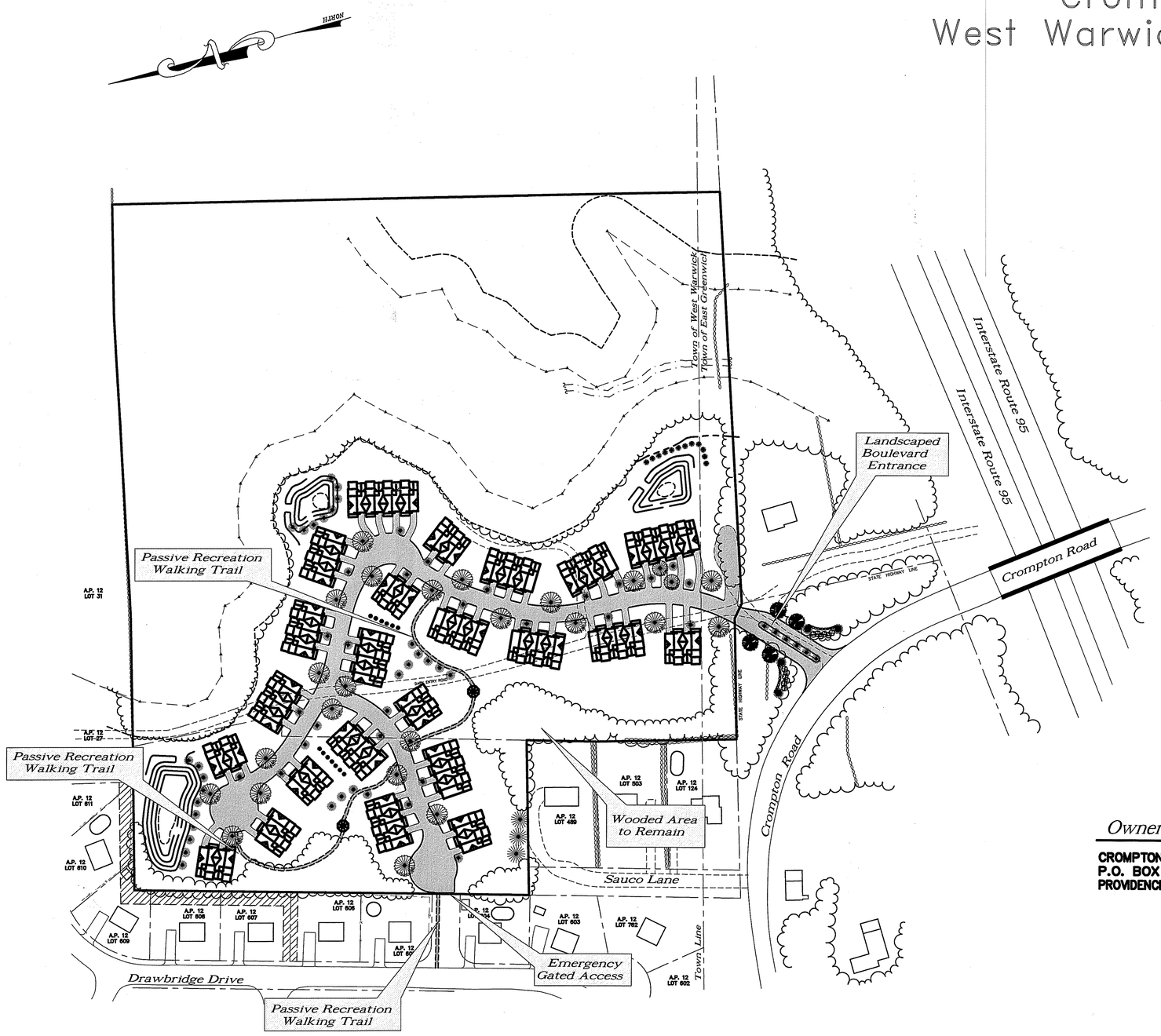
Preliminary Submission

Gentry Glen Condominiums

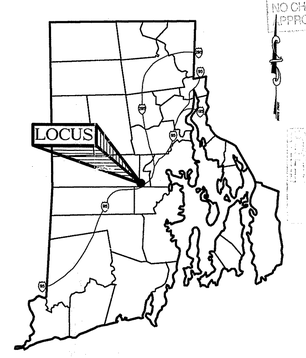
Crompton Road
West Warwick, Rhode Island



SHEET INDEX

Owner / Applicant

CROMPTON ROAD REALTY, LLC
P.O. BOX 9402
PROVIDENCE, RHODE ISLAND 02940



STATE INSERT MAP

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED MAY 19 2005 FILE NO. 04-0503
NO CHANGES ALLOWED WITHOUT WRITTEN APPROVAL
APPROVED PLANS MUST BE AVAILABLE ON SITE

RECEIVED
APR 20 2005

NOTES:
1. DIPRETE ENGINEERING ASSOCIATES, INC. CERTIFIES TO DRAINAGE, SEWER, AND WATER DESIGN ONLY.
2. BOYER ASSOCIATES CERTIFIES TO TOPOGRAPHIC AND PROPERTY LINE SURVEY ONLY.

ROBERT B. BOYER
No. 1573
PROFESSIONAL LAND SURVEYOR

KEVIN C. MORIN
No. 7051
REGISTERED PROFESSIONAL ENGINEER
CIVIL

Preliminary Submission

COVER SHEET

Gentry Glen Condominiums
ASSESSOR'S PLAT 12, LOTS 130, 133, AND 764
WEST WARWICK, RHODE ISLAND

DATE: DECEMBER, 2004

Sheet 1 of 9

Applicant:
Crompton Road Realty, LLC
P.O. Box 9402
Providence, RI
(401) 265-7751

Engineer:
DiPrete Engineering Associates, Inc.
Engineering, Surveying, and Planning Consultants
Two Stafford Court
Cranston, Rhode Island 02920
Tel: (401) 943-1000 Fax: (401) 464-6006

NO	DATE	DESCRIPTION	BY
7	3-30-05	GRADING REVISIONS	S.J.W.
6	2-25-05	SEWER COMMENTS	S.J.W.
5	1-25-05	TOWN COMMENTS	S.J.W.
4	12-6-04	TOWN COMMENTS	S.J.W.
3	1-5-04	RESPONSE TO TOWN	S.J.W.
2	8-30-04	TOWN SUBMISSION	S.J.W.
1	8-30-04	TOWN SUBMISSION	S.J.W.

Density Calculations

Total Area	18.4 Acres
East Greenwich Area	0.8 Acres
West Warwick Area	17.6 Acres
Total Wetland Area	5.9 Acres
East Greenwich Area	0.1 Acrres
West Warwick Area	5.8 Acres
Total Unsuitable Slopes	1.3 Acrea
West Warwick Area	1.3 Acres
Net Buildable Area West Warwick	10.5 Acres
10.5 Acres ÷ 5,000 Sq. Ft. per Unit =	91.4 Units
Total Design Units	62 Units
Parking Spaces	
Required	124 Spaces
Provided	124 Spaces

Present Zoning R-10

Minimum Area	10,000 Square Feet
Minimum Frontage	80 feet
Building Setbacks	
Front Yard	30 feet
Side Yard	10 feet
Rear Yard	30 feet

Floodplain

There is no FEMA 100-year floodplain on the Site as shown on the FEMA Flood Insurance Rate Map for the Town of West Warwick Community Panel 440007-0002B, dated April 15, 1986.

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NO CHANGES ... APPROVED PLANS ...

APR 20 2005

GRAPHIC SCALE

120 0 60 120 240

(IN FEET)
1 inch = 120 ft.

ROBERT B. BOYER
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200 FT RADIUS AND VICINITY PLAN

Gentry Glen Condominiums

ASSESSOR'S PLAT 12, LOTS 130, 133, AND 764
WEST WARWICK, RHODE ISLAND

DATE: DECEMBER, 2004

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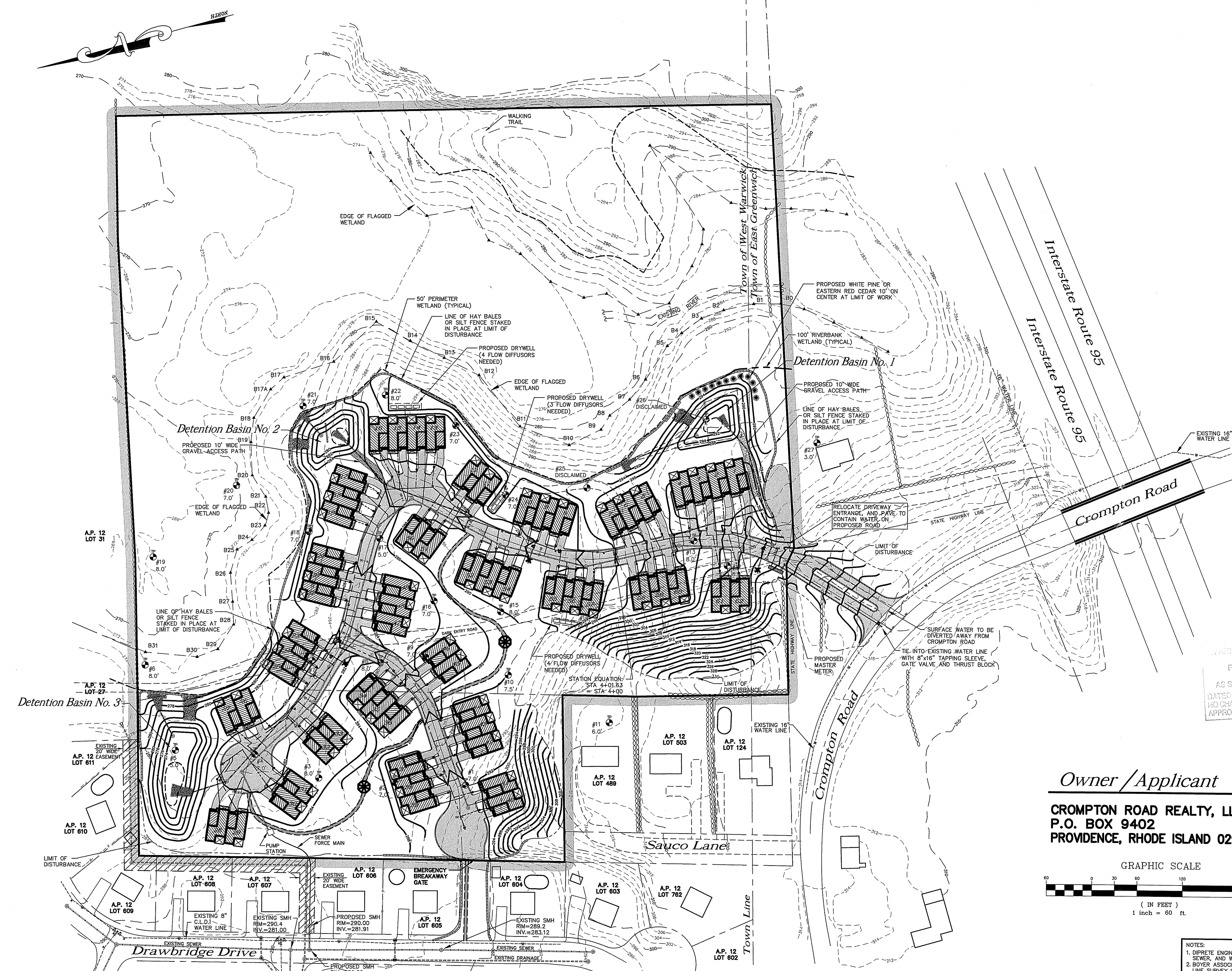
NO.	DATE	DESCRIPTION	BY
3	1-25-05	RIDEM COMMENTS	S.J.W.
2	9-8-04	RIDEM WETLANDS SUBMISSION	S.J.W.
1	8-30-04	KCWA SUBMISSION	S.J.W.


WALKING TRAIL
EDGE OF FLAGGED WETLAND
Town of West Warwick
Town of East Greenwich
EXISTING RIVER
PROPOSED WHITE PINE OR EASTERN RED CEDAR 10' ON CENTER AT LIMIT OF WORK
100' RIVERBANK WETLAND (TYPICAL)
Detention Basin No. 1
PROPOSED 10' WIDE GRAVEL ACCESS PATH
LINE OF HAY BALES OR SILT FENCE STAKED IN PLACE AT LIMIT OF DISTURBANCE
50' PERIMETER WETLAND (TYPICAL)
PROPOSED DRYWELL (4 FLOW DIFFUSORS NEEDED)
PROPOSED DRYWELL (3 FLOW DIFFUSORS NEEDED)
Detention Basin No. 2
Detention Basin No. 3
Interstate Route 95
Crompton Road
EXISTING 16" WATER LINE
RELOCATE DRIVEWAY ENTRANCE, AND PAVE TO CONTAIN WATER ON PROPOSED ROAD
STATE HIGHWAY LINE
LIMIT OF DISTURBANCE
SURFACE WATER TO BE DIVERTED AWAY FROM CROMPTON ROAD
TIE INTO EXISTING WATER LINE WITH 8"x16" TAPPING SLEEVE, GATE VALVE AND THRUST BLOCK
PROPOSED MASTER METER
STATION EQUATION: STA 4+01.83 = STA 4+00
DARK ENTRY ROAD
PUMP STATION
SEWER FORCE MAIN
EMERGENCY BREAKAWAY GATE
EXISTING 20' WIDE EASEMENT
EXISTING SMH RIM=290.4 INV.=281.00
PROPOSED SMH RIM=290.00 INV.=281.91
EXISTING SMH RIM=289.2 INV.=283.12
PROPOSED SMH RIM=289.00 INV.=281.27
EXISTING 8" C.L.D.I WATER LINE
EXISTING SEWER
EXISTING DRAINAGE
Drawbridge Drive
Sauco Lane
Town Line
A.P. 12 LOT 31
A.P. 12 LOT 27
A.P. 12 LOT 611
A.P. 12 LOT 610
A.P. 12 LOT 609
A.P. 12 LOT 608
A.P. 12 LOT 607
A.P. 12 LOT 606
A.P. 12 LOT 605
A.P. 12 LOT 604
A.P. 12 LOT 603
A.P. 12 LOT 762
A.P. 12 LOT 602
A.P. 12 LOT 489
A.P. 12 LOT 503
A.P. 12 LOT 124

Owner / Applicant

CROMPTON ROAD REALTY, LLC
P.O. BOX 9402
PROVIDENCE, RHODE ISLAND 02940

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.

NOTES:
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Preliminary Submission

GRADING PLAN

Gentry Glen Condominiums

ASSESSOR'S PLAT 12, LOTS 130, 133, AND 764
WEST WARWICK, RHODE ISLAND

DATE: DECEMBER, 2004

NO.	DATE	DESCRIPTION	BY
7	3-29-05	GRADING REVISIONS	S.J.W.
6	2-22-05	SEWER COMMENTS	S.J.W.
5	1-25-05	RIDEM COMMENTS	S.J.W.
4	12-15-04	KCWA COMMENTS	S.J.W.
3	11-9-04	RIDEM COMMENTS	S.J.W.
2	9-8-04	RIDEM WETLANDS SUBMISSION	S.J.W.
1	8-30-04	KCWA SUBMISSION	S.J.W.

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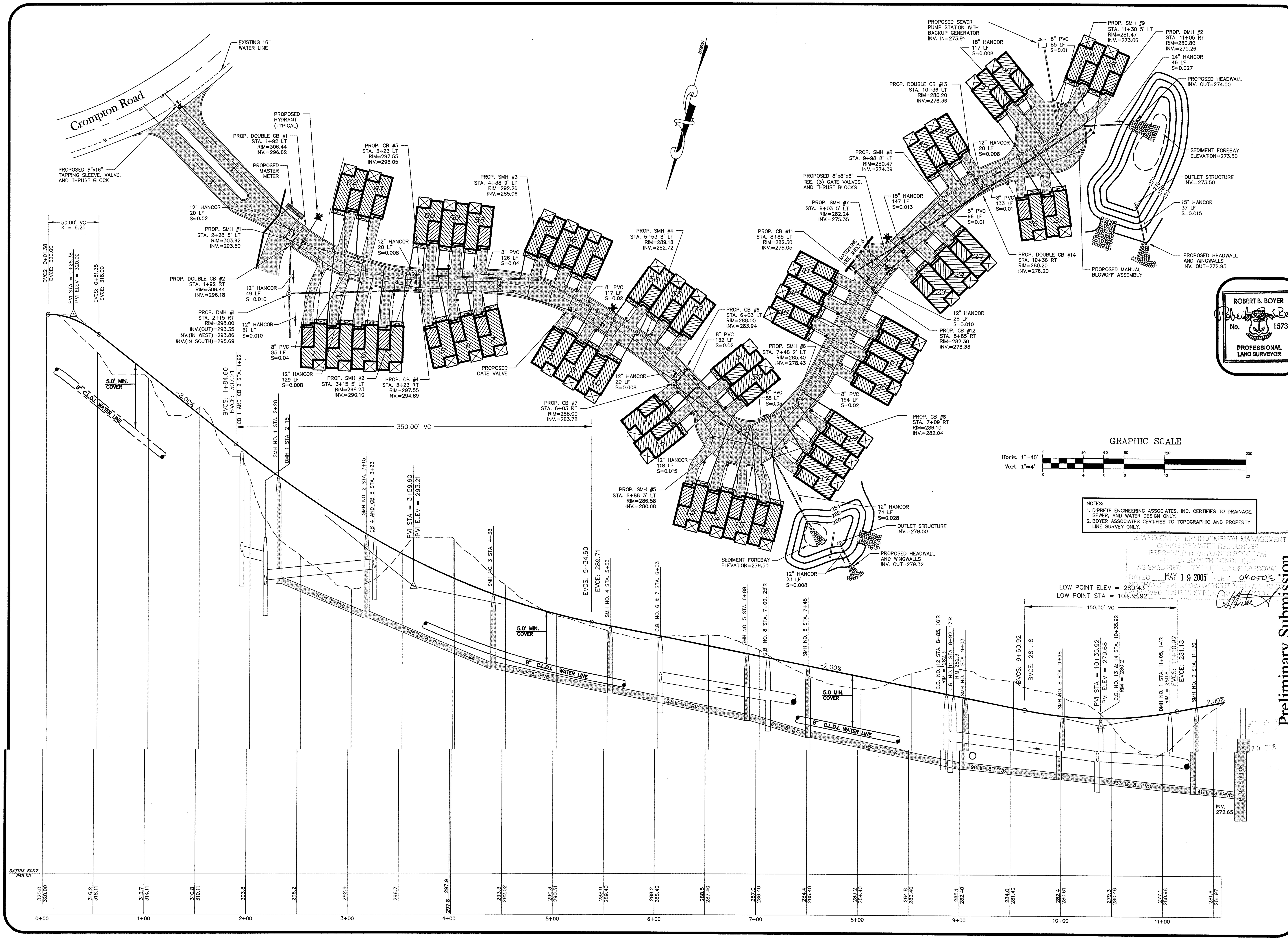
Crompton Road
EXISTING 16" WATER LINE
PROPOSED 8"x16" TAPPING SLEEVE, VALVE, AND THRUST BLOCK
PROPOSED HYDRANT (TYPICAL)
PROPOSED MASTER METER
PROP. DOUBLE CB #1 STA. 1+92 LT RIM=306.44 INV.=296.62
PROP. CB #5 STA. 3+23 LT RIM=297.55 INV.=295.05
PROP. SMH #1 STA. 2+28 5' LT RIM=303.92 INV.=293.50
PROP. DOUBLE CB #2 STA. 1+92 RT RIM=306.44 INV.=296.18
PROP. DMH #1 STA. 2+15 RT RIM=298.00 INV.(OUT)=293.35 INV.(IN WEST)=293.86 INV.(IN SOUTH)=295.69
PROP. SMH #2 STA. 3+15 5' LT RIM=298.23 INV.=290.10
PROP. CB #4 STA. 3+23 RT RIM=297.55 INV.=294.89
PROP. SMH #3 STA. 4+38 9' LT RIM=292.26 INV.=285.06
PROP. SMH #4 STA. 5+53 8' LT RIM=289.18 INV.=282.72
PROP. CB #6 STA. 6+03 LT RIM=288.00 INV.=283.94
PROP. CB #7 STA. 6+03 RT RIM=288.00 INV.=283.78
PROP. SMH #5 STA. 6+88 3' LT RIM=286.58 INV.=280.08
PROP. SMH #6 STA. 7+48 2' LT RIM=285.40 INV.=278.43
PROP. CB #8 STA. 7+09 RT RIM=286.10 INV.=282.04
PROPOSED GATE VALVE
PROP. CB #11 STA. 8+85 LT RIM=282.30 INV.=278.05
PROP. SMH #7 STA. 9+03 5' LT RIM=282.24 INV.=275.35
PROPOSED 8"x8"x8" TEE, (3) GATE VALVES, AND THRUST BLOCKS
PROP. SMH #8 STA. 9+98 8' LT RIM=280.47 INV.=274.39
PROP. DOUBLE CB #13 STA. 10+36 LT RIM=280.20 INV.=276.36
PROPOSED SEWER PUMP STATION WITH BACKUP GENERATOR INV. IN=273.91
PROP. SMH #9 STA. 11+30 5' LT RIM=281.47 INV.=273.06
PROP. DMH #2 STA. 11+05 RT RIM=280.80 INV.=275.26
PROPOSED HEADWALL INV. OUT=274.00
SEDIMENT FOREBAY ELEVATION=273.50
OUTLET STRUCTURE INV.=273.50
PROPOSED HEADWALL AND WINGWALLS INV. OUT=272.95
PROPOSED MANUAL BLOWOFF ASSEMBLY
PROP. DOUBLE CB #14 STA. 10+36 RT RIM=280.20 INV.=276.20
PROP. CB #12 STA. 8+85 RT RIM=282.30 INV.=278.33
OUTLET STRUCTURE INV.=279.50
PROPOSED HEADWALL AND WINGWALLS INV. OUT=279.32
SEDIMENT FOREBAY ELEVATION=279.50
GRAPHIC SCALE
Horiz. 1"=40'
Vert. 1"=4'
NOTES:
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OFFICE OF WATER RESOURCES
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LOW POINT ELEV = 280.43
LOW POINT STA = 10+35.92
350.00' VC
150.00' VC
50.00' VC K = 6.25
6" C.L.D.I. WATER LINE
8" C.L.D.I. WATER LINE
5.0' MIN. COVER
PUMP STATION
INV. 272.65
DATUM ELEV 265.00

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PROFESSIONAL LAND SURVEYOR

Preliminary Submission

PLAN AND PROFILE

Gentry Glen Condominiums

ASSESSOR'S PLAT 12, LOTS 130, 133, AND 764
WEST WARWICK, RHODE ISLAND

DATE: DECEMBER, 2004

KEVIN C. MORIN
No. 7051
REGISTERED PROFESSIONAL ENGINEER
CIVIL

GRAPHIC SCALE

Horiz. 1"=40' 0 40 80 120 200

Vert. 1"=4' 0 4 8 12 20

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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APPROVED PLANS MUST BE AT...

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NO	DATE	DESCRIPTION	BY
5	3-29-05	GRADING REVISIONS	S.W.
4	1-25-05	RIDEM COMMENTS	S.W.
3	1-4-05	RIDEM COMMENTS	S.W.
2	12-8-04	RIDEM WETLANDS SUBMISSION	S.W.
1	12-6-04	RIDEM SUBMISSION	S.W.

PLAN AND PROFILE

Gentry Glen Condominiums

ASSESSOR'S PLAT 12, LOTS 130, 133, AND 764
WEST WARWICK, RHODE ISLAND

DATE: DECEMBER, 2004

GRAPHIC SCALE

Horiz. 1"=40' 0 40 60 80 120 200

Vert. 1"=4' 0 4 6 8 12 20

Entrance Wall Detail

NOT TO SCALE

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
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APPROVED PLANS MUST BE AT CONSTRUCTION SITE

RECEIVED
APR 20 2005

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ENTRANCE ROAD DETAIL

Gentry Glen Condominiums

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NO	DATE	DESCRIPTION	BY
3	1-25-05	RESP COMMENTS	SJW
2	9-30-04	RESP WETLANDS SUBMISSION	SJW
1	8-30-04	TOWN SUBMISSION	SJW

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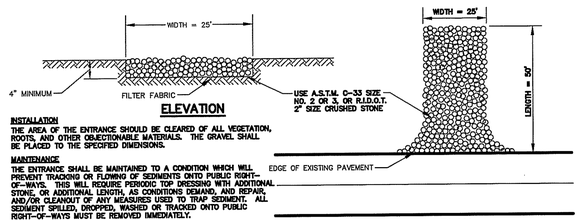
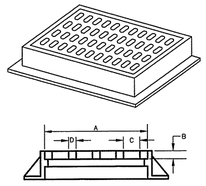
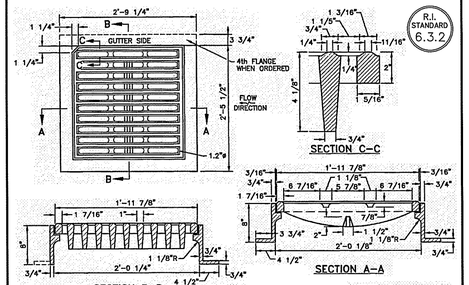
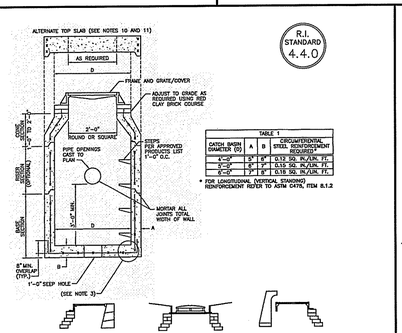
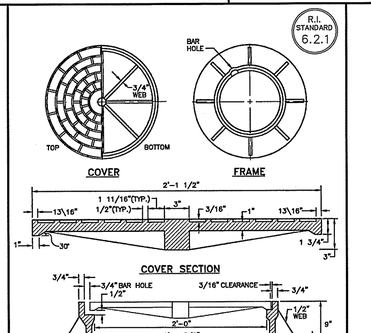
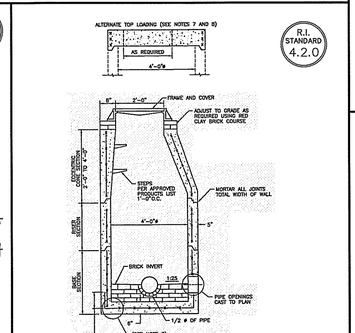


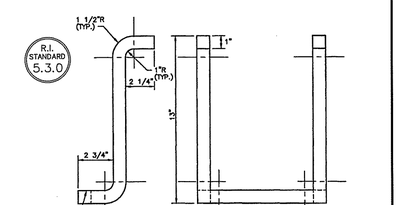


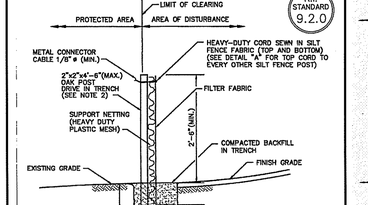


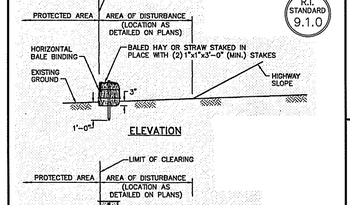


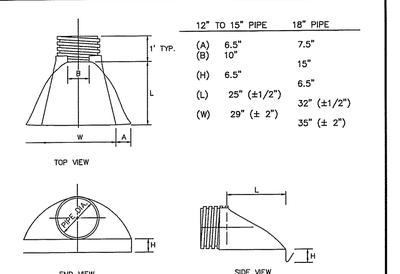


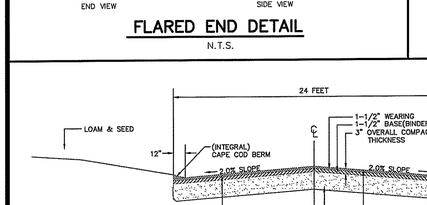


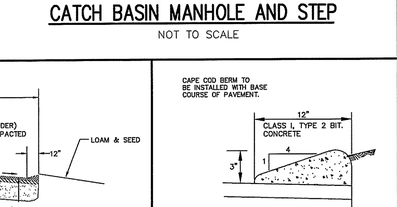


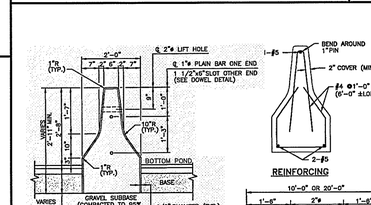


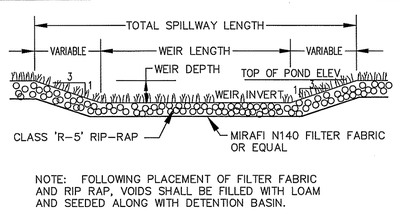












INSTALLATION
THE AREA OF THE ENTRANCE SHOULD BE CLEARED OF ALL VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIALS. THE GRAVEL SHALL BE PLACED TO THE SPECIFIED DIMENSIONS.

MAINTENANCE
THE ENTRANCE SHALL BE MAINTAINED TO A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENTS ONTO PUBLIC RIGHT-OF-WAYS. THIS WILL REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE, OR ADDITIONAL LENGTH, AS CONDITIONS DEMAND, AND REPAIR, AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHT-OF-WAYS MUST BE REMOVED IMMEDIATELY.

CONSTRUCTION ENTRANCE PROTECTION STONE STABILIZATION PAD

N.T.S.

CAT. NO.	A	B	C	D	WT. (LBS)
R-4853-A	24"x45"	3"	1 1/2"x6 1/4"	1 1/4"	520

HEAVY DUTY FRAME & GRATE NEENAH FOUNDRY CORP. (OR EQUAL)

N.T.S.

NOTE: FRAME AND GRATE SHALL CONFORM TO SECTION M.04 OF THE R.I. STANDARD SPECIFICATIONS.

SQUARE FRAME AND GRATE N.T.S.

DRAINAGE PIPE TO BE HANCOR OR ADS. PIPE TO BE APPROVED BY DESIGN ENGINEER PRIOR TO INSTALLATION. RCP PIPE MAY BE USED AS AN ALTERNATIVE.

DRAINAGE TRENCH DETAIL

N.T.S.

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. SEE TABLE 1 FOR STEEL REINFORCEMENT REQUIREMENTS.
3. STEEL REINFORCEMENT FOR BASE SECTION BOTTOM SHALL BE A MINIMUM OF 0.12 SQ. IN./LIN. FT. (BOTH WAYS).
4. STEPS SHALL CONFORM TO STD. 5.3.0 AND SHALL BE INSTALLED AT THE CASTING PLANT.
5. ONE POUR MONOLITHIC BASE SECTION.
6. ANY NECESSARY ADJUSTMENTS DURING CONSTRUCTION WILL BE DONE BY SAW-CUTTING AND/OR CORING ONLY. NO JACKHAMMERS, HAMMERS AND CHISELS OR PNEUMATIC TOOLS WILL BE ALLOWED.
7. CORBEL MADE OF RED CLAY BRICK WILL BE PERMITTED FOR THE "CONE SECTION" OF THE 4'-0" CATCH BASIN ONLY.
8. FOR CATCH BASIN TYPES "D" AND "F" STEPS MUST BE INSTALLED ON THE CURB SIDE OF THE STRUCTURE.
9. THE CENTERLINE OF THE OPENING MUST BE WITHIN 2'-0" FROM THE STEPS.
10. ALTERNATE TOP SLAB IS STEEL REINFORCED TO MEET OR EXCEED H-25 LOADING (SEE STD. 4.7.2).
11. ALTERNATE TOP SLAB IS ONLY FOR USE WHEN REDUCING SECTION DOES NOT FIT BECAUSE OF STRUCTURE DEPTH.
12. REFER TO STD. 5.2.0 FOR MAXIMUM PIPE SIZES.

PRECAST ROUND CATCH BASIN

NOT TO SCALE

NOTES:
1. FRAME AND GRATE SHALL CONFORM TO SECTION M.04 OF THE R.I. STANDARD SPECIFICATIONS.
2. FRAME AND COVER SEATS MUST HAVE MACHINE FINISH.

HEAVY DUTY ROUND FRAME AND COVER

N.T.S.

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. CIRCUMFERENTIAL STEEL REINFORCEMENT REQUIRED = 0.12 SQ. IN. / LIN. FT. MINIMUM.
3. STEEL REINFORCEMENT FOR BASE SECTION BOTTOM SHALL BE A MINIMUM OF 0.12 SQ. IN/LIN. FT. (BOTH WAYS).
4. ONE POUR MONOLITHIC BASE SECTION.
5. ANY NECESSARY ADJUSTMENTS DURING CONSTRUCTION WILL BE DONE BY SAW-CUTTING AND/OR CORING ONLY. NO JACKHAMMERS, HAMMERS AND CHISELS OR PNEUMATIC TOOLS WILL BE ALLOWED.
6. STEPS SHALL CONFORM TO STD. 5.3.0 AND SHALL BE INSTALLED AT THE CASTING PLANT.
7. ALTERNATE TOP SLAB IS STEEL REINFORCED TO MEET OR EXCEED H-25 LOADING (SEE STD. 4.7.2).
8. ALTERNATE TOP SLAB IS ONLY FOR USE WHEN REDUCING SECTION DOES NOT FIT BECAUSE OF STRUCTURE DEPTH.
9. REFER TO STD. 5.2.0 FOR MAXIMUM PIPE SIZES.

PRECAST 4' ROUND MANHOLE

NOT TO SCALE

STRUCTURAL MEASURES

1. RUNOFF WATER QUALITY IS IMPROVED UTILIZING EXTENDED DETENTION BASINS. THE DETENTION BASINS ARE DESIGNED TO PROMOTE SEDIMENT REMOVAL PRIOR TO DISCHARGING TO FINAL DISCHARGE.
2. A PERMANENT COVER SHALL BE ESTABLISHED IN ACCORDANCE WITH THE VEGETATIVE COVER PROVISIONS. THE SEEDING SHALL EXTEND TO AT LEAST THE DESIGN TOP WIDTH OF THE BMP'S AND INCLUDE ANY OTHER AREAS DISTURBED BY CONSTRUCTION ACTIVITIES. ACTIVITIES SHALL BE CONFINED TO WITHIN THE LIMIT OF WORK AS SHOWN ON PLANS.
3. VIGOROUS VEGETATION SHALL BE MAINTAINED BY APPLYING LIME AND FERTILIZER. BARE OR ERODED AREAS SHALL BE IMMEDIATELY REPAIRED AND RESEEDED BY THE CONTRACTOR.
4. THE CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE AND INSPECTION OF THE BASINS AND DRYWELLS UP TO ACCEPTANCE OF CONSTRUCTION BY THE OWNER. THE OWNER AND FUTURE CONDOMINIUM ASSOCIATION IS RESPONSIBLE THEREAFTER. ANY UNDEVELOPED VEGETATIVE COVER IN THE BASINS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL RESEED ANY UNSTABILIZED AREAS AFTER A FULL GROWING SEASON AT NO ADDITIONAL EXPENSE.
5. THE GRASS SHALL BE ALLOWED TO GROW BETWEEN 2 TO 10 INCHES.
6. THE PERMANENT DETENTION BASINS SHALL BE INSTALLED. COVER WITH TOPSOIL AT THE END OF CONSTRUCTION.
7. THE DETENTION PONDS SHALL BE BUILT TO CONTROL RUNOFF FOR 2 TO 100 YEARS STORM FREQUENCIES.
8. THE SIDE SLOPES OF THE BASINS SHALL BE 3:1 MAXIMUM OR AS CALLED FOR ON THE PROJECTS PLANS.
9. ALL EMBANKMENTS OF THE BASINS SHALL BE THOROUGHLY COMPACTED UPON PLACEMENT IN STRICT CONFORMANCE WITH RI STANDARD SPECIFICATION SECTION 202.
10. THE CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE AND INSPECTION OF THE BASINS AND DRYWELLS UP TO THE ACCEPTANCE OF CONSTRUCTION BY THE OWNER. THE OWNER AND FUTURE CONDOMINIUM ASSOCIATION (C.A.) SHALL BE RESPONSIBLE THEREAFTER FOR MAINTAINING THE BASINS AND DRYWELLS. THE C.A. SHALL INSPECT THE BASINS AND DETENTION AREAS SEMIANNUALLY AND AFTER MAJOR STORMS.
11. A GRADUATED GAGE IS TO BE SET WITHIN THE POND TO MONITOR ACCUMULATED SEDIMENTS.
12. RIP-RAP APRONS SHALL BE INSTALLED AT THE OUTLETS OF ALL CULVERTS. THE EMERGENCY SPILLWAYS SHALL BE PROTECTED BY RIP-RAP DOWNSTREAM AND UPSTREAM.
13. RIP-RAP PADS SHALL BE INSPECTED SEMIANNUALLY AND AFTER MAJOR STORMS. IF REPAIRS ARE NEEDED, THEY SHALL ACCOMPLISHED IMMEDIATELY.
14. THE CONSTRUCTION SUPERINTENDENT SHALL HAVE THE OVERALL RESPONSIBILITY FOR STRUCTURAL MEASURE IMPLEMENTATION AND FOR SEEING THAT APPROPRIATE WORKERS ARE AWARE OF THE PROVISIONS OF THE PLAN.
15. REFERENCE THE RHODE ISLAND SOIL EROSION AND SEDIMENT CONTROL HANDBOOK PREPARED BY USDA SOIL CONSERVATION SERVICE 1989, AS A GUIDE.

MAINTENANCE: SHORT TERM/LONG TERM

1. ALL DISTURBED SLOPES EITHER NEWLY CREATED OR CURRENTLY EXPOSED SHALL BE SEEDED, PROTECTED, AND MAINTAINED BY THE CONTRACTOR FOLLOWING FINAL GRADING AND CONSTRUCTION. THE CONTRACTOR SHALL CHECK REGULARLY ALL SEEDED AREAS TO SEE THAT A GOOD STAND IS MAINTAINED.
2. THE CONTRACTOR MUST REPAIR OR RESEED ANY AREAS THAT DO NOT DEVELOP WITHIN THE PERIOD OF ONE YEAR AND SHALL DO SO AT NO ADDITIONAL EXPENSE.
3. ALL HAY BALES, TEMPORARY TREATMENTS (HAY, STRAW, ETC.), AND TEMPORARY PROTECTION SHALL BE MAINTAINED BY THE CONTRACTOR THROUGHOUT CONSTRUCTION AND SHALL REMAIN IN PLACE UNTIL AN ACCEPTABLE STAND OF GRASS OR APPROVED GROUND COVER IS ESTABLISHED.
4. THE CONTRACTOR SHALL MAINTAIN ALL TOPSOIL STOCKPILES AND SEDIMENT BARRIERS THROUGHOUT CONSTRUCTION. EXTREME CARE SHALL BE TAKEN TO ENSURE SEDIMENTS DO NOT SPILL OVER THE SEDIMENT BARRIER.
5. THE CONTRACTOR SHALL CHECK THE HAY BALES OR SILT FENCE ON A WEEKLY BASIS AND AFTER EACH STORM FOR UNDERMINING OR DETERIORATION. THE CONTRACTOR SHALL REPAIR OR REPLACE THE HAY BALES AS NECESSARY. THE CONTRACTOR SHALL CLEAN THE ACCUMULATED SEDIMENT IF HALF OF THE ORIGINAL HEIGHT OF THE BALES BECOME FILLED IN WITH SEDIMENTS.
6. THE CONTRACTOR SHALL MAINTAIN THE STABILIZATION PAD AT THE SITE ENTRANCE. THE MAINTENANCE SHALL INCLUDE TOP DRESSING WITH ADDITIONAL STONE OR ADDITIONAL LENGTH AS CONDITIONS DEMAND OR AS DIRECTED BY THE ENGINEER. ALL SEDIMENTS SPILLED, DROPPED, WASHED, OR TRACKED ON THE PUBLIC RIGHT OF WAY MUST BE REMOVED IMMEDIATELY BY THE CONTRACTOR.
7. THE CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE AND INSPECTION OF THE DETENTION AREAS UP TO ACCEPTANCE OF CONSTRUCTION BY THE OWNER. MAINTENANCE SHALL INCLUDE RESEEDING ANY UNDEVELOPED AREAS AFTER A FULL GROWING SEASON AT NO ADDITIONAL EXPENSE, REMOVING ACCUMULATED SILT WHEN SEDIMENTS IN THE BASINS EXCEED 3", AND MAINTAINING THE GRASS TO A GROWING HEIGHT BETWEEN 2"-10". EXCAVATION OF SILT SHALL BE MANUAL WITH SHOVEL AND WHEELBARROW ONLY.
8. THE CONTRACTOR SHALL MAINTAIN THE DRAINAGE SYSTEM THROUGHOUT CONSTRUCTION. THE ACCUMULATED SEDIMENTS IN THE DETENTION BASINS SHALL BE REMOVED AND DRAINAGE PIPES FLUSHED BY THE CONTRACTOR AT THE END OF CONSTRUCTION.
9. THE C.A. SHALL CHECK THE RIP RAP PADS AND EMERGENCY OUTLETS AFTER MAJOR STORMS AND ON AN ANNUAL BASIS. REPAIRS SHALL BE PERFORMED IMMEDIATELY AS CONDITIONS WARRANT. CHECK DAMS SHALL BE REPLACED OR REPAIRED AS NECESSARY.
10. THE C.A. IS RESPONSIBLE FOR THE LONG TERM MAINTENANCE OF THE DETENTION AREAS AND DRYWELLS. ALL DRAINAGE SYSTEM COMPONENTS WITHIN THE RIGHT OF WAY SHALL REMAIN THE RESPONSIBILITY OF THE CONTRACTOR UNTIL THE OWNER ACCEPTS THE ROAD. CATCH BASIN SUMPS SHALL BE CHECKED ANNUALLY AND SEDIMENTS SHALL BE REMOVED IF THEY EXCEED 0.5' OR 10 YEARS, WHICHEVER COME FIRST.
11. THE C.A. SHALL MAINTAIN THE BASINS AND DRYWELLS AFTER ACCEPTANCE BY THE OWNER. THE OWNER AND FUTURE C.A. SHALL MAINTAIN A GOOD VEGETATIVE COVER (GRASS BETWEEN 2"-10" OR VEGETATION AS SPECIFIED). BOTTOM OF PONDS SHALL BE INSPECTED ON A BIANNUAL BASIS AND ACCUMULATED SEDIMENTS SHALL BE REMOVED WHEN THEY EXCEED 3" DEPTH OR EVERY 10 YEARS IN THE DETENTION BASINS.
12. THE CONSTRUCTION SUPERINTENDENT SHALL HAVE OVERALL RESPONSIBILITY FOR THE THE MAINTENANCE PROGRAM DURING CONSTRUCTION PHASE. THE SUPERINTENDENT SHALL SEE THAT THE APPROPRIATE WORKERS ARE AWARE OF THE PROVISIONS OF THE PLAN.
13. AFTER ACCEPTANCE BY THE OWNER, THE OWNER AND FUTURE C.A. SHALL HAVE OVERALL RESPONSIBILITY FOR IMPLEMENTING THE MAINTENANCE PROGRAM.
14. CONSTRUCTION OF THE BASINS SHALL BE SUPERVISED BY A PROFESSIONAL ENGINEER.

Directions for Using The Anti-Seep

1. Unroll the Anti-Seep and attach the boards to the edges to form a square. (Use the boards and nails provided.) (4'x4' & Larger)
2. Cut a round hole in the center of the rubber that is smaller than the pipe size (approx. 25% smaller). This will allow the rubber to stretch over the pipe when the Anti-Seep is installed on the pipe. This should provide a nearly waterproof seal between the pipe and the Anti-Seep.
3. Slip the pipe through the Anti-Seep, inspect the seal between the pipe and the Anti-Seep, carefully backfill and compact with suitable soil.

AGRI DRAIN CORP.
OR EQUAL

Location	W	H	Quantity
Pond #1	1.25'	1.25'	1
Pond #2	1.25'	1.25'	1
Pond #3	2.0'	2.0'	1

ANTI-SEEP COLLAR

N.T.S.

	12" TO 15" PIPE	18" PIPE
(A)	6.5"	7.5"
(B)	10"	15"
(H)	6.5"	6.5"
(L)	25" (±1/2")	32" (±1/2")
(W)	29" (± 2")	35" (± 2")

FLARED END DETAIL

N.T.S.

NOTES:
1. STEPS SHALL CONFORM TO SECTION M.04 OF THE R.I. STANDARD SPECIFICATIONS.
2. CROSS SECTION AREA MAY BE REDUCED UPON SUBMISSION OF CERTIFIED LOAD TESTS. STEPS MUST SUPPORT 300 LBS.
3. STOCK SHOWN IS 1" SQUARE WHICH MAY BE REPLACED BY 1" DIAMETER.

CATCH BASIN MANHOLE AND STEP

NOT TO SCALE

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 206 OF THE R.I. STANDARD SPECIFICATIONS.
2. 2"x2"x4'-6"(MAX.) OAK POSTS FOR SILT FENCE SHALL BE LOCATED 8'-0" (MAX.) O.C. IN WETLAND AREAS AND 4'-0" (MAX.) O.C. IN WETLAND RAVINE, GULLY OR DROP-OFF AREAS AS SHOWN ON PLANS.
3. 1"x1"x4'-6"(MIN.) POSTS PERMITTED FOR PRE-FABRICATED SILT FENCE.
4. SILT FENCE SHALL BE INSTALLED BEFORE ANY GRUBBING OR EARTH EXCAVATION TAKES PLACE.

SILT FENCE DETAIL

NOT TO SCALE

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 206 OF THE R.I. STANDARD SPECIFICATIONS.
2. TO BE USED WHERE THE EXISTING GROUND SLOPES AWAY FROM THE HIGHWAY EMBANKMENT AS CALLED FOR ON PLANS.
3. AT APPROXIMATE 100'-0" INTERVALS A BALE OF HAY IS TO BUTT PERPENDICULARLY.

BALED HAY EROSION CHECK

NOT TO SCALE

ESTABLISHMENT OF VEGETATIVE COVER

1. SLOPES SHALL NOT BE LEFT UNATTENDED OR EXPOSED FOR EXCESSIVE PERIODS OF TIME SUCH AS THE INACTIVE WINTER SEASON.
2. ALL DISTURBED SLOPES EITHER NEWLY CREATED OR CURRENTLY EXPOSED SHALL BE SEEDED OR PROTECTED.
3. THE TOPSOIL SHALL HAVE A SANDY LOAM TEXTURE RELATIVELY FREE OF SUBSOIL MATERIAL, STONES, ROOTS, LUMPS OF SOIL, TREE LIMBS, TRASH OR CONSTRUCTION DEBRIS AND SHALL CONFORM WITH RHODE ISLAND'S STANDARD SPECIFICATION, M.20.
4. THE DESIGN MIX SHALL BE COMPRISED OF THE FOLLOWING:

TYPE	LBS/AC.
CREEPING RED FESCUE	75
KENTUCKY BLUE GRASS	15
COLONIAL BENT GRASS	5
PERENNIAL RUE GRASS	5

5. EARLY SPRING OR LATE SUMMER SEEDING IS RECOMMENDED. LIME AND FERTILIZE AS REQUIRED BY SOIL TESTING TO COMPLIMENT OR UPGRADE EXISTING CONDITIONS. THE SEED MIX SHALL BE INOCULATED WITHIN 24 HOURS, BEFORE MIXING AND PLANTING, WITH APPROPRIATE MIXTURE FOR EACH VARIETY.
6. TEMPORARY TREATMENTS SHALL CONSIST OF HAY, STRAW OR FIBER MULCH, OR PROTECTIVE COVERS SUCH AS NORTH AMERICAN S150 OR EQUAL. THEY SHALL BE INCORPORATED INTO THE WORK AS WARRANTED OR AS ORDERED BY THE ENGINEER. HAY OR STRAW APPLICATIONS SHALL BE IN THE AMOUNT OF 2 TONS/ACRE.
7. ALL HAY BALES OR TEMPORARY PROTECTION SHALL REMAIN IN PLACE UNTIL AN ACCEPTABLE STAND OF GRASS OR APPROVED GROUND COVER IS ESTABLISHED.
8. ALL FILL SHALL BE THOROUGHLY COMPACTED UPON PLACEMENT IN STRICT CONFORMANCE WITH THE RHODE ISLAND STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION, SECTION 202.
9. STOCKPILES OF TOPSOIL SHALL NOT BE LOCATED NEAR WATERWAY. THEY SHALL HAVE SIDE SLOPES NO GREATER THAN 2:1 AND SHALL BE TEMPORARILY SEEDED AND/OR STABILIZED.
10. THE CONSTRUCTION SUPERINTENDENT SHALL HAVE OVERALL RESPONSIBILITY FOR PLAN IMPLEMENTATION AND FOR SEEING THAT THE APPROPRIATE WORKERS ARE AWARE OF THE PROVISIONS OF THE PLAN. THE CONTRACTOR MUST REPAIR AND/OR RESEED ANY AREAS THAT DO NOT DEVELOP WITHIN THE PERIOD OF ONE YEAR AND SHALL DO SO AT NO ADDITIONAL EXPENSE.
11. ALL AREAS DISTURBED BY SWALE CONSTRUCTION SHALL BE STABILIZED WITH PERMANENT SEEDING IMMEDIATELY FOLLOWING FINISH GRADING. PERMANENTLY SEEDED AREAS SHALL BE PROTECTED DURING ESTABLISHMENT WITH MULCH. ALL SEEDED AREAS WILL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHALL BE FERTILIZED AND RESEEDED AS NEEDED.
12. REFERENCE THE "RHODE ISLAND SOIL EROSION AND SEDIMENTATION CONTROL HANDBOOK" PREPARED BY THE USDA SOIL CONSERVATION SERVICE AS A GUIDE.
13. TEMPORARY HAY MULCH TO BE TACKED IN PLACE WITH NYLON MESH NETTING.
14. MAXIMUM GRADED SLOPE WITHIN SUBDIVISION TO BE 3:1. ALL 3:1 OR STEEPER SLOPES TO BE LOAMED, SEEDED, AND PROTECTED WITH NORTH AMERICAN GREEN S75 EROSION BLANKET INSTALLED ACCORDING TO NAG SPECIFICATIONS.

NONSTRUCTURAL MEASURES

1. CONSTRUCTION TRAFFIC SHALL BE LIMITED TO ACCESS ROADS, DRAINAGE EASEMENTS AND AREAS TO BE GRADED.
2. A STONE STABILIZATION PAD IS LOCATED AT THE SITE ENTRANCE TO REDUCE THE TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT OF WAY.
3. THE ENTRANCE SHALL BE MAINTAINED BY THE CONTRACTOR. THE MAINTENANCE SHALL INCLUDE TOP DRESSING WITH ADDITIONAL STONE OR ADDITIONAL LENGTH AS CONDITIONS DEMAND OR AS DIRECTED BY THE ENGINEER. ALL SEDIMENTS SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC RIGHT OF WAY, MUST BE REMOVED IMMEDIATELY BY THE CONTRACTOR.
4. TOPSOIL SHALL BE STRIPPED FROM AREAS TO BE GRADED AND STOCKPILED FOR LATER USE. STOCK PILE LOCATION SHALL BE SUBJECT TO APPROVAL BY THE PROJECT ENGINEER. A SEDIMENT BARRIER SHOULD SURROUND ALL TOPSOIL STOCKPILES.
5. HAY BALES OR SILT FENCE SHALL BE INSTALLED DOWNSTREAM OUTSIDE THE LIMITS OF ANY PROPOSED CONSTRUCTION AS SHOWN ON THE SITE PLANS AND PRIOR TO THE COMMENCEMENT OF THE PROPOSED ALTERATION.
6. HAY BALES SHALL BE MAINTAINED BY THE CONTRACTOR. INSPECTION SHALL BE MADE AFTER EACH STORM EVENT AND REPAIR OR REPLACEMENT. CONTRACTOR SHALL CLEAN THE ACCUMULATED SEDIMENT IF HALF OF THE ORIGINAL HEIGHT OF THE BALES BECOMES FILLED WITH SEDIMENT.
7. THE HAY BALES OR SILT FENCE SHALL BE CHECKED WEEKLY FOR UNDERMINING OR DETERIORATION BY THE CONTRACTOR.
8. THE CONSTRUCTION SUPERINTENDENT SHALL HAVE OVERALL RESPONSIBILITY FOR PLAN IMPLEMENTATION OF NON-STRUCTURAL MEASURES AND FOR SEEING THAT APPROPRIATE WORKERS ARE AWARE OF THE PROVISIONS OF THE PLAN.
9. REFERENCE THE "RHODE ISLAND SOIL EROSION AND SEDIMENT CONTROL HANDBOOK" PREPARED BY THE USDA SOIL CONSERVATION SERVICE 1989, AS A GUIDE.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF [illegible] RESOURCES
FRESHWATER [illegible] PROGRAM
[illegible] TIONS
AS SPECIFIED IN [illegible] OF APPROVAL
DATED MAY 19 2005
NO CHANGES ALLOWED WITHOUT [illegible] APPROVAL.
APPROVED PLANS MUST BE AT [illegible]
04-0503

STORM DRAINAGE SYSTEM MAINTENANCE

1. GENERAL MAINTENANCE TO BE PERFORMED INCLUDES BI-YEARLY STREET SWEEPING, YEARLY REMOVAL OF ACCUMULATED DEBRIS IN CATCHBASIN SUMPS, AND YEARLY INSPECTION OF THE DRAINAGE FACILITY. THE CONDOMINIUM ASSOCIATION SHALL BE RESPONSIBLE FOR THIS MAINTENANCE FOLLOWING ACCEPTANCE OF THE ROADWAY.

SEQUENCE AND STAGING OF LAND DISTURBING ACTIVITIES

1. SURVEY AND STAKE CENTERLINE OF THE PROPOSED ROAD(S), CULVERTS AND LIMIT OF SEDIMENTATION BARRIERS.
2. PLACE SEDIMENTATION BARRIERS (HAYBALES OR SILT FENCE) AS SHOWN ON THE PLANS AND STAKED OUT IN THE FIELD. IN NO CASE IS THE LIMIT OF WORK TO EXTEND BEYOND THE SEDIMENTATION BARRIERS.
3. BEGIN WORK (CLEARING AND GRUBBING, EXCAVATING AND GRADING, ETC.). TOPSOIL TO BE STRIPPED AND STOCKPILED IN APPROVED AREAS. THE STOCKPILES ARE TO BE PROTECTED BY A ROW OF SEDIMENTATION BARRIER. STOCK PILES TO BE COVERED OR TEMPORARILY SEEDED. DIVERT ALL THE RUNOFF FROM DISTURBED AREAS TO THE PROPOSED DETENTION BASIN.
4. INSTALL UTILITIES AND DRAINAGE INCLUDING GAS LINE, WATER LINES AND CULVERTS. IMMEDIATELY PLACE THE RIP RAP AT THE DISCHARGE POINTS AND SEED THE BASIN, AND DISTURBED AREAS.
5. BEGIN ROAD PAVING.
6. BEGIN BUILDING LAYOUT, LOT CLEARING AND GRADING.
7. BEGIN LANDSCAPING WHILE BUILDINGS ARE UNDER CONSTRUCTION.
8. FINISH BUILDING AND ROAD CONSTRUCTION.
9. FINISH LANDSCAPING AND PERMANENT STABILIZATION.
10. REPAIR DETENTION BASIN AS REQUIRED.
11. REMOVE ALL TEMPORARY EROSION AND CONTROL MEASURES.
12. CONSTRUCTION TO OCCUR DURING 2003 AND 2004.

TREATMENT BASIN MAINTENANCE

RESPONSIBILITY:

THE CONDOMINIUM ASSOCIATION SHALL BE RESPONSIBLE FOR BOTH LONG AND SHORT TERM MAINTENANCE OF THE DRAINAGE BASIN. LONG TERM MAINTENANCE SHALL COMMENCE ONE YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION OF THE FACILITIES AND ACCEPTENCE OF THESE STRUCTURES BY THE TOWN. ALL DRAINAGE FACILITY WITHIN THE PUBLIC RIGHT OF WAY SHALL BE THE RESPONSIBILITY OF THE CONDOMINIUM ASSOCIATION.

INSPECTION:

STORMWATER MANAGEMENT BASIN SHOULD BE INSPECTED TWICE YEARLY, PREFERABLY SPRING AND FALL. THE INSPECTION SHALL BE COMPLETED BY A QUALIFIED PROFESSIONAL OR CONTRACTOR CAPABLE OF COMPLETING SUCH WORK.

MAINTENANCE:

MAINTENANCE OF THE DRAINAGE BASIN SHALL INCLUDE THE FOLLOWING:

1 YEARLY MOWING OF THE FACILITY, PREFERABLY AFTER AUGUST 15, SHALL BE REQUIRED. THE CLIPPINGS FROM THIS ACTIVITY SHALL BE COLLECTED AND DISPOSED OF IN AN APPROPRIATE UPLAND LOCATION OUTSIDE OF ALL REGULATED WETLAND AREAS.

2 ACCUMULATED SEDIMENT MUST BE REMOVED A MINIMUM OF ONCE EVERY FIVE(5) YEARS. SEDIMENT REMOVED FROM THE FACILITY SHALL BE DISPOSED OF IN AN APPROIATE UPLAND AREA OUTSIDE OF ALL REGULATED WETLAND AREAS. DISPOSAL SHALL BE IN ACCORDANCE WITH CURRANT LOCAL, STATE AND FEDERAL REGULATIONS.

3 BARE SPOTS IN THE VEGETATION OR AREAS OF EROSION DISCOVERED DURING INSPECTION, SHALL BE STABILIZED IMMEDIATELY. RE-PLANTING SHALL OCCUR AS CLIMATIC CONDITIONS MAKE IT FEASIBLE.

4 ALL REPAIRS SHALL BE COMPLETED IN COMPLIANCE WITH THE ORIGINALLY APPROVED PLANS UNLESS SPECIFICALLY DIRECTED OTHERWISE BY THE TOWN OF WEST WARWICK ENGINEER'S OFFICE OR OTHER APPROPRIATE REGULATORY AGENCY.

Preliminary Submission

TYPICAL ROADWAY CROSS SECTION

N.T.S.

CAPE COD BERM TO BE INSTALLED WITH BASE COURSE OF PAVEMENT.

CAPE COD CURBING DETAIL

N.T.S.

NOTE:
MORTAR ALL JOINTS

DOUBLE-FACED PRECAST MEDIAN NOT TO SCALE

NOTE: FOLLOWING PLACEMENT OF FILTER FABRIC AND RIP RAP, VOIDS SHALL BE FILLED WITH LOAM AND SEEDED ALONG WITH DETENTION BASIN.

LOCATION	TOP OF POND EL.	WEIR INVERT	WEIR DEPTH	TOTAL SPILLWAY LENGTH	WEIR LENGTH
POND #1	296.00	295.00	1.00'	21.0'	15'
POND #2	284.00	283.00	1.00'	21.0'	15'
POND #2	280.00	279.00	1.00'	21.0'	15'

EMERGENCY SPILLWAY DETAIL N.T.S.

LOCATION	LENGTH	WIDTH	CLASS
POND #1 INLET	17'	11'	R-5
POND #1 OUTLET	12'	8'	R-5
POND #2 INLET	19'	11'	R-5
POND #2 OUTLET	13'	8'	R-5
POND #3 INLET	28'	17'	R-5
POND #3 OUTLET	20'	12'	R-5

RIP-RAP APRON DETAIL N.T.S.

NOTES:
1. DIPRETE ENGINEERING ASSOCIATES, INC. CERTIFIES TO DRAINAGE, SEWER, AND WATER DESIGN ONLY.
2. BOYER ASSOCIATES CERTIFIES TO TOPOGRAPHIC AND PROPERTY LINE SURVEY ONLY.

Applicant:
Crompton Road Realty, LLC
P.O. Box 9402
Providence, RI
(401) 265-7751

Engineer:
DiPrete Engineering Associates, Inc.
Engineering, Surveying, and Planning Consultants
Two Stafford Court
Cranston, Rhode Island 02920
Tel: (401) 943-1000 Fax: (401) 464-6006

NO.	DATE	DESCRIPTION	BY
2	9-8-04	RIDEM WETLANDS SUBMISSION	S.J.W.
1	8-30-04	KCWA SUBMISSION	S.J.W.

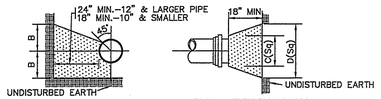
DETAIL SHEET

Gentry Glen Condominiums

ASSESSOR'S PLAT 12, LOTS 130, 133, AND 764
WEST WARWICK, RHODE ISLAND

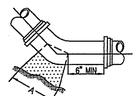
DATE: DECEMBER, 2004

KEVIN C. MORIN
No. 7051
REGISTERED PROFESSIONAL ENGINEER CIVIL

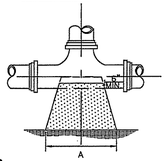


BENDS & TEES SECTION

PLAN & ELEVATION PLUGS



PLAN BENDS



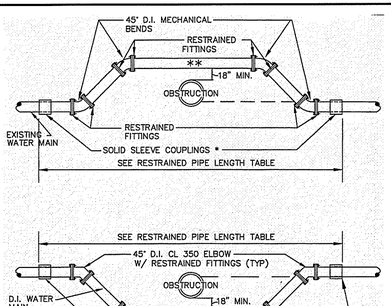
PLAN TEES

NOTES:
1.) ALL CONCRETE SHALL BE 4000 P.S.I @ 28 DAYS.
2.) CONCRETE THRUST BLOCKS SHALL BEAR AGAINST UNDISTURBED EARTH.
3.) FORMS TO BE USED AS NECESSARY.
4.) ALL BOLTS AND NUTS TO BE PROTECTED FROM CONCRETE AND EASILY ACCESSIBLE WHEN THRUST BLOCK INSTALLED.
5.) REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF R.I. SHALL VERIFY ALL CALCULATIONS DURING DESIGN TO MEET CONDITIONS OF PROJECT AND KCWA REQUIREMENTS.

NOTE:
THRUST BLOCKS ARE REQUIRED AT ANCHOR TEES ON ALL HYDRANT BRANCHES.

SIZE	TEES		PLUGS		90° BEND		45° BEND		22½° BEND		11¼ BEND	
	A	B	C	D	A	B	A	B	A	B	A	B
6"	20"	10"	10"	21"	24"	12"	18"	9"	13"	7"	9"	5"
8"	26"	13"	12"	28"	32"	16"	24"	12"	17"	9"	12"	6"
10"	34"	17"	14"	34"	40"	20"	30"	15"	22"	11"	15"	8"
12"	41"	20"	16"	41"	48"	24"	36"	18"	25"	13"	18"	9"
16"	54"	27"	20"	54"	64"	32"	47"	23"	34"	17"	24"	12"

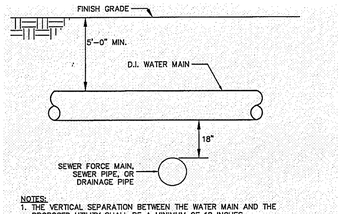
THRUST BLOCK DETAILS
N.T.S.



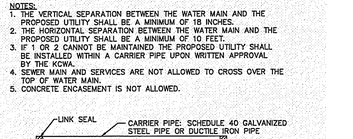
- TRANSITION COUPLING, DRESSER STYLE, TO BE USED ONLY WHEN EXISTING WATER MAIN IS OF DIFFERENT MATERIAL OTHER THAN DUCTILE IRON.
- SOLID SLEEVE TO BE RESTRAINED WITH APPROVED RESTRAINT FITTINGS
- ONLY TO BE USED WHEN CALCULATED FRICTION LOSS WILL NOT ADVERSELY EFFECT DISTRIBUTION PRESSURE AND FLOW

** MINIMUM DEPTH OF COVER SHALL BE 2'-0". THE WATER PIPE SHALL BE CLASS 54 AND INSULATED WITH 2" FOAMGLASS INSULATION W/ PITT WRAP OR EQUAL WHERE THE WATER PIPE HAS LESS THAN 5' OF COVER

HORIZONTAL OR VERTICAL RELOCATION
N.T.S.

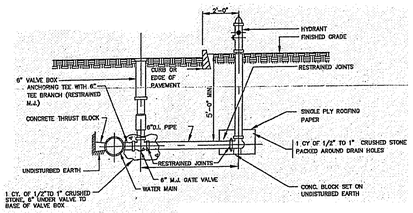


NOTES:
1. THE VERTICAL SEPARATION BETWEEN THE WATER MAIN AND THE PROPOSED UTILITY SHALL BE A MINIMUM OF 18 INCHES.
2. THE HORIZONTAL SEPARATION BETWEEN THE WATER MAIN AND THE PROPOSED UTILITY SHALL BE A MINIMUM OF 10 FEET.
3. IF 1 OR 2 CANNOT BE MAINTAINED THE PROPOSED UTILITY SHALL BE INSTALLED WITHIN A CARRIER PIPE UPON WRITTEN APPROVAL BY THE KCWA.
4. SEWER MAIN AND SERVICES ARE NOT ALLOWED TO CROSS OVER THE TOP OF WATER MAIN.
5. CONCRETE ENCASEMENT IS NOT ALLOWED.



CARRIER PIPE DETAIL

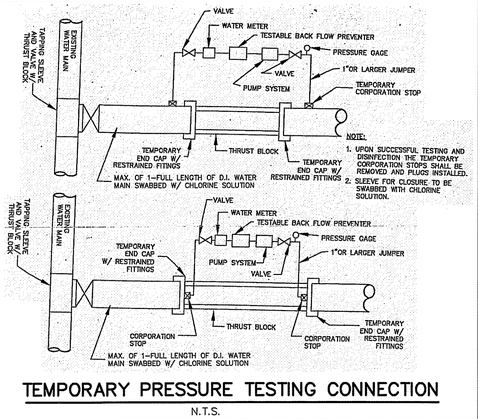
UTILITY SEPARATION
N.T.S.



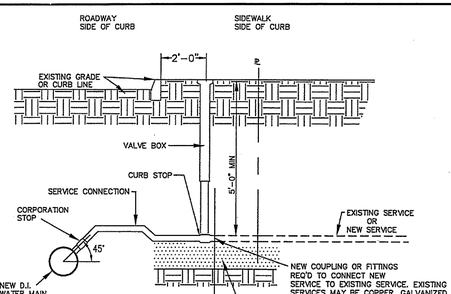
NOTE:
1.) KCWA COLOR SCHEME FOR HYDRANT.
2.) INSTALLATION SHALL NOT OBSTRUCT SIDEWALK TO PEDESTRIAN OR PHYSICALLY IMPAIRED.
3.) REMOVAL OF EXISTING HYDRANT MAY REQUIRE ADDITIONAL RESTRAINT DESIGNED BY PROFESSIONAL ENGINEER.

NOTE:
MECHANICAL JOINT PIPE W/ RESTRAINED JOINTS FOR BRANCHES OVER ONE LENGTH OF PIPE

HYDRANT AND ASSEMBLY DETAIL
N.T.S.

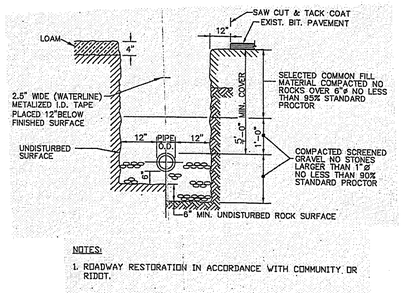


TEMPORARY PRESSURE TESTING CONNECTION
N.T.S.



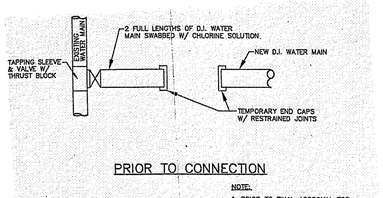
NOTE:
1.) SERVICE MATERIALS PER KCWA SPECIFICATION UNLESS CITY OR TOWN CODES REQUIRE SPECIFIC MATERIALS THAT HAVE BEEN APPROVED BY KCWA.
2.) SERVICE LINE FROM CURB BOX TO BUILDING SHALL BE INSPECTED, TESTED AND APPROVED BY THE LOCAL PLUMBING INSPECTOR.

SERVICE CONNECTION DETAIL
N.T.S.

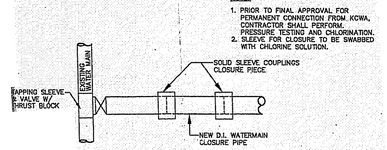


NOTES:
1. ROADWAY RESTORATION IN ACCORDANCE WITH COMMUNITY OR RIDOT.

TRENCH INSTALLATION IN ROCK AND SOIL
N.T.S.

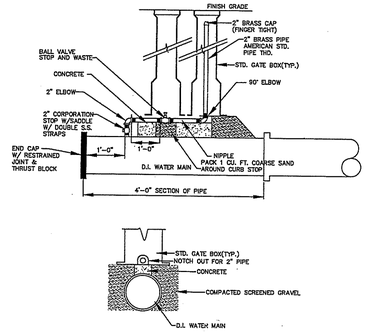


PRIOR TO CONNECTION

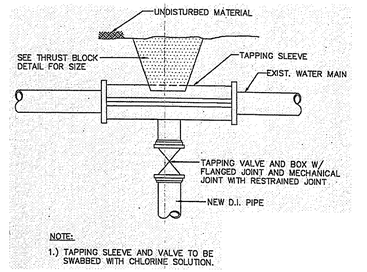


CONNECTION

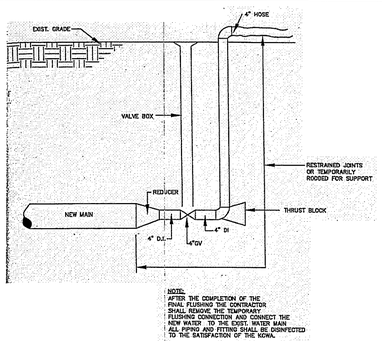
CONNECTION TO EXISTING WATER LINE
N.T.S.



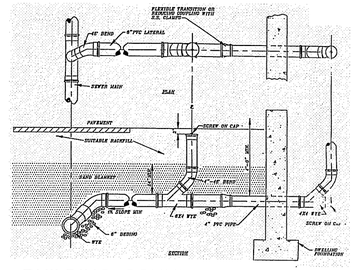
PERMANENT BLOWOFF ASSEMBLY
N.T.S.



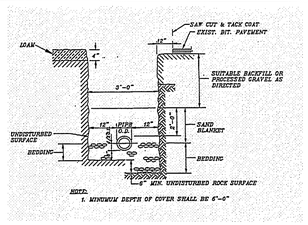
TAPPING SLEEVE AND VALVE DETAIL
N.T.S.



TEMPORARY FLUSHING CONNECTION
N.T.S.

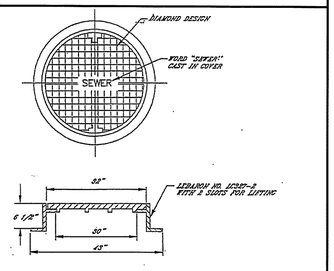


BUILDING CONNECTION DETAIL
N.T.S.



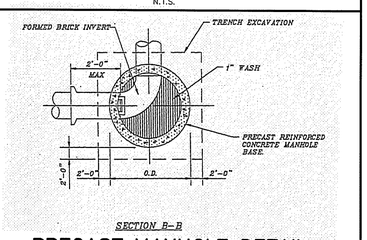
NOTE:
1. MINIMUM DEPTH OF COVER SHALL BE 6'-0"

SEWER TRENCH DETAIL
N.T.S.



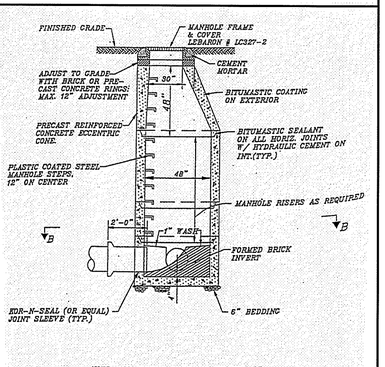
NOTE:
1. VENTILATION HOLES OF ANY SIZE ARE NOT ALLOWED

SEWER MANHOLE FRAME & COVER DETAIL
N.T.S.



SECTION B-B

PRECAST MANHOLE DETAIL
N.T.S.



SEWER MANHOLE DETAIL
N.T.S.

WATER INSTALLATION NOTES

1. INSTALLATION OF WATER MAIN AND SERVICE SHALL CONFORM TO THE "RULES AND REGULATIONS OF THE KENT COUNTY WATER AUTHORITY" JANUARY 21, 2004, OR LATEST EDITION, AND IN ACCORDANCE WITH THE DUCTILE IRON PIPE RESEARCH ASSOCIATION INSTALLATION MANUAL AND ANSI/AWWA C600.
2. DISTRIBUTION PIPING SHALL BE CL 52 DUCTILE IRON, DOUBLE CEMENT LINED, WITH PUSH ON JOINTS. PIPE SHALL MEET ANSI/AWWA C151 A21.51. JOINTS SHALL MEET ANSI/AWWA C11/A21.11.
3. FITTINGS SHALL BE DUCTILE IRON MECHANICAL JOINT CL350 CEMENT MORTAR LINED AND MEET ANSI/AWWA/C153/A21.53. MECHANICAL JOINTS SHALL MEET ANSI/AWWA/C111/A21.11 AMERICAN MANUFACTURER ONLY.
4. VALVES SHALL BE MECHANICAL JOINT, DOUBLE DISC PARALLEL SEAT OR RESILIENT SEAT GATE STYLES AS FOLLOWS
   A. MUELLER CORPORATION DOUBLE DISC PARALLEL SEAT.
   B. AMERICAN DARLING VALVE RESILIENT SEAT MODEL CRS-80.
5. PRESSURE TEST OF THE WATER SYSTEM SHALL BE 1.5 TIMES THE MAXIMUM WORKING PRESSURE OR 150 PSI. NOTIFY KENT COUNTY WATER AUTHORITY 2 DAYS PRIOR TO TEST.
6. NOTIFY THE KENT COUNTY AUTHORITY 5 DAYS PRIOR TO CONSTRUCTION COMMENCEMENT.
7. CHLORINATION OF SYSTEM AND SAMPLING SHALL CONFORM TO SEC. 3.5 OF REQUIREMENTS FOR SERVICE AND MAIN INSTALLATION.
8. NOTIFY ENGINEER PRIOR TO COVERING OF WATER MAIN TO SURVEY AS-BUILT LOCATION AND TO COMPLETE REQUIRED AS-BUILT PLAN. ENGINEER WILL NOT ACCEPT FIELD MEASUREMENTS FROM THE CONTRACTOR.
9. WATER SERVICE INSTALLATIONS GREATER THAN 200' MUST HAVE A METER PIT.
10. TOTAL LENGTH OF WATER MAIN IS 1,516 L.F±.
11. TEMPORARY FLUSHING CONNECTIONS AND BLOW-OFFS SHALL BE SIZED TO PROVIDE 2.5-FEET PER SECOND FLOW PER AWWA STANDARD 651
12. CONTRACTOR RESPONSIBLE TO COORDINATE WITH PLUMBING OFFICIAL FOR DISINFECTION OF SERVICE PIPE EXTENDING FROM CURB BOX TO HOME PER STATE PLUMBING CODE AND KENT COUNTY WATER AUTHORITY REGULATIONS. WATER SERVICE CANNOT BE ACTIVATED WITHOUT COPY OF LAB RESULTS AND PLUMBING INSPECTOR'S VERIFICATION.
13. ALL INSTALLATION SHALL CONFORM TO RULES AND REGULATIONS OF THE KENT COUNTY WATER AUTHORITY-AUGUST 21,2002

SEWER LINE / WATER MAIN SEPARATION POLICY FOR DESIGN OF SANITARY SEWERS

A. LATERAL PLACEMENT OF SEWERS AND WATER MAINS
SEWERS SHALL BE LAID AT LEAST 10 FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATERMAIN. THE DISTANCE SHALL BE MEASURED EDGE-TO-EDGE. THERE IS NO MINIMUM VERTICAL SEPARATION REQUIRED PROVIDED THE 10 FOOT HORIZONTAL SEPARATION IS MAINTAINED.

IN CASES WHERE IT IS NOT POSSIBLE TO MAINTAIN A 10 FOOT HORIZONTAL SEPARATION, THE DIVISION MAY ALLOW DEVIATION ON A CASE BY CASE BASIS, IF SUPPORTED BY DATA FROM THE DESIGN ENGINEER. SUCH DEVIATION MAY ALLOW INSTALLATION OF THE SEWER CLOSER TO A WATERMAIN, PROVIDED THAT:

1. THE SEWER AND WATERMAIN ARE LAID IN SEPARATE TRENCHES, OR
2. THE SEWER AND WATERMAIN MAY BE INSTALLED IN THE SAME TRENCH WITH THE WATERMAIN PLACED ON A BENCH OF UNDISTURBED EARTH, AND
3. IN EITHER CASE, THE CROWN OF THE SEWER SHALL BE AT LEAST 18 INCHES BELOW THE INVERT OF THE WATERMAIN.

IN SITUATIONS WHERE IT IS IMPOSSIBLE TO OBTAIN PROPER HORIZONTAL AND VERTICAL SEPARATION AS STIPULATED ABOVE, THE FOLLOWING PROTECTION SHALL BE PROVIDED:

1. ENCASEMENT OF THE SEWER PIPE IN CONCRETE (MIN. 6 INCH. THICKNESS) OR A CARRIER PIPE FOR AT LEAST 10 FEET EITHER SIDE OF THE AREA NOT COMPLYING WITH THE MINIMUM HORIZONTAL AND VERTICAL SEPARATION, OR
2. DESIGN AND CONSTRUCTION OF THE SEWER EQUAL TO WATERMAIN PIPE (CEMENT-LINED DUCTILE IRON OR OTHER AWWA-APPROVED MATERIAL FOR POTABLE WATER CONVEYANCE), AND PRESSURE TESTED IN ACCORDANCE WITH AWWA SPECIFICATIONS.

B. SEWERS CROSSING WATERMAINS
SEWERS CROSSING OVER WATERMAINS SHOULD BE AVOIDED, BUT IF CONDITIONS WARRANT THIS SITUATION, THEN ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED FOR THE SEWER TO MAINTAIN LINE AND GRADE. SEWERS CROSSING UNDER WATERMAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL SEPARATION OF 18 INCHES BETWEEN THE INVERT OF THE WATERMAIN AND THE CROWN OF THE SEWER. THE CROSSING SHALL BE ARRANGED SO THAT SEWER JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE WATERMAIN JOINTS.

WHERE CONDITIONS PREVENT AN 18 INCH VERTICAL SEPARATION FROM BEING MAINTAINED, THE FOLLOWING METHODS SHALL BE SPECIFIED:

1. THE SEWER SHALL BE DESIGNED AND CONSTRUCTED EQUAL TO WATERMAIN PIPE (CEMENT-LINED DUCTILE IRON PIPE, PVC OR OTHER AWWA APPROVED MATERIAL FOR POTABLE WATER CONVEYANCE) FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE CROSSING, MEASURED PERPENDICULAR TO THE WATER-MAIN AND PRESSURE TESTED IN ACCORDANCE WITH AWWA SPECIFICATIONS, OR
2. EITHER THE WATERMAIN OR THE SEWER MAY BE ENCASED IN CONCRETE (MIN. 6 INCH THICKNESS) OR A CARRIER PIPE FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE CROSSING, MEASURED PERPENDICULAR TO THE WATER-MAIN. THE CARRIER PIPE SHALL BE DESIGNED AND CONSTRUCTED OF MATERIALS WHICH ARE SATISFACTORY TO THE DIVISION, OR
3. ANY OTHER METHODS, IF SUPPORTED BY DATA FROM THE DESIGN ENGINEER, WHICH ENSURE ADEQUATE WATERTIGHTNESS AND ARE SATISFACTORY TO THE DIVISION.

GRAVITY (NON-PRESSURIZED) SEWER TESTING

1. THE CONTRACTOR SHALL FURNISH ALL EQUIPMENT AND PERSONNEL TO CONDUCT AN ACCEPTANCE TEST USING LOW PRESSURE AIR. THE TEST SHALL BE CONDUCTED UNDER THE SUPERVISION OF THE DESIGN ENGINEER.
2. ALL BRANCH FITTINGS AND ENDS OF LATERAL STUBS SHALL BE SECURELY PLUGGED TO WITHSTAND THE INTERNAL TEST PRESSURES. THE SECTION OF LINE BEING TESTED SHALL ALSO BE SECURELY PLUGGED AT EACH MANHOLE. ALL STOPPERS SHALL BE ADEQUATELY BRACED WHEN REQUIRED.
3. AIR SHALL BE SLOWLY SUPPLIED TO THE PLUGGED PIPELINES UNTIL THE INTERNAL AIR PRESSURE REACHES 4.0 POUNDS PER SQUARE INCH GREATER THAN THE AVERAGE BACK PRESSURE OF ANY GROUNDWATER THAT MAY SUBMERGE THE PIPE. AT LEAST TWO (2) MINUTES SHALL BE ALLOWED FOR TEMPERATURE STABILIZATION BEFORE PROCEEDING FURTHER.
4. THE RATE OF AIR LOSS SHALL THE BE DETERMINED BY MEASURING THE TIME INTERVAL REQUIRED FOR THE INTERNAL PRESSURE TO DECREASE FROM 3.5 TO 2.5 POUNDS PER SQUARE INCH.
5. THE PIPELINE SHALL BE CONSIDERED ACCEPTABLE IF THE TIME INTERVAL FOR THE 1.0 PSI PRESSURE DROP IS NOT LESS THAN THE HOLDING TIME LISTED IN THE FOLLOWING AIR TEST TABLE.
6. MINIMUM HOLDING TIME IN SECONDS REQUIRED FOR PRESSURE TO DROP FROM 3.5 TO 2.5 PSI.

LENGTH	HOLDING TIME (IN SECONDS)	LENGTH	HOLDING TIME (IN SECONDS)	LENGTH	HOLDING TIME (IN SECONDS)
25	18	125	88	225	158
50	35	150	106	250	176
75	53	175	123	275	194
100	70	200	141	300	211

7. SHOULD THE INFILTRATION OF EXFILTRATION TEST ON ANY SECTION OF THE SEWERS, INCLUDING MANHOLES, SHOW A RATE OF LEAKAGE INTO OR FROM THE SEWERS EXCEEDING THE MAXIMUM ALLOWABLE RATE OF INFILTRATION OR EXFILTRATION SPECIFIED HEREIN, THE CONTRACTOR SHALL LOCATE, REPAIR OR REPLACE DEFECTIVE JOINTS AND WORK IN A MANNER SATISFACTORY TO THE DESIGN ENGINEER, AND RETEST, UNTIL THE RATE OF INFILTRATION INTO OR EXFILTRATION FROM EACH SECTION OF THE SEWERS BEING TESTED DOES NOT EXCEED THE RATE SPECIFIED HEREIN FOR INFILTRATION OR EXFILTRATION.
8. PHYSICAL DEFLECTION TESTING AND MANHOLE LEAKAGE TESTING SHALL BE PERFORMED IN ACCORDANCE WITH THE TOWN OF SO. KINGSTOWN UTILITIES DEPT. WASTEWATER SPECIFICATIONS.

SEWER NOTE:
1. SEWER MATERIALS AND INSTALLATIONS SHALL CONFORM TO THE WEST WARWICK STANDARD SANITARY SEWER REQUIREMENTS.

NOTES:
1. DIPRETE ENGINEERING ASSOCIATES, INC. CERTIFIES TO DRAINAGE, SEWER, AND WATER DESIGN ONLY.
2. BOYER ASSOCIATES CERTIFIES TO TOPOGRAPHIC AND PROPERTY LINE SURVEY ONLY.

Applicant:
Crompton Road Realty, LLC
P.O. Box 9402
Providence, RI
(401) 265-7751

Engineer:
DiPrete Engineering Associates, Inc.
Engineering, Surveying, and Planning Consultants
Two Stafford Court
Cranston, Rhode Island 02920
Tel: (401) 943-1000 Fax: (401) 464-6006

NO	DATE	DESCRIPTION	BY
4	2/2/05	SEWER COMMENTS	S.J.W.
3	1/5/24	KCWA COMMENTS	S.J.W.
2	8/5/04	KCWA SUBMISSION	S.J.W.
1	8/5/04	KCWA SUBMISSION	S.J.W.

DETAIL SHEET

Gentry Glen Condominiums
ASSESSOR'S PLAT 12, LOTS 130, 133, AND 764
WEST WARWICK, RHODE ISLAND

DATE: DECEMBER, 2004

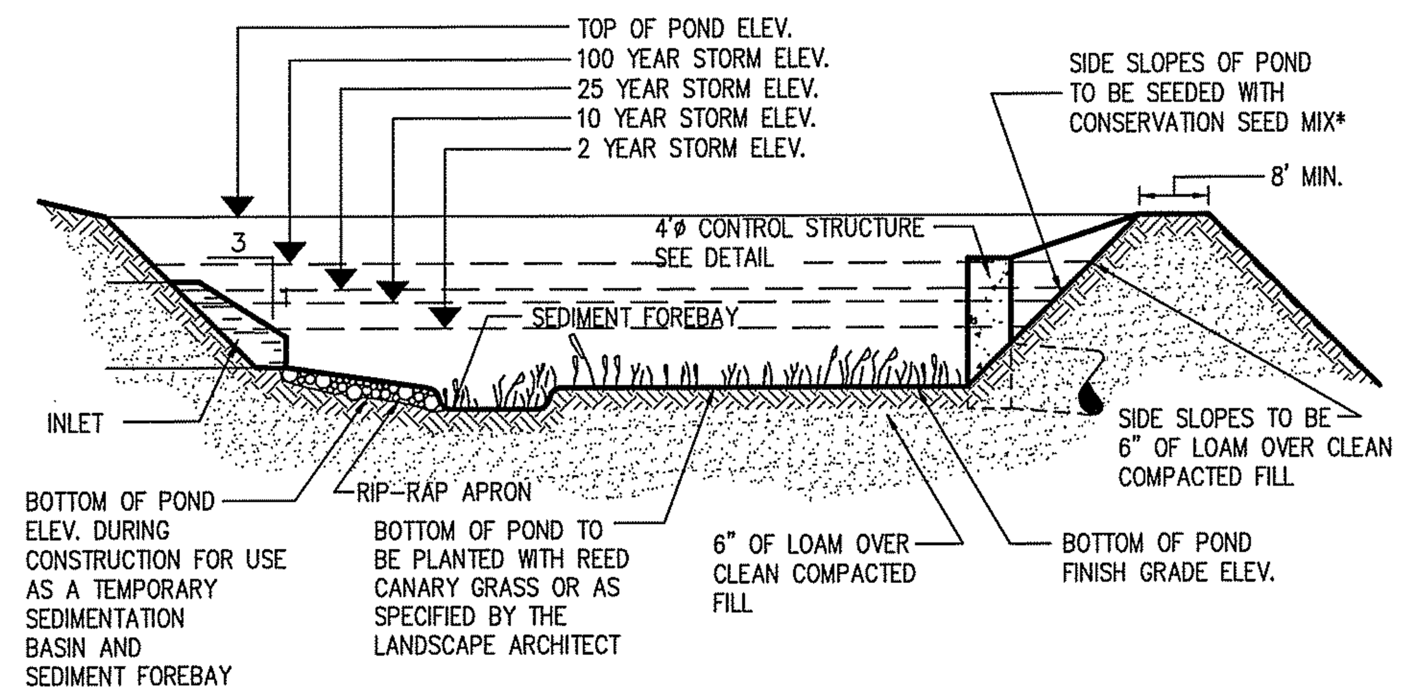
Preliminary Submission

APR 20 2005

KEVIN C. MORIN
No. 7051
REGISTERED PROFESSIONAL ENGINEER
CIVIL

Sheet 8 of 9

C:\Stephanie's Land Projects\03175-040 Crompton Road Dwgs\03175-040 Preliminary SJW R2.dwg, 8 Details, 3/31/2005 15:11 PM



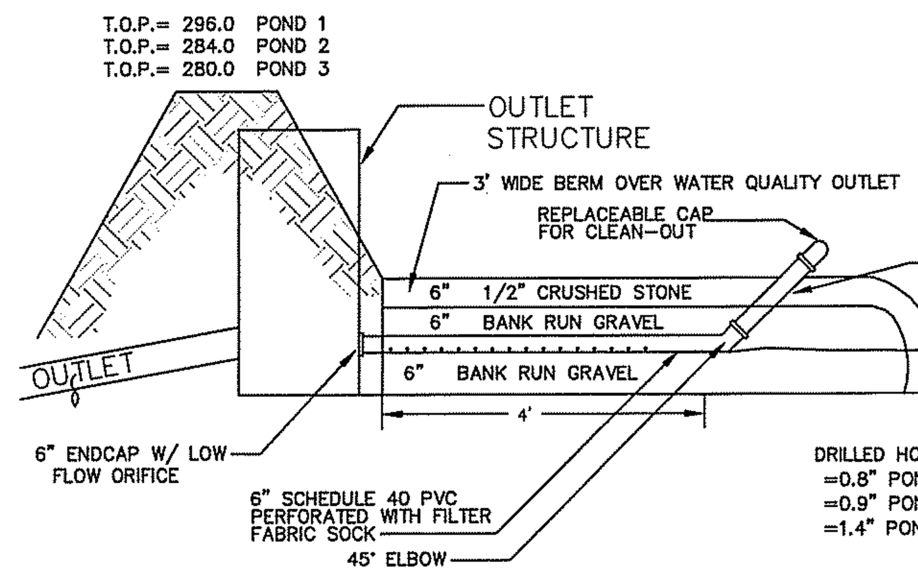
Description	Pond #1	Pond #2	Pond #3
Top of Pond Elevation	296.00	284.00	280.00
Bottom of Pond Elevation for Sediment Forebay	291.50	279.50	273.50
Bottom of Pond	292.00	280.00	274.00
100 Year Storm Elevation	294.94	282.99	278.98
25 Year Storm Elevation	294.26	282.53	277.79
10 Year Storm Elevation	293.90	282.33	277.05
2 Year Storm Elevation	293.24	281.96	275.96
GWT Elevation	290.50**	278.00	272.50

*NOTE:
THE SIDE SLOPES OF PONDS 1-3 SHALL BE PLANTED WITH A SEED MIX CONSISTING OF CREEPING RED FESCUE, TALL FESCUE, AND LADINO CLOVER

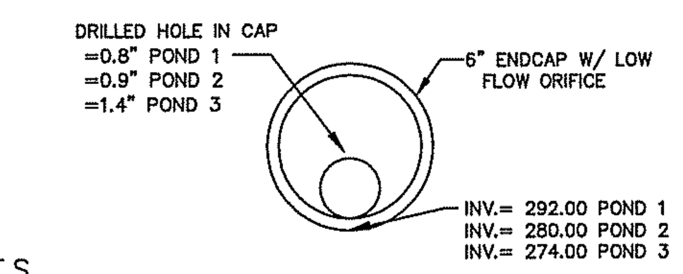
**NOTE:
POND 1 GWT ELEVATION WITH AID OF SUBDRAINS

DETENTION POND TYPICAL CROSS SECTION

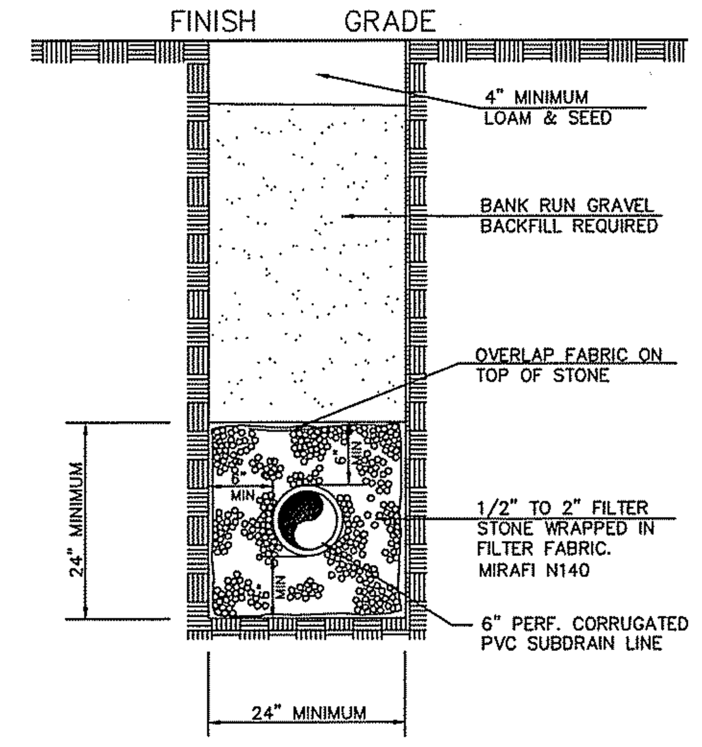
NOT TO SCALE



WATER QUALITY OUTLET N.T.S.

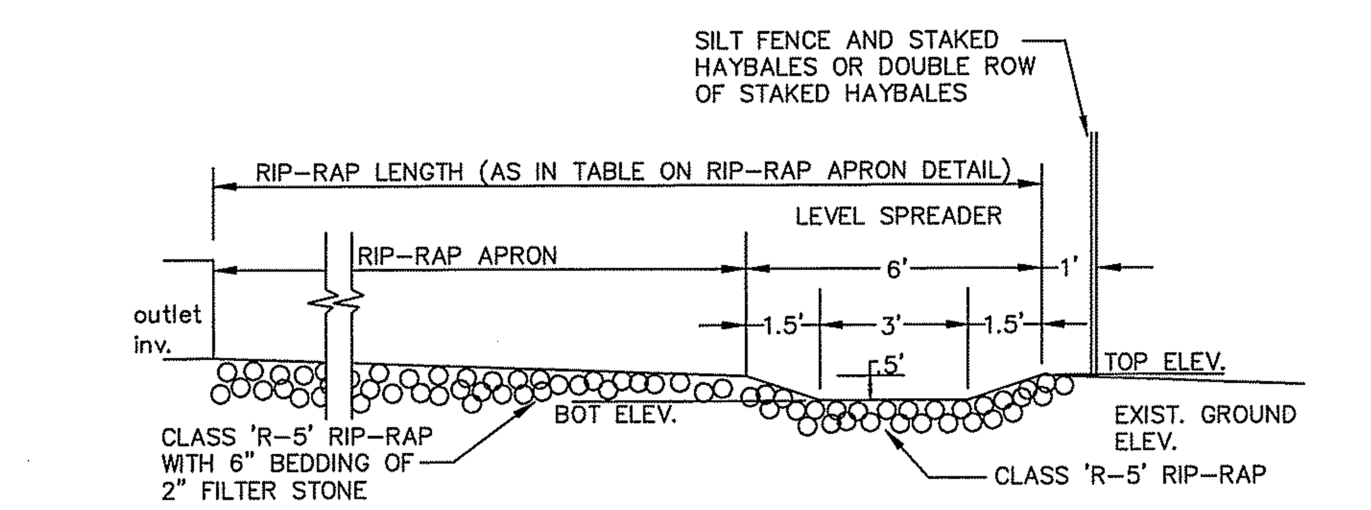


CAP DETAIL N.T.S.



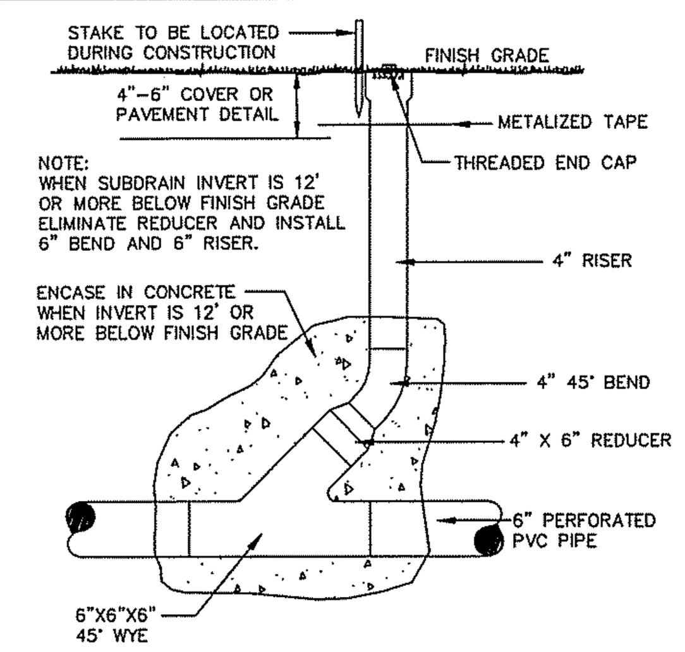
TYPICAL SUBDRAIN DETAIL

N.T.S.



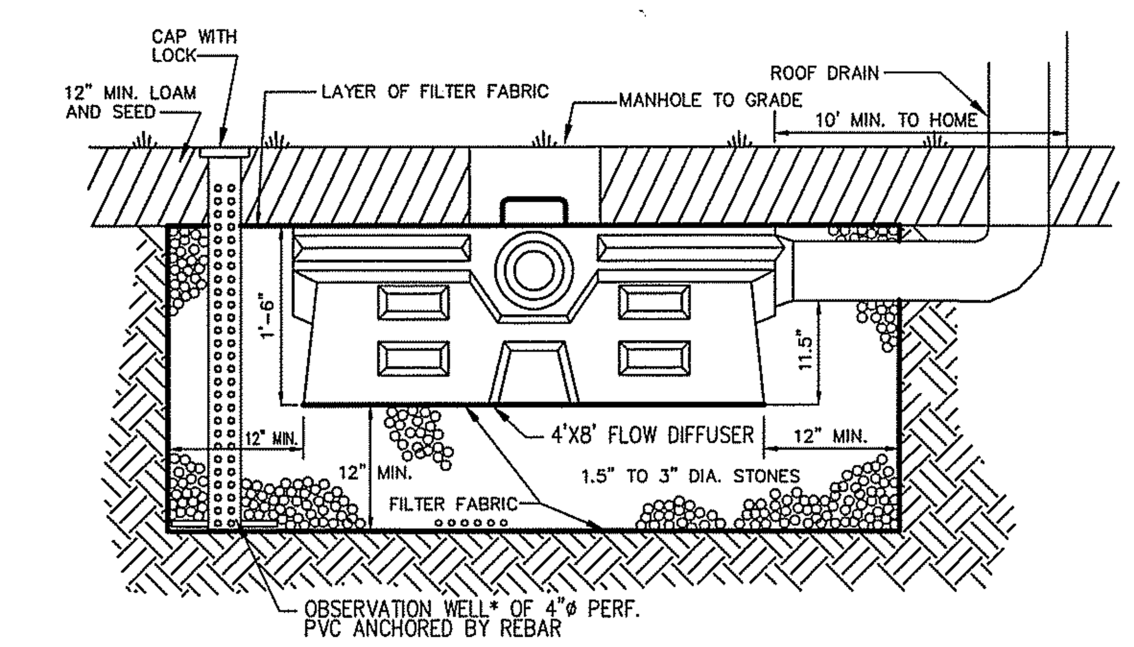
location	outlet invert	level spreader width	top elev.	bottom elev.	exist. grade
Pond #1	290.20	12'	290.00	289.50	290.00±
Pond #2	279.32	12'	279.00	278.50	279.00±
Pond #3	273.27	16'	273.00	272.50	273.00±

LEVEL SPREADER DETAIL N.T.S.



TYPICAL SUBDRAIN CLEANOUT DETAIL

NOT TO SCALE



*SCHEDULE OF INSPECTION FOR OBSERVATION WELL:
MONITORING WATER LEVELS WITHIN THE PIPE AT VARIOUS TIME INTERVALS AFTER A RAINFALL EVENT WILL INDICATE THE INFILTRATION ABILITY AND PERFORMANCE OF THE SYSTEM. IF WATER IS STANDING IN A PIPE MORE THAN 3 DAYS AFTER A STORM EVENT, SYSTEM FAILURE HAS OCCURED AND WILL REQUIRE REPAIR OR REPLACEMENT OF DRYWELL BY THE HOMEOWNER.

UNITS 11-12
1. 3 FLOW DIFFUSORS REQUIRED.
2. NO STONE BETWEEN DIFFUSORS.
3. TOTAL SYSTEM LENGTH (INCLUDING STONE)=28'
4. TOTAL SYSTEM WIDTH (INCLUDING STONE)=8'

UNITS 13-16
1. 4 FLOW DIFFUSORS REQUIRED.
2. 2.5' (W/ STONE) BETWEEN DIFFUSORS.
3. TOTAL SYSTEM LENGTH (INCLUDING STONE)=43'
4. TOTAL SYSTEM WIDTH (INCLUDING STONE)=9'

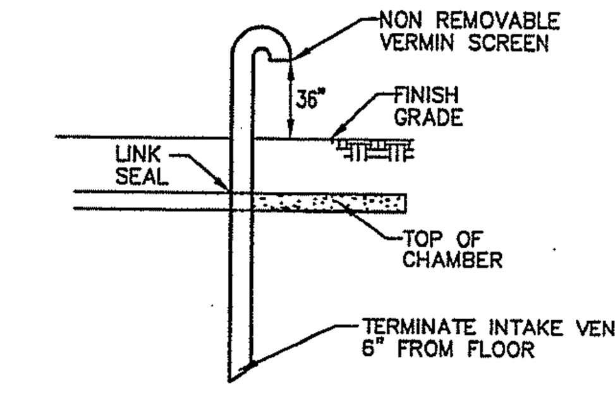
UNITS 55-57
1. 4 FLOW DIFFUSORS REQUIRED.
2. NO STONE BETWEEN DIFFUSORS.
3. TOTAL SYSTEM LENGTH (INCLUDING STONE)=36'
4. TOTAL SYSTEM WIDTH (INCLUDING STONE)=8'

PRIVATE DRYWELL DETAIL (PROFILE) (N.T.S.)

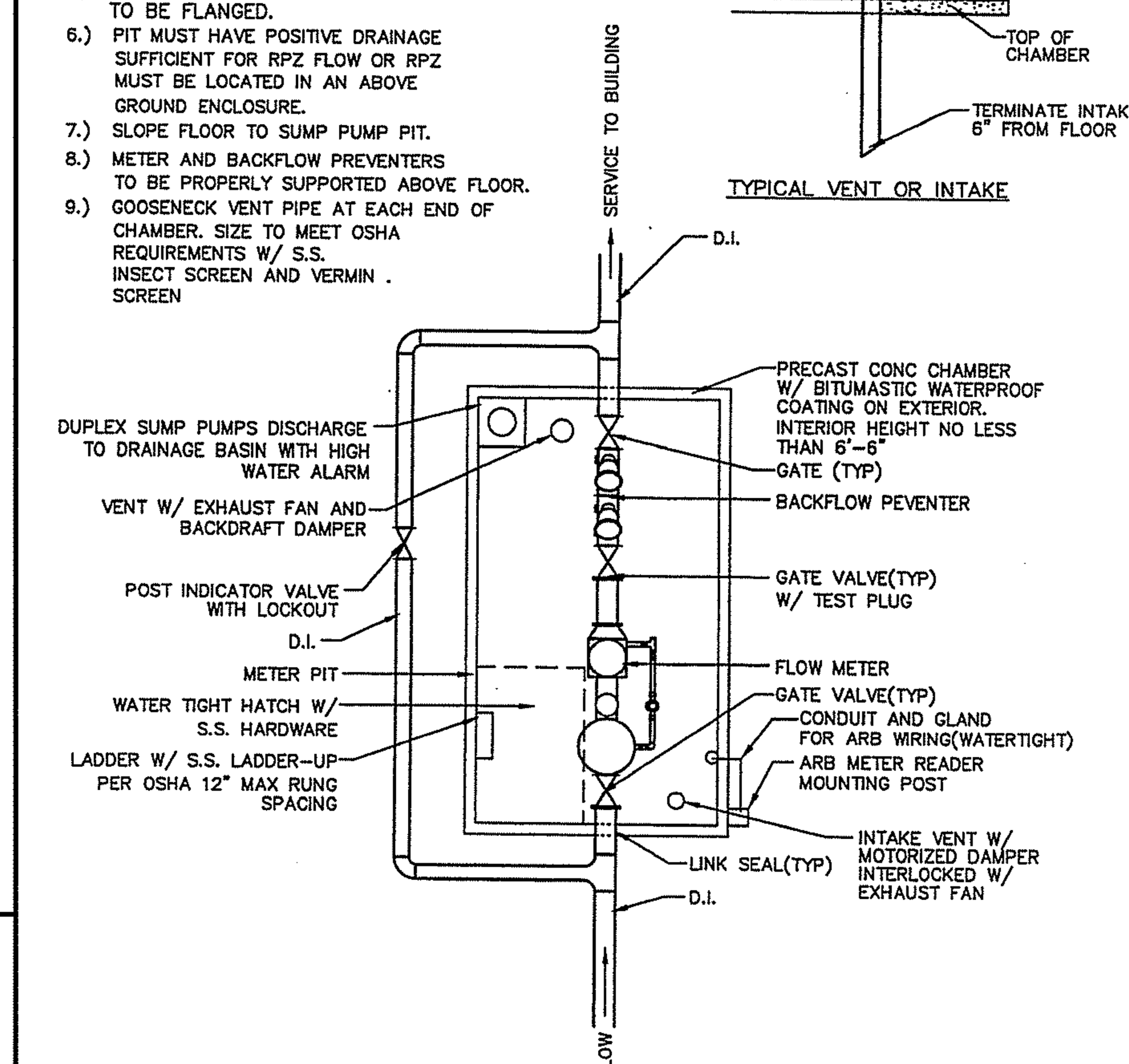
POND 1 SUBDRAIN: CONSTRUCTION, MAINTENANCE, & INSPECTION NOTES

1. SUBDRAIN AREA TO BE STAKED, MARKED, AND REMAIN UNDISTURBED PRIOR TO CONSTRUCTION. THERE IS TO BE NO CONSTRUCTION TRAFFIC ON SUBDRAIN AREA PRIOR TO CONSTRUCTION.
2. STAKE CENTERLINE OF SUBDRAIN.
3. EXCAVATE TRENCH. IF NECESSARY, PUMP GROUNDWATER TO DE-WATERING BASIN. THE TRENCH SHALL BE A MINIMUM OF 24" IN WIDTH.
4. PLACE FILTER FABRIC ALONG THE BOTTOM AND SIDES OF TRENCH AND FILL WITH 1/2" TO 2" DIAMETER FILTER STONE. THE DEPTH OF STONE BELOW THE INVERT OF THE SUBDRAIN SHALL BE A MINIMUM OF 6".
5. PLACE 6" PERFORATED PVC SUBDRAIN AT THE INVERT ELEVATION ALONG WITH CLEAN-OUTS AS INDICATED ON THE PLANS. BACKFILL SIDES AND TOP OF SUBDRAIN WITH FILTER STONE. THERE SHALL BE A MINIMUM OF 6" OF FILTER STONE ON BOTH SIDES OF THE SUBDRAIN. A MINIMUM OF 6" OF FILTER STONE SHALL COVER THE SUBDRAIN.
6. OVERLAP FILTER FABRIC ON THE TOP OF THE FILTER STONE. BACKFILL WITH A MINIMUM OF 6" CLEAN FILL TO FINISH GRADE.
7. MONITORING WATER LEVELS WITHIN THE CLEAN-OUTS AT VARIOUS TIME INTERVALS AFTER A RAINFALL EVENT WILL INDICATE THE EFFECTIVENESS OF THE SYSTEM. IF WATER IS STANDING IN SUBDRAIN AFTER A STORM EVENT, SYSTEM FAILURE HAS OCCURED AND WILL REQUIRE FLUSHING MAINTENANCE, REPAIR OR REPLACEMENT OF SUBDRAIN BY THE CONDOMINIUM ASSOCIATION.

NOTES:
1.) ALL EXTERIOR PIPING, VALVES AND FITTING JOINTS TO HAVE RESTRAINED JOINTS.
2.) SUMP PUMP DISCHARGE PIPING TO HAVE 2 CHECK VALVES AND SHUT OFF VALVE.
3.) ARB METER READER TO BE MOUNTED ON 4 X 4 PRESSURE TREATED LUMBER.
4.) PROVIDE LIGHTING, HEATER WITH THERMOSTAT AND POWER VENTILATION SYSTEM. SWITCH FOR LIGHTS AND VENTILATION TO BE MOUNTED AT OPENING.
5.) INTERIOR PIPING AND VALVE JOINTS TO BE FLANGED.
6.) PIT MUST HAVE POSITIVE DRAINAGE SUFFICIENT FOR RPZ FLOW OR RPZ MUST BE LOCATED IN AN ABOVE GROUND ENCLOSURE.
7.) SLOPE FLOOR TO SUMP PUMP PIT.
8.) METER AND BACKFLOW PREVENTERS TO BE PROPERLY SUPPORTED ABOVE FLOOR.
9.) GOOSENECK VENT PIPE AT EACH END OF CHAMBER. SIZE TO MEET OSHA REQUIREMENTS W/ S.S. INSECT SCREEN AND VERMIN . SCREEN

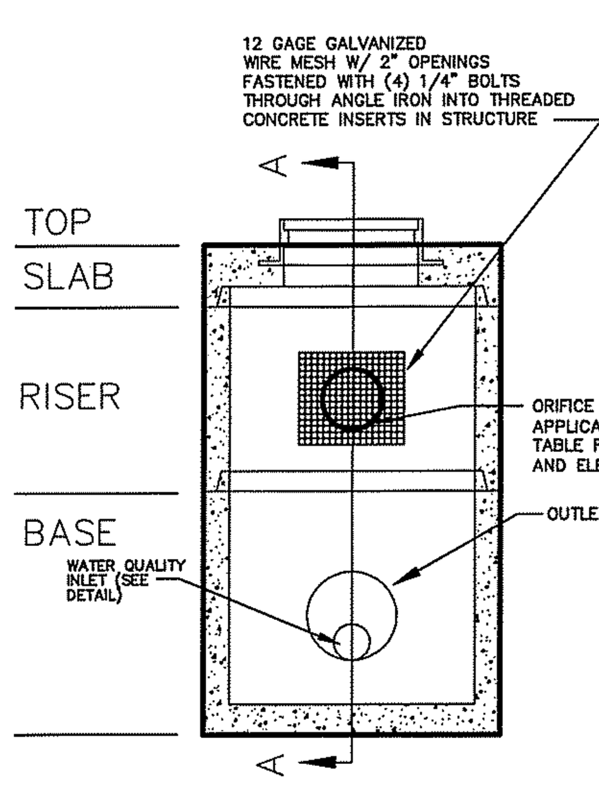


TYPICAL VENT OR INTAKE

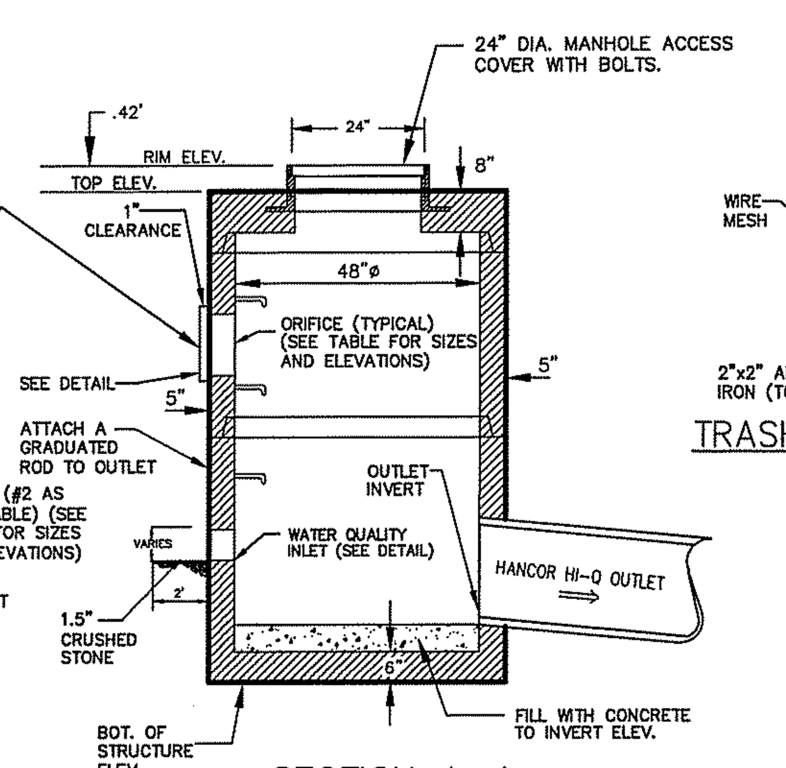


KCWA MASTER METER DETAIL

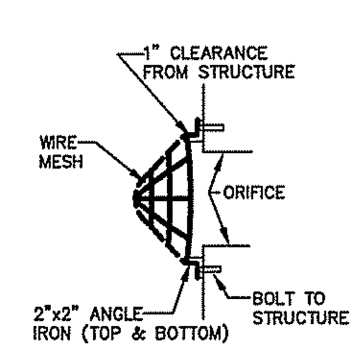
N.T.S.



FRONT VIEW
N.T.S.

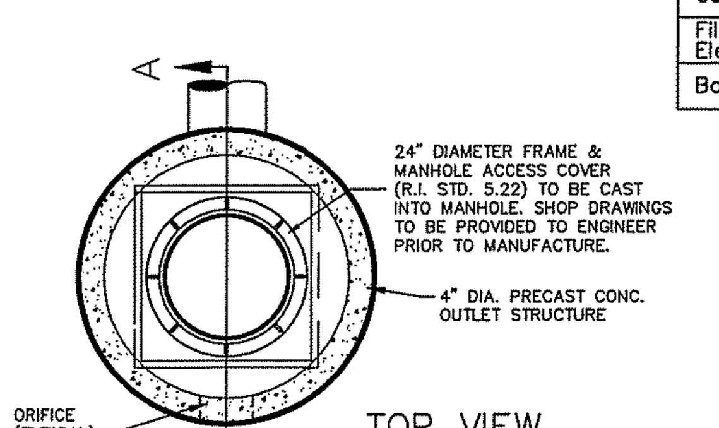


SECTION A-A
N.T.S.

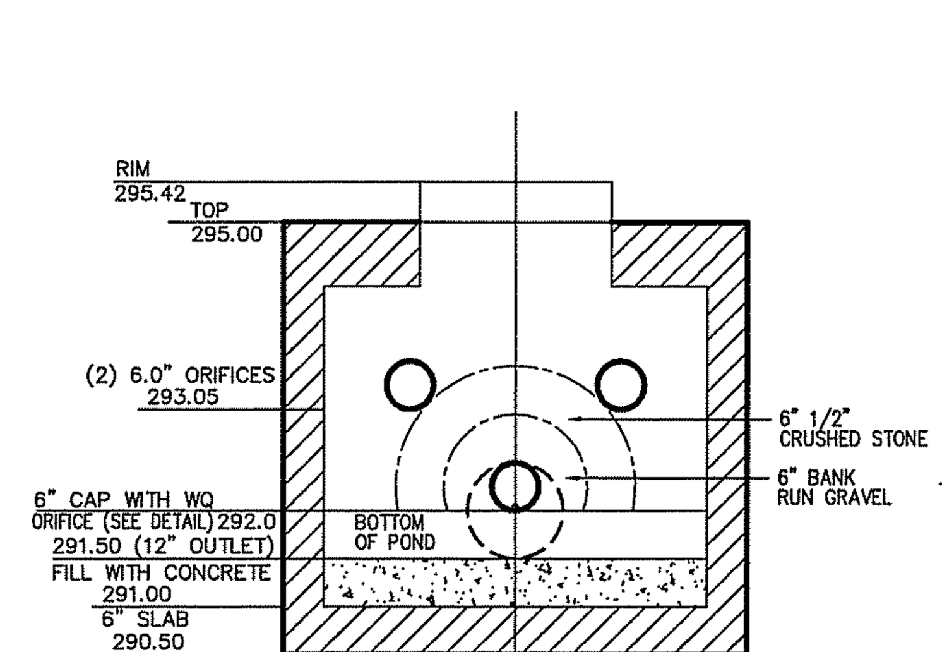


TRASH RACK DETAIL
N.T.S.

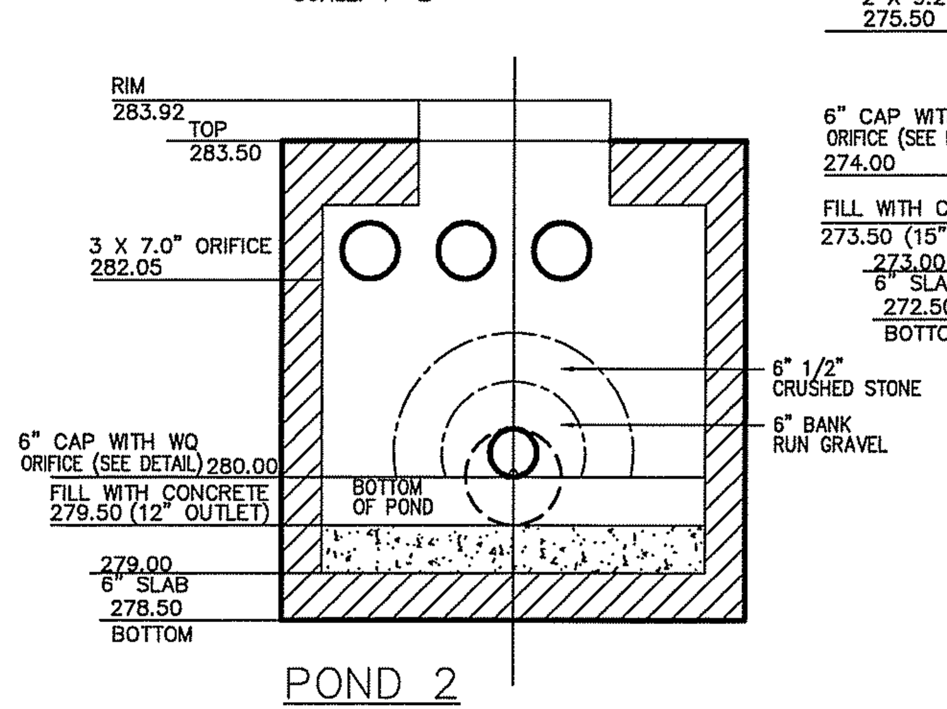
Description	Pond #1	Pond #2	Pond #3
Rim Elevation	295.42	283.92	279.42
Top Elevation	295.00	283.50	279.00
Water Quality Invert	292.00	280.00	274.00
Orifice #2 Size & Invert	2 X 6.0", 293.05	3 X 7.0", 282.05	2 X 9.2", 275.50
Outlet Size & Invert	12", 291.50	12", 279.50	15", 273.50
Fill With Concrete to Elevation	291.50	279.50	273.50
Bottom of Structure	290.50	278.50	272.50



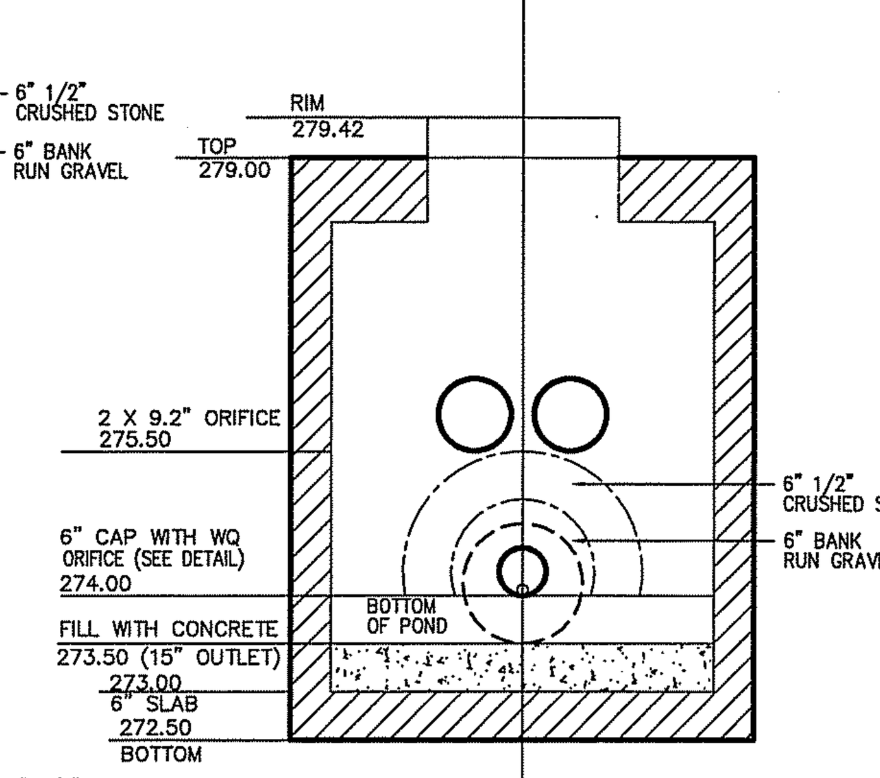
TOP VIEW
N.T.S.



POND 1
SCALE: 1"=2'



POND 2
SCALE: 1"=2'



POND 3
SCALE: 1"=2'

4' DIA. OUTLET STRUCTURE N.T.S.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED MAY 19 2005 FILE # 04-0503
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

APR 20 2005

NOTES:
1. DIPRETE ENGINEERING ASSOCIATES, INC. CERTIFIES TO DRAINAGE, SEWER, AND WATER DESIGN ONLY.
2. BOYER ASSOCIATES CERTIFIES TO TOPOGRAPHIC AND PROPERTY LINE SURVEY ONLY.

Engineer:
DiPrete Engineering Associates, Inc.
Engineering, Surveying, and Planning Consultants
Two Stafford Court
Cranston, Rhode Island 02920
Tel: (401) 943-1000 Fax: (401) 464-6006

Applicant:
Crompton Road Realty, LLC
P.O. Box 9402
Providence, RI
(401) 265-7751

NO.	DATE	DESCRIPTION	BY
3	4-20-04	KCWA SUBMISSION	S.J.W.
2	2-8-04	SECRIN WETLANDS SUBMISSION	S.J.W.
1	12-6-04	KCWA COMMENTS	S.J.W.

Preliminary Submission

DETAIL SHEET

Gentry Glen Condominiums

ASSESSOR'S PLAT 12, LOTS 130, 133, AND 764
WEST WARWICK, RHODE ISLAND

DATE: DECEMBER, 2004

KEVIN C. MORIN
No. 7051
REGISTERED PROFESSIONAL ENGINEER CIVIL