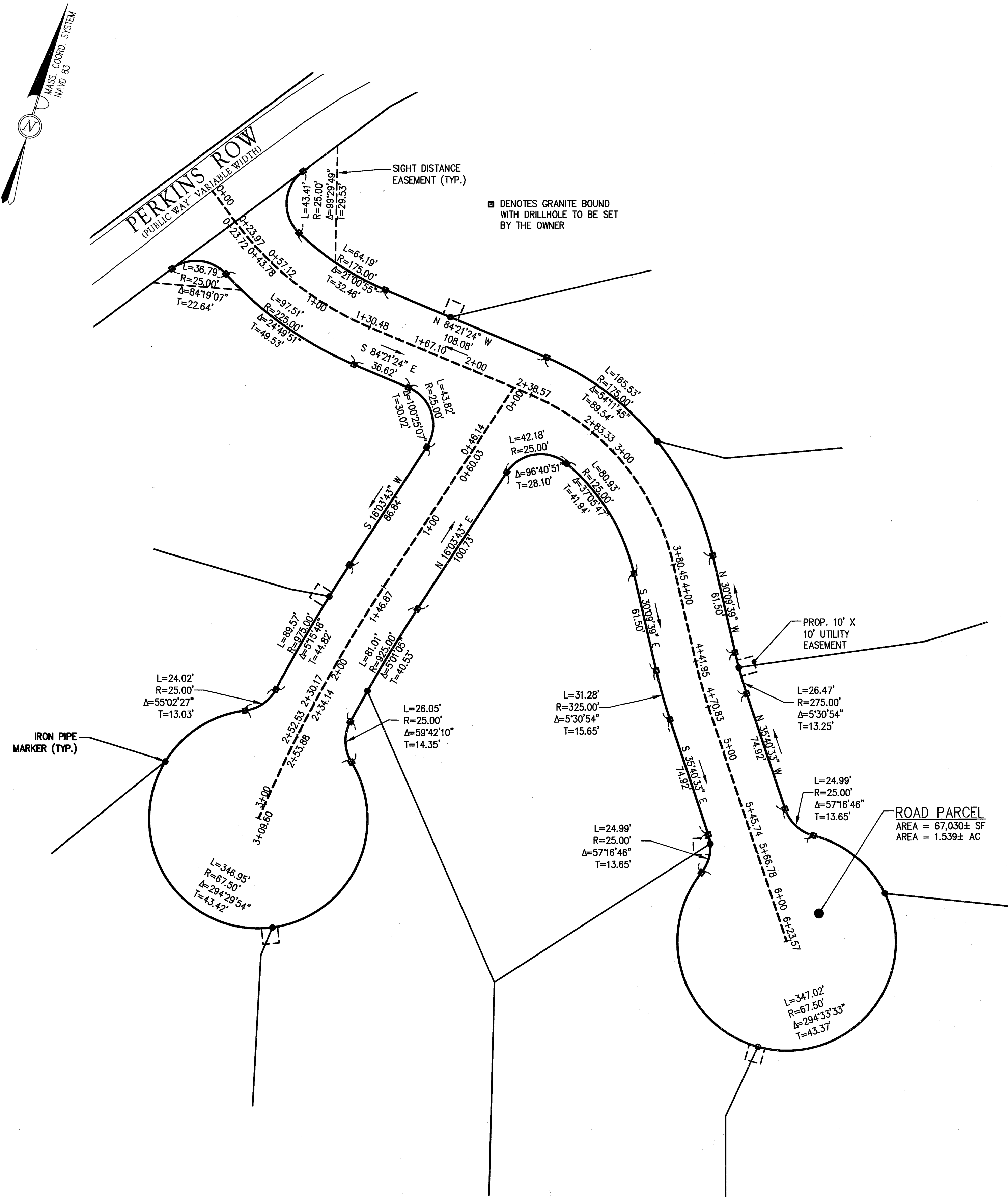
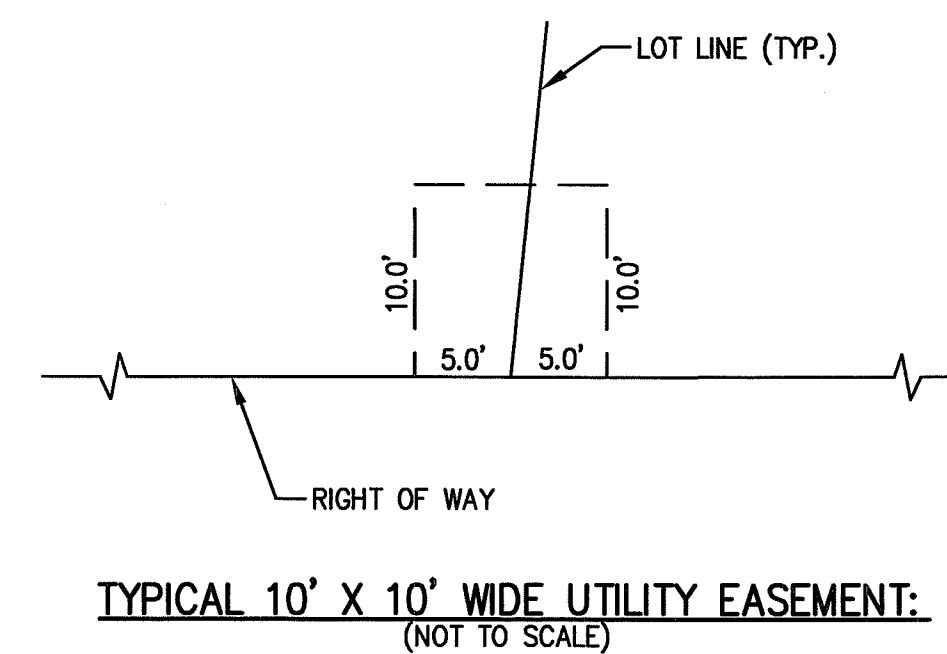
DATE OF APPLICATION: OCTOBER 17, 2017

DATE OF HEARING: \_\_\_\_\_

DATE OF APPROVAL: \_\_\_\_\_

DATE OF ENDORSEMENT: \_\_\_\_\_

TOPSFIELD PLANNING BOARD



ROAD GEOMETRY  
PLAN

DRAWING NO.  
11 OF 20

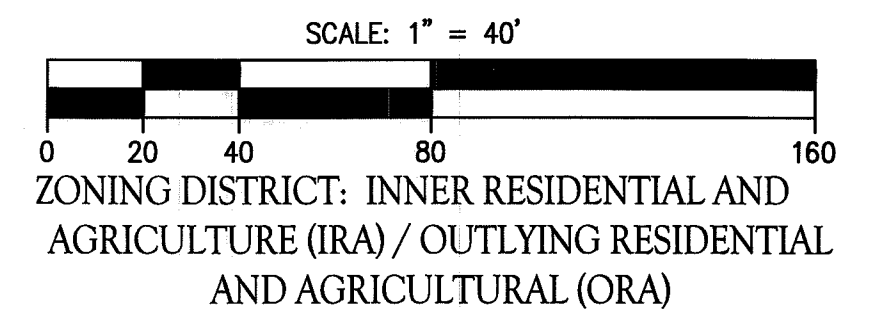
PROJ. #3480  
DRAWING: 3480 LAYOUT

FOR REGISTRY USE ONLY

RIVERWOOD ESTATES  
DEFINITIVE SUBDIVISION  
AT  
303 & 333 PERKINS ROW  
(ASSESSOR'S MAPS 27 & 20, LOT 43)  
TOPSFIELD, MASSACHUSETTS

PREPARED FOR  
BURHANI, LLC

OCTOBER 16, 2017



The  
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MASSACHUSETTS REGISTERED  
PROFESSIONAL ENGINEER  
10-16-17  
DATE

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BOOK No. \_\_\_\_\_, PAGE No. \_\_\_\_\_

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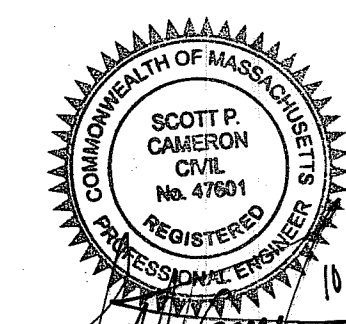
\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

TOPSFIELD PLANNING BOARD



SITE PLAN

DRAWING NO.

12 OF 20

PROJ. #3460  
DRAWING: 3460 LAYOUT

FOR REGISTRY USE ONLY



RIVERWOOD ESTATES  
DEFINITIVE SUBDIVISION  
AT  
303 & 333 PERKINS ROW  
(ASSESSOR'S MAPS 27 & 20, LOT 43)  
TOPSFIELD, MASSACHUSETTS

PREPARED FOR  
BURHANI, LLC

OCTOBER 16, 2017

SCALE: 1" = 40'  
0 20 40 80 160  
ZONING DISTRICT: INNER RESIDENTIAL AND  
AGRICULTURE (IRA) / OUTLYING RESIDENTIAL  
AND AGRICULTURAL (ORA)

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CONTROL LAW REQUIRED

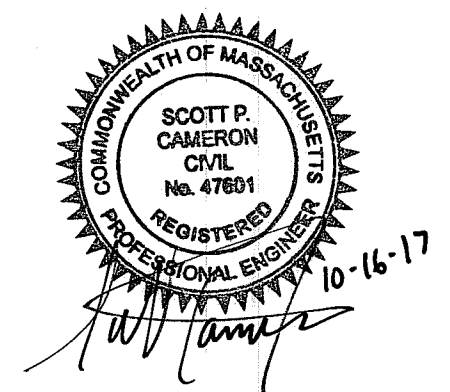
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TOPSFIELD PLANNING BOARD



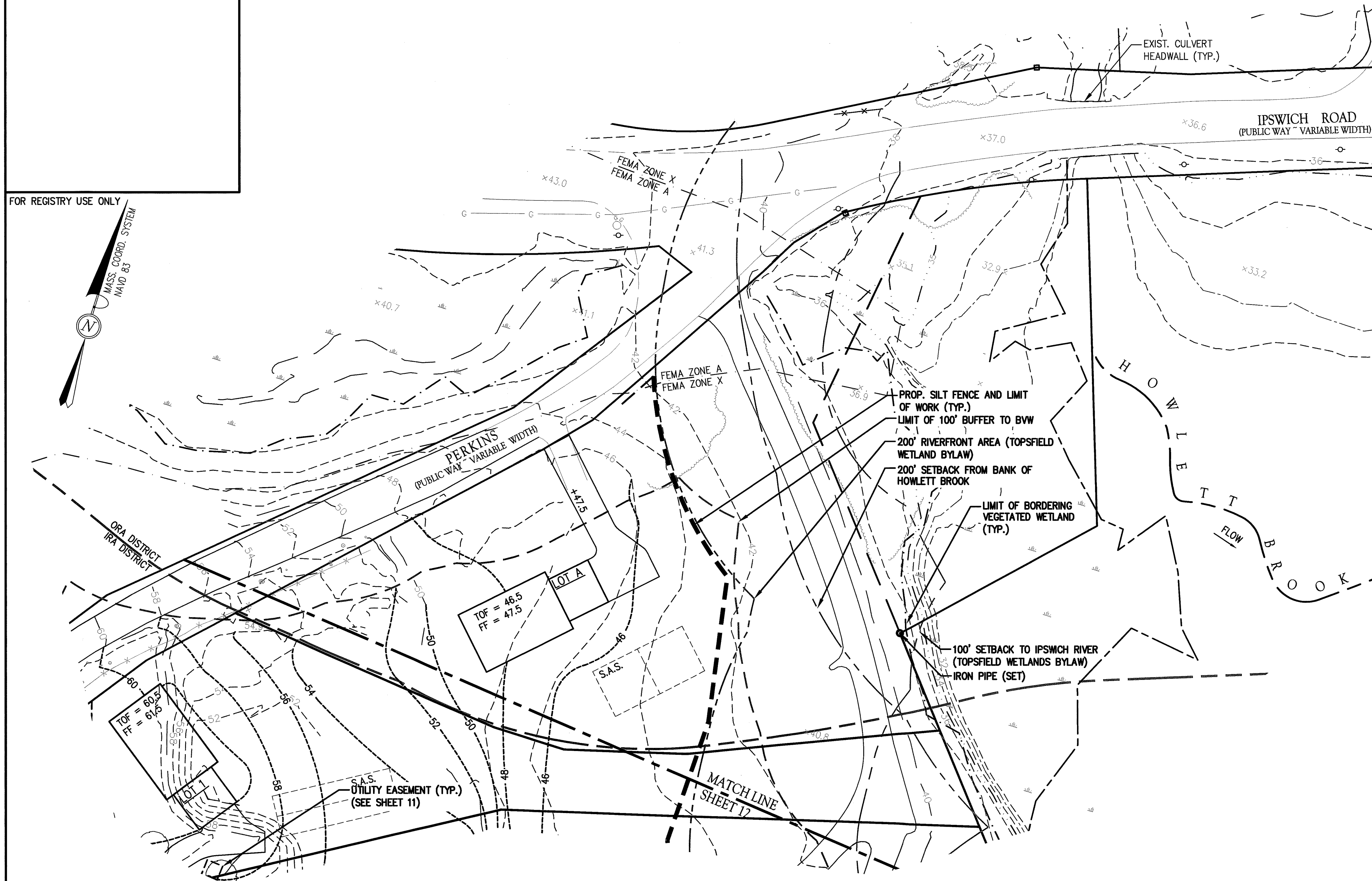
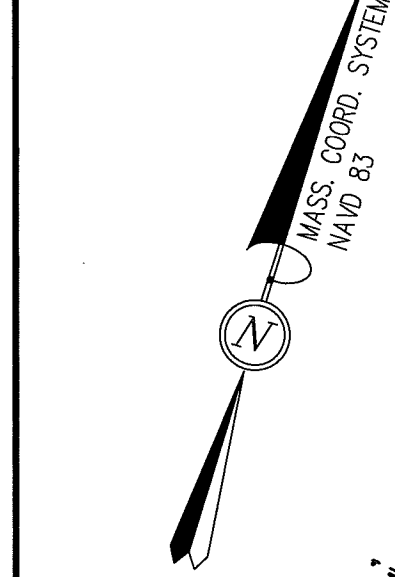
SITE PLAN II

DRAWING NO.

13 OF 20

PROJ. #3460  
DRAWING: 3460 LAYOUT

FOR REGISTRY USE ONLY



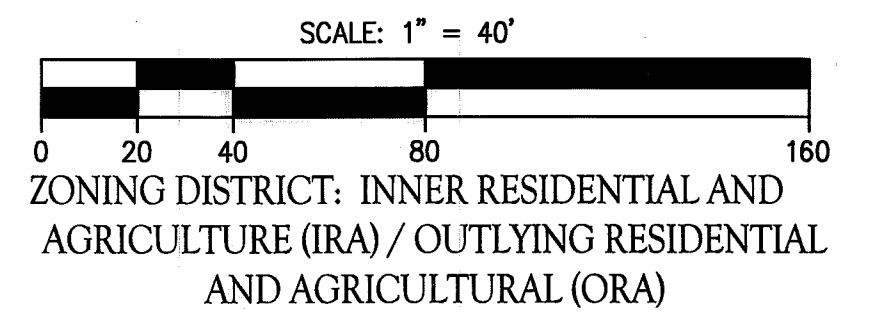
PIPE SCHEDULE

US STRUCTURE		DS	INVERT START	INVERT END	PIPE			NOTES
I.D.	RIM	STRUCTURE			SLOPE (FT/FT)	LENGTH (FT)	DIAMETER (IN)	
CB-1	61.43	DMH-1	55.55	55.00	0.037	15	12	
CB-2	61.28	DMH-1	56.35	55.00	0.040	34	12	
DMH-1	61.31	DMH-2	54.90	48.90	0.039	155	12	
DMH-2	57.13	DMH-3	48.90	47.90	0.021	47	12	
CB-3	53.85	DMH-3	50.06	49.70	0.005	78	12	
CB-4	53.85	DMH-3	49.43	47.90	0.019	81	15	
DMH-3	54.52	CDS-1	47.90	47.20	0.023	31	18	
CB-5	53.18	DMH-4	48.00	47.30	0.030	23	12	
CB-6	53.21	DMH-4	48.00	47.30	0.054	13	12	
DMH-4	52.70	CDS-1	47.30	47.20	0.012	8	12	
CDS-1	53.00	SSI-1	47.20	47.00	0.020	10	18	
SSI-1	-	OCS-1	48.50	47.80	0.088	8	12	
OCS-1	52.50	DMH-5	47.00	45.72	0.028	46	12	
CB-7	48.44	DMH-6	44.20	44.08	0.015	8	12	
CB-8	48.42	DMH-6	44.31	44.08	0.013	18	12	
DMH-5	50.00	DMH-6	45.72	44.08	0.016	105	12	
DMH-6	48.36	CDS-2	44.08	42.43	0.010	172	12	
CB-9	45.62	CDS-2	42.10	41.85	0.011	23	15	
CDS-2	45.85	SSI-2	41.85	41.50	0.088	4	15	
SSI-2	-	OCS-2	42.60	42.20	0.080	5	12	
OCS-2	46.28	HW-1	42.20	41.75	0.026	17	12	

RIVERWOOD ESTATES  
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AT  
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PREPARED FOR  
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OCTOBER 16, 2017



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MASSACHUSETTS REGISTERED  
PROFESSIONAL ENGINEER  
10-16-17  
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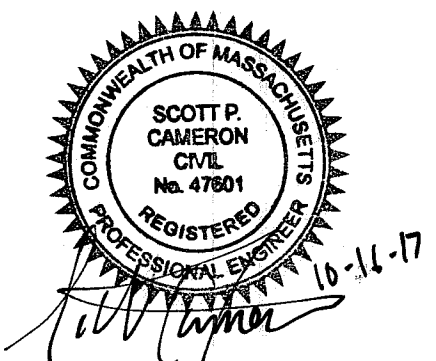
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TOPSFIELD PLANNING BOARD



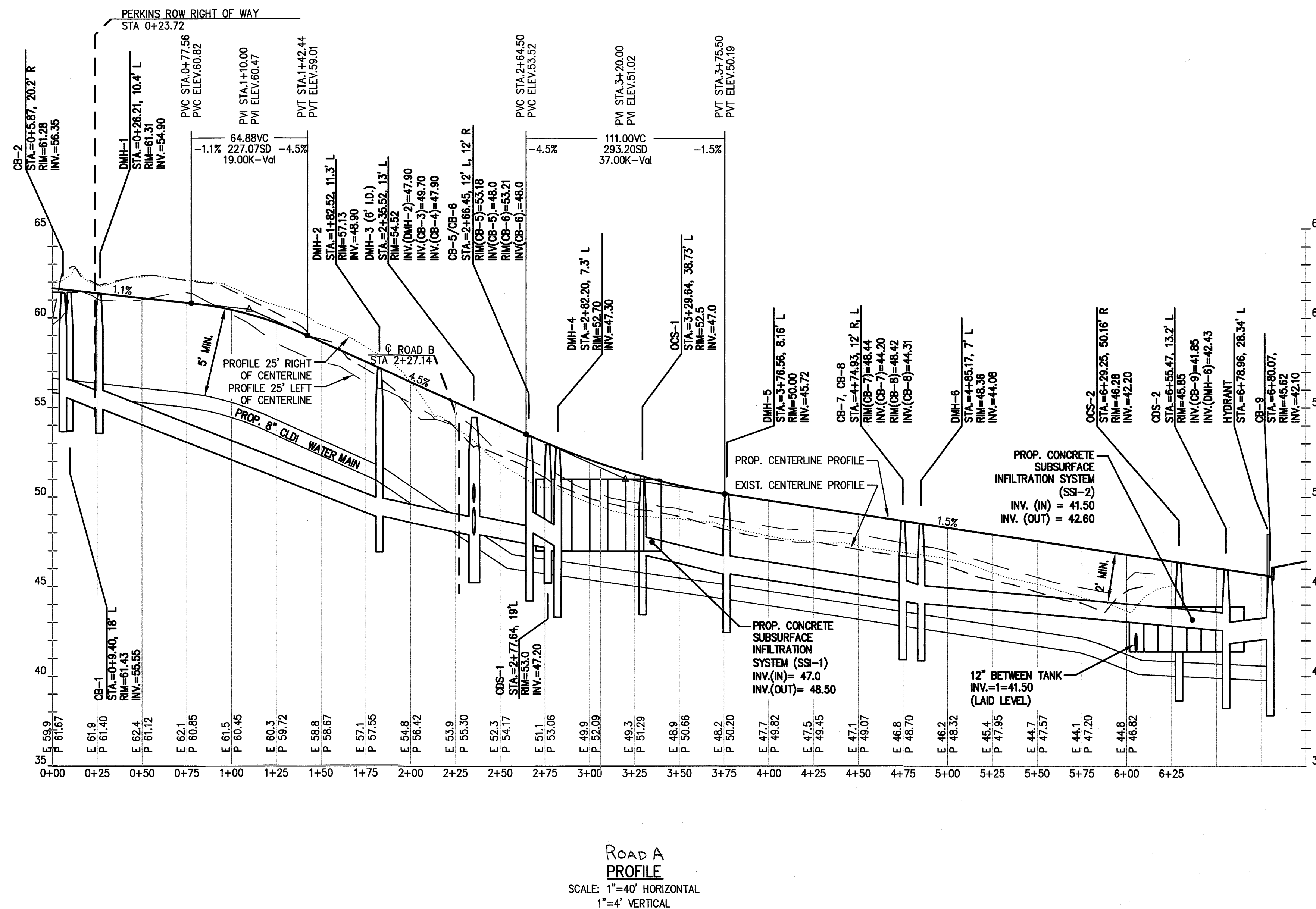
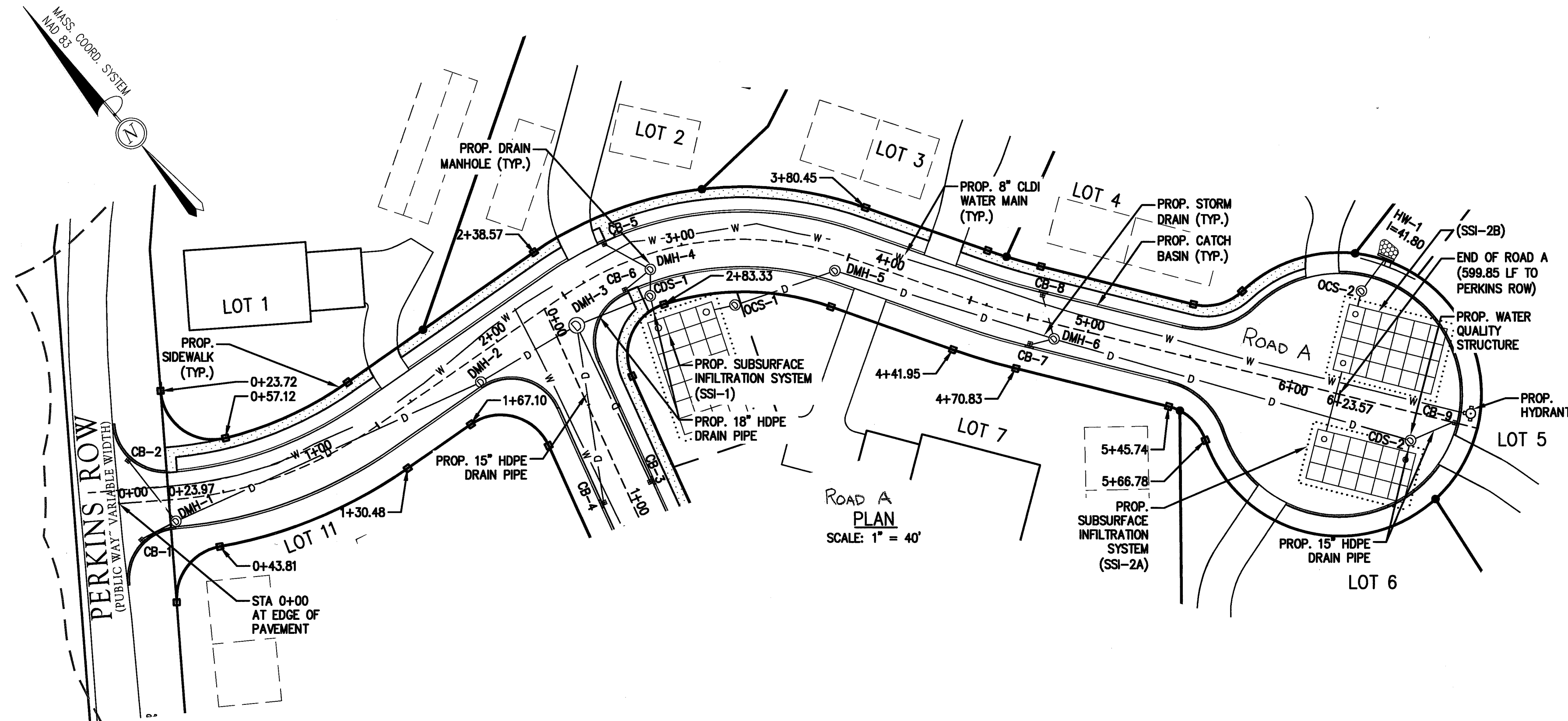
ROAD PLAN AND  
PROFILE I

DRAWING NO.

14 OF 20

PROJ. #3460  
DRAWING: 3460 LAYOUT

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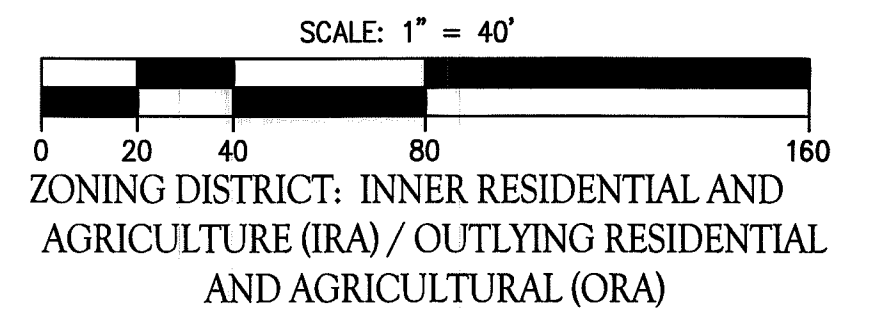




RIVERWOOD ESTATES  
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AT  
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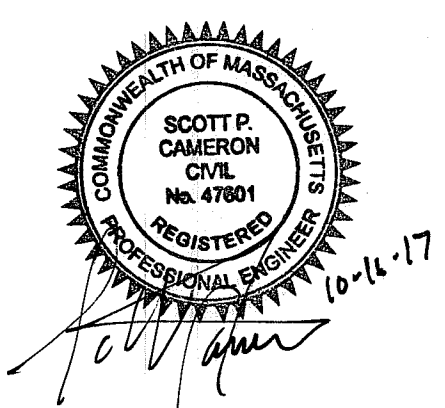
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TOPSFIELD PLANNING BOARD



ROAD PLAN AND  
PROFILE II

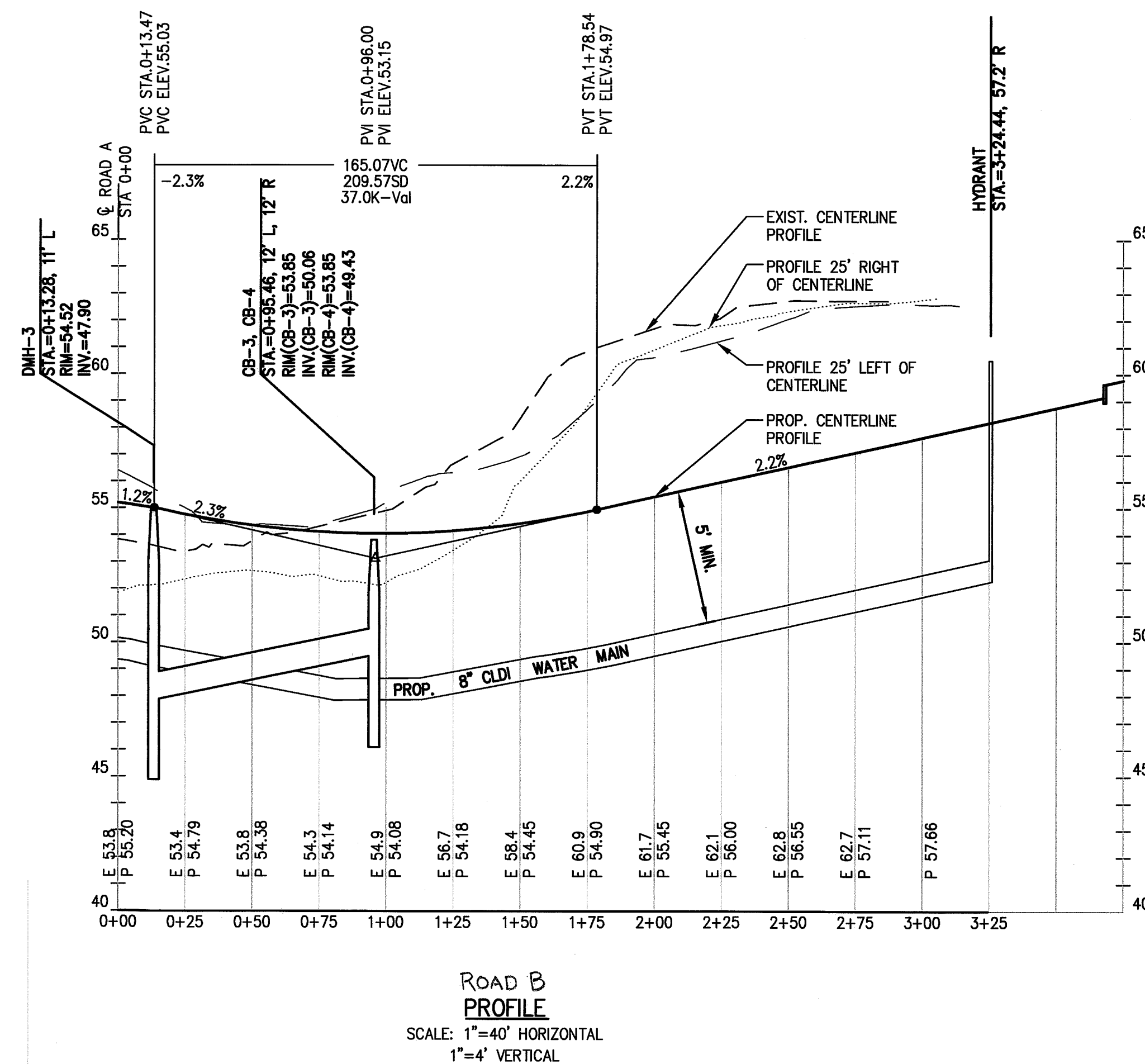
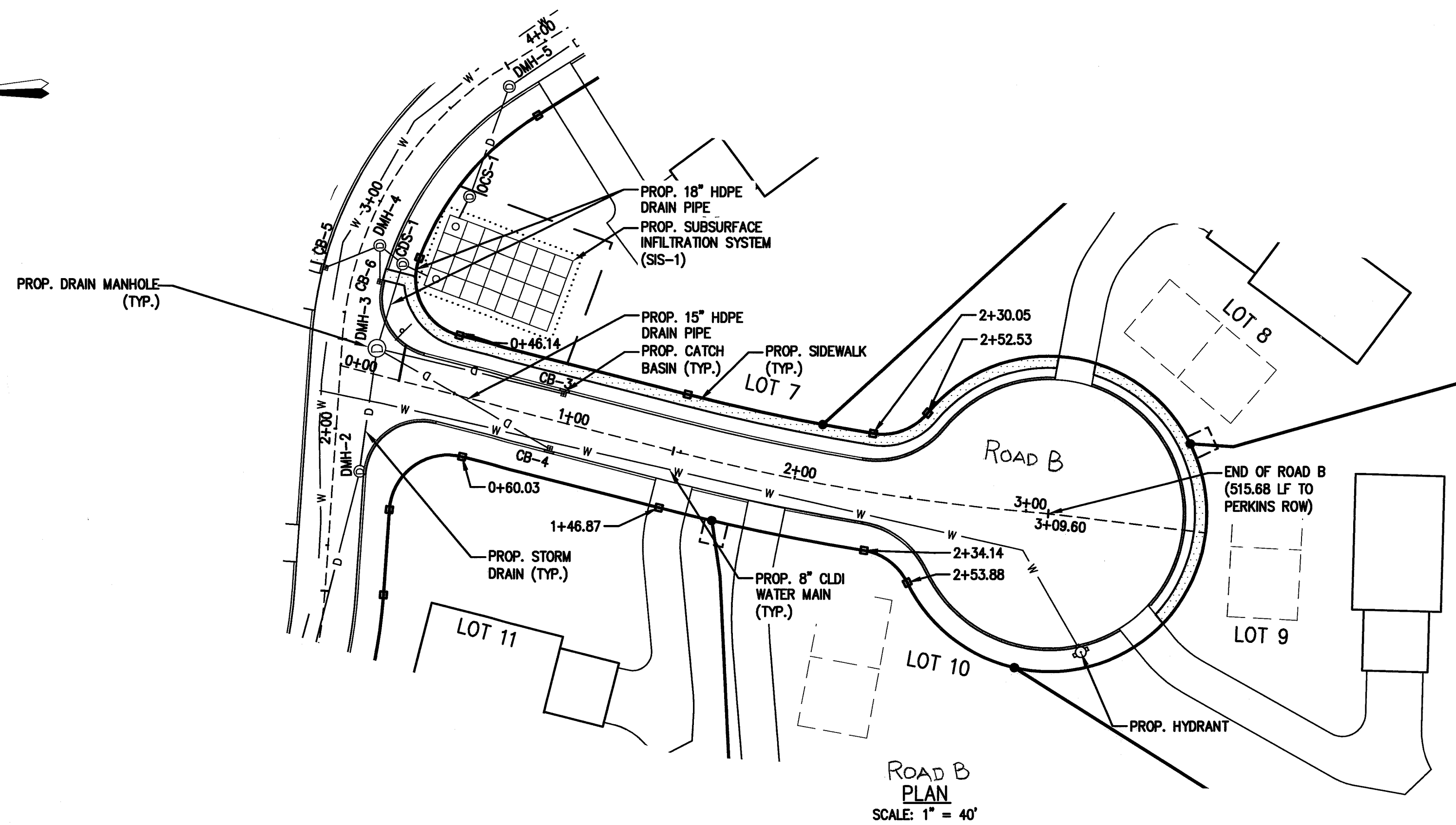
DRAWING NO.

15 of 20

PROJ. #3460  
DRAWING: 3460 LAYOUT

MASS. COORD. SYSTEM  
NAVD 83

FOR REGISTRY USE ONLY







RIVERWOOD ESTATES  
DEFINITIVE SUBDIVISION

AT  
303 & 333 PERKINS ROW

(ASSESSOR'S MAPS 27 & 20, LOT 43)  
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OCTOBER 16, 2017

ZONING DISTRICT: INNER RESIDENTIAL AND  
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*[Signature]*  
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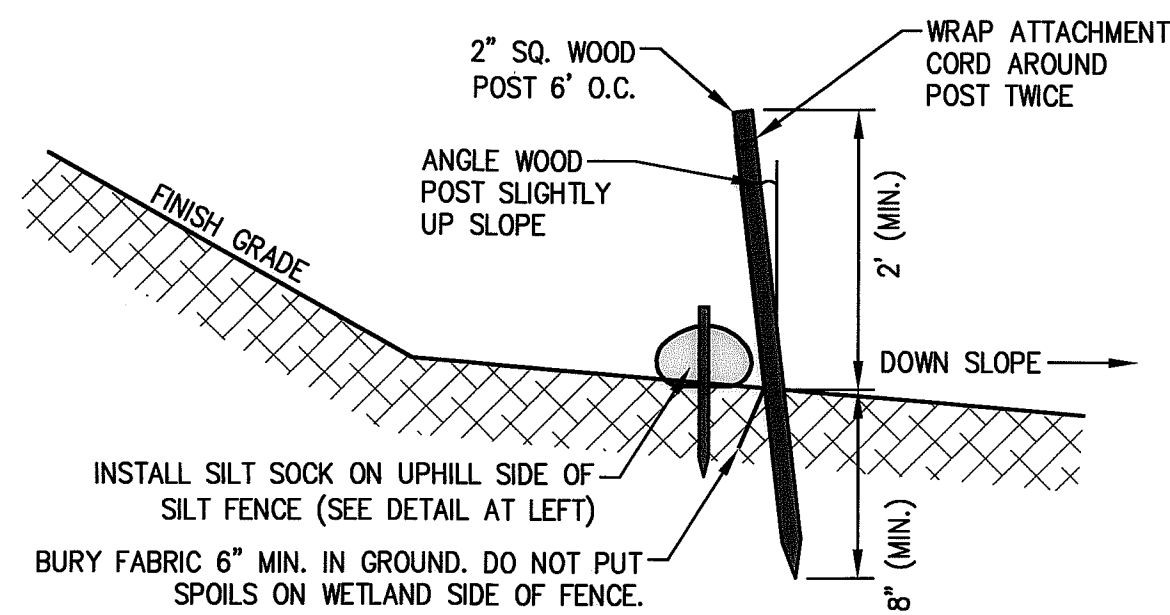
TOPSFIELD PLANNING BOARD



CONSTRUCTION  
DETAILS II

DRAWING NO.  
17 OF 20

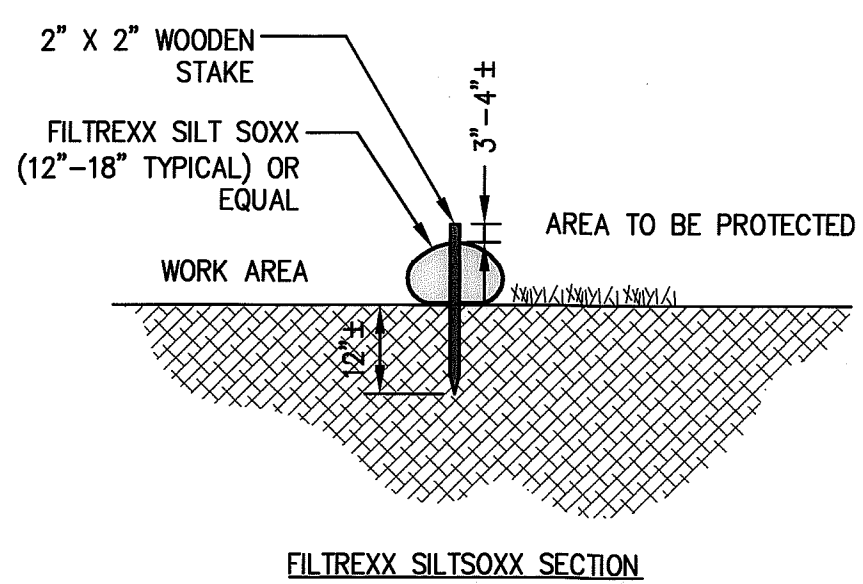
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DRAWING: 3460



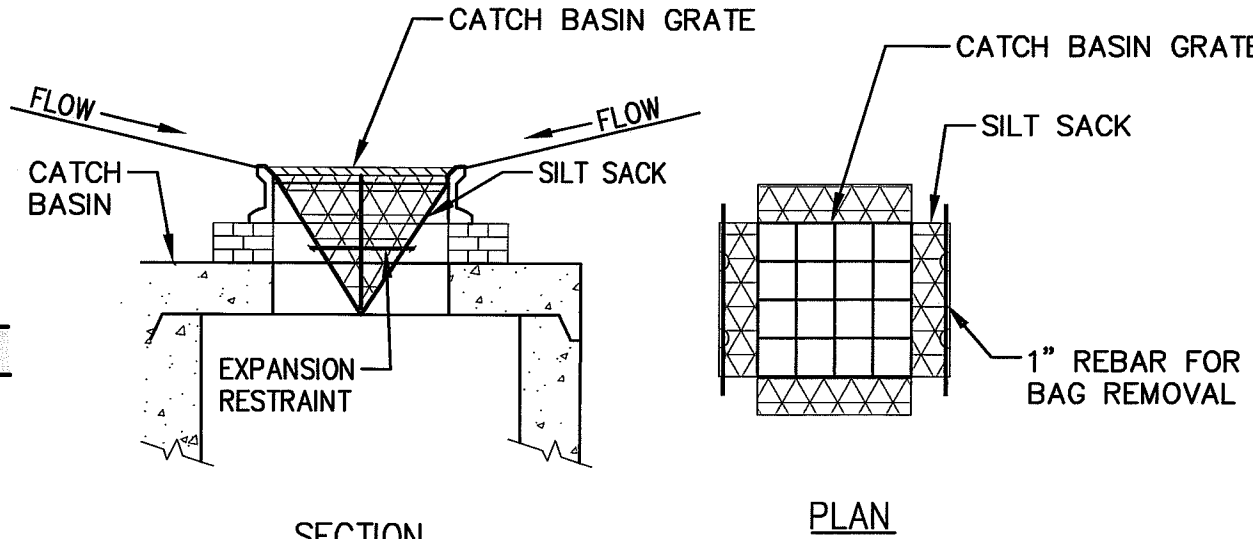
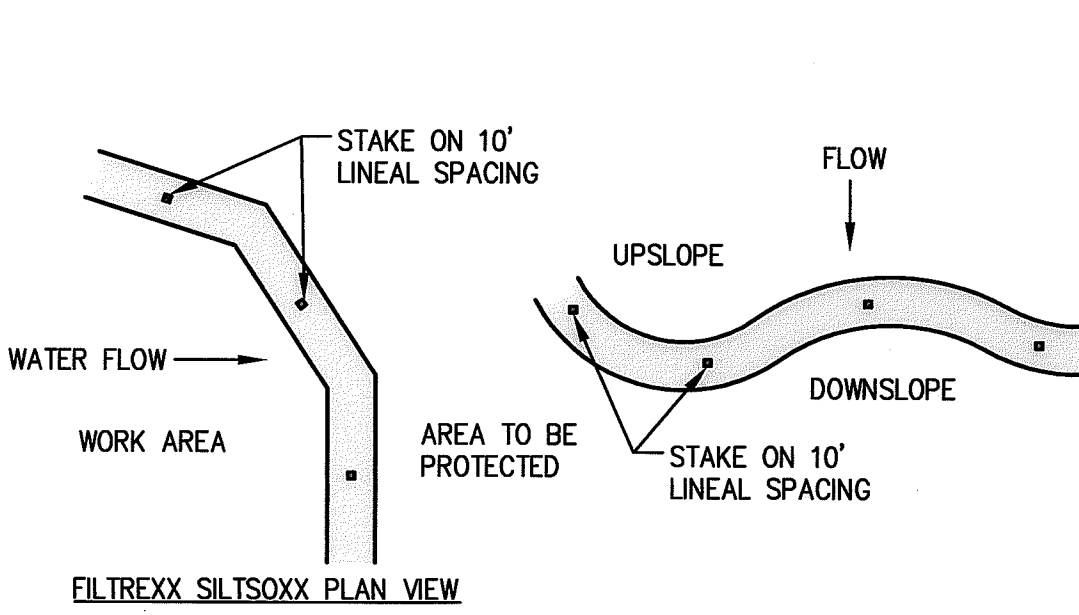
NOTES

1. SILT FENCE TO BE INSTALLED AROUND LIMIT OF WORK TO PREVENT OFFSITE MIGRATION OF SEDIMENT DURING CONSTRUCTION.

**SILT FENCE COMBINATION**  
(NOT TO SCALE)



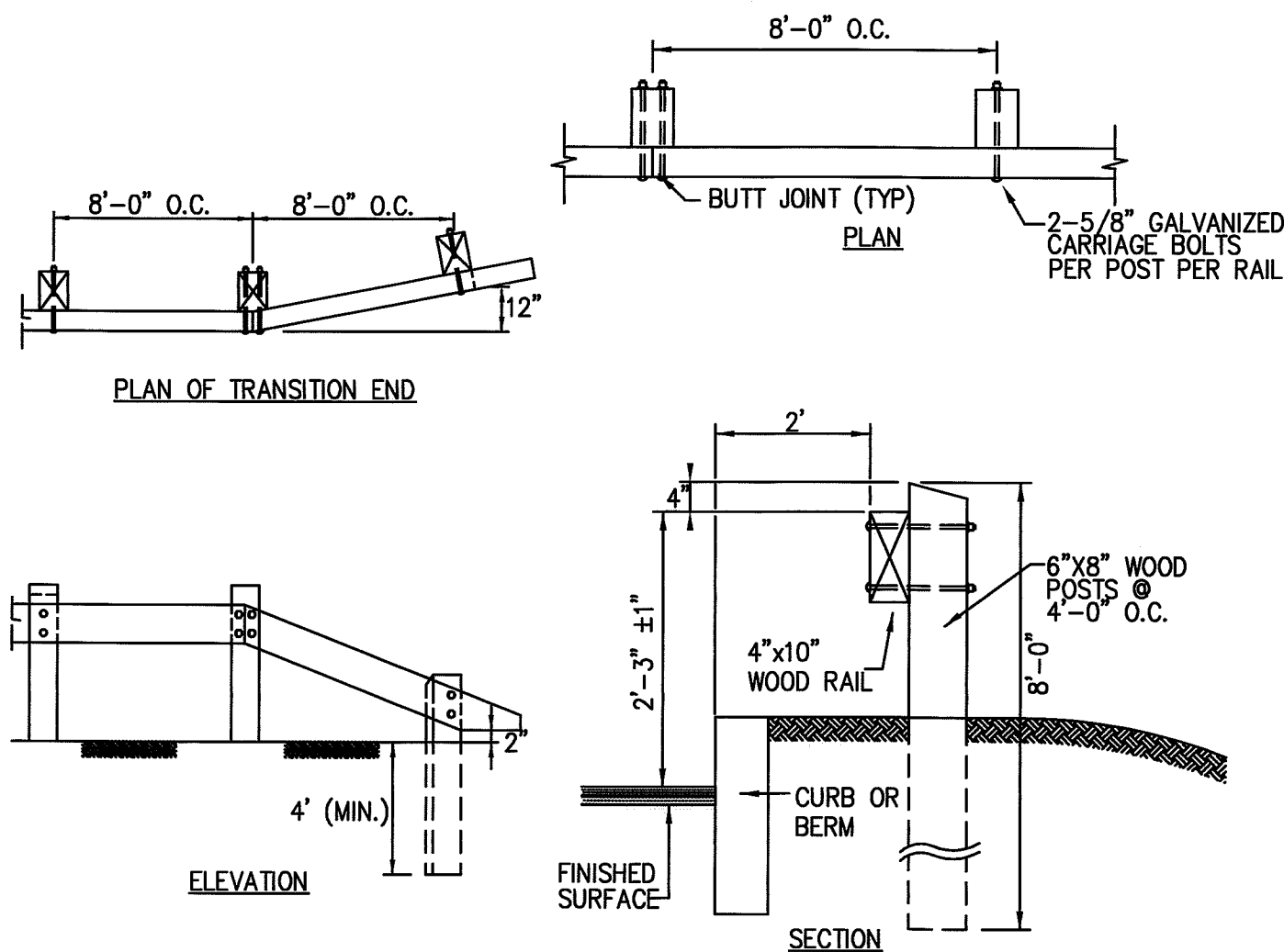
**SILT SOCK**  
(NOT TO SCALE)



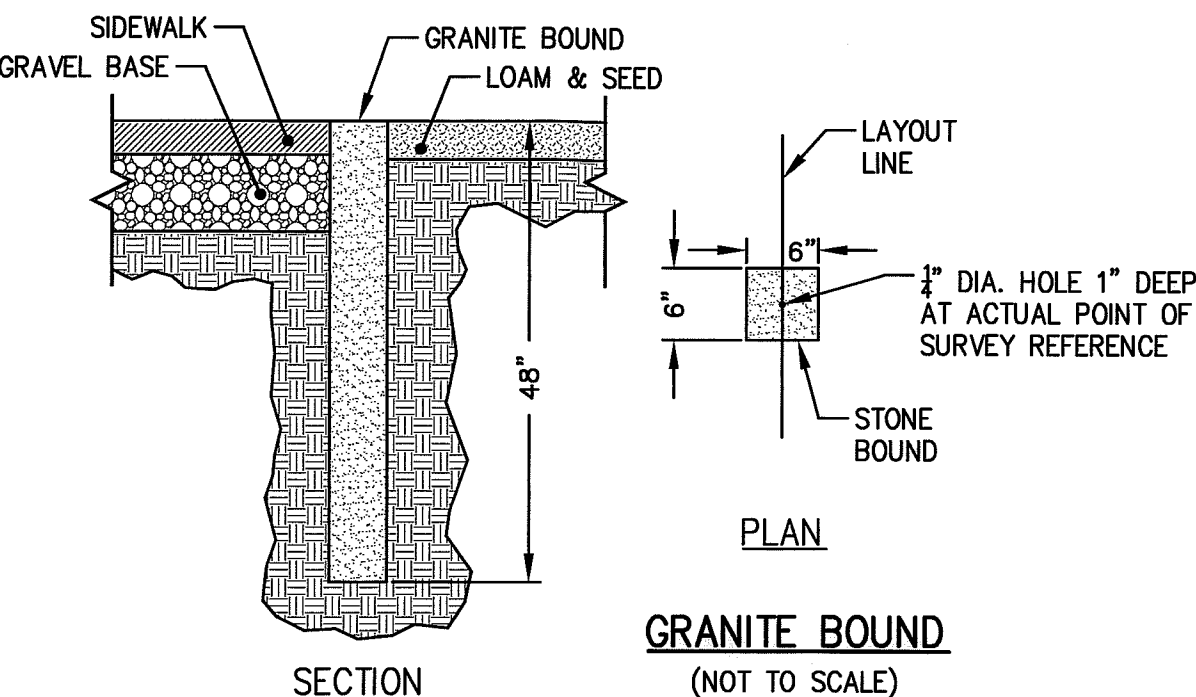
**SILT SACK SEDIMENT TRAP**  
(NOT TO SCALE)

SILT SACK NOTES:

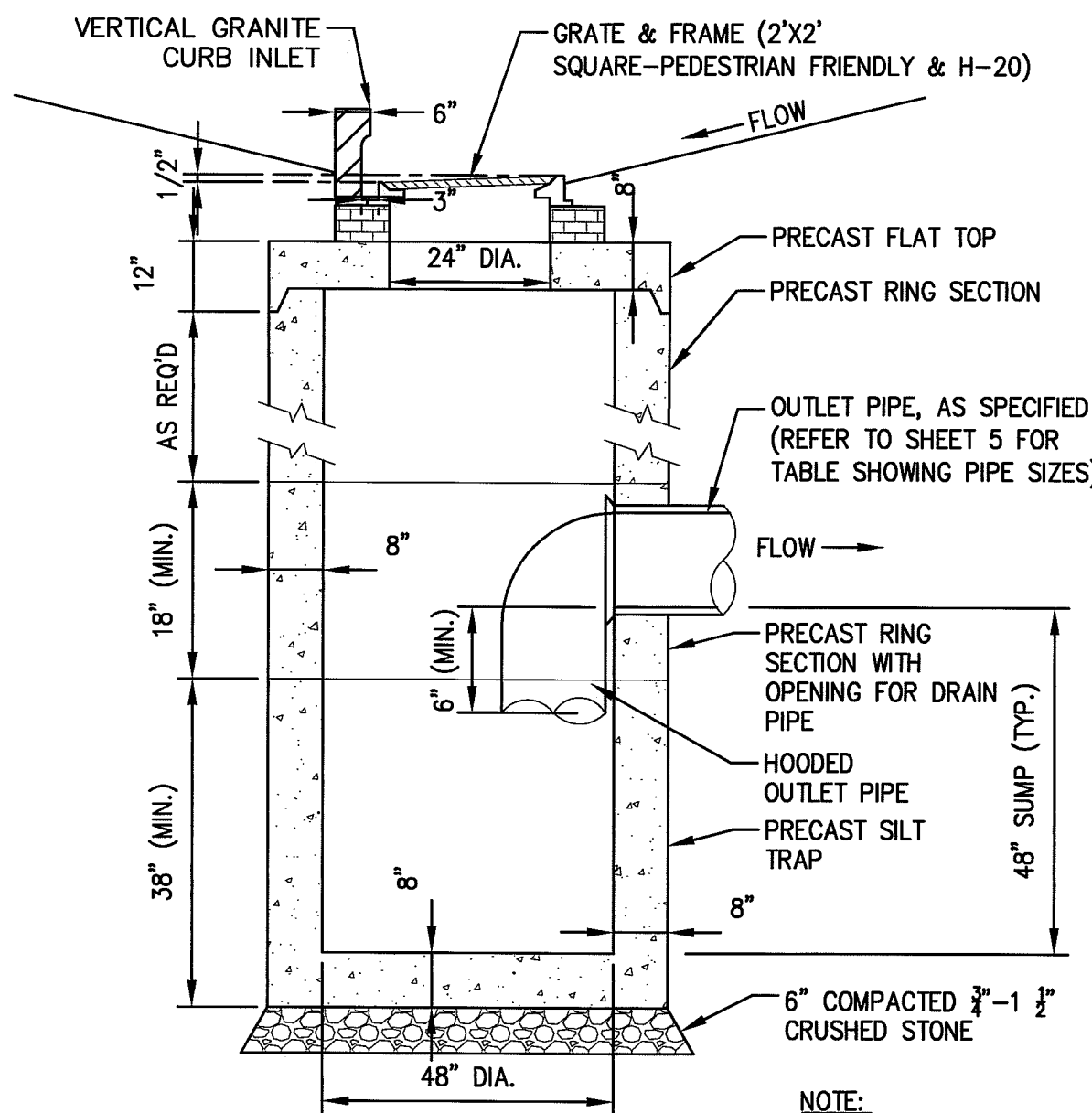
1. INSTALL SILT SACKS IN EXISTING CATCH BASINS. INSTALL SILT SACKS IN NEW CATCH BASINS AFTER INSTALLATION.
2. GRATES TO BE PLACED OVER SILT SACKS.
3. SILTSACK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS AND CLEANING OR REPLACEMENT SHALL BE PERFORMED WHEN DEPTH OF SEDIMENT IS WITHIN 6" OF GRATE.



**WOOD POST AND BEAM GUARDRAIL DETAIL**  
(NOT TO SCALE)

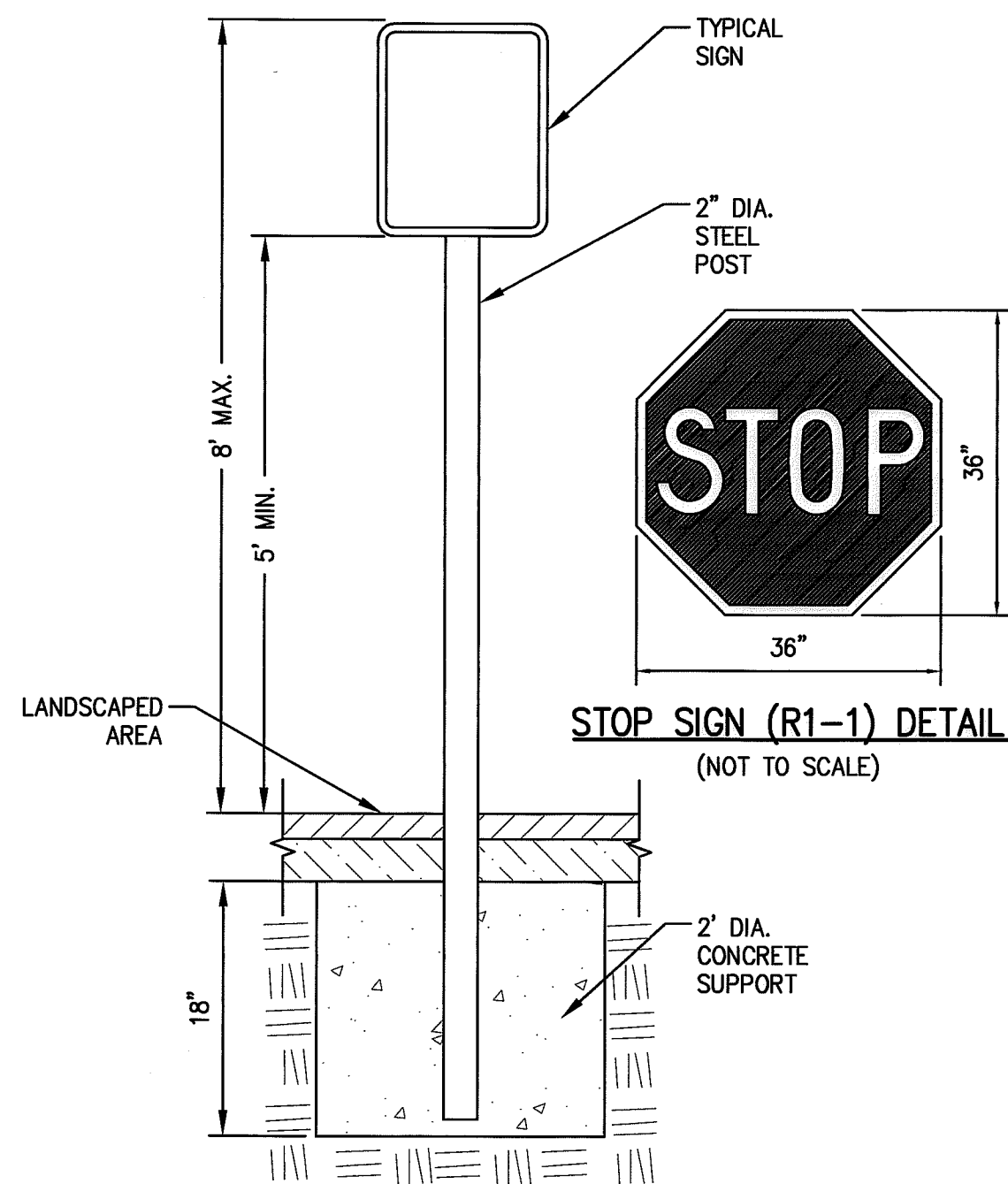


**GRANITE BOUND**  
(NOT TO SCALE)

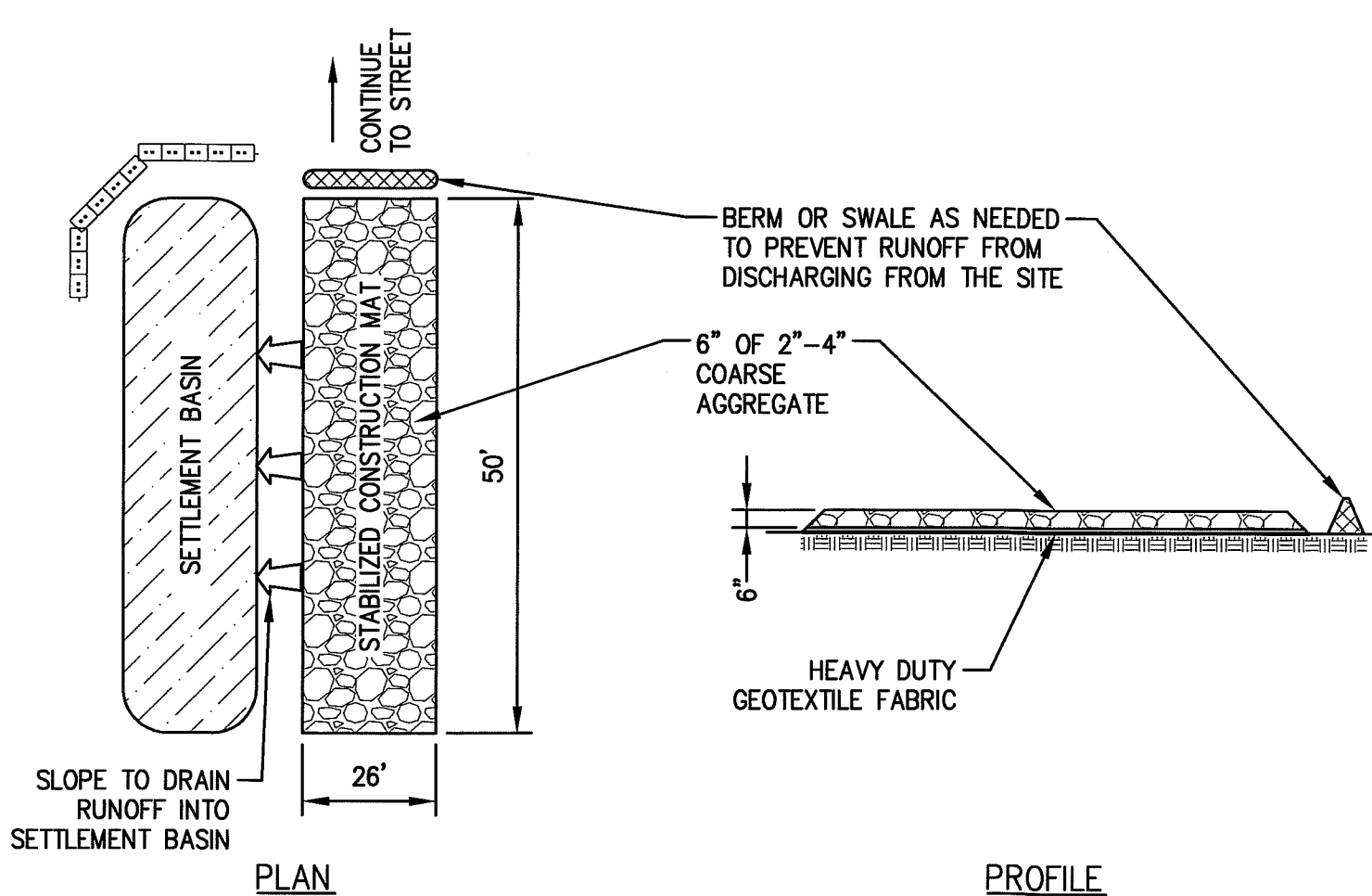


**TYPICAL CATCH BASIN**  
(NOT TO SCALE)

NOTE:  
IF NECESSARY TO FACILITATE INSTALLATION,  
HOOD ON SHALLOW OUTLET PIPES SHALL BE  
ELENA FOUNDRY MODEL R-3700 OR  
APPROVED EQUAL.



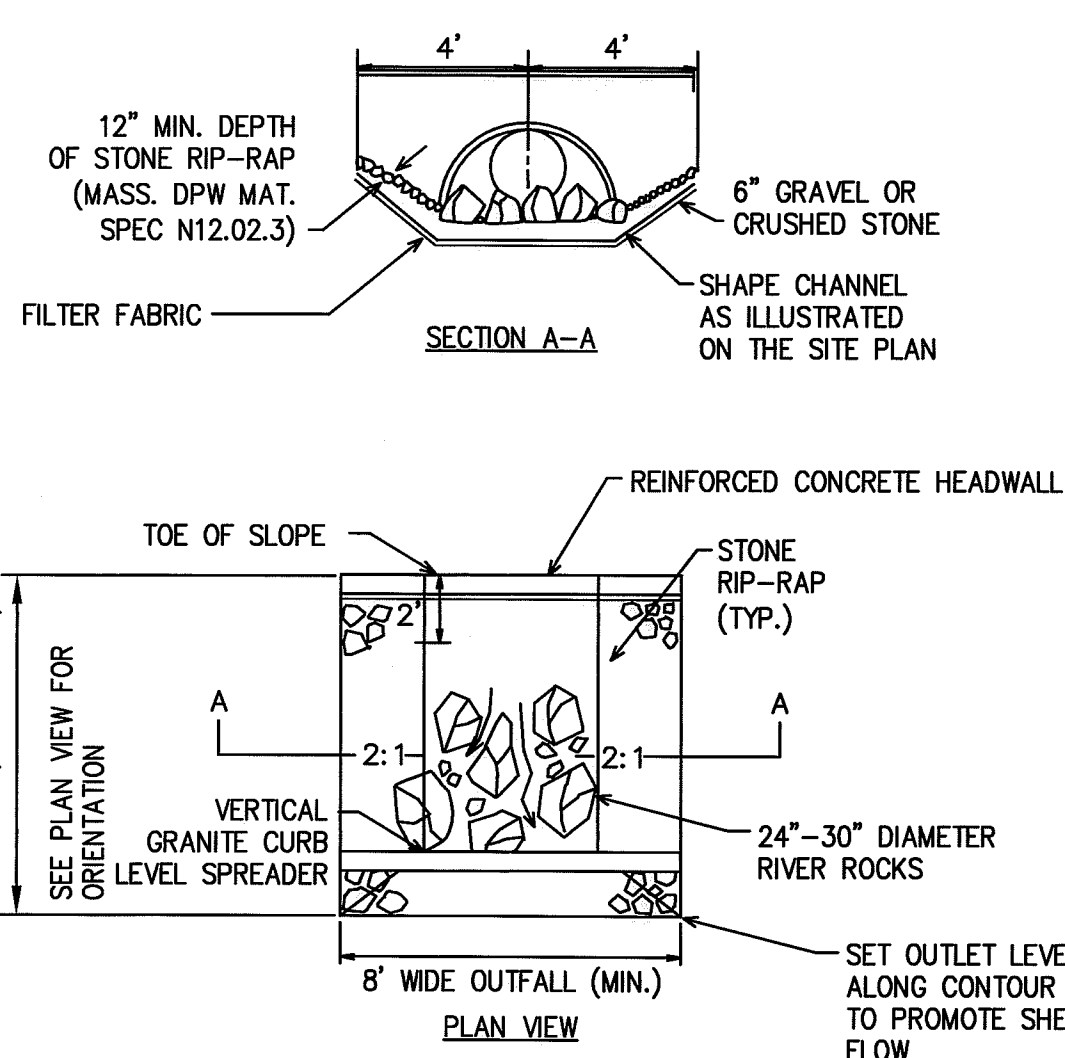
**STOP SIGN (R1-1) DETAIL**  
(NOT TO SCALE)



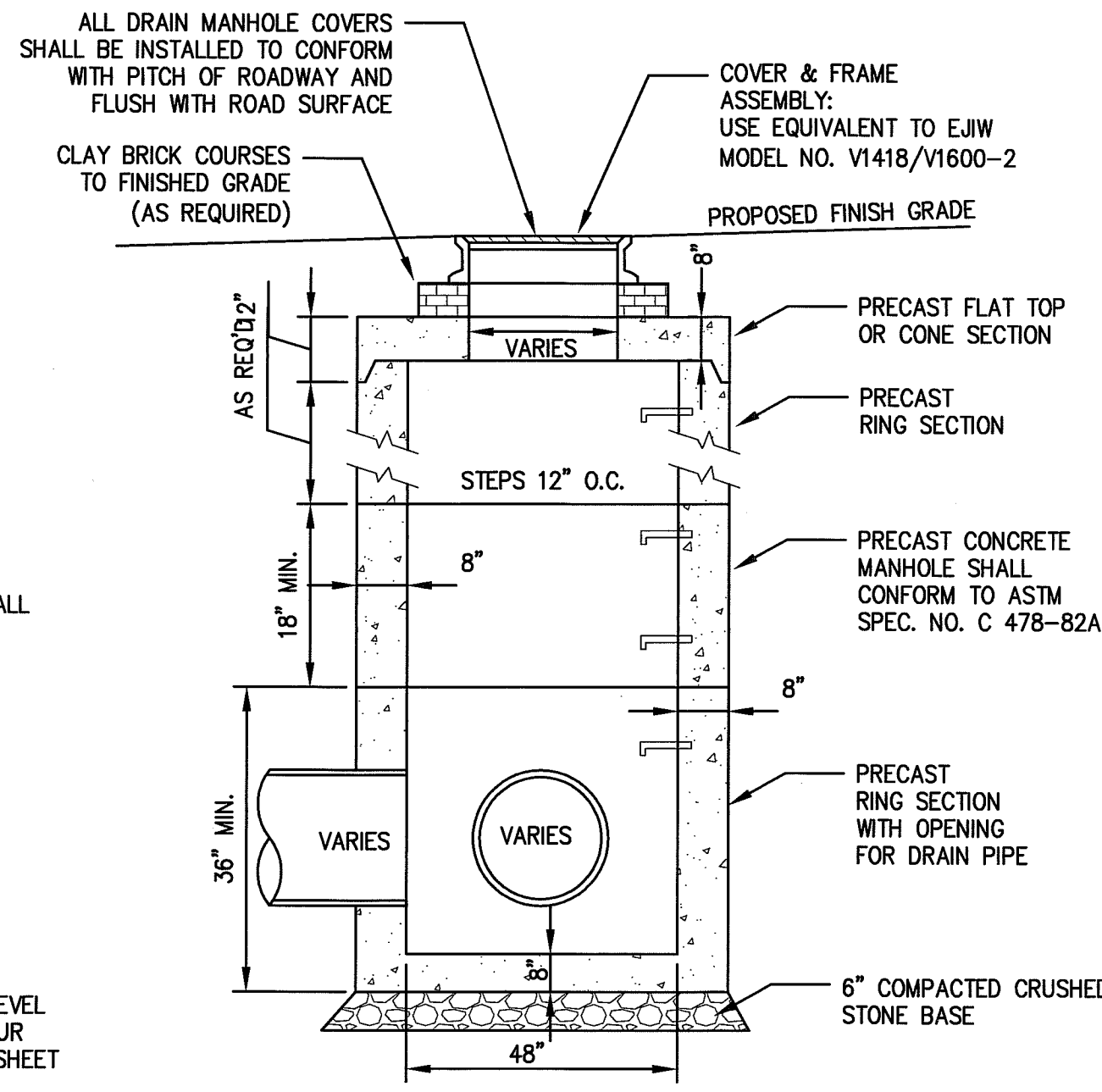
CONSTRUCTION MAT SPECIFICATIONS

1. STONE FOR STABILIZATION CONSTRUCTION MAT SHALL BE 2"-4" STONE, RECLAIMED STONE.
2. THE LENGTH OF THE STABILIZED MAT SHALL NOT BE LESS THAN 40 FEET.
3. THE WIDTH OF THE MAT SHALL BE NO LESS THAN THE WIDTH OF THE INGRESS OR EGRESS DRIVE, OR 16 FEET, WHICHEVER IS GREATER.
4. GEOTEXTILE FILTER FABRIC SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE.
5. ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARDS THE CONSTRUCTION MAT SHALL BE PIPED BENEATH THE MAT. IF PIPING IS IMPRACTICAL, A BERM WITH MINIMUM 1 TO 5 SLOPES THAT CAN BE CROSSED BY VEHICLES CAN BE SUBSTITUTED.
6. THE MAT SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO RIGHTS OF WAY. THIS MAY REQUIRE PERIODIC OPPRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. SEDIMENT SPILLED, WASHED OR TRACKED ONTO THE RIGHT OF WAY MUST BE REMOVED IMMEDIATELY.

**STABILIZED CONSTRUCTION MAT DETAIL**  
(NOT TO SCALE)



**STONE ENERGY DISSIPATER  
(INLET/OUTLET PROTECTION)**  
(NOT TO SCALE)



**TYPICAL DRAIN MANHOLE**  
(NOT TO SCALE)

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66 ELM STREET, DANVERS, MASSACHUSETTS 01923  
P: 978-777-8586, F: 978-774-3488, W: WWW.MORINCAMERON.COM

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN  
PREPARED IN CONFORMANCE WITH THE RULES AND  
REGULATIONS OF THE REGISTERS OF DEEDS OF THE  
COMMONWEALTH OF MASSACHUSETTS.

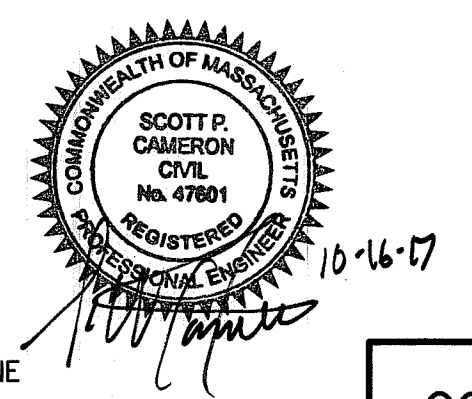
*Scott P. Cameron*  
MASSACHUSETTS REGISTERED  
PROFESSIONAL  
10-16-17 DATE

I, \_\_\_\_\_ CLERK OF THE TOWN OF  
TOPSFIELD, HEREBY CERTIFY THAT THE NOTICE OF  
APPROVAL OF THIS PLAN BY THE PLANNING BOARD  
WAS RECEIVED ON \_\_\_\_\_ AND RECORDED AT  
THIS OFFICE AND NO NOTICE OF APPEAL WAS  
RECEIVED DURING THE TWENTY DAYS NET FOLLOWING  
SUCH RECEIPT AND RECORDING OF SAID NOTICE.

DATE \_\_\_\_\_ TOWN CLERK  
APPROVED ON \_\_\_\_\_, SUBJECT TO  
COVENANTS AND CONDITIONS EXECUTED BY  
\_\_\_\_\_, AND RECORDED IN THE ESSEX  
COUNTY REGISTRY OF DEEDS, SOUTHERN DISTRICT,  
BOOK No. \_\_\_\_\_, PAGE No. \_\_\_\_\_  
APPROVAL UNDER THE SUBDIVISION  
CONTROL LAW REQUIRED

DATE OF APPLICATION: \_\_\_\_\_  
DATE OF HEARING: \_\_\_\_\_  
DATE OF APPROVAL: \_\_\_\_\_  
DATE OF ENDORSEMENT: \_\_\_\_\_

TOPSFIELD PLANNING BOARD

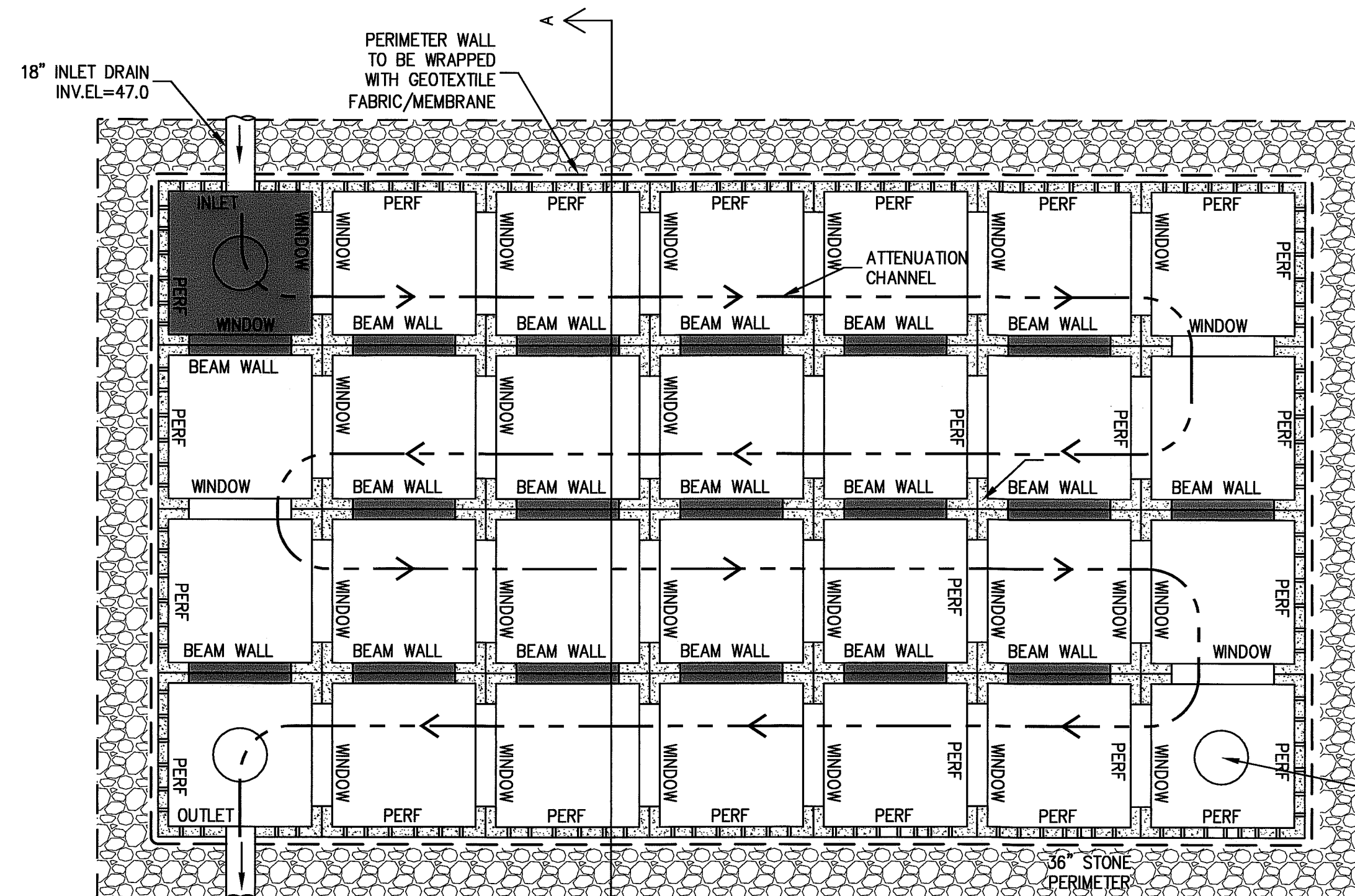


PERIMETER WALL TO BE WRAPPED  
WITH GEOTEXTILE  
FABRIC/MEMBRANE

CONSTRUCTION  
DETAILS III

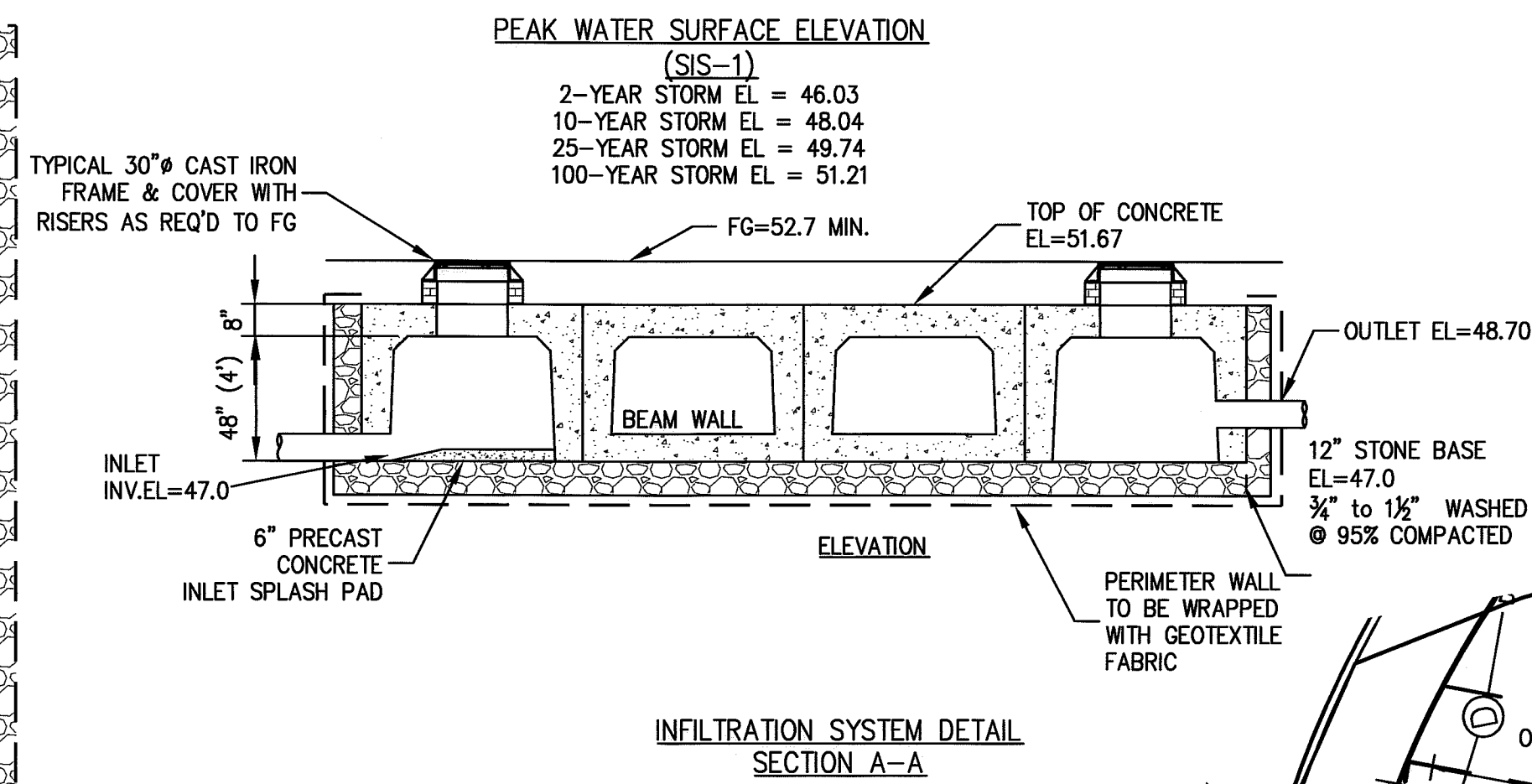
DRAWING NO.  
18 OF 20

PROJ. #3460  
DRAWING: 3460



18" INLET DRAIN  
INV. EL. = 47.0  
PERIMETER WALL  
TO BE WRAPPED  
WITH GEOTEXTILE  
FABRIC/MEMBRANE  
ATTENUATION CHANNEL  
BEAM WALL  
WINDOW  
PERF  
OUTLET  
36" STONE PERIMETER  
12" OUTLET INV.  
ELEV. = 48.70  
= 6" THICK  
PRECAST  
CONCRETE  
SPLASH PAD AT  
INLETS

RETAIN-IT SUBSURFACE INFILTRATION  
SYSTEM SSI-1  
(NOT TO SCALE)

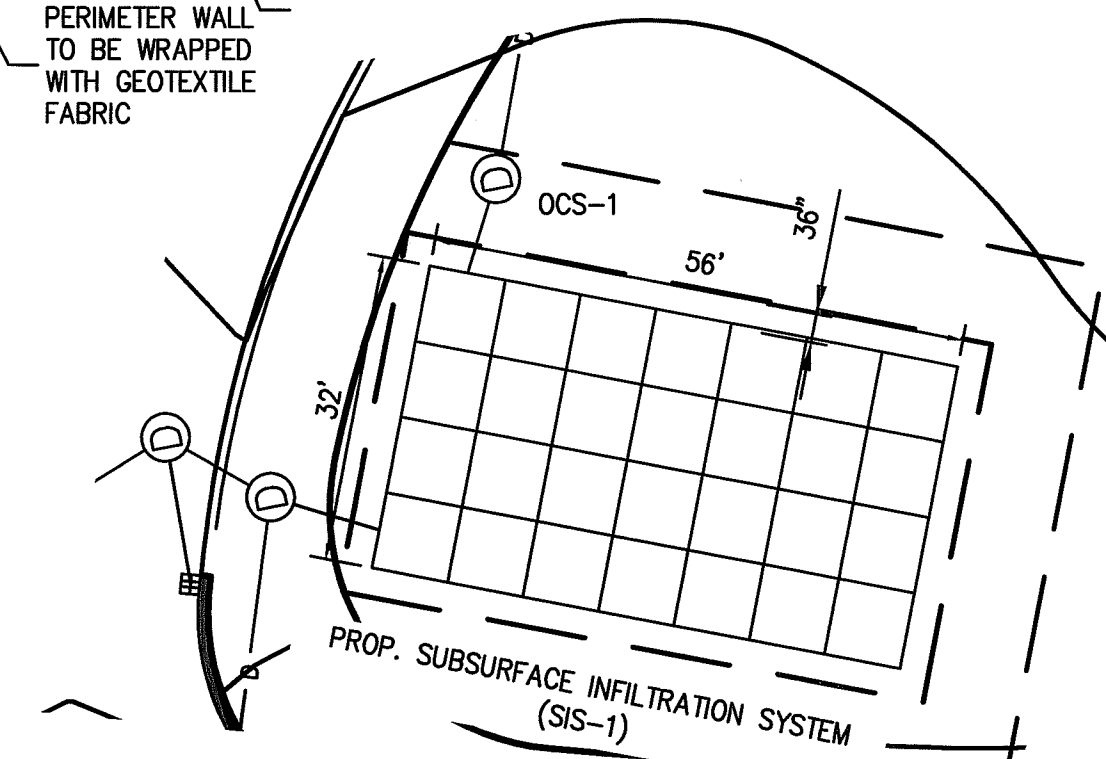


TYPICAL ACCESS  
MANHOLE

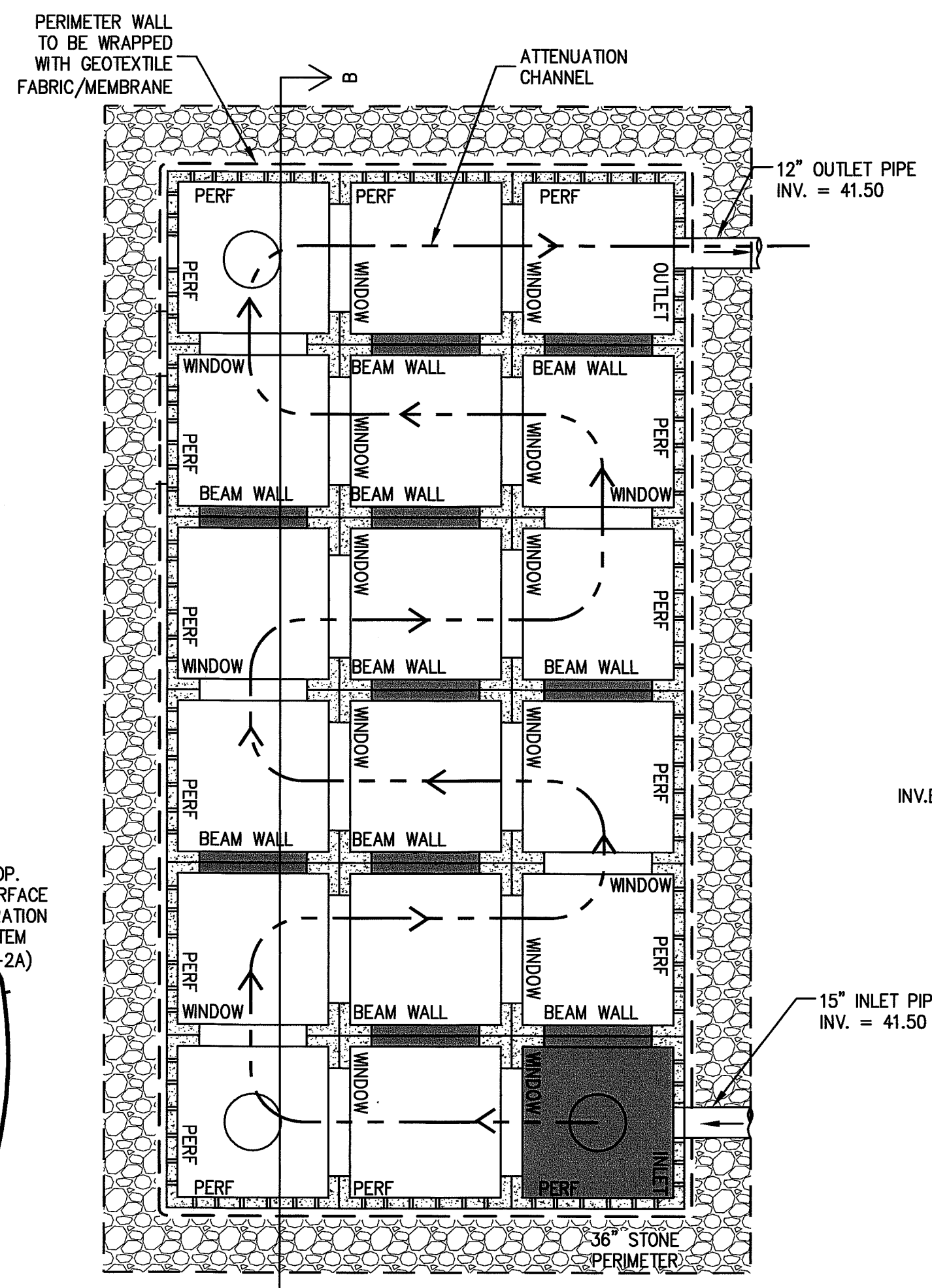
CHAMBER HEIGHT TABLE			
HEIGHT (H)	VOLUME (EA)	WEIGHT	
2'-6"	134 CF	10,358#	
4'-0"	216 CF	12,458#	

PEAK WATER SURFACE ELEVATION  
(SIS-1)  
2-YEAR STORM EL. = 46.03  
10-YEAR STORM EL. = 48.04  
25-YEAR STORM EL. = 49.74  
100-YEAR STORM EL. = 51.21

INFILTRATION SYSTEM DETAIL  
SECTION A-A

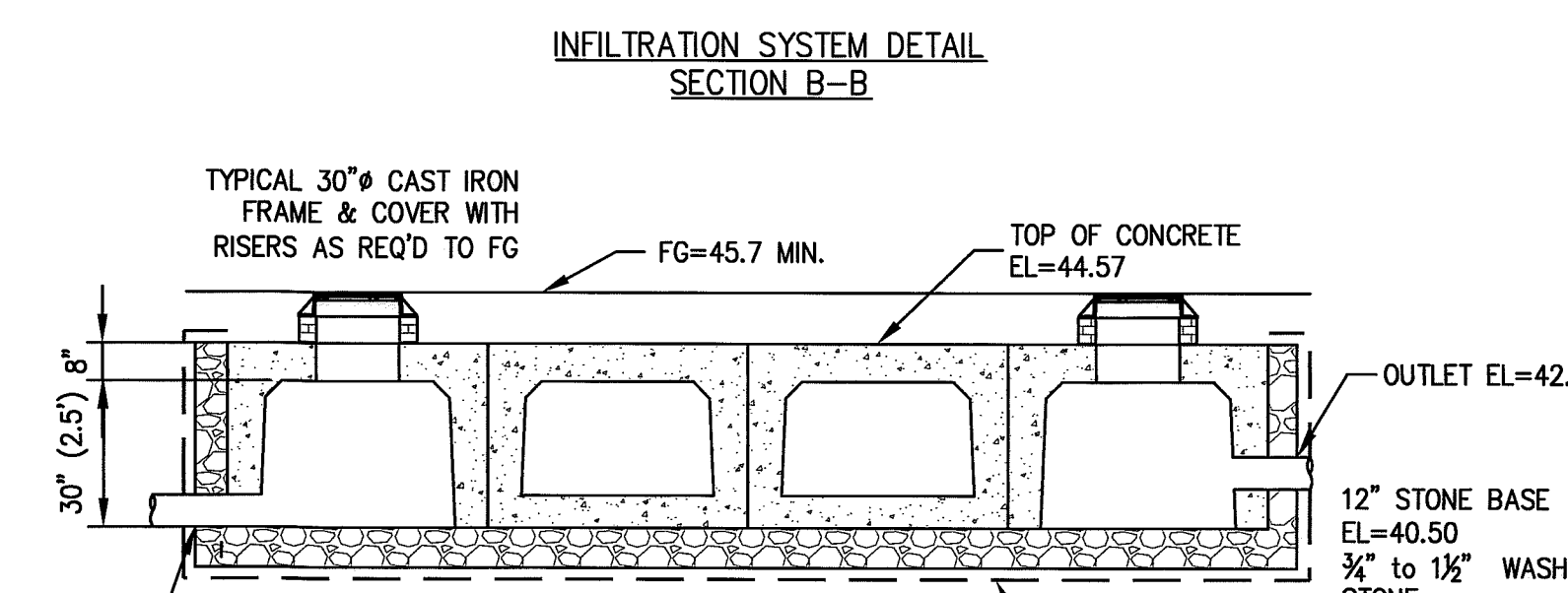
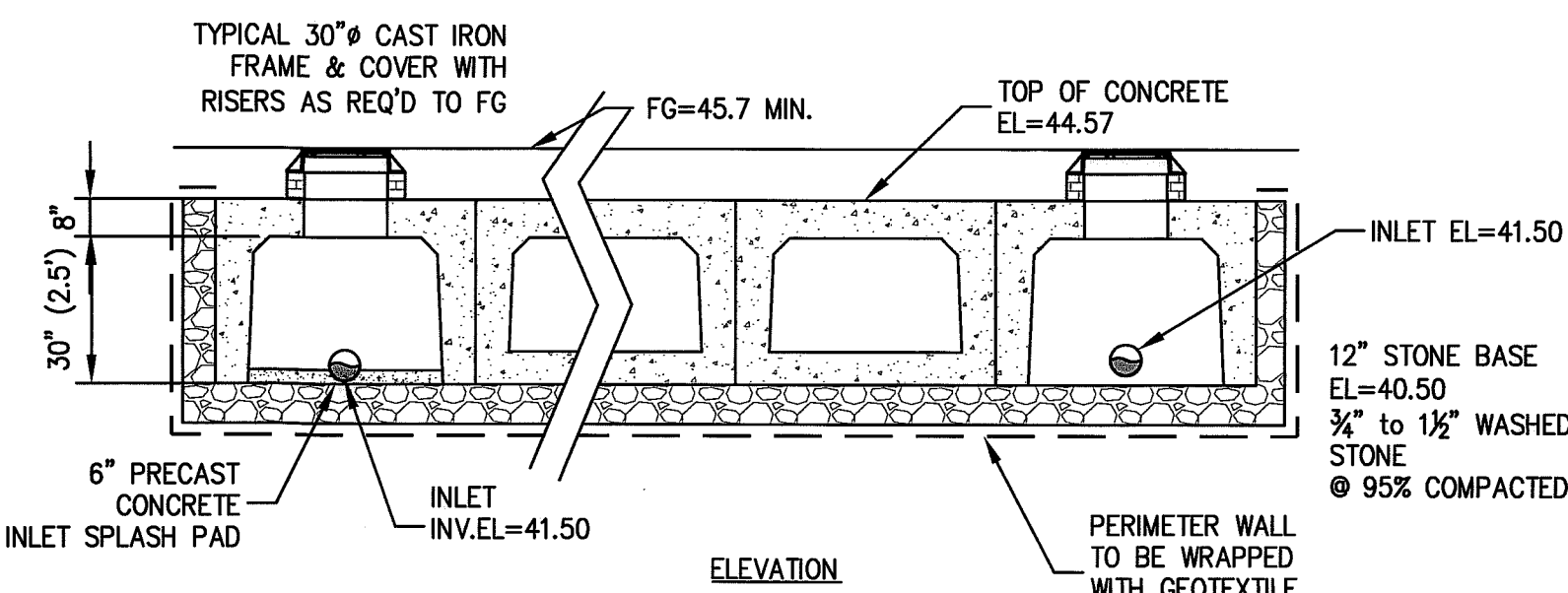


SUBSURFACE INFILTRATION SYSTEM  
(POND 1P)  
PLAN VIEW  
SCALE: 1"=20'



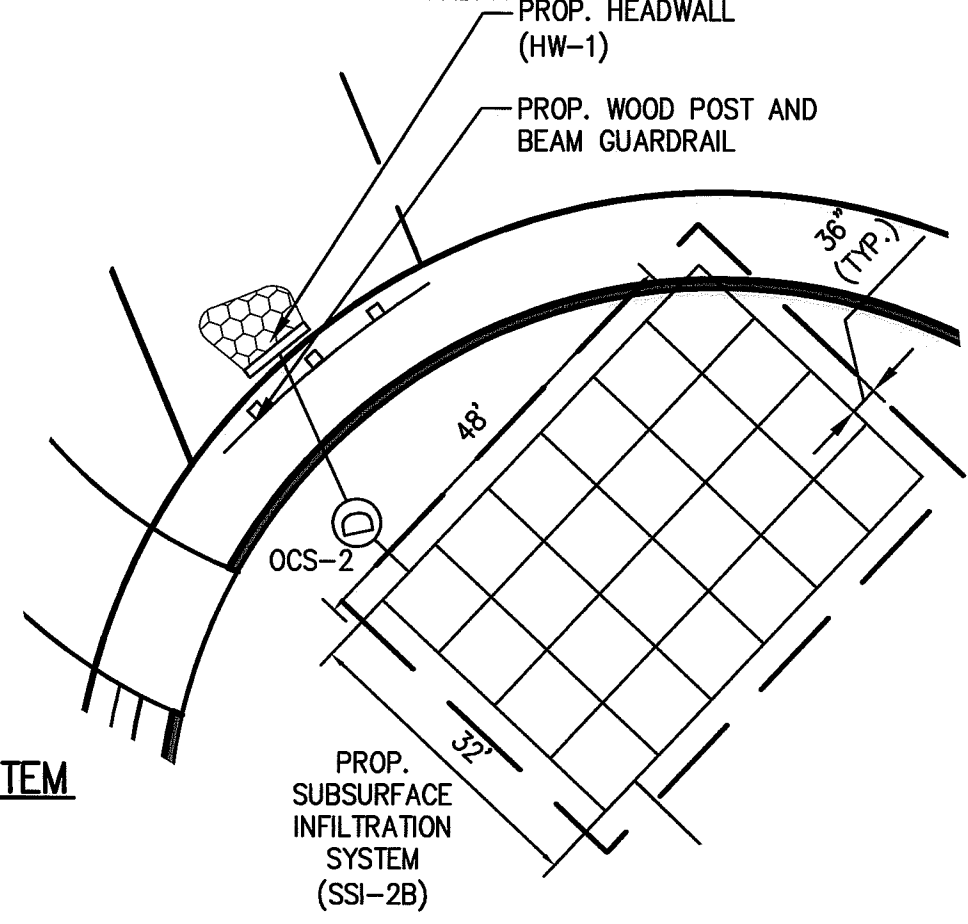
PERIMETER WALL  
TO BE WRAPPED  
WITH GEOTEXTILE  
FABRIC/MEMBRANE  
ATTENUATION CHANNEL  
BEAM WALL  
WINDOW  
PERF  
OUTLET  
36" STONE PERIMETER  
12" OUTLET PIPE  
INV. = 41.50

RETAIN-IT SUBSURFACE INFILTRATION  
SYSTEM SSI-2A  
(NOT TO SCALE)

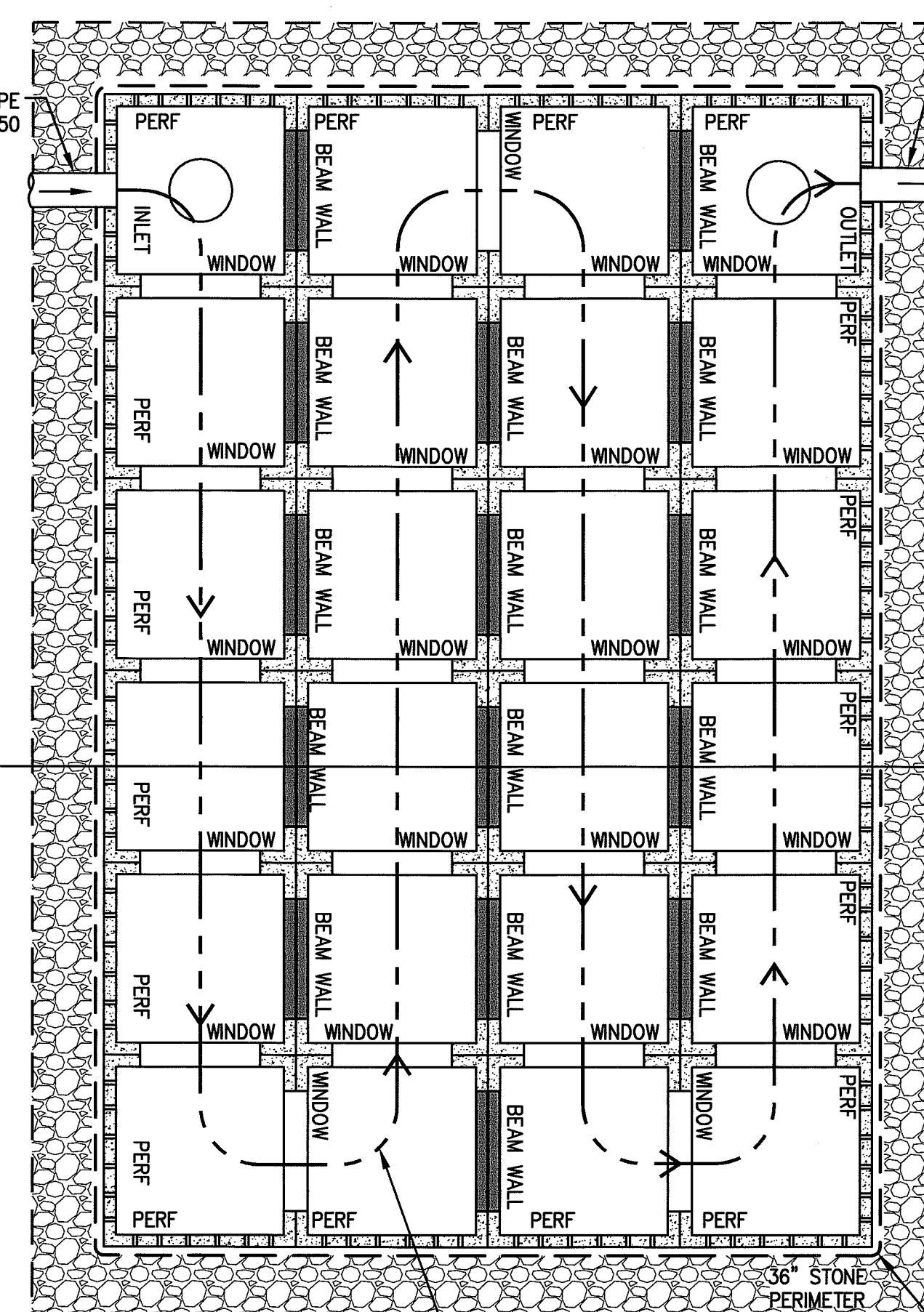


PEAK WATER SURFACE ELEVATION  
(SIS-2)  
2-YEAR STORM EL. = 40.44  
10-YEAR STORM EL. = 41.46  
25-YEAR STORM EL. = 42.32  
100-YEAR STORM EL. = 43.81

SUBSURFACE INFILTRATION SYSTEM  
(POND 2P)  
PLAN VIEW  
SCALE: 1"=20'



PROJ. HEADWALL  
(HW-1)  
PROP. WOOD POST AND  
BEAM GUARDRAIL  
36" STONE PERIMETER  
ATTENUATION CHANNEL  
PERIMETER WALL TO BE WRAPPED  
WITH GEOTEXTILE  
FABRIC/MEMBRANE



RETAIN-IT SUBSURFACE INFILTRATION  
SYSTEM SSI-2B  
(NOT TO SCALE)

SUBSURFACE INFILTRATION SYSTEM  
(POND 2P)  
PLAN VIEW  
SCALE: 1"=20'

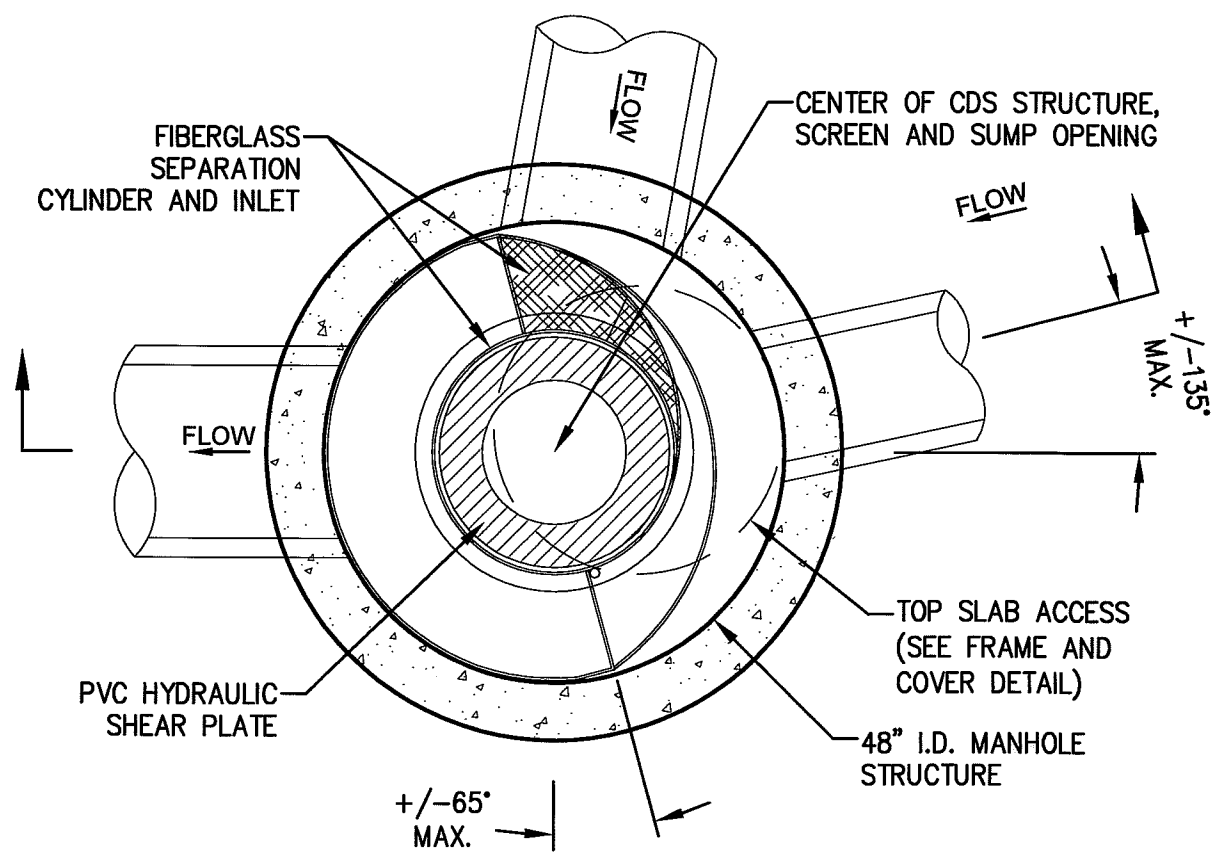
FOR REGISTRY USE ONLY



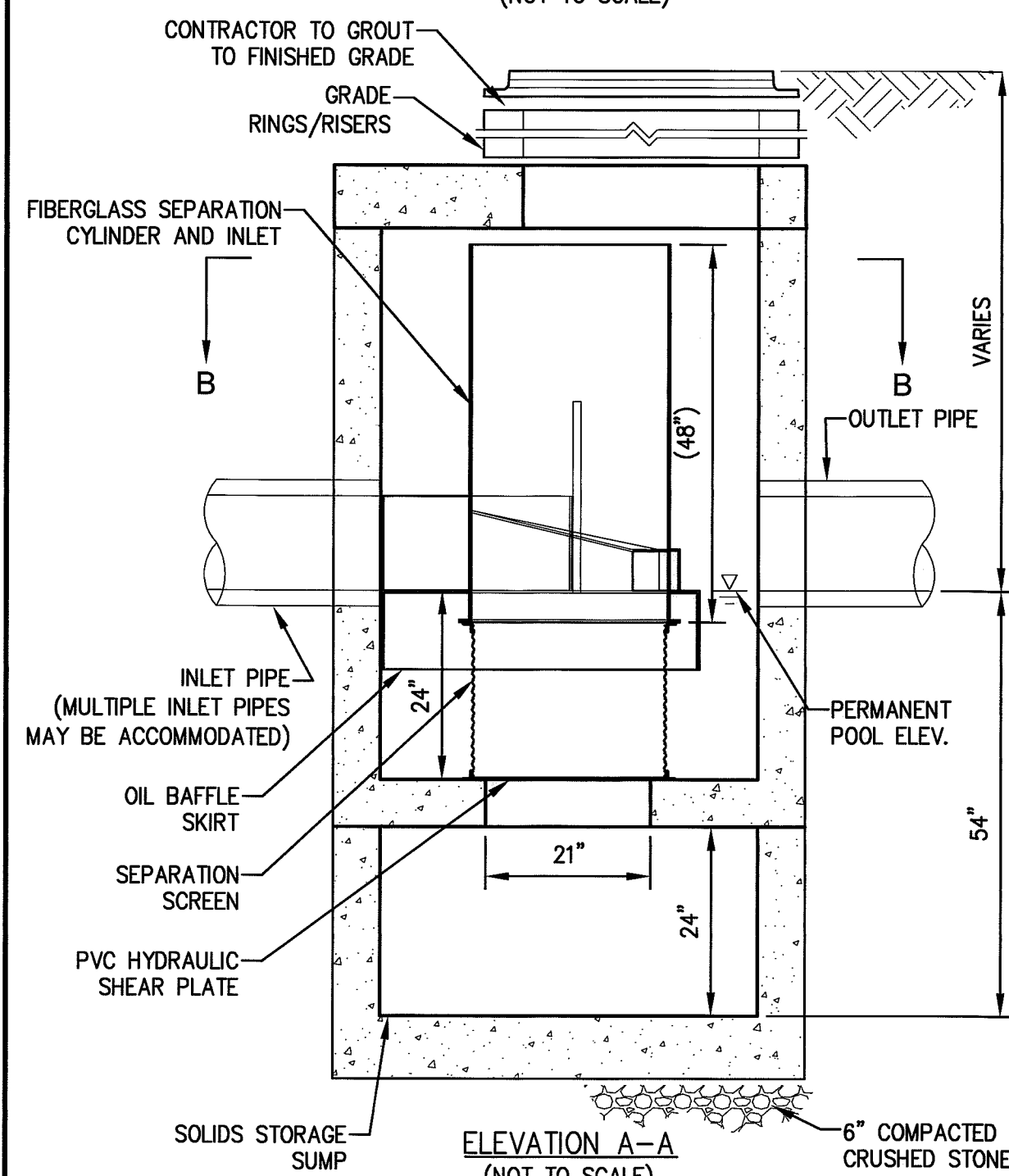
FOR REGISTRY USE ONLY



FRAME AND COVER  
(DIAMETER VARIES)

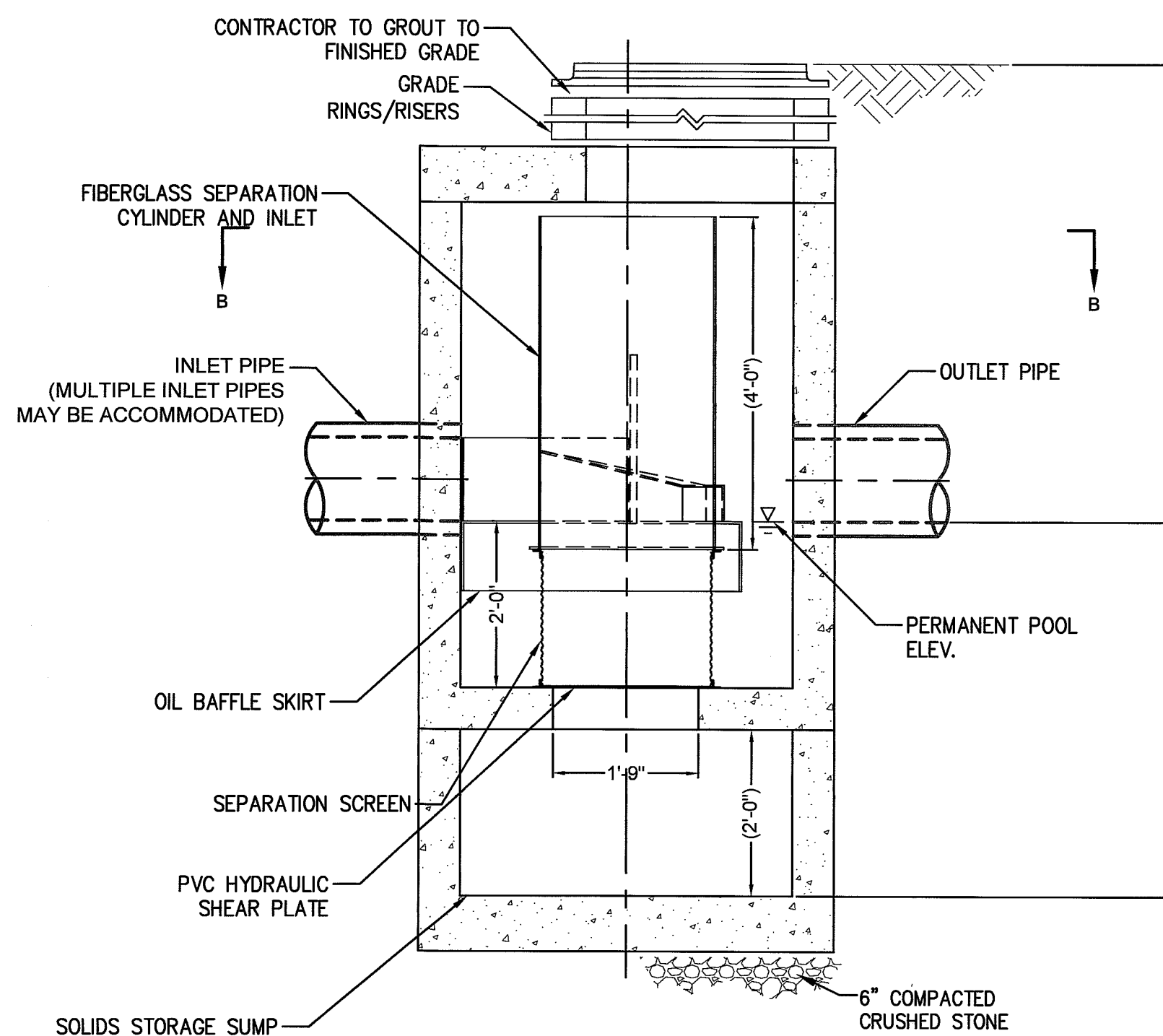


PLAN VIEW B-B  
(NOT TO SCALE)



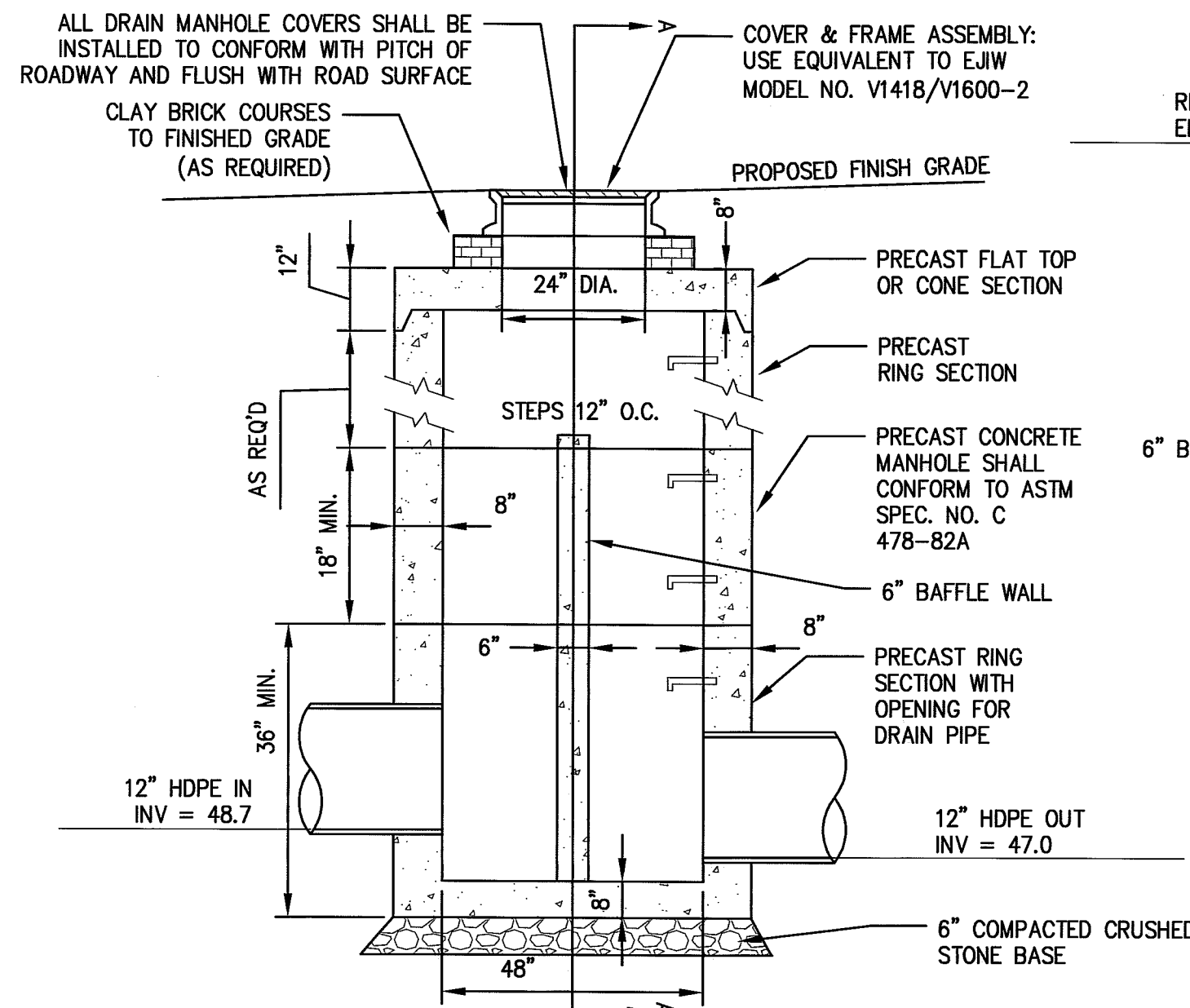
CONTECH CDS-2015-4 (CDS-1)  
(NOT TO SCALE)

- GENERAL NOTES**
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
  2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
  3. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
  4. STRUCTURE SHALL MEET AASHTO H20 AND CASTINGS SHALL MEET AASHTO M306 LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION.
  5. PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.
- INSTALLATION NOTES**
1. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
  2. CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
  3. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
  4. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.
  5. SEE DRAINAGE PIPE SCHEDULE ON SHEET 13 OF 20 FOR PIPE INVERTS.



ELEVATION A-A  
N.T.S.

CONTECH CDS-1515-3 (CDS-2)  
(NOT TO SCALE)



RIM  
ELEV = 52.50±

PROPOSED FINISH GRADE

PRECAST FLAT TOP OR CONE SECTION

PRECAST RING SECTION

PRECAST CONCRETE MANHOLE SHALL CONFORM TO ASTM SPEC. NO. C 478-82A

6" BAFFLE WALL

PRECAST RING SECTION WITH OPENING FOR DRAIN PIPE

12" HDPE IN INV = 48.7

12" HDPE OUT INV = 47.0

6" COMPACTED CRUSHED STONE BASE

48"

STEPS 12" O.C.

12"

18" MIN.

36" MIN.

AS REQD

12"

24" DIA.

COVER & FRAME ASSEMBLY: USE EQUIVALENT TO E.J.W. MODEL NO. V1418/V1600-2

CLAY BRICK COURSES TO FINISHED GRADE (AS REQUIRED)

ALL DRAIN MANHOLE COVERS SHALL BE INSTALLED TO CONFORM WITH PITCH OF ROADWAY AND FLUSH WITH ROAD SURFACE

6"

8"

6"

6"

6"

6"

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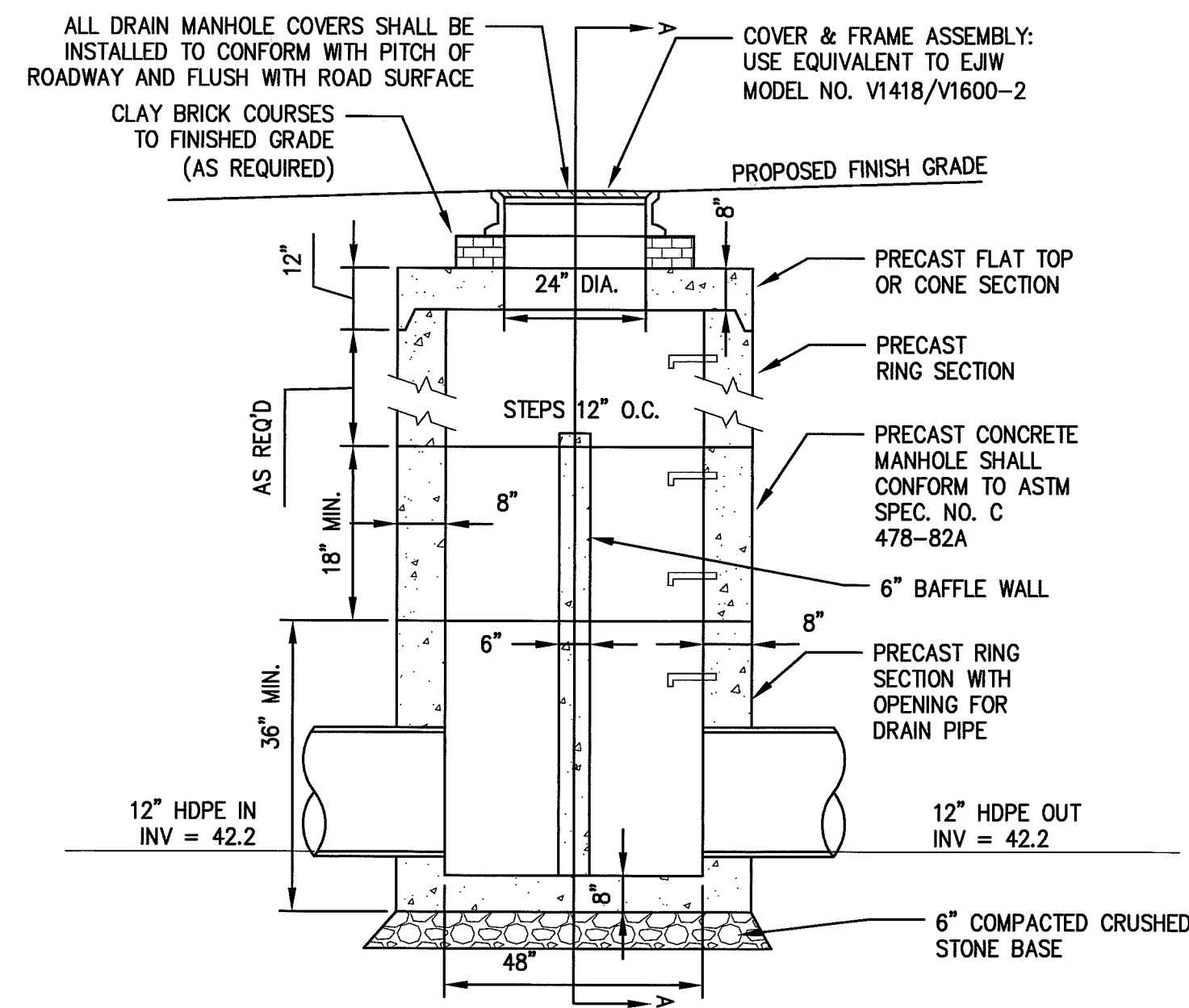
6"

6"

6"

6"

SECTION A-A  
OUTLET CONTROL STRUCTURE  
(OCS-1)  
(NOT TO SCALE)



RIM  
ELEV = 46.28±

PROPOSED FINISH GRADE

PRECAST FLAT TOP OR CONE SECTION

PRECAST RING SECTION

PRECAST CONCRETE MANHOLE SHALL CONFORM TO ASTM SPEC. NO. C 478-82A

6" BAFFLE WALL

PRECAST RING SECTION WITH OPENING FOR DRAIN PIPE

12" HDPE IN INV = 42.2

12" HDPE OUT INV = 42.2

6" COMPACTED CRUSHED STONE BASE

48"

STEPS 12" O.C.

12"

18" MIN.

36" MIN.

AS REQD

12"

24" DIA.

COVER & FRAME ASSEMBLY: USE EQUIVALENT TO E.J.W. MODEL NO. V1418/V1600-2

CLAY BRICK COURSES TO FINISHED GRADE (AS REQUIRED)

ALL DRAIN MANHOLE COVERS SHALL BE INSTALLED TO CONFORM WITH PITCH OF ROADWAY AND FLUSH WITH ROAD SURFACE

6"

8"

6"

6"

6"

6"

6"

6"

6"

6"

6"

SECTION A-A  
OUTLET CONTROL STRUCTURE  
(OCS-2)  
(NOT TO SCALE)

RIVERWOOD ESTATES  
DEFINITIVE SUBDIVISION  
AT  
303 & 333 PERKINS ROW  
(ASSESSOR'S MAPS 27 & 20, LOT 43)  
TOPSFIELD, MASSACHUSETTS

PREPARED FOR  
BURHANI, LLC

OCTOBER 16, 2017

ZONING DISTRICT: INNER RESIDENTIAL AND  
AGRICULTURE (IRA) / OUTLYING RESIDENTIAL  
AND AGRICULTURAL (ORA)

The  
Morin-Cameron  
GROUP, INC.

CIVIL ENGINEERS | ENVIRONMENTAL CONSULTANTS  
LAND SURVEYORS | LAND USE PLANNERS  
66 ELM STREET, DANVERS, MASSACHUSETTS 01923  
P: 978-777-8586, F: 978-774-3488, W: WWW.MORINCAMERON.COM

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COMMONWEALTH OF MASSACHUSETTS.

MASSACHUSETTS REGISTERED  
PROFESSIONAL  
10-16-17 DATE

I, \_\_\_\_\_ CLERK OF THE TOWN OF  
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DATE TOWN CLERK

APPROVED ON \_\_\_\_\_, SUBJECT TO  
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COUNTY REGISTRY OF DEEDS, SOUTHERN DISTRICT,  
BOOK No. \_\_\_\_\_, PAGE No. \_\_\_\_\_

APPROVAL UNDER THE SUBDIVISION  
CONTROL LAW REQUIRED

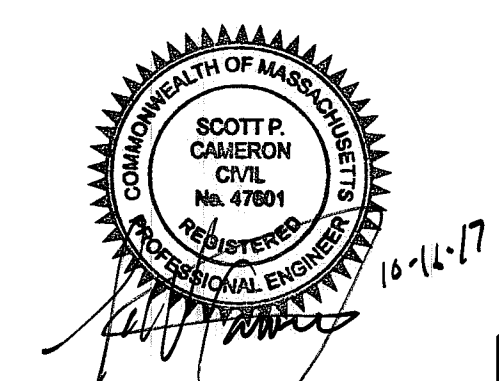
DATE OF APPLICATION: \_\_\_\_\_

DATE OF HEARING: \_\_\_\_\_

DATE OF APPROVAL: \_\_\_\_\_

DATE OF ENDORSEMENT: \_\_\_\_\_

TOPSFIELD PLANNING BOARD



CONSTRUCTION  
DETAILS IV

DRAWING NO.

19 OF 20

PROJ. #3460  
DRAWING: 3460

RIVERWOOD ESTATES  
DEFINITIVE SUBDIVISION  
AT  
303 & 333 PERKINS ROW  
(ASSESSOR'S MAPS 27 & 20, LOT 43)  
TOPSFIELD, MASSACHUSETTS  
PREPARED FOR  
BURHANI, LLC  
OCTOBER 16, 2017

ZONING DISTRICT: INNER RESIDENTIAL AND  
AGRICULTURE (IRA) / OUTLYING RESIDENTIAL  
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**GROUP, INC.**

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COMMONWEALTH OF MASSACHUSETTS.

  
MASSACHUSETTS REGISTERED PROFESSIONAL ENGINEER 10-16-17 DATE

I, \_\_\_\_\_ CLERK OF THE TOWN OF  
TOPSFIELD, HEREBY CERTIFY THAT THE NOTICE OF  
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BOOK No. \_\_\_\_\_, PAGE No. \_\_\_\_\_

APPROVAL UNDER THE SUBDIVISION  
CONTROL LAW REQUIRED

DATE OF APPLICATION: OCTOBER 17, 2017

DATE OF HEARING: \_\_\_\_\_

DATE OF APPROVAL: \_\_\_\_\_

DATE OF ENDORSEMENT: \_\_\_\_\_

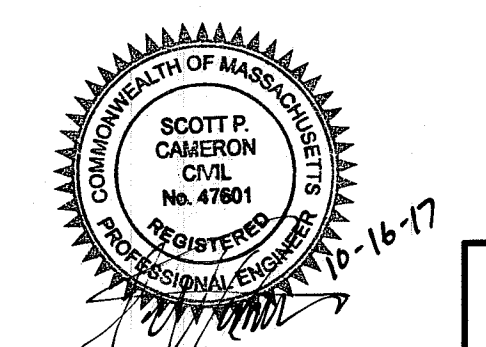
\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

TOPSFIELD PLANNING BOARD

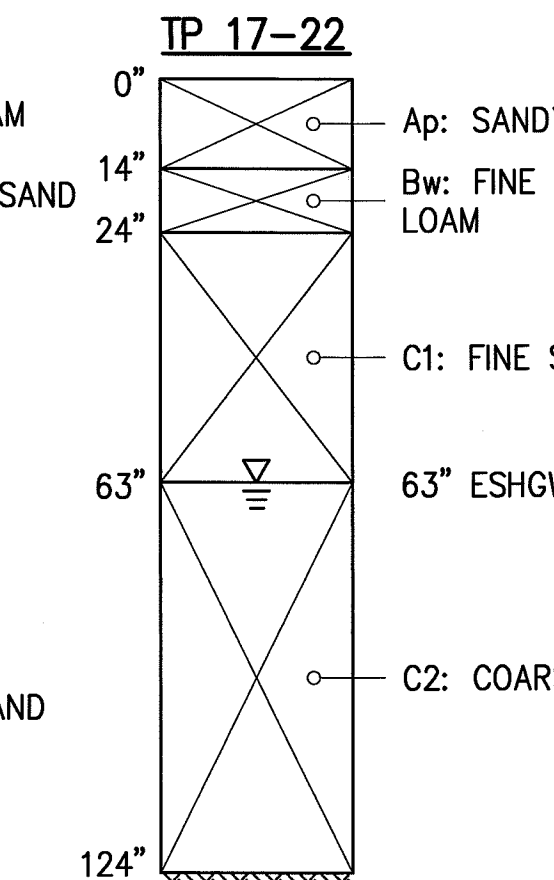
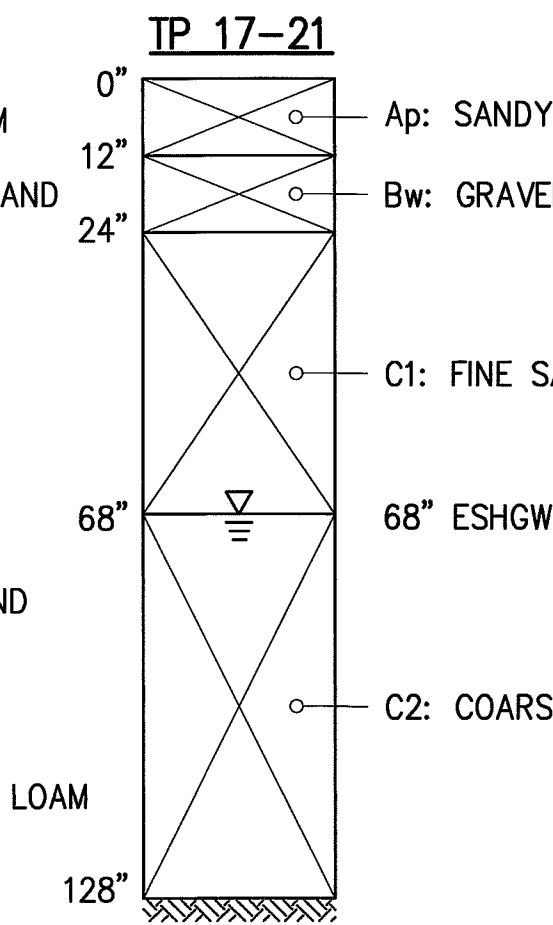
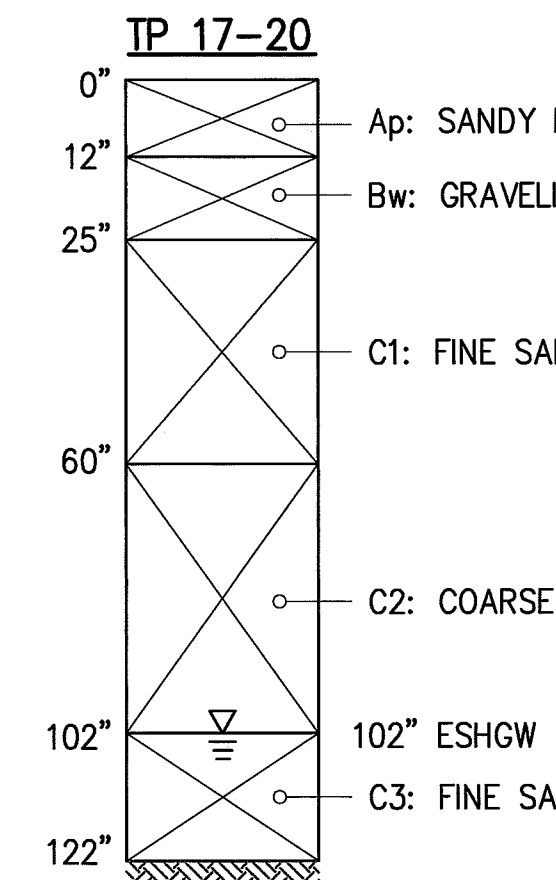
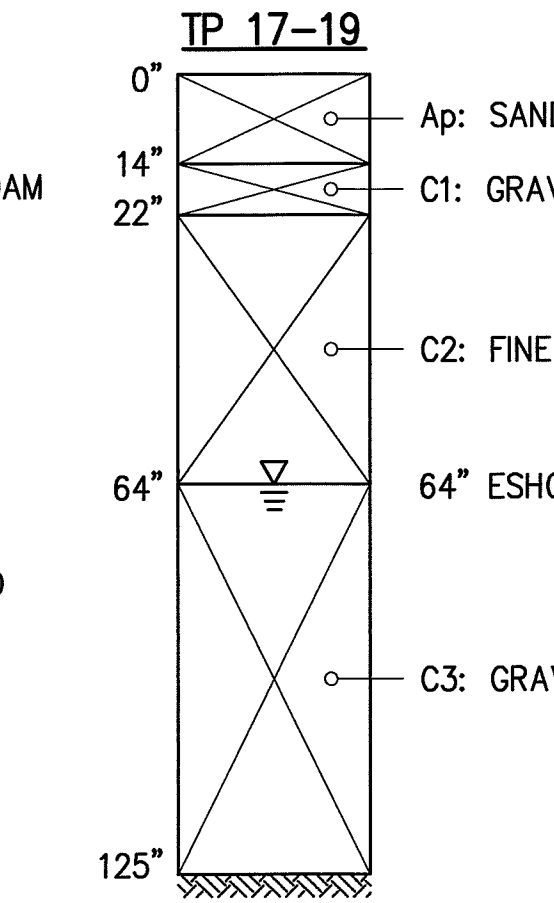
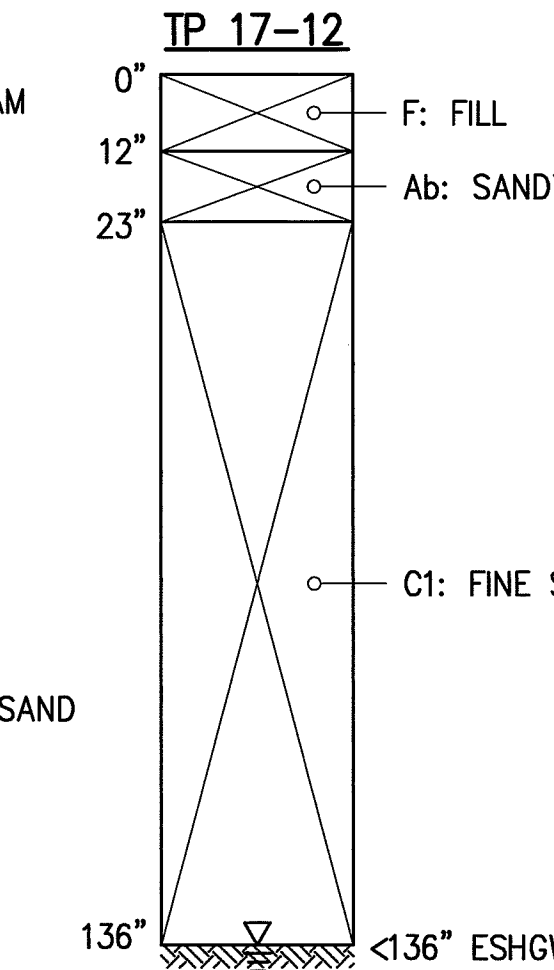
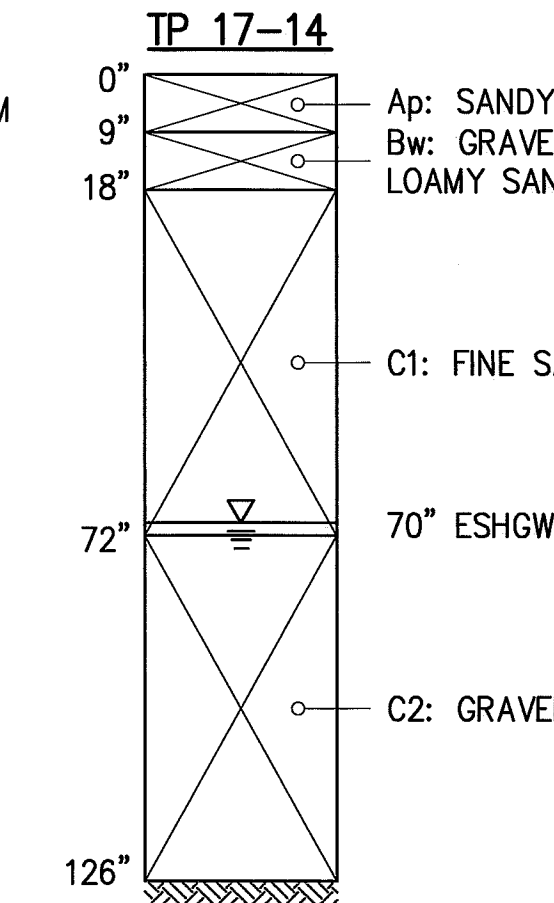
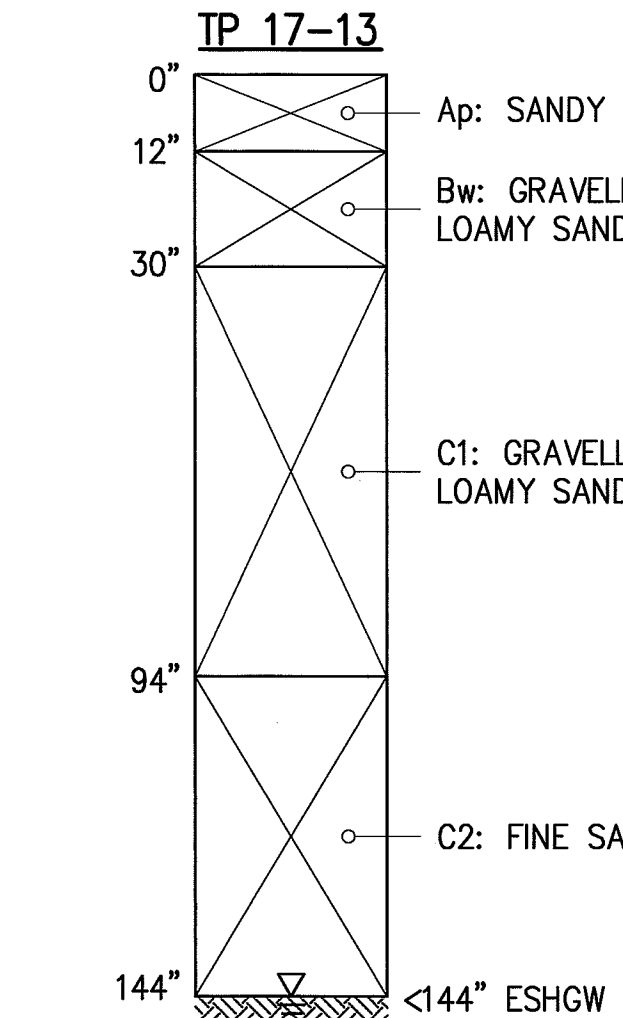
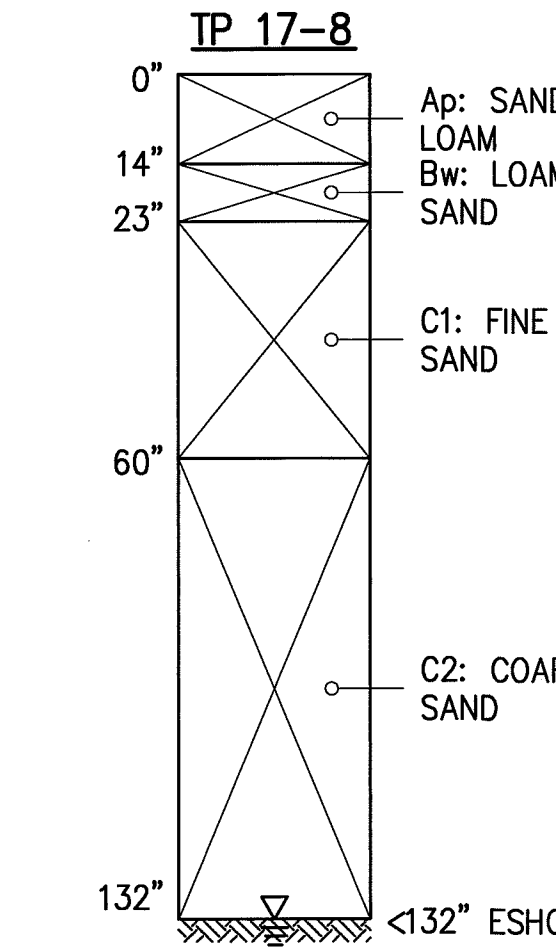
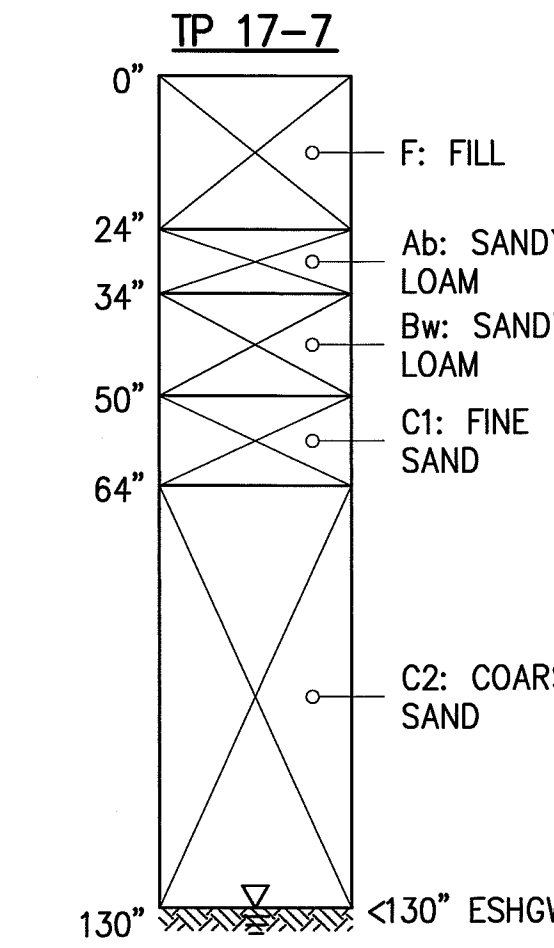
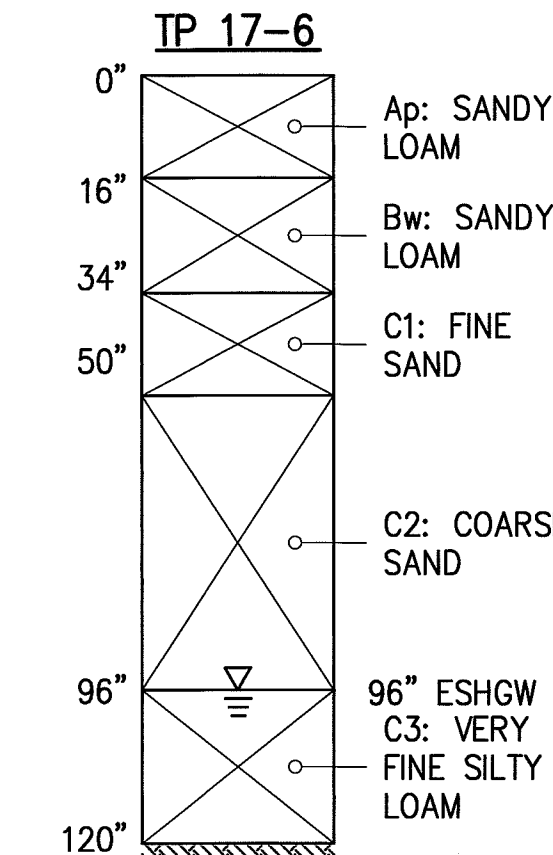
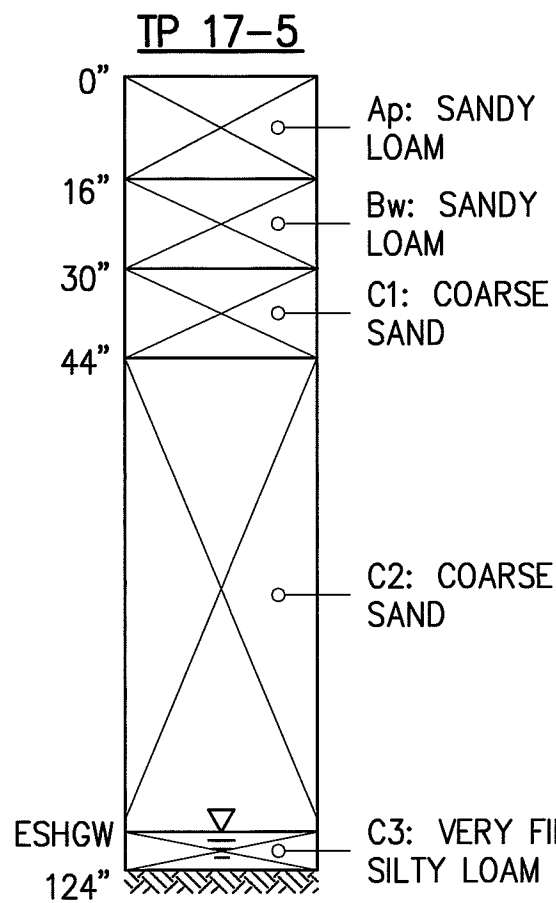
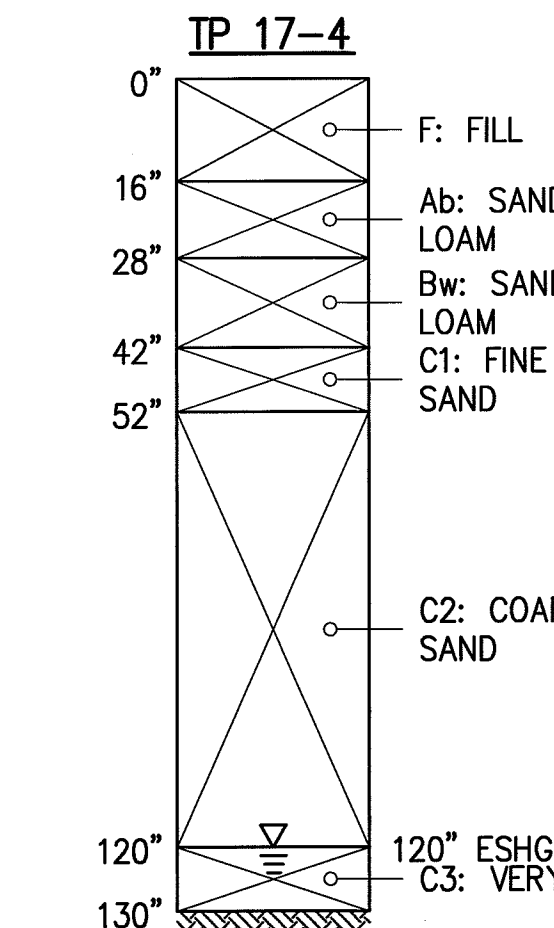
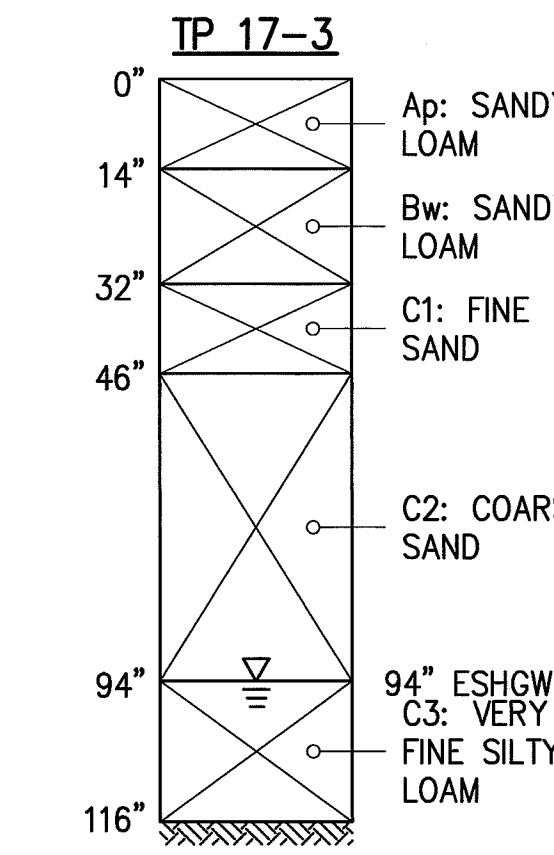
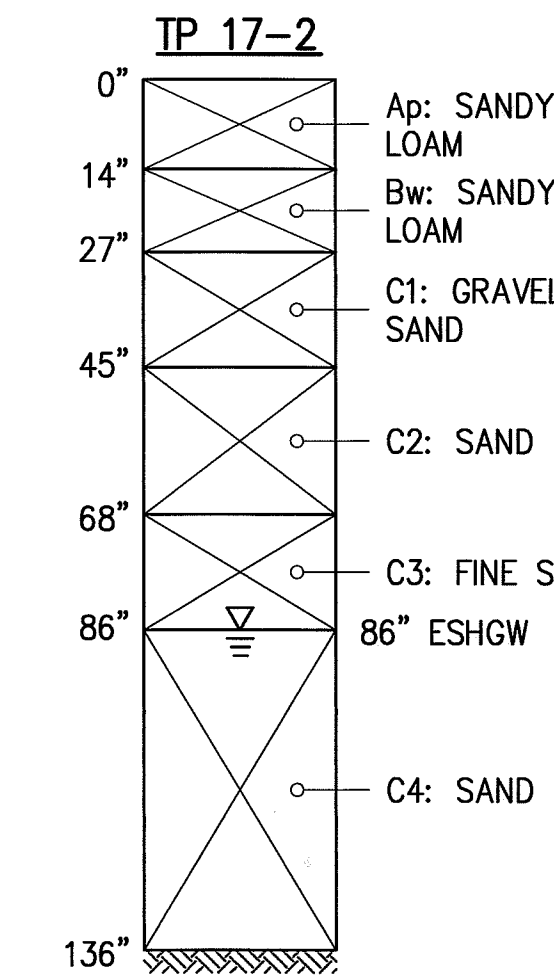
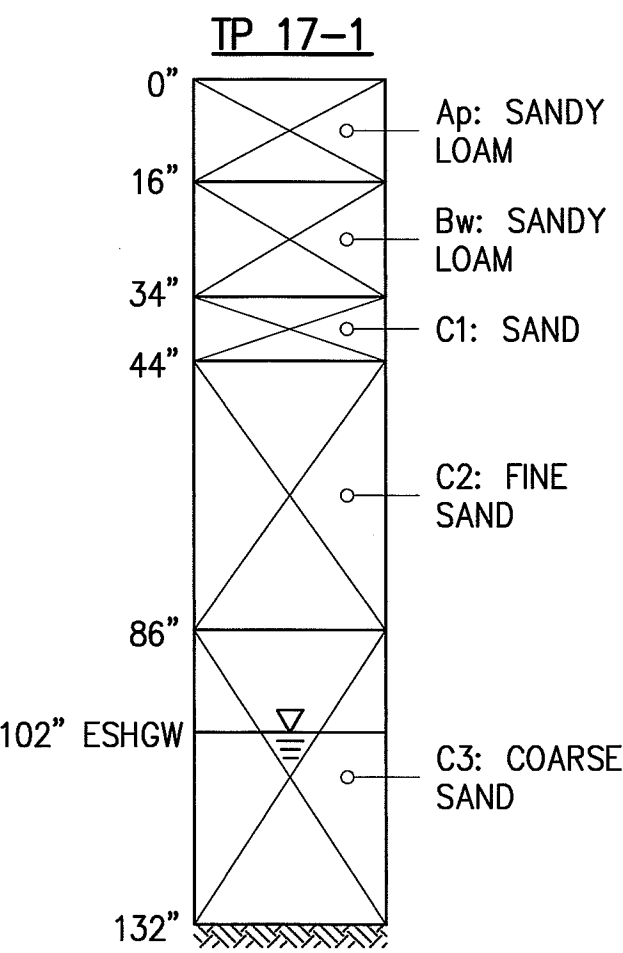
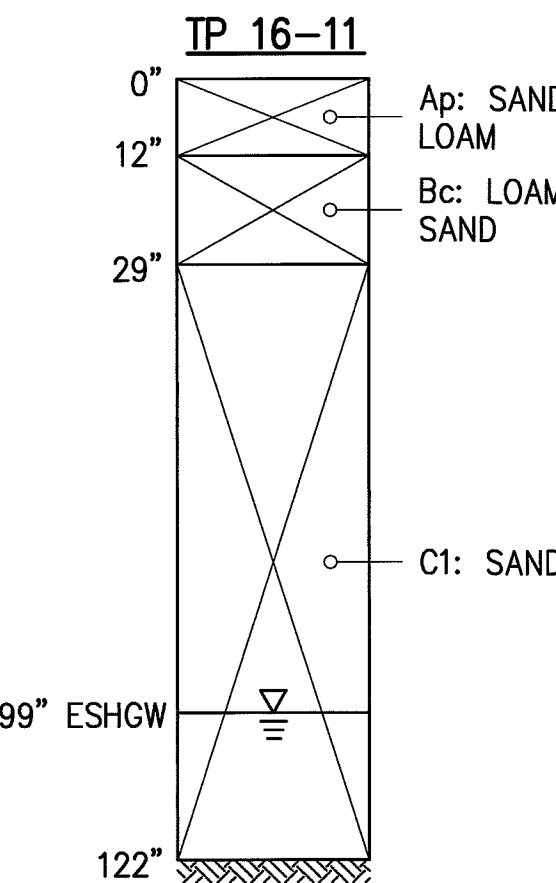
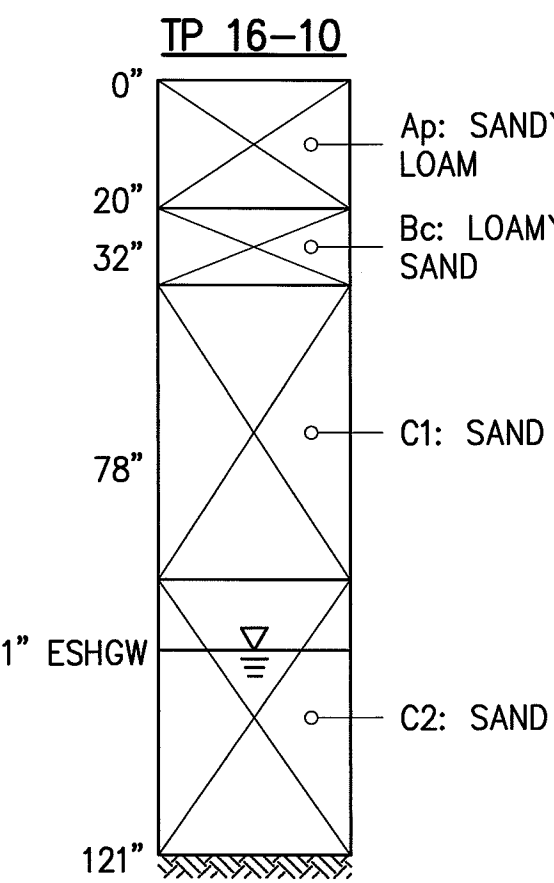
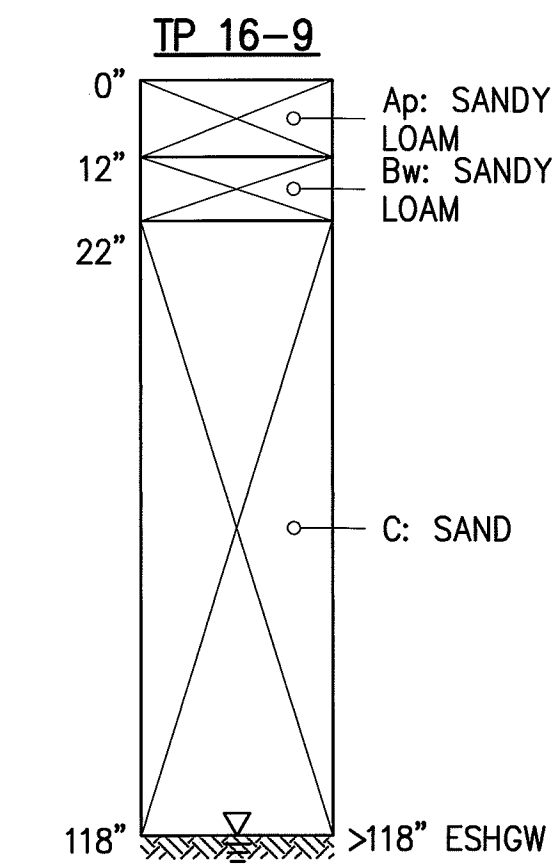
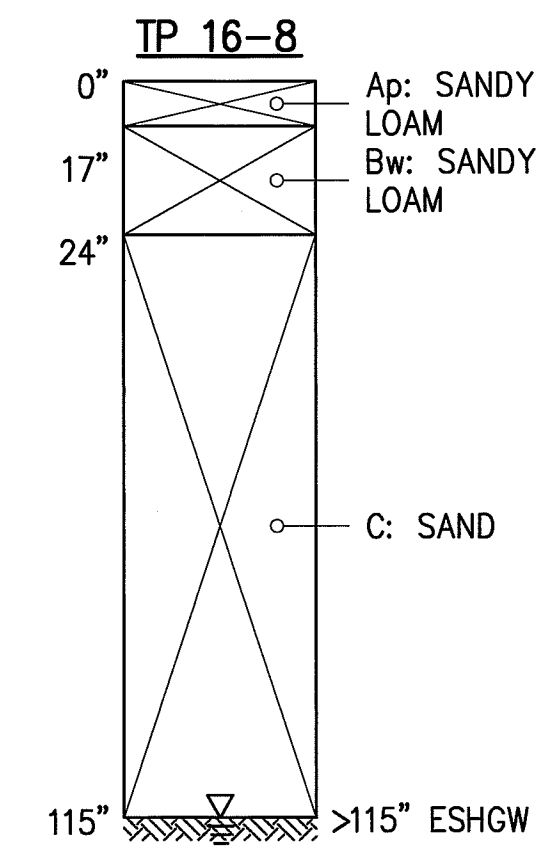
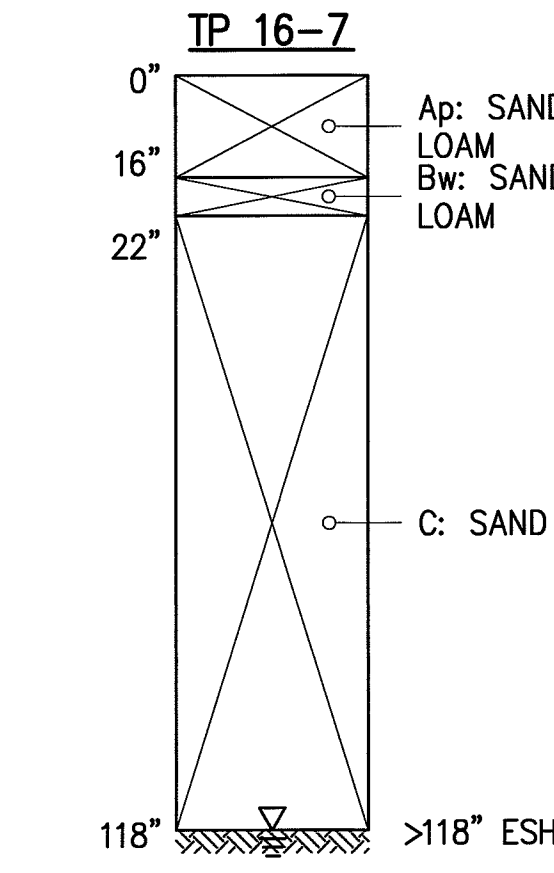
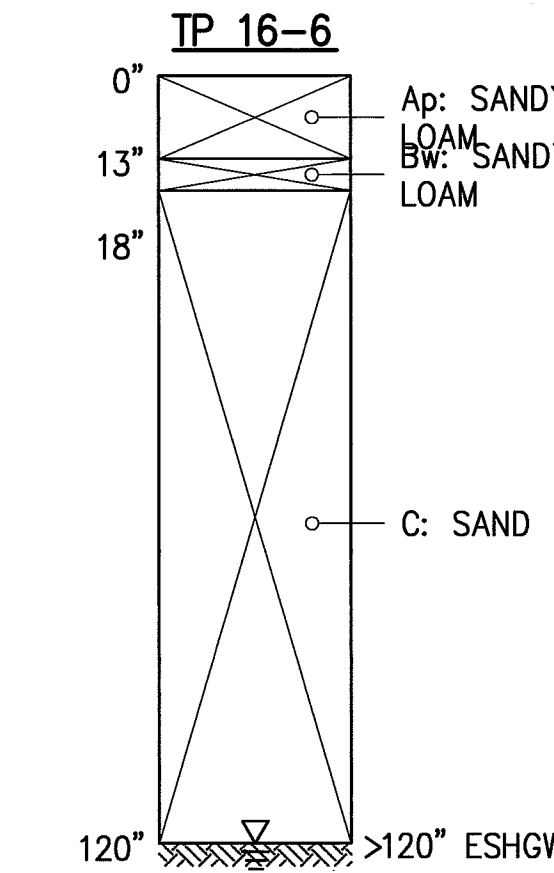
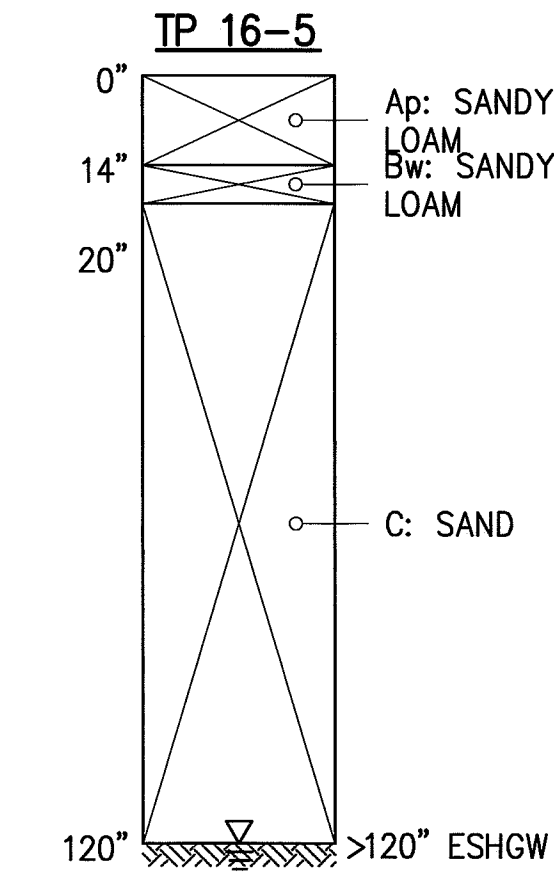
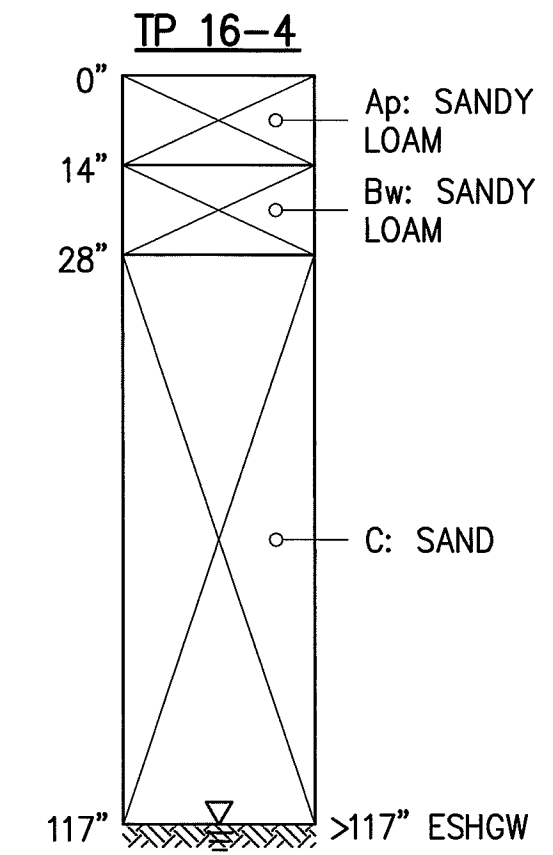
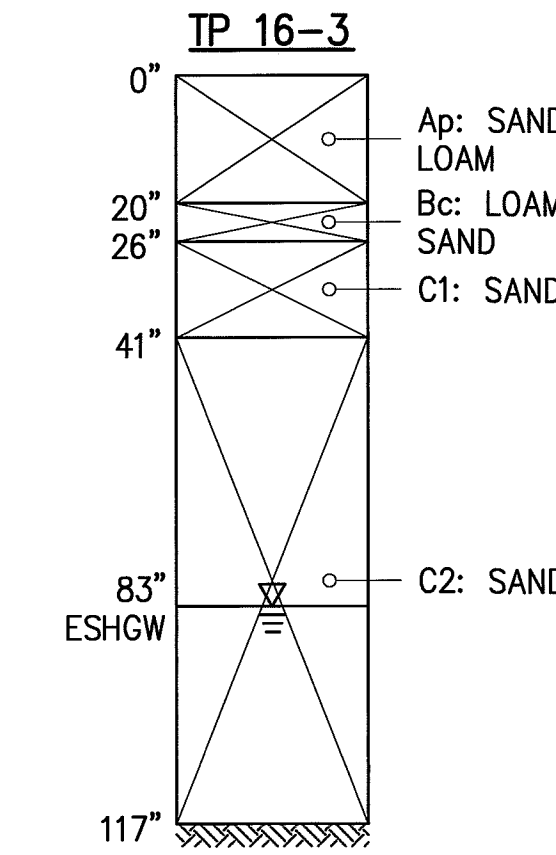
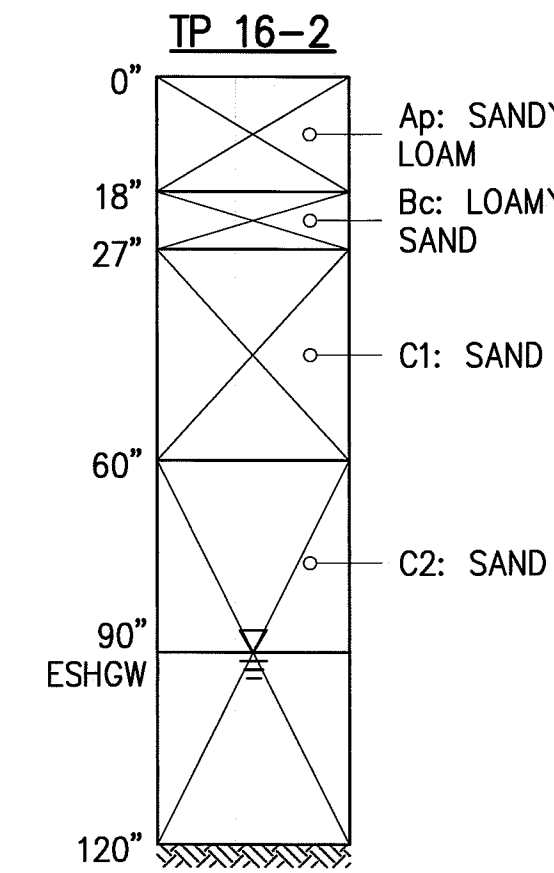
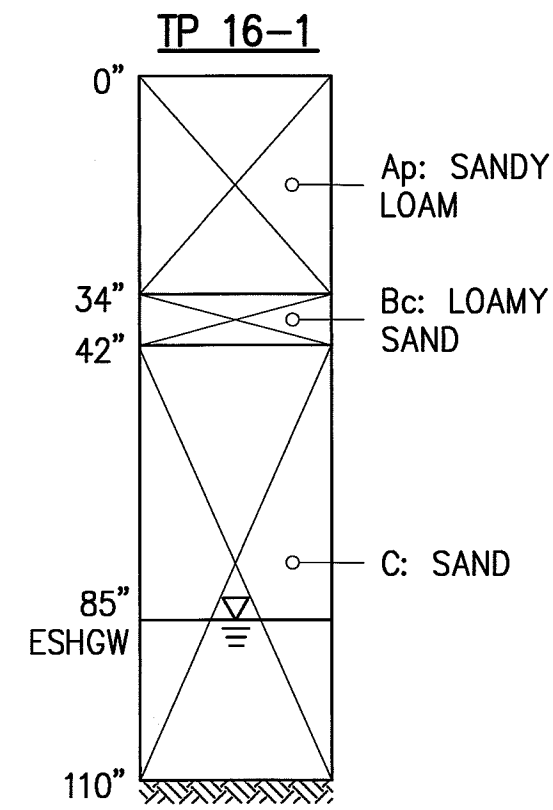


SOIL TEST  
LOGS

DRAWING NO.

20 OF 20

PROJ. #3460  
DRAWING: 3460



SOIL LOGS

DATE PERFORMED: JUNE 23, 2016  
PERFORMED BY: ALEXANDER F. PARKER, SE #1848

DATE PERFORMED: AUGUST 30, 2017  
PERFORMED BY: WILL SCHKUTA, SE #14030

WITNESSED BY TOPSFIELD BOARD OF HEALTH