RIDEM Permit Modification

Dowling Village

Phases II, III & IV

Located on Eddie Dowling Highway
North Smithfield, Rhode Island

Assessor's Plat 13 Lots 44, 53, 111, 112, 123 & 143 And A Portion Of Lots 18, 20, 21 & 76
Assessor's Plat 21 Lots 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 And A Portion Of Lot 58

STATE APPROVALS	
RIDEM WETLAND EDGE VERIFICATION APPLICATION NUMBER:	04-0515
RIDEM PRELIMINARY DETERMINATION APPLICATION NUMBER:	05-0255 (PHASE I)
RIDOT PHYSICAL ALTERATION PERMIT APPLICATION NUMBER:	050722-B (PHASE I)
RIDEM PRELIMINARY DETERMINATION APPLICATION NUMBER:	07-0236
RIDOT PHYSICAL ALTERATION PERMIT APPLICATION NUMBER:	070615-B

Dowling Village Phasing Key Map 1"=500'

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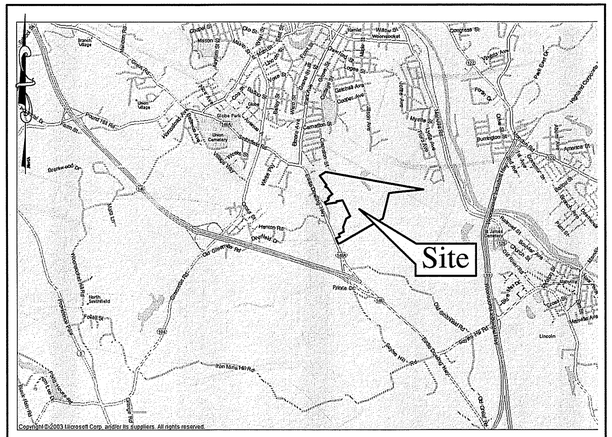

Location Map NOT TO SCALE

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OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 29 2009 FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Charles A. Horbert

R.I.D.O.T. NOTE
THE PROPOSED IMPROVEMENTS WILL NOT INCREASE THE RATE OF STORMWATER RUNOFF ONTO THE STATE HIGHWAY.
ALL WORK WITHIN THE STATE RIGHT-OF-WAY MUST CONFORM TO THE RI STANDARD SPECIFICATIONS, DETAILS, AND ADDENDUMS

NOTE:
THIS REGULATORY SUBMISSION SET SHALL NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED 'ISSUED FOR CONSTRUCTION' AND SIGNED AND DATED BY A DIPRETE ENGINEERING REPRESENTATIVE

Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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	10-23-09	RIDEM Permit Modification	B.C.G.
6	5-15-08	RIDEM Permit Modification	B.C.G.
5	03-24-08	RIDEM Permit Modification	B.C.G.
4	03-24-08	RIDEM Response to Comments	B.C.G.
3	02-25-08	Sewer Response to Comments	B.C.G.
2	01-25-07	Utility Submission	B.C.G.
1	10-25-07	RIDEM Submission	J.P.C.

RIDEM Submission

COVER

Dowling Village - Phases II, III & IV
AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.
DEA Job No. 0617-004-2

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LEONARD R. BRADLEY, JR.
No. 6610
REGISTERED PROFESSIONAL ENGINEER
CIVIL

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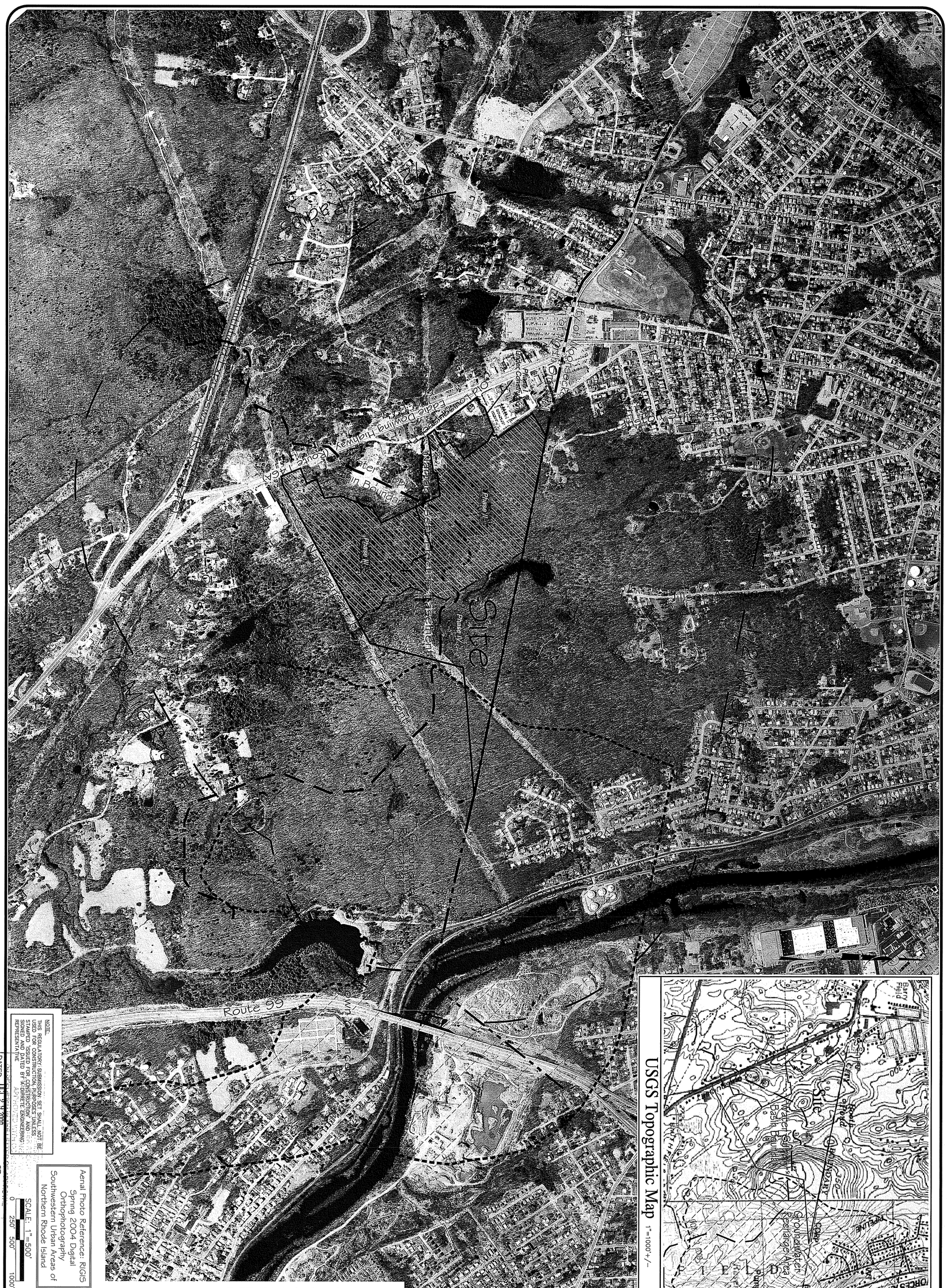

USGS Topographic Map 1"=1000'+/-

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FILE # 071-0234

Aerial Photo Reference: RIGIS
Spring 2004 Digital
Orthophotography
Southwestern Urban Areas of
Northern Rhode Island

SCALE: 1"=500'
0 250 500 1000'

RIDEM Submission

AERIAL 0.5 MILE RADIUS

Dowling Village - Phases II, III & IV

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AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

LEONARD P. BRAZIUNAS
No. 6090
REGISTERED PROFESSIONAL ENGINEER

Sheet 2 of 89

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6	8-04-09	RIDEM Permit Modification Resubmission	B.C.G.
5	5-2-08	RIDEM Permit Modification	B.C.G.
4	09-26-08	RIDEM Response to Comments	B.C.G.
3	01-12-08	Sewer Response to Comments	B.C.G.
2	12-28-07	RIDEM Response to Comments	B.C.G.
1	8-31-07	Utility Submission	B.C.G.
0	05-18-07	RIDEM Submission	J.P.C.

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Warwick, Rhode Island 02889
Tel: (401) 737-4111

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EXISTING	LEGEND	PROPOSED	EXISTING
	ASPHALT PAVEMENT		
	HEAVY-DUTY ASPHALT PAVEMENT		
	CONCRETE PAVEMENT		
	SNOW STORAGE		40 / 56
	AREA OF REINFORCED 1:1 SLOPES		
	LIMIT OF WORK/ SILT FENCE TYPE "A"		SCV TH-1
	LIMIT OF WORK/ SILT FENCE TYPE "A" WITH STRAW WATTLE		
	LIMIT OF WORK/ SILT FENCE TYPE "C" WITH STRAW WATTLE		
	ROCK OUTCROP		
	CENTERLINE		

LEGEND	PROPOSED	EXISTING
PROPERTY LINE	℄	
ABUTTER PROPERTY LINE		
INTERNAL LOT LINE		
LEASE AREA LINE		
MAJOR 10' CONTOUR	310	
MINOR 2' CONTOUR	312	
TREELINE		
TREES		
TEST HOLE		
SIGN		
LIGHT POLE		
TRAFFIC LIGHT		
UTILITY POLE		
OVERHEAD WIRES		
EDGE OF PAVEMENT		
CONCRETE SIDEWALK		
BITUMINOUS SIDEWALK		
CONCRETE CURB		
BITUMINOUS BERM		
BUILDING		
CENTERLINE		
RETAINING WALL		W
STONEWALL		
GUARD RAIL		
GRAVEL DRIVEWAY		
PAVED DRIVEWAY		
DIRT WALKWAY		
FENCE		
PARKING STRIPING		
ACCESSIBLE PARKING SPACE SYMBOL	VAN	
ACCESSIBLE SIGN		
ACCESSIBLE RAMP		
PAINTED LANE MARKERS		
TRAFFIC FLOW ARROWS		
CONSTRUCTION ENTRANCE		
WETLAND FLAG & NUMBER	A2	
EDGE OF WETLAND		
50' PERIMETER WETLAND		
100' RIVERBANK WETLAND		
EDGE OF WATER		
SHEET MATCHLINE		
SOILS		
APPROXIMATE 100 YEAR FLOOD PLAIN		
ELECTRIC		E
TELEPHONE		T
CABLE		C
GAS	G	G
ZONING LINES		

LEGEND	PROPOSED
DRAIN LINE	
SUB-DRAIN	SD
ROOF LEADER	RL
CULVERT	
FOUNDATION CUT OFF	
FLARED END SECTION	
CATCH BASIN	
DOUBLE CATCH BASIN	
MANHOLE	
CLEAN OUT	
HEADWALL	
ANTISEEP COLLAR	
RIP-RAP	
FLOW ARROW	
OVERFLOW WEIR	
UNDERGROUND DETENTION	
DRYWELL	
DETENTION POND	
DETENTION POND 1/2 FOOT CONTOUR	
CLDIP & COPPER WATER LINE	W W
THRUST BLOCK	
WATER VALVE	
HYDRANT	
WATER SHUT OFF	
GRAVITY SEWER LINE	
SEWER FORCE MAIN	SFM
GREASE TRAP	
SEWER PUMP STATION	
SEWER MANHOLE	

ABBREVIATIONS LEGEND

AP	ASSESSOR'S PLAT
N/F	NOW OR FORMERLY
CB	CATCHBASIN
DCB	DOUBLE CATCHBASIN
DMH	DRAINAGE MANHOLE
FES	FLARED END SECTION
RCP	REINFORCED CONCRETE PIPE
CLDIP	CEMENT LINED DUCTILE IRON PIPE
PE	POLYETHYLENE
HDPE	HIGH DENSITY POLYETHYLENE
PVC	POLYVINYL CHLORIDE
INV.	INVERT
S	SLOPE
LF	LINEAR FEET
TW	TOP OF WALL
BW	BOTTOM OF WALL
UP	UTILITY POLE
UDB	UNDERGROUND DETENTION BASIN
UIB	UNDERGROUND INFILTRATION BASIN
SMH	SEWER MANHOLE
TYP.	TYPICAL
R-3	RESTAURANT
PND	POND
RTL	RETAIL
℄	PROPERTY LINE
FFE	FINISH FLOOR ELEVATION
L.O.W.	LIMIT OF WORK/EROSION CONTROL BARRIER
LAND.	LANDSCAPED
CONC.	CONCRETE
TRANS.	TRANSITION

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RIDEM Submission

LEGEND

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

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LEONARD R. BRADLEY JR.
No. 6670
REGISTERED PROFESSIONAL ENGINEER
STATE OF RHODE ISLAND

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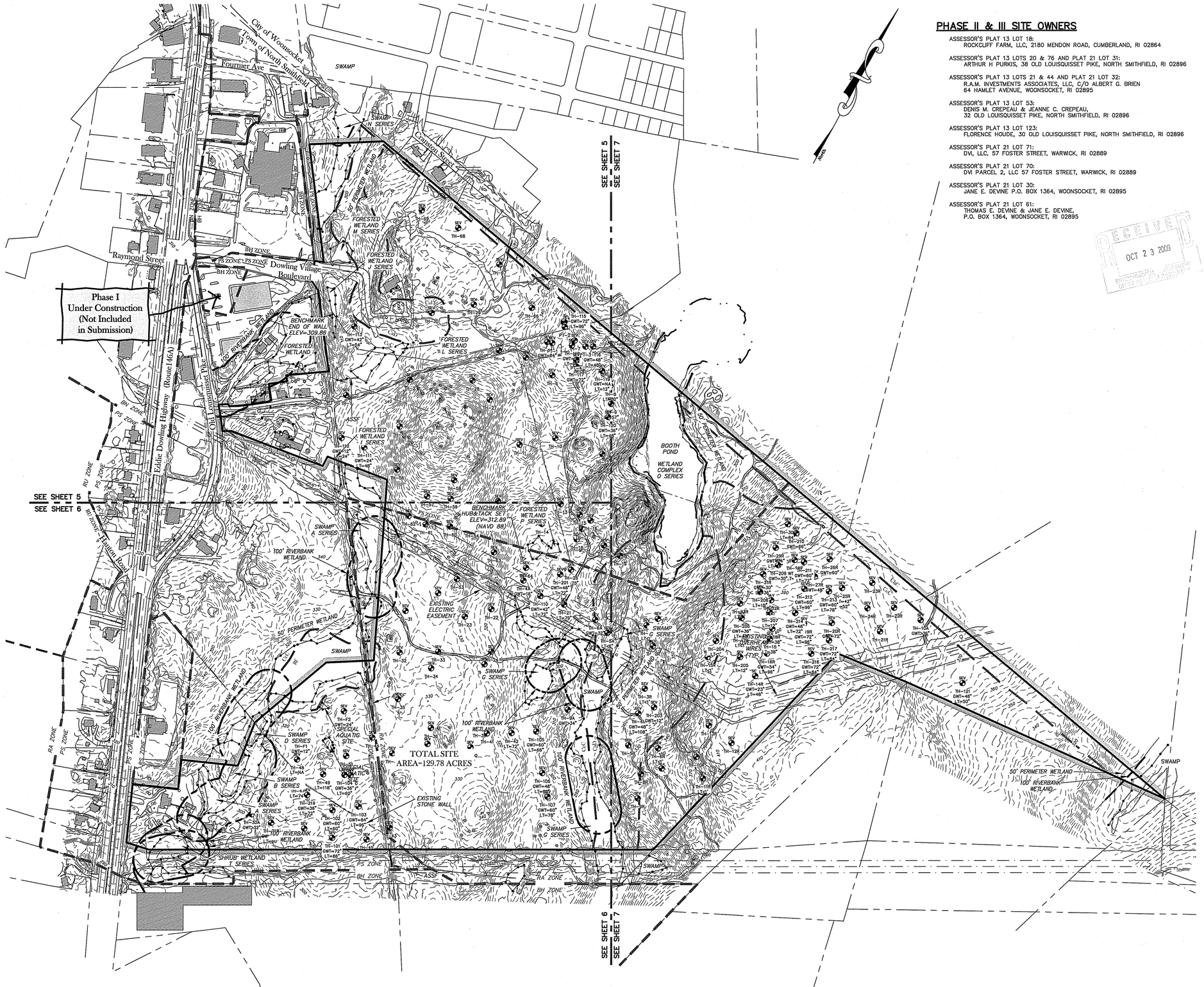

PHASE II & III SITE OWNERS

ASSESSOR'S PLAT 13 LOT 18:
ROCKCLIFF FARM, LLC, 2180 MENDON ROAD, CUMBERLAND, RI 02864

ASSESSOR'S PLAT 13 LOTS 20 & 76 AND PLAT 21 LOT 31:
ARTHUR H PURKIS, 38 OLD LOUISQUISSET PIKE, NORTH SMITHFIELD, RI 02896

ASSESSOR'S PLAT 13 LOTS 21 & 44 AND PLAT 21 LOT 32:
R.A.M. INVESTMENTS ASSOCIATES, LLC, C/O ALBERT G. BRIEN
64 HAMLET AVENUE, WOONSOCKET, RI 02895

ASSESSOR'S PLAT 13 LOT 53:
DENIS M. CREPEAU & JEANNE C. CREPEAU,
32 OLD LOUISQUISSET PIKE, NORTH SMITHFIELD, RI 02896

ASSESSOR'S PLAT 13 LOT 123:
FLORENCE HOUDE, 30 OLD LOUISQUISSET PIKE, NORTH SMITHFIELD, RI 02896

ASSESSOR'S PLAT 21 LOT 71:
DVI, LLC, 57 FOSTER STREET, WARWICK, RI 02889

ASSESSOR'S PLAT 21 LOT 70:
DVI PARCEL 2, LLC 57 FOSTER STREET, WARWICK, RI 02889

ASSESSOR'S PLAT 21 LOT 30:
JANE E. DEVINE P.O. BOX 1364, WOONSOCKET, RI 02895

ASSESSOR'S PLAT 21 LOT 61:
THOMAS E. DEVINE & JANE E. DEVINE,
P.O. BOX 1364, WOONSOCKET, RI 02895

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GENERAL NOTES

1. THE APPLICANT OF THE SITE IS BUCCI DEVELOPMENT, INC. 48 HEWETT STREET WARWICK, RI 02889.
2. SITE IS LOCATED ON TOWN OF NORTH SMITHFIELD ASSESSOR'S PLAT 13 LOTS 44, 53 & 123 AND A PORTION OF LOTS 18, 20, 21 & 76. ASSESSOR'S PLAT 21 LOTS 30, 31, 32, 61 & 71. THE SITE IS CURRENTLY ZONED PS (PROFESSIONAL SERVICES) AND RA RURAL AGRICULTURAL). TOTAL SITE AREA IS 129.78 ACRES.
3. THERE IS NO 100 YEAR FLOOD PLAIN LOCATED ON SITE. THERE IS A ZONE X, AREA OF 500 YEAR FLOOD, ASSOCIATED WITH BOOTH POND. REFERENCE FEMA FLOOD INSURANCE RATE MAP 440021 0010 C, REVISED DECEMBER 3, 1993. THERE ARE FIVE INTERMITTENT STREAMS LESS THAN 10' WIDE WITH ASSOCIATED FLOOD PLAINS LOCATED ON THE SITE. THE FIRST IS LOCATED WITHIN THE U AND Q-SERIES FORESTED WETLAND, THE SECOND IS LOCATED WITHIN THE G-SERIES SWAMP, THE THIRD IS LOCATED IN THE S-SERIES WETLAND, THE FOURTH IS LOCATED WITHIN THE A/B/C/D/F-SERIES SWAMP, AND THE FIFTH IS LOCATED WITHIN THE T SERIES SHRUB WETLAND. ESTIMATED FLOOD PLAIN LIMITS HAVE BEEN DEVELOPED FOR EACH OF THESE STREAMS. ALL FLOOD PLAIN LIMITS FALL WITHIN THE 100' RIVERBANK WETLANDS AND ARE OUTSIDE ANY PROPOSED CONSTRUCTION AREA.
4. TOPOGRAPHY OBTAINED FROM COL-EAST INC., P.O. BOX 347, NORTH ADAMS, MA 01247. AERIAL PHOTO TAKEN MARCH 28TH 2003. VERTICAL DATUM IS NAVD 88 MSL.
5. WETLANDS AREAS AS SHOWN HAVE BEEN FLAGGED IN THE FIELD BY NATURAL RESOURCE SERVICES, INC. PO BOX 311, HARRISVILLE, RI 02830 AND FIELD LOCATED BY DIPRETE ENGINEERING ASSOCIATES, INC. USING GPS SUBMETER TECHNOLOGY. THE WETLAND EDGE HAS BEEN VERIFIED UNDER RIDEM APPLICATION #04-0515.
6. SOIL DELINEATION OBTAINED FROM THE SOIL SURVEY OF RHODE ISLAND, PREPARED BY THE USDA SOIL CONSERVATION SERVICE.
7. DETAILED TEST HOLE DATA AVAILABLE IN SECTION 10 OF "SOIL EROSION & SEDIMENT CONTROL AND STORMWATER MANAGEMENT REPORT" DATED MAY 2007 AS AMENDED.
8. PROPERTY LINE OBTAINED FROM PLANS OF RECORD AND SURVEY BY DIPRETE ENGINEERING ASSOCIATES, INC.
9. THE SITE IS NOT WITHIN THE RIDEM NATURAL HERITAGE AREA.
10. UTILITY INFORMATION SHOWN IS BASED ON BOTH FIELD SURVEY AND PLANS OF RECORD. THE LOCATIONS OF UNDERGROUND PIPES AND CONDUITS HAVE BEEN DETERMINED FROM AFOREMENTIONED RECORD PLANS AND ARE APPROXIMATE ONLY. PRIOR TO CONSTRUCTION, THE PROPER UTILITY ENGINEERING DEPARTMENTS SHALL BE CONTACTED AND THE ACTUAL LOCATION OF SUBSURFACE STRUCTURES SHALL BE DETERMINED IN THE FIELD. CALL THE DIG SAFE CENTER TOLL FREE AT 1-888-344-7233, 72 HOURS PRIOR TO EXCAVATION. ANY DAMAGE TO UTILITIES WHICH ARE SHOWN ON THE PLANS, OR DETAILED BY DIG SAFE SHALL BE THE SITE CONTRACTORS RESPONSIBILITY.
11. ALL SOIL EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO ANY DEMOLITION WORK.
12. ALL NECESSARY PERMITS SHALL BE OBTAINED PRIOR TO START OF ANY DEMOLITION WORK.

SOIL INFORMATION

(REFERENCE: SOIL SURVEY OF RHODE ISLAND, U.S.D.A. SOIL CONSERVATION SERVICE)

SOIL	DESCRIPTION	HYDROLOGIC GROUP
CeC	CANTON AND CHARLTON FINE SANDY LOAMS, VERY ROCKY, 3 TO 15 PERCENT SLOPES	B
CC	CANTON URBAN LAND COMPLEX, VERY ROCKY	B
CdD	CANTON & CHARLTON OUTCROP COMPLEX, 3 TO 15 PERCENT SLOPES	B
ChC	CANTON & CHARLTON, VERY STONY FINE SANDY LOAMS, 8 TO 15 PERCENT SLOPES	B
CkC	CANTON & CHARLTON, EXTREMELY STONY FINE SANDY LOAMS, 3 TO 15 PERCENT SLOPES	B
Rf	RIDGEBURY, WHITMAN, AND LEICESTER EXTREMELY STONY FINE SANDY LOAMS, 0 TO 3 PERCENT SLOPES	D

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
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DATED OCT 29 2009 FILE # 07-0236
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Charles A. Horbert

NOTE:
ALL MATERIALS GENERATED DURING DEMOLITION OR REMOVAL OF EXISTING SITE IMPROVEMENTS TO BE DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE NORTH SMITHFIELD AND STATE OF RHODE ISLAND REGULATIONS.

NOTE:
THIS REGULATORY SUBMISSION SET SHALL NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED 'ISSUED FOR CONSTRUCTION' AND SIGNED AND DATED BY A DIPRETE ENGINEERING REPRESENTATIVE

SCALE: 1"=200'
0 100' 200' 400'

RIDEM Submission

Applicant:
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Tel: (401) 737-4111

Engineer:
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2	8-31-07	Utility Submission	BJC/JPC
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OVERALL EXISTING CONDITIONS/DEMOLITION PLAN

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76 AP 21 LOTS 25, 26, 29, 30, 31, 32, 61 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.
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LEONARD R. BRADLEY, JR.
No. 6610
REGISTERED PROFESSIONAL ENGINEER
STATE OF RHODE ISLAND

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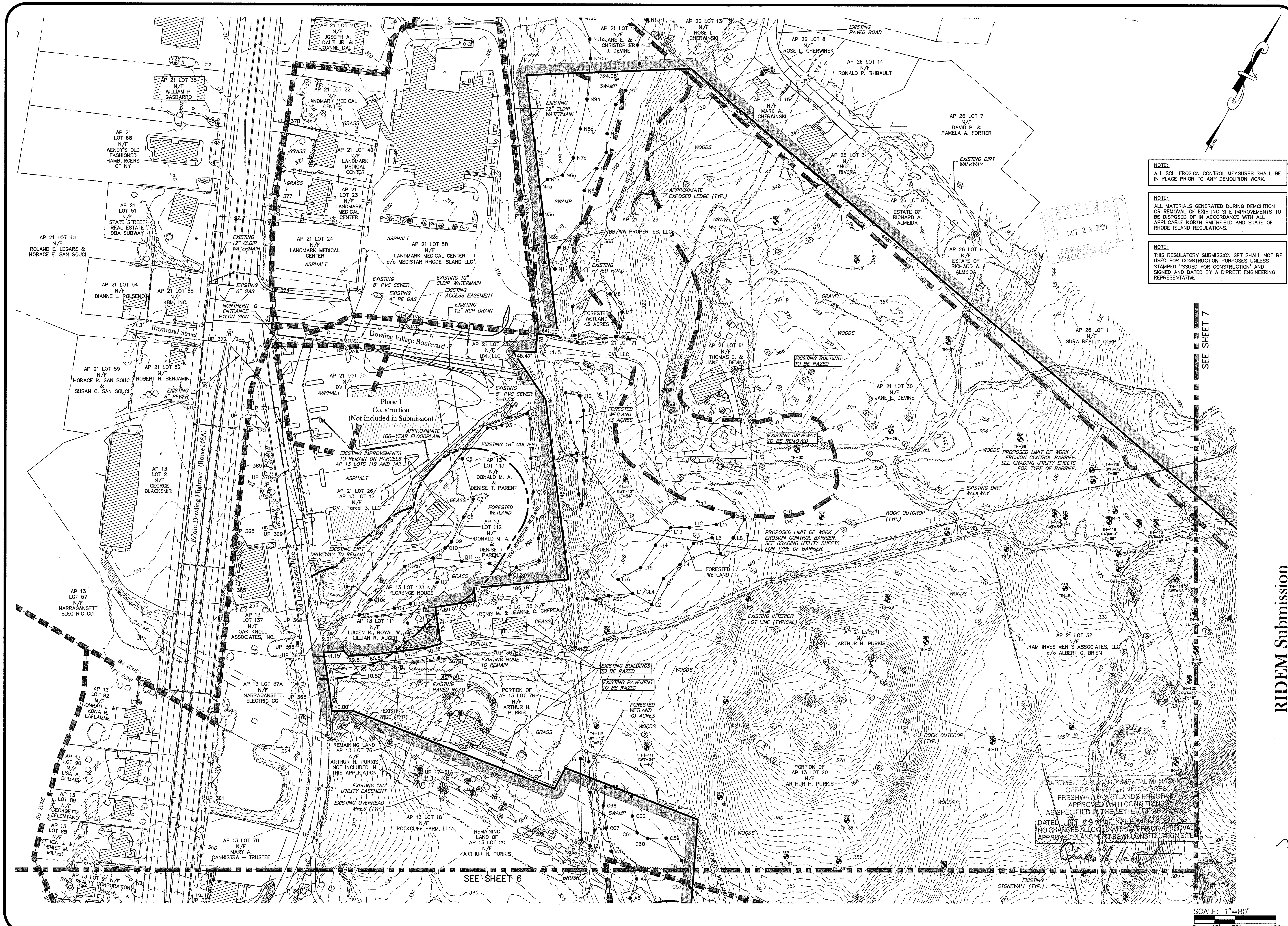

NOTE:
ALL SOIL EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO ANY DEMOLITION WORK.

NOTE:
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SCALE: 1"=80'
0 40' 80' 160'

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RIDEM Submission

EXISTING CONDITIONS/DEMOLITION PLAN – 1

Dowling Village - Phases II, III & IV

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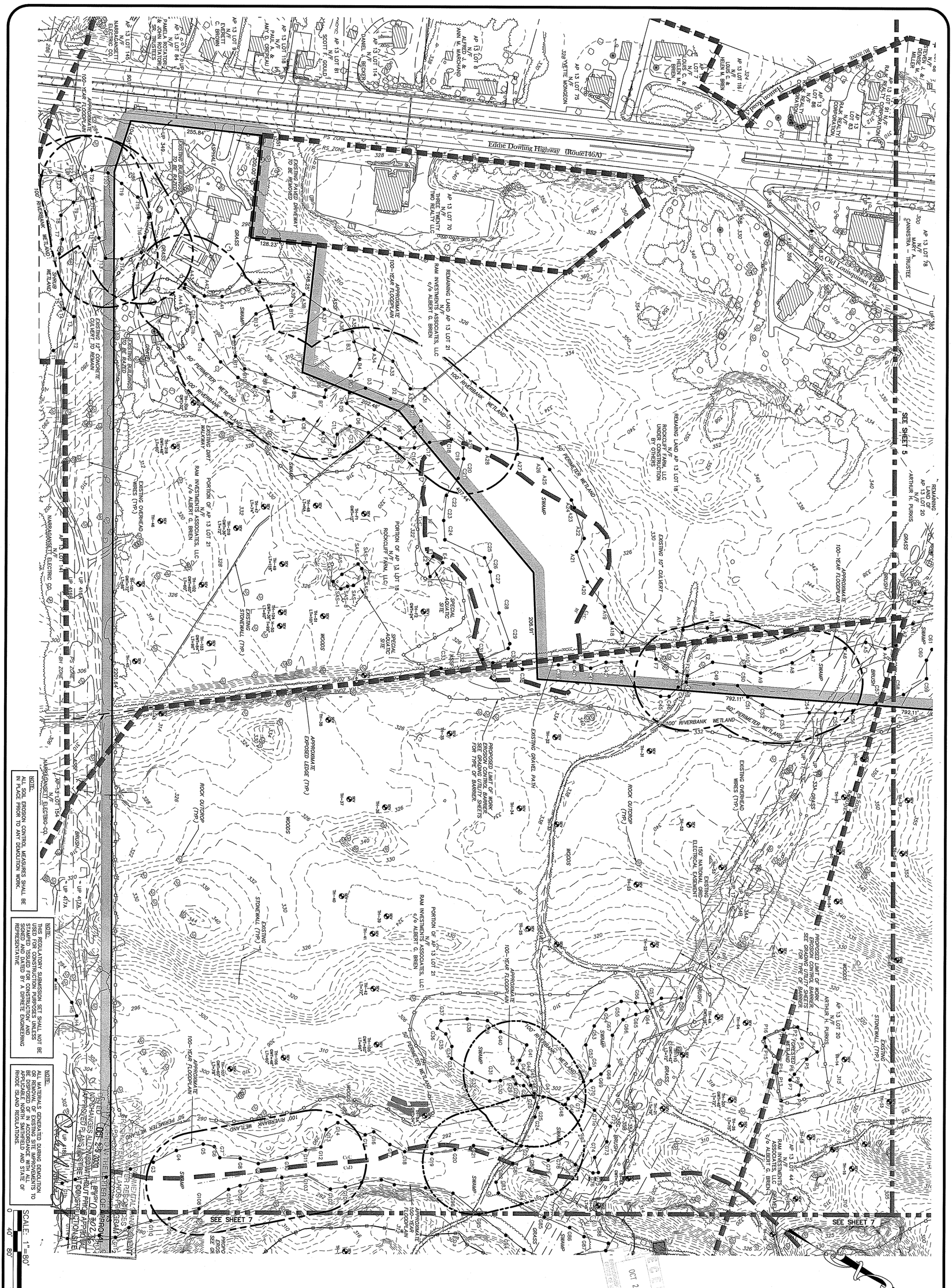
LEONARD R. BRADLEY No. 6670 REGISTERED PROFESSIONAL ENGINEER CIVIL

\\DEAstorage\DEAmanVault Working\0617-004-2601 Preliminary\Plotting\0617-004-2 Existing Conditions.dwg, 9/8/2009 1:36:44 PM, deauser1, DWF6 ePlot.pc3



RIDEM Submission

OCT 23 2009

Sheet 6 of 89

EXISTING CONDITIONS/DEMOLITION PLAN – 2

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

NO	DATE	DESCRIPTION	BY
6	9-04-09	RIDEM Permit Modification Resubmission	B.C.G.
5	5-04-09	RIDEM Permit Modification	B.C.G.
4	03-26-08	RIDEM Response to Comments	B.C.G.
3	01-23-08	Sewer Response to Comments	B.C.G.
2	12-19-07	RIDEM Response to Comments	B.C.G.
1	9-17-07	Utility Submission	B.C.G.
0	05-25-07	RIDEM Submission	J.P.C.

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:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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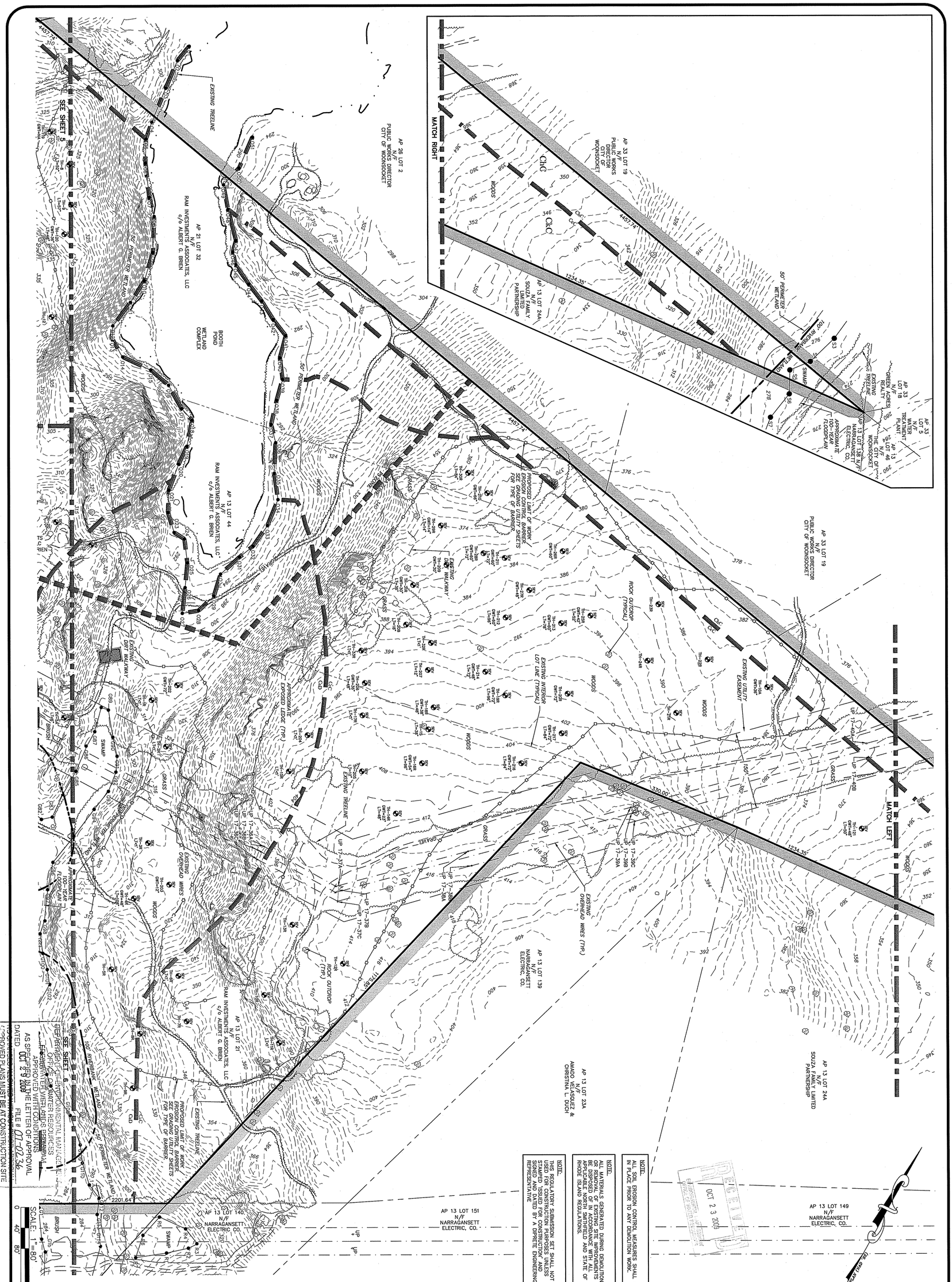

NOTE: ALL SOIL EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO ANY DEMOLITION WORK.

NOTE: ALL MATERIALS GENERATED DURING DEMOLITION OPERATIONS SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE NORTH SMITHFIELD AND STATE OF RHODE ISLAND REGULATIONS.

NOTE: REGULATORY SUBMISSION SET SHALL NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED "ISSUED FOR CONSTRUCTION" AND SIGNED AND DATED BY A DIPRETE ENGINEERING REPRESENTATIVE

AS SPECIFIED IN THE RHODE ISLAND FRESHWATER WETLANDS ACT
APPROVED WITH CONDITIONS OF APPROVAL
DATED OCT 29 2009 FILE # 07-0234
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS SECTION
PROVED PLANS MUST BE AT CONSTRUCTION SITE

RECEIVED OCT 23 2009 DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

RIDEM Submission

EXISTING CONDITIONS/DEMOLITION PLAN – 3

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

LEONARD P. BRAMUCCI No. 6812 REGISTERED PROFESSIONAL ENGINEER

NO	DATE	DESCRIPTION	BY
10	8-04-09	RIDEM Permit Modification Resubmission	B.C.G.
9	5-21-09	RIDEM Permit Modification	B.C.G.
8	05-28-08	RIDEM Response to Comments	B.C.G.
7	01-23-08	Sewer Response to Comments	B.C.G.
6	12-18-07	RIDEM Response to Comments	B.C.G.
5	8-17-07	Utility Submission	B.C.G.
4	05-18-07	RIDEM Submission	J.P.C.

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:
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48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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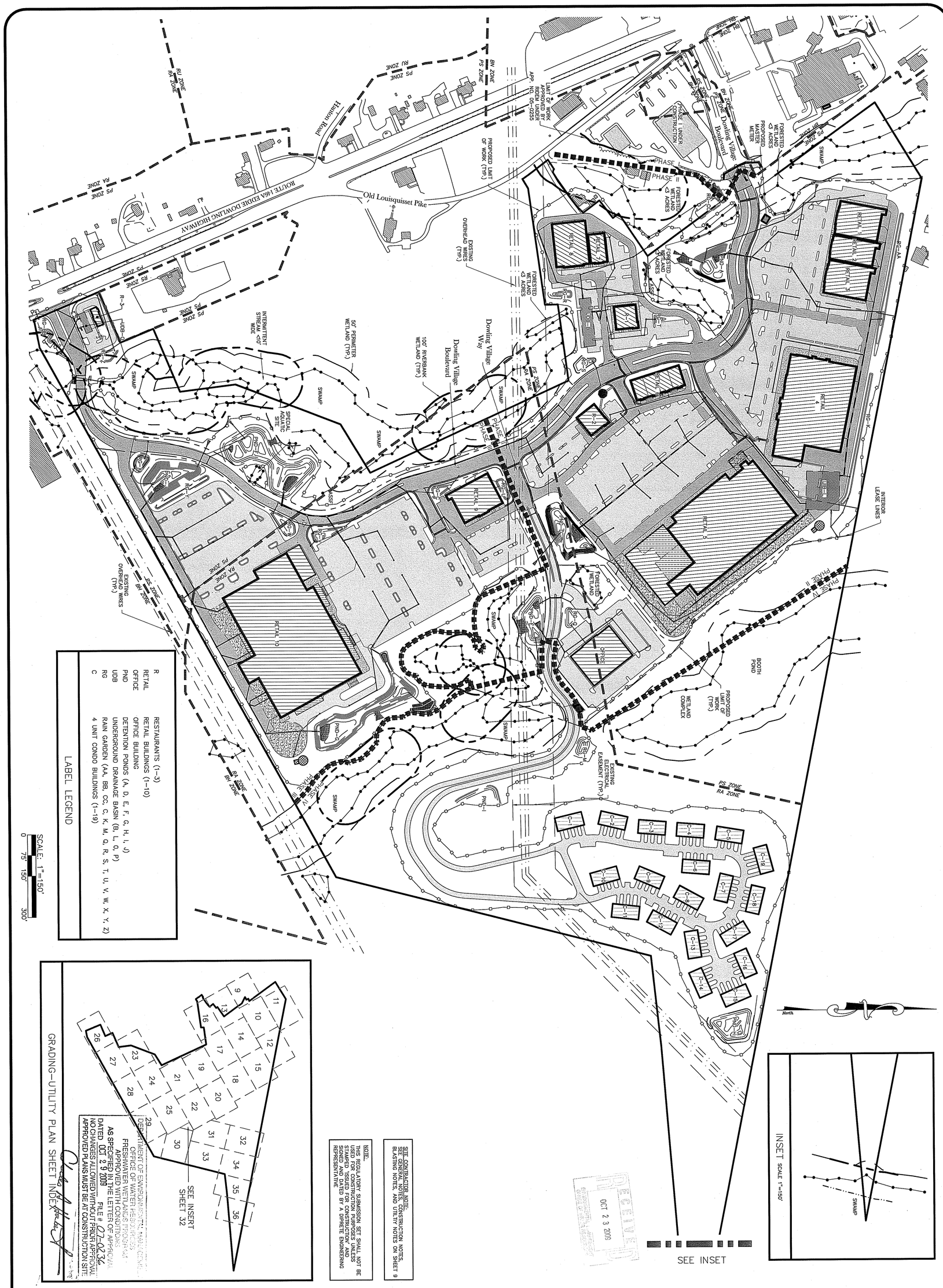

LABEL LEGEND

R	RESTAURANTS (1–3)
RETAIL	RETAIL BUILDINGS (1–10)
OFFICE	OFFICE BUILDING
POND	DETENTION PONDS (A, D, E, F, G, H, I, J)
UDB	UNDERGROUND DRAINAGE BASIN (B, L, O, P)
RG	RAIN GARDEN (AA, BB, CC, C, K, M, Q, R, S, T, U, V, W, X, Y, Z)
C	4 UNIT CONDO BUILDINGS (1–19)

SCALE: 1"=150'
0 75' 150' 300'

GRADING–UTILITY PLAN SHEET INDEX

AS SPECIFIED IN THE LETTER OF APPROVAL
APPROVED WITH CONDITIONS
DATED OCT 2 9 2009 FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

NOTE:
THIS REGULATORY SUBMISSION SET SHALL NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED "ISSUED FOR CONSTRUCTION" AND SIGNED AND DATED BY A DIPRETE ENGINEERING REPRESENTATIVE

SEE CONTRACTOR NOTE, SEE GENERAL NOTES, CONSTRUCTION NOTES, BLASTING NOTES, AND UTILITY NOTES ON SHEET 9

RECEIVED
OCT 2 3 2009
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
COASTAL RESOURCES MANAGEMENT COUNCIL

INSET SCALE 1"=150'

RIDEM Submission

Sheet 8 of 89

LEONARD R. BRADLEY, JR.
No. 5590
REGISTERED PROFESSIONAL ENGINEER
CIVIL

OVERALL GRADING–UTILITY PLAN

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

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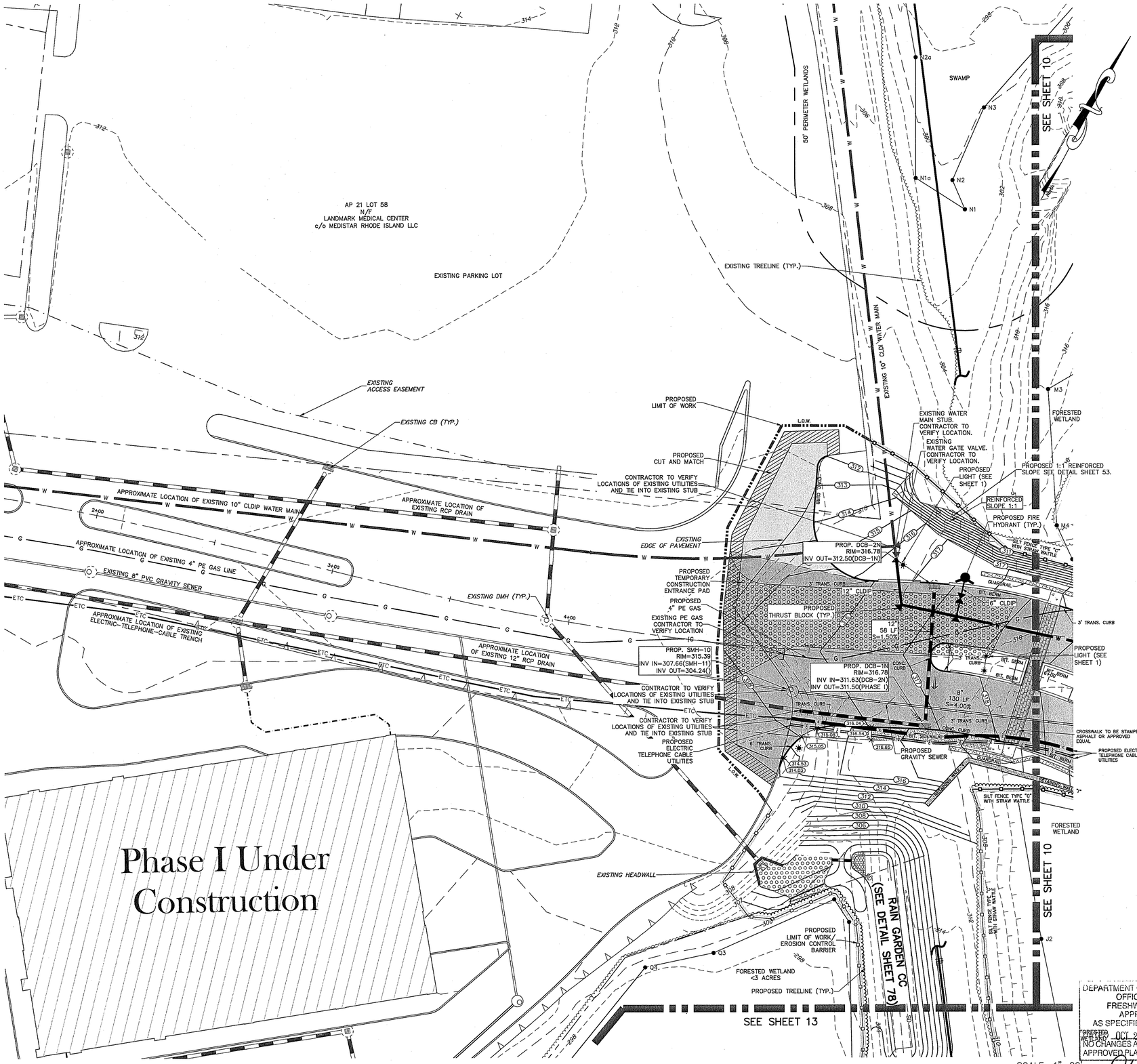

GENERAL NOTES

1. THE SITE CONTRACTOR IS TO VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO THE START OF CONSTRUCTION.
2. UTILITY INFORMATION SHOWN IS BASED ON BOTH FIELD SURVEY AND PLANS OF RECORD. THE LOCATIONS OF UNDERGROUND PIPES AND CONDUITS HAVE BEEN DETERMINED FROM PLANS OF RECORD AND ARE APPROXIMATE ONLY. PRIOR TO CONSTRUCTION, THE PROPER UTILITY ENGINEERING DEPARTMENTS SHALL BE CONTACTED AND THE ACTUAL LOCATION OF SUBSURFACE STRUCTURES SHALL BE DETERMINED IN THE FIELD. CALL THE DIG SAFE CENTER, TOLL FREE, AT 1-888-344-7233, 72 HOURS PRIOR TO EXCAVATION. ANY DAMAGE TO UTILITIES WHICH ARE SHOWN ON THE PLANS OR DETAILED BY DIG SAFE SHALL BE THE SITE CONTRACTOR'S RESPONSIBILITY.
3. GAS, ELECTRIC, TELEPHONE, AND CABLE UTILITIES ARE SHOWN CONCEPTUALLY ONLY. CONTRACTOR TO COORDINATE FINAL DESIGN WITH APPROPRIATE UTILITY COMPANY. ALL WORK SHALL BE IN ACCORDANCE WITH EACH UTILITY COMPANY'S STANDARDS AND DETAILS AS WELL AS LOCAL AND FEDERAL REGULATIONS. THIS INCLUDES, BUT IS NOT LIMITED TO, TRANSFORMERS, PULL BOXES, CONCRETE PADS, CONCRETE ENCASEMENTS AND CONDUITS.
4. IN ORDER TO PREVENT GROUNDWATER FROM BEING CONVEYED ALONG UTILITY TRENCHES, AN IMPERMEABLE BARRIER SHALL BE INCORPORATED INTO ANY UTILITY TRENCH WHERE THE UTILITY TRENCH INTERCEPTS GROUNDWATER. SPACING OF THE IMPERMEABLE BARRIERS IS TO BE AT THE DIRECTION OF THE DESIGN ENGINEER BASED ON THE SITE CONDITIONS.
5. NORTH SMITHFIELD ZONING BOARD REVIEW DECISION FOR BUCCI DEVELOPMENT, LLC ON NOVEMBER 9, 2004, DOWLING VILLAGE – STIPULATION #6: "NO BUILDING IN THE PROJECT WILL EXCEED 45 FEET (INCLUDING ANY FACADE) IN HEIGHT."
6. ALL BUILDING UTILITY ENTRANCE LOCATIONS AND SIZES SHALL BE CONFIRMED BY THE CONTRACTOR WITH THE MECHANICAL ENGINEER PRIOR TO CONSTRUCTION.
7. ALL FLARED ENDS AND HEADWALLS SHALL BE INSTALLED AT GRADE.
8. CONTRACTOR SHALL BE FAMILIAR WITH THE RIDEM AND RIDOT APPROVED PLANS AND HAVE COPIES ON SITE. RIDEM AND RIDOT TO BE NOTIFIED WHEN CONSTRUCTION COMMENCES. SEE RIDEM APPROVAL #07-0236 AND RIDOT APPROVAL #070615-B.
9. CONTRACTOR SHALL VERIFY ALL ROOF LEADER TIE-IN LOCATIONS WITH ARCHITECT.
10. CONTRACTOR SHALL MEET APPLICABLE OCCUPATION SAFETY & HEALTH ADMINISTRATION (OSHA) REQUIREMENTS.
11. PROPOSED SLOPES CAN BE REPLACED WITH ROCK FACED SLOPES WITH THE DIRECTION AND APPROVAL FROM GEOTECHNICAL ENGINEER AND THE DESIGN ENGINEER AS WARRANTED BY SITE CONDITIONS.
12. CLEARING AND GRUBBING IS NOT TO EXTEND BEYOND THE LIMIT OF WORK. THE BORROW AREA SHOULD NOT BE STRIPPED AND GRUBBED IN ITS ENTIRETY AT THE BEGINNING OF CONSTRUCTION. THE BORROW AREA SHOULD BE STRIPPED IN STAGES AS FILL IS REQUIRED.
13. ALL WORK WITHIN THE NATIONAL GRID ELECTRIC EASEMENT SHALL BE COORDINATED WITH NATIONAL GRID AND SHALL CONFORM TO ALL NATIONAL GRID, FEDERAL, AND LOCAL REGULATIONS AND SPECIFICATIONS. OVERHEAD WIRES SHALL BE PROTECTED PER NATIONAL GRID REQUIREMENTS.
14. THE CONTRACTOR IS ADVISED OF THE OVERHEAD WIRES THAT RUN THROUGH THE MIDDLE OF THE PROJECT, OVER PORTIONS OF THE RETAIL 9 DELIVERABLE AREA AND PART OF THE RING ROAD NORTH DELIVERABLE AREA AND ALONG THE SOUTHERN PROPERTY LINE. THE CONTRACTOR SHOULD EXERCISE EXTREME CAUTION AND INCLUDE A SPECIFIC SECTION IN THE SAFETY PLANNING PROCESS RELATED TO WORK IN THE AREA OF THE OVERHEAD ELECTRIC LINES.

CONSTRUCTION NOTES

1. ALL CUT AND FILL AREAS ARE TO BE DONE UNDER THE DIRECTION OF A GEOTECHNICAL ENGINEER LICENSED IN THE STATE OF RHODE ISLAND WITH TESTING AND CERTIFICATION TO BE PROVIDED TO THE OWNER AT THE COMPLETION OF THE PROJECT. DIPRETE ENGINEERING ASSOCIATES, INC. HAS NOT PROVIDED THE FILL SPECIFICATION, GEOTECHNICAL ENGINEERING, STRUCTURAL ENGINEERING SERVICES, OR SUPERVISION AS PART OF THESE DRAWINGS.
2. THE SITE CONTRACTOR IS TO PROVIDE DIPRETE ENGINEERING ASSOCIATES, INC. WITH SHOP DRAWINGS DETAILING THE CONSTRUCTION OF ALL PROPOSED RETAINING WALLS AND SLOPES STEEPER THAN 3:1.
3. ALL UTILITY STUBS TO BE STAKED AT THE SURFACE AND SURVEY LOCATED. STAKES TO BE MAINTAINED DURING CONSTRUCTION.
4. UTILITY STUB END TREATMENTS:
   - 4.1. GAS: POLYETHYLENE STUBS TO BE CAPPED
   - 4.2. DRAINAGE: RCP & HDPE STUBS TO BE BOARDED UP OR OTHERWISE PROTECTED
   - 4.3. WATER: CLDI & COPPER STUBS TO BE CAPPED
   - 4.4. SEWER: PVC STUBS TO BE CAPPED
   - 4.5. ELECTRIC: CONDUIT STUBS TO BE CAPPED

RECEIVED OCT 2 3 2009 ENVIRONMENTAL MANAGEMENT OFFICE OF WATER RESOURCES

BLASTING NOTES

1. NOTICES, INSPECTIONS AND BLASTING SHALL BE DONE IN ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL REGULATIONS.
2. FOR BLASTING INFORMATION SEE LETTER FROM RICHARD J. GROLL, GEOLOGIST, DATED OCTOBER 9, 2007.
3. BLASTING PRODUCTS UTILIZED ONSITE SHALL BE FREE OF PERCHLORATE.
4. PRIOR TO THE START OF CONSTRUCTION THE BLASTING PRODUCTS MANUFACTURER'S SPECIFICATIONS AND MSDS SHEETS ARE TO BE SENT TO THE TOWN ALONG WITH A LETTER STATING THE PRODUCTS ARE FREE OF PERCHLORATE.
5. A PRE-BLAST SURVEY WILL BE OFFERED TO OWNERS OF APPROVED ADJACENT PROPERTIES PRIOR TO BLASTING ACTIVITIES AT DOWLING VILLAGE. SEE LETTER FROM RICHARD J. GROLL, GEOLOGIST, DATED OCTOBER 9, 2007. LAND OWNERS SHALL BE NOTIFIED VIA CERTIFIED MAIL AND PER RI STATE LAW: CHAPTER 23-28.28-37. IT IS THE CONTRACTORS OBLIGATION TO NOTIFY ALL LAND OWNERS PER STATE LAW.
6. A PUBLIC NOTICE SHALL BE PLACED IN A LOCAL NEWSPAPER ONE WEEK IN ADVANCE OF BLASTING; BLASTING HOURS SHALL BE BETWEEN 9:00AM AND 4:00PM. BLASTING SHALL NOT OCCUR ON SUNDAYS, HOLIDAYS, THE FRIDAY AND SATURDAY AFTER THANKSGIVING AND ON A SATURDAY WHERE THE FRIDAY BEFORE OR FOLLOWING MONDAY IS A HOLIDAY.
7. ALL AREAS TO BE BLASTED SHALL BE OVER-BLASTED BY 4' MINIMUM FROM FINISH GRADE WITHIN THE PROPOSED ROADWAY CORRIDOR.
8. BLASTING NEAR EXISTING UTILITY POLES TO BE COORDINATED WITH NATIONAL GRID.

SEWER LINE / WATER MAIN SEPARATION POLICY

WATER MAINS SHALL BE LAID WITH A MINIMUM OF TEN-FOOT HORIZONTAL CLEARANCE FROM ANY EXISTING SEWER FACILITIES. THE DISTANCE SHALL BE MEASURED OUTER PIPE FACE TO OUTER PIPE FACE. WATER MAINS CROSSING UNDER SEWERS SHALL BE FORBIDDEN. WATER MAINS CROSSING OVER SEWERS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL SEPARATION OF TWENTY FOUR INCHES BETWEEN THE OUTER INVERT OF THE WATER MAIN AND THE OUTER CROWN OF THE SEWER. REALIGNMENT OF AN EXISTING WATER MAIN OR RELOCATION OF THE SEWER MAY BE NECESSARY TO ACHIEVE THIS VERTICAL SEPARATION. THE CITY OF WOONSOCKET CITY ENGINEER AND THE WOONSOCKET WATER DIVISION MUST APPROVE ANY DEVIATION FROM THESE REQUIREMENTS. CONCRETE ENCASEMENT SHALL NOT BE ALLOWED IN THE DESIGN FOR SEWER AND WATER CROSSINGS.

A MINIMUM OF TEN-FEET HORIZONTAL AND TWENTY FOUR-INCH VERTICAL SEPARATION SHALL BE MAINTAINED IN THE PLACEMENT OF WATER MAINS, SERVICES OR APPURTENANCES WITHIN THE WIDTH OF SEWER FACILITIES OR VICE VERSA. IN CASES WHERE IT IS NOT POSSIBLE TO MAINTAIN A 10-FOOT HORIZONTAL SEPARATION OR TWENTY FOUR-INCH VERTICAL SEPARATION, A DEVIATION FROM THIS RESTRICTION MAY BE ALLOWED ON A CASE BY CASE BASIS PRIOR APPROVAL FROM THE CITY OF WOONSOCKET CITY ENGINEER AND WOONSOCKET WATER DIVISION AS TO THE PROPOSED MATERIALS AND INTERVENTIONS TO BE TAKEN TO PROTECT THE WATER SYSTEM FROM THE POSSIBILITY OF CONTAMINATION.

DRAINAGE NOTES

1. QUARTERLY CLEANOUTS OF THE CATCH BASINS AND HYDRODYNAMIC SEPARATORS SHALL BE PERFORMED AND DOCUMENTED IN AN ANNUAL REPORT THAT SHALL BE SUBMITTED TO THE NORTH SMITHFIELD PLANNING DEPARTMENT ON OR BEFORE DECEMBER 1 OF EACH YEAR.
2. THE PROPOSED DRAINAGE SYSTEM IS TO USED DURING CONSTRUCTION TO DIRECT STORMWATER RUNOFF TO THE PROPOSED DETENTION PONDS. THE CONTRACTOR SHALL VERIFY THAT THERE IS POSITIVE DRAINAGE TO ALL PROPOSED INLETS. TEMPORARY SEDIMENT BASINS TO BE USED, WHERE NECESSARY, TO MITIGATE STORMWATER AND SEDIMENTS DURING CONSTRUCTION. PONDS A, D, E, F, G, H, I, AND J SHALL BE USED AS TEMPORARY SEDIMENT BASINS DURING CONSTRUCTION.
3. ALL INLETS TO USE DANDY POP, DANDY SACK, OR APPROVED EQUAL INLET PROTECTION. ALL INLETS TO BE MAINTAINED DURING CONSTRUCTION.
4. FINAL POND PLANTINGS ACCORDING TO NEW ENGLAND ENVIRONMENTAL (NEE) SHEETS SHALL BE COMPLETED ONCE ALL TRIBUTARY AREAS TO THE BASIN HAVE BEEN PERMANENTLY STABILIZED.
5. ALL CATCHBASINS TO BE EQUIPPED WITH A SNOUT OIL/WATER SEPARATOR MANUFACTURED BY BEST MANAGEMENT PRODUCTS OR APPROVED EQUAL. CONTRACTOR TO INSTALL SNOUT ACCORDING TO ALL MANUFACTURERS RECOMMENDATIONS. ALL CATCH BASINS LOCATED WITHIN RAIN GARDENS TO BE EQUIPPED WITH SNOUTS.
6. ALL CATCH BASINS ARE TO BE 4' DIAMETER MINIMUM WITH 5 FOOT SUMP MINIMUM UNLESS OTHERWISE NOTED.
7. ALL CATCH BASINS ALONG THE EDGE OF PAVEMENT SHALL BE RIDOT 4.4.0 TYPE "F" UNLESS OTHERWISE NOTED.
8. ALL UNDERGROUND DETENTION SYSTEM PIPES TO BE ALUMINIZED TYPE 2 STEEL OR HDPE AND ARE TO BE BACKFILLED WITH STRUCTURAL BACKFILL MATERIAL.
9. ALL DRAINAGE PIPES TO BE RCP UNDER HEAVY-DUTY PAVEMENT AREAS. ALL OTHER DRAINAGE PIPE SHALL BE HDPE OR RCP UNLESS OTHERWISE NOTED.

LIGHTING NOTES

1. SITE LIGHTING SHALL BE DIRECTED AWAY FROM AND SHIELDED FROM ENVIRONMENTALLY SENSITIVE AREAS AND ABUTTING LANDS.
2. LIGHTING MAY BE MODIFIED AND ADDITIONAL LIGHTING MAY BE PROVIDED AT THE TIME OF CONSTRUCTION.
3. LIGHTING IS SHOWN ON GRADING UTILITY PLANS FOR REFERENCE ONLY.

SNOW STORAGE NOTES

1. SNOW REMOVAL CONTRACTOR TO BE INSTRUCTED TO STORE SNOW IN DESIGNATED AREAS ONLY.
2. SNOW REMOVAL CONTRACTOR TO BE INSTRUCTED TO USE SAND AND/OR NON-SALT DEICING AGENTS SUCH AS MAGIC MINUS ZERO/ICE B'GONE OR APPROVED EQUAL ON PARKING LOTS AND TRAVELWAYS. SALT IS NOT TO BE USED AS A DEICING AGENT.
3. SNOW WILL NOT BE REMOVED TO AND/OR PLACED IN THE WETLANDS ABUTTING THE PROPOSED DEVELOPMENT.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 2 9 2009 FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Charles A. Horbert

NOTE:
THIS REGULATORY SUBMISSION SET SHALL NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED 'ISSUED FOR CONSTRUCTION' AND SIGNED AND DATED BY A DIPRETE ENGINEERING REPRESENTATIVE

RIDEM Submission

Applicant:
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48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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NO.	DATE	DESCRIPTION	BY
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4	05-26-09	RIDEM Response to Comments	SJC/JG
3	03-26-08	RIDEM Response to Comments	SJC/JG
2	12-13-07	Town Submission	SJC/JG
1	09-17-07	Town Submission	SJC/JG
0	05-15-07	RIDEM Submission	SJC/JG

GRADING-UTILITY PLAN - 1

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 52, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

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LEONARD R. BRADLEY JR. No. 6670 REGISTERED PROFESSIONAL ENGINEER CIVIL

Sheet 9 of 89

SEE SHEET 11

SEE SHEET 9

SEE SHEET 12

SEE SHEET 13

SEE SHEET 14

RETAIL 2
15,000 SF
FFE=336.35

RETAIL 3
20,000 SF
FFE=336.35

SWAMP

PROPOSED RIP RAP WITH TURF REINFORCEMENT MAT SEE SHEET 86

PROPOSED HEADWALL 1A
INV=309.50±

12"
30 LF
S=5.00%

TW=334
BW=309

50' PERIMETER WETLAND

SILT FENCE WITH STRAW WATTLE

PROP. DMH-5A
RIM=333.42
INV IN=314.56(DMH-4A)
INV OUT=310.00(HW-1A)

PROP. DCB-23A
RIM=332.61
INV IN=328.24(DCB-22A)
INV OUT=327.90(DCB-1A)

PROPOSED LIMIT OF WORK/ EROSION CONTROL BARRIER (L.O.W.)

TW=333
BW=310

EXISTING TREELINE (TYP.)

PROPOSED GUARD RAIL

FORESTED WETLAND (LESS THAN 3 ACRES)

PROPOSED HEADWALL
INV=308.50±

PROPOSED REINFORCED SLOPE (TYP.) SEE SHEET 71

PROPOSED 4' CHAINLINK FENCE (TYP.)

PROPOSED 1:1 REINFORCED SLOPE SEE DETAIL SHEET 53.

TW=332
BW=312

SILT FENCE TYPE "C" WITH STRAW WATTLE

1:1 SLOPE

GRAVEL ACCESS

PROPOSED WALL MOUNTED PIV WITH LOCK

CROSSWALK TO BE STAMPED ASPHALT OR APPROVED EQUAL

PROPOSED MASTER METER

TW=333
BW=322

PROP. SMH-11
RIM=320.18
INV IN=312.99(SMH-11B)
INV OUT=312.85(SMH-10)

HEAVY-DUTY ASPHALT

PROP. SMH-11B
RIM=323.21
INV IN=313.81(SMH-12)
INV OUT=313.70(SMH-11)

8" PVC
71 LF
S=1.00%

TW=334
BW=324

PROPOSED 4" PE GAS

PROP. CB-6A
RIM=326.00
INV OUT=321.80(DMH-6A)

FORESTED WETLAND (LESS THAN 3 ACRES)

TW=322
BW=303

PROPOSED 2:1 SLOPE WITH EROSION CONTROL BLANKETS SEE DETAIL SHEET 49.

PROPOSED LIGHT (TYP.) SEE SHEET 71

PROPOSED TREELINE (TYP.)

TW=325
BW=317

Dowling Village Boulevard

BIT. BERM

CONC. CURB

GUARDRAIL

RETAINING WALL #2

3' TRANS. CURB

SILT FENCE TYPE "C" WITH STRAW WATTLE

TW=335
BW=306

PROPOSED FIRE HYDRANT (TYP.)

12"
221 LF
S=1.25%

2" COPPER

6" CLDIP

8" PVC
95 LF
S=1.05%

PROP. SMH-26
RIM=335.54
INV IN=332.91(RTL1)
INV OUT=332.82(SMH-25)

6" PVC
144 LF
S=0.50%

CONCRETE SIDEWALK

LAND ISLAND

CONC. CURB

12" CLDIP

PROP. SMH-25
RIM=335.63
INV IN=332.10(SMH-26)
INV IN=332.11(RTL2)
INV OUT=332.03(SMH-24)

8" PVC
19 LF
S=0.50%

PROPOSED 12" ROOF LEADER (TYP.)

PROPOSED 1/8 PC GAS

PROP. DMH-12L
RIM=335.88
INV IN=331.30(DMH-11L)
INV OUT=330.70(DMH-20L)

18"
130 LF
S=0.50%

18"
187 LF
S=0.50%

PROPOSED WATER SHUT OFF (TYP.)

PROPOSED BUILDING ENTRANCE BY ARCHITECT (TYP.). CONTRACTOR TO NOTIFY DESIGN ENGINEER OF ANY CHANGES TO BUILDING ENTRANCE PRIOR TO CONSTRUCTION.

PROP. SMH-24
RIM=335.69
INV IN=331.40(SMH-25)
INV IN=331.40(RTL3)
INV OUT=331.30(SMH-23)

8" PVC
21 LF
S=0.50%

ASPHALT

PROP. DCB-2DA
RIM=334.75
INV IN=325.56(CB-2AA)
INV IN=329.94(DCB-19A)
INV OUT=325.30(DCB-21A)

PROP. DCB-19A
RIM=335.34
INV OUT=331.00(DCB-20A)

PROP. DCB-21A (5' DIA)
RIM=335.60
INV IN=325.07(DCB-20A)
INV OUT=324.70(DCB-4A)

PROP. SMH-23
RIM=336.57
INV IN=325.76(SMH-24)
INV OUT=323.33(SMH-13)

PROP. DMH-7L
RIM=337.64
INV IN=331.77(DMH-6L)
INV OUT=331.70(DMH-8L)

PROPOSED 2 1/2" PE GAS

PROPOSED ELECTRIC TELEPHONE CABLE

PROP. DMH-1A (6' DIA)
RIM=330.46
INV IN=325.41(DCB-5A)
INV IN=322.52(DCB-3A)
INV IN=324.74(DCB-2A)
INV OUT=318.45(DMH-6A)

PROP. DCB-1A
RIM=332.89
INV IN=327.30(DCB-23A)
INV OUT=327.00(DCB-2A)

PROPOSED THRUST BLOCK (TYP.)

PROP. DCB-5A
RIM=329.93
INV OUT=325.60(DMH-1A)

PROP. DMH-6A (6' DIA)
RIM=326.68
INV IN=318.20(DMH-1A)
INV IN=321.35(DMH-2A)
INV IN=321.66(CB-6A)
INV OUT=317.64(DMH-7A)

PROP. DMH-4A
RIM=331.78
INV IN=315.40(DMH-3A)
INV OUT=315.25(DMH-5A)
INV OUT=315.25(HW-2A)

PROP. DCB-2A
RIM=330.47
INV IN=325.68(DCB-1A)
INV OUT=325.40(DMH-1A)

PROP. DCB-3A (5' DIA)
RIM=330.47
INV IN=323.43(DCB-4A)
INV OUT=323.30(DMH-1A)

PROP. DCB-4A (5' DIA)
RIM=332.84
INV IN=323.87(DCB-21A)
INV OUT=323.80(DCB-3A)

PROPOSED LIGHT (TYP.) (SEE SHEET 1)

PROPOSED WATER GATE (TYP.)

15"
138 LF
S=0.50%

15"
119 LF
S=0.50%

15"
138 LF
S=0.50%

4"
22 LF
S=30.27%

18"
73 LF
S=1.81%

21"
133 LF
S=0.50%

24"
73 LF
S=0.51%

24"
78 LF
S=1.00%

24"
167 LF
S=0.50%

30" PVC
25 LF
S=0.98%

12"
13 LF
S=1.50%

12"
14 LF
S=1.00%

36"
64 LF
S=1.00%

21"
152 LF
S=4.00%

21"
46 LF
S=0.50%

12"
53 LF
S=2.01%

18"
187 LF
S=0.50%

18"
104 LF
S=0.50%

6" PVC
185 LF
S=3.00%

6" PVC
126 LF
S=0.50%

NOTE:
THIS REGULATORY SUBMISSION SET SHALL NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED "ISSUED FOR CONSTRUCTION" AND SIGNED AND DATED BY A DIPRETE ENGINEERING REPRESENTATIVE

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 29 2009 FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Charles A. Horbert

SCALE: 1"=20'
0 10' 20' 40'

RIDEM Submission

GRADING–UTILITY PLAN – 2

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 100, 101, 120, 121, 122, 200, 201, 202, 203, 204, 205, 206 & 207 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

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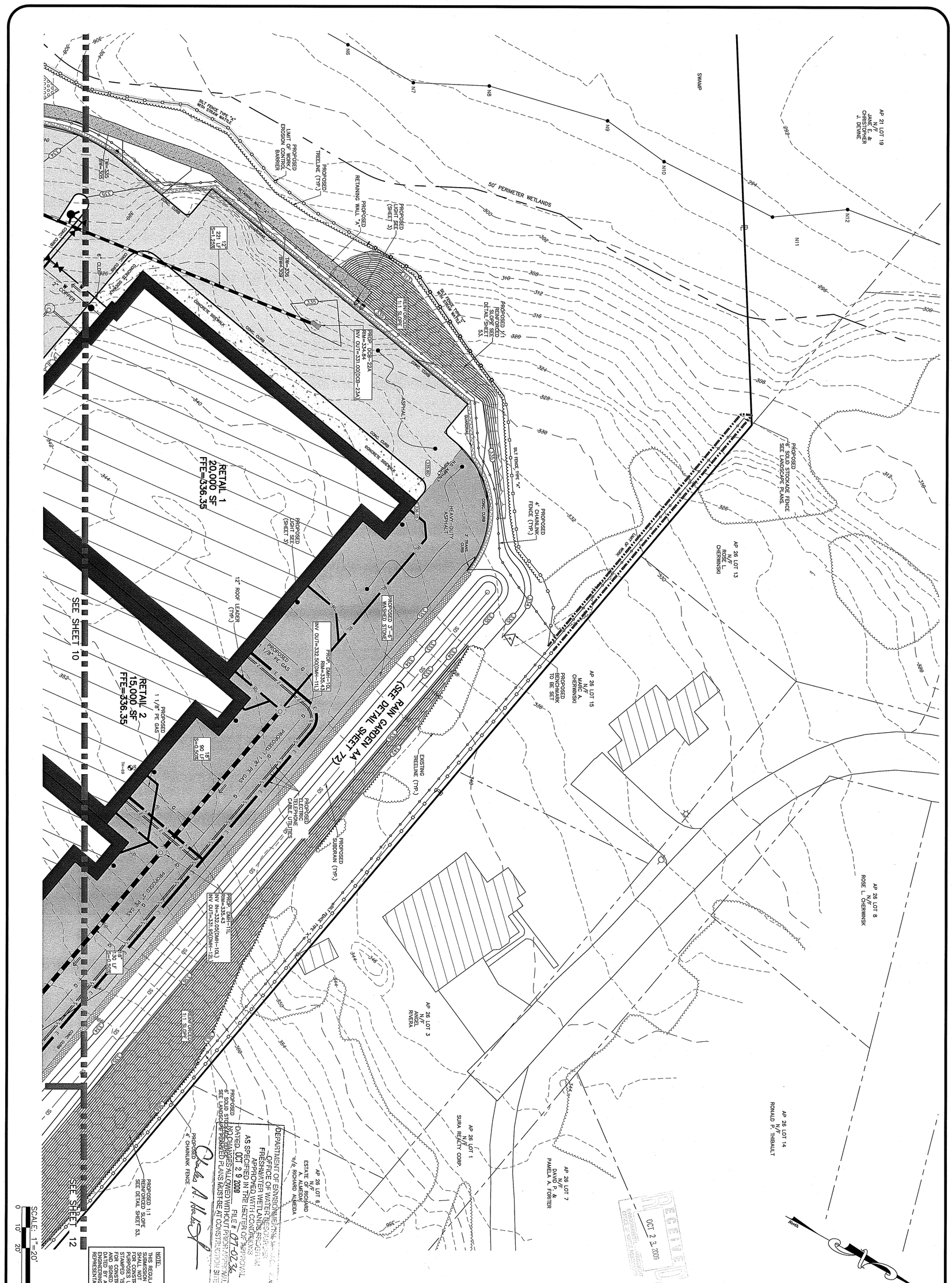
NO.	DATE	DESCRIPTION	BY
9	8-4-09	RIDEM Permit Modification Resubmission	BLG
8	7-24-09	RIDEM Permit Modification Submission	BLG
7	06-26-09	RIDEM Response to Comments	BLG
6	05-22-09	RIDEM Response to Comments	BLG
5	04-20-09	Sewer Response to Comments	BLG
4	03-25-09	Sewer Submission	BLG
3	3-17-09	Utility Submission	BLG
2	02-27-09	RIDEM Submission	BLG
1	02-25-09	RIDEM Submission	BLG

Applicant:
Bucci Development, Inc.
48 Hevertt Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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

LEONARD R. BRADLEY
No. 6610
REGISTERED PROFESSIONAL ENGINEER

Sheet
10
of 89



NOTE:
THIS REGULATORY SUBMISSION SET IS NOT APPROVED FOR CONSTRUCTION PURPOSES UNLESS STAMPED "APPROVED FOR CONSTRUCTION" AND SIGNED AND DATED BY A PROFESSIONAL ENGINEERING REPRESENTATIVE

RIDEM Submission

GRADING–UTILITY PLAN – 3

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

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No	DATE	DESCRIPTION	BY
6	8-04-09	RIDEP1 Permit Modification Resubmission	B.C.G.
5	5-25-09	RIDEP1 Permit Modification	B.C.G.
4	03-26-09	RIDEP1 Response to Comments	B.C.G.
3	01-26-09	Sewer Response to Comments	B.C.G.
2	12-30-07	RIDEP1 Response to Comments	B.C.G.
1	9-11-07	Utility Submission	B.C.G.
0	05-18-07	RIDEP1 Submission	J.P.C.

LEONARD R. BRUNELLI JR. 6910 REGISTERED PROFESSIONAL ENGINEER

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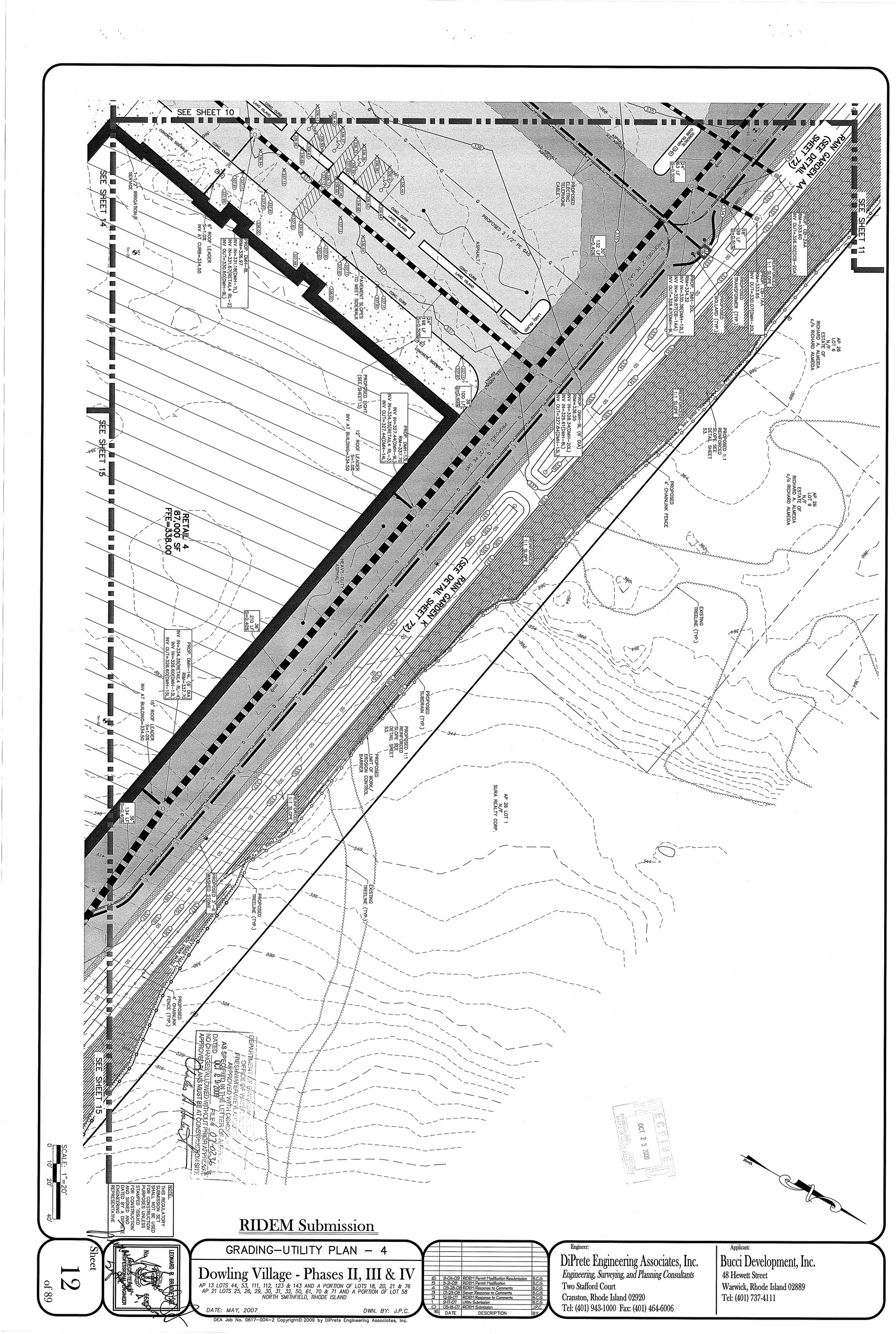
Two Stafford Court
Cranston, Rhode Island 02920
Tel: (401) 943-1000 Fax: (401) 464-6006

Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111



RIDEM Submission

GRADING–UTILITY PLAN – 4

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 28, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

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No.	DATE	DESCRIPTION	BY
6	9-04-09	RIDEM Permit Modification Resubmission	B.C.G.
5	5-26-09	RIDEM Permit Modification	B.C.G.
4	03-26-08	RIDEM Response to Comments	B.C.G.
3	01-25-08	Sewer Response to Comments	B.C.G.
2	10-30-07	RIDEM Response to Comments	B.C.G.
1	07-17-07	Utility Submission	B.C.G.
0	05-18-07	RIDEM Submission	J.P.C.

LEONARD P. BRUCCI JR. No. 6690 REGISTERED PROFESSIONAL ENGINEER

Engineer:
DiPrete Engineering Associates, Inc.
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Tel: (401) 943-1000 Fax: (401) 464-6006

Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

SEE SHEET 9

SEE SHEET 10

SEE SHEET 14

SEE SHEET 16

RAIN GARDEN CC(SEE DETAIL SHEET 78)

POND A (SEE DETAIL SHEET 63)

RETAIL 7
7,000 SF
FFE=335.40

FORESTED WETLAND <3 ACRES

100' RIVERBANK WETLAND

AP 13 LOT 112
N/F
DONALD A. & DENISE T. PARENT

AP 13 LOT 143
N/F
DONALD M. & DENISE T. PARENT

AP 13 LOT 111
N/F
LUCIEN R., ROYAL W., LILLIAN R. AUGER

< 10' WIDE INTERMITTENT STREAM

APPROXIMATE 100-YEAR FLOOD PLAIN

PROPOSED GRADING AND DRAINAGE OUTFALL CONSTRUCTION AND MAINTENANCE EASEMENT

EXISTING TREELINE (TYP.)

EXISTING 1'UP (TYP.)

EXISTING BUILDING (TO REMAIN)

EXISTING CULVERT (TO REMAIN)

EXISTING TREELINE (TYP.) (TO REMAIN)

PROPOSED 1:1 REINFORCED SLOPE SEE DETAIL SHEET 53.

PROPOSED 2:1 SLOPE WITH EROSION CONTROL BLANKETS SEE DETAIL SHEET 49.

PROPOSED TREELINE (TYP.)

PROPOSED LIMIT OF WORK/ EROSION CONTROL BARRIER

PROPOSED RIP RAP

PROPOSED 4' CHAINLINK FENCE (TYP.)

PROPOSED THRUST BLOCK (TYP.)

PROPOSED WATER GATE (TYP.)

PROPOSED WATER SHUT OFF (TYP.)

PROPOSED FIRE HYDRANT (TYP.)

PROPOSED RETAINING WALL "O"

PROPOSED ELECTRIC/ TELEPHONE CABLE

PROPOSED BOLLARD (TYP.)

PROPOSED TRANSFORMER

PROPOSED LIGHT (TYP.) SEE SHEET 3

PROPOSED 10" ROOF LEADER

STONE BASIN OUTFALL SEE DETAIL SHEET 78

RIP-RAP (SEE DETAIL SHEET 63)

REINFORCED 1:1 SLOPE

2:1 SLOPE

3:1 SLOPE

SILT FENCE TYPE "A"

SILT FENCE TYPE "C" WITH STRAW WATTLE

PROP. CB-18A
RIM=326.00
INV OUT=321.80(DMH-7A)

PROP. DMH-7A (6' DIA)
RIM=326.91
INV IN=317.00(DMH-6A)
INV IN=321.60(CB-18A)
INV OUT=314.17(HW-3A)

PROP. HW-3A
INV=314.00(DMH-7A)

PROP. DMH-3A
RIM=324.00
INV IN=316.92(POND A SECONDARY)
INV OUT=316.90(DMH-4A)

PROP. POND A SECONDARY
RIM=324.00
INV OUT=317.15(DMH-3A)

PROP. POND A PRIMARY
RIM=323.00
INV OUT=312.08(FES-1A)

PROP. FES-1A
INV=308.00(POND A PRIMARY)

PROP. FES-1B
INV=304.00(DMH-3B)

PROP. DMH-3B
RIM=316.33
INV IN=314.08(DMH-2B)
INV OUT=309.63(FES-1B)

PROP. CB-7B
RIM=334.75
INV OUT=330.75(DCB-6B)

PROP. DCB-2B
RIM=335.95
INV OUT=331.62(DCB-5B)

PROP. DCB-6B
RIM=334.51
INV IN=329.51(CB-7B)
INV OUT=329.40(DCB-5B)

15" 300 LF S=0.50%

12" 20 LF S=1.01%

36" 11 LF S=1.52%

15" 45 LF S=0.51%

12" 82 LF S=5.00%

18" 56 LF S=10.00%

18" 202 LF S=3.00%

12" 113 LF S=1.10%

12" 151 LF S=2.00%

2" COPPER

6" CLDIP

12" CLDIP

SCALE: 1"=20'
0 10' 20' 40'

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 29 2009 FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

NOTE:
THIS REGULATORY SUBMISSION SET SHALL NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED 'ISSUED FOR CONSTRUCTION' AND SIGNED AND DATED BY A DIPRETE ENGINEERING REPRESENTATIVE

LEONARD R. BRADLEY, JR.
No. 6610
REGISTERED PROFESSIONAL ENGINEER
CIVIL

RIDEM Submission

GRADING–UTILITY PLAN – 5

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70, & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007

DWN. BY: J.P.C.

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NO	DATE	DESCRIPTION	BY
6	8-21-09	RIDEM Permit Modification Resubmission	B.C.G.
5	8-21-09	RIDEM Resubmittal	B.C.G.
4	08-28-08	RIDEM Response to Comments	B.C.G.
3	07-25-08	RIDEM Response to Comments	B.C.G.
2	8-15-07	Utility Submission	B.C.G.
1	06-15-07	Permit Submission	B.C.G.

Applicant:
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48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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

Sheet
13
of 89

SEE SHEET 10

SEE SHEET 12

SEE SHEET 13

SEE SHEET 15

SEE SHEET 17

POND A
(SEE DETAIL SHEET 63)

RETAIL 4
87,000 SF
FFE=338.00

RETAIL 6
15,000 SF

RAIN GARDEN T
(SEE DETAIL SHEET 75)

Dowling Village Boulevard

PROP. SMH-12
RIM=327.24
INV IN=316.35(SMH-13)
INV OUT=314.89(SMH-11B)

PROP. DMH-2A
RIM=333.26
INV IN=327.71(CB-12A)
INV IN=328.50(CB-17A)
INV IN=329.00(CB-16A)
INV OUT=327.43(DMH-6A)

PROP. CB-17A
RIM=332.95
INV OUT=328.75(DMH-2A)

PROP. DCB-13A
RIM=334.58
INV OUT=330.39(CB-12A)

PROP. CB-12A (6" DIA)
RIM=335.45
INV IN=330.72(CB-15A)
INV IN=330.30(DCB-13A)
INV IN=328.81(DCB-10A)
INV OUT=328.70(DMH-2A)

PROP. DMH-7L
RIM=337.64
INV IN=331.77(DMH-6L)
INV OUT=331.70(DMH-8L)

PROP. DCB-10A
RIM=335.60
INV IN=330.40(DCB-8A)
INV IN=331.40(DCB-11A)
INV OUT=330.15(CB-12A)

PROP. DCB-11A
RIM=336.27
INV OUT=331.62(DCB-10A)

PROP. CB-15A
RIM=339.27
INV IN=334.66(CB-14A)
INV OUT=334.55(CB-12A)

PROP. DMH-6L
RIM=336.99
INV IN=334.29(RETAIL4 RL-1)
INV OUT=332.75(DMH-7L)

PROP. DCB-8A
RIM=335.89
INV IN=331.59(DCB-7A)
INV IN=331.56(DCB-9A)
INV OUT=331.00(DCB-10A)

PROP. DCB-9A
RIM=336.53
INV OUT=332.20(DCB-8A)

PROP. DCB-7A
RIM=336.50
INV OUT=332.20(DCB-8A)

PROP. SMH-20
RIM=337.02
INV IN=326.55(SMH-22)
INV IN=325.57(SMH-27)
INV OUT=325.45(SMH-28)

PROP. SMH-28
RIM=339.74
INV IN=324.89(SMH-20)
INV OUT=324.75(SMH-14)

PROP. SMH-14
RIM=340.82
INV IN=327.67(SMH-15)
INV IN=324.10(SMH-28)
INV OUT=324.00(SMH-13)

PROP. SMH-13
RIM=336.72
INV IN=322.08(SMH-14)
INV IN=322.00(SMH-23)
INV OUT=319.79(SMH-12)

PROP. CB-16A
RIM=334.60
INV OUT=329.59(DMH-2A)

PROP. CB-14A
RIM=339.27
INV OUT=334.95(CB-15A)

PROP. SMH-15
RIM=341.43
INV IN=328.68(SMH-16)
INV OUT=328.50(SMH-14)

PROP. CB-12B
RIM=336.54
INV OUT=332.40(DCB-11B)

PROP. DCB-11B
RIM=335.82
INV IN=331.45(CB-12B)
INV OUT=331.35(DCB-10B)

PROP. DMH-22L
RIM=338.74
INV IN=333.38(DMH-23L)
INV OUT=333.25(DMH-21L)

PROP. DCB-1D
RIM=337.91
INV OUT=333.30(DCB-2D)

PROP. DCB-2D
RIM=336.75
INV IN=332.25(DCB-1D)
INV OUT=332.25(DMH-1D)

PROP. DCB-3D (5' DIA)
RIM=335.77
INV IN=328.25(DCB-27D)
INV OUT=328.25(DMH-1D)

PROP. DCB-27D
RIM=336.46
INV IN=328.40(DCB-28D)
INV OUT=328.40(DCB-3D)

PROP. DMH-1D
RIM=337.34
INV IN=327.87(DCB-3D)
INV IN=331.82(DCB-2D)
INV OUT=327.30(DMH-2D)

PROP. SMH-27
RIM=337.40
INV IN=326.32(SMH-21)
INV OUT=326.20(SMH-20)

PROPOSED THRUST BLOCK (TYP.)

PROPOSED FIRE HYDRANT (TYP.)

PROPOSED LIGHT (TYP.) SEE SHEET 1

PROPOSED LIGHT (TYP.) SEE SHEET 3

PROPOSED LIGHT (TYP.) (SEE SHEET 3)

PROPOSED LIGHT (TYP.) (SEE SHEET 1)

PROPOSED LIGHT (TYP.) (SEE SHEET)

PROPOSED SWITCH MODULE PER NATIONAL GRID (BY OTHERS)

PROPOSED LIMIT OF WORK / EROSION CONTROL BARRIER

PROPOSED 1:1 REINFORCED SLOPE SEE DETAIL SHEET 53.

PROPOSED TREELINE (TYP.)

PROPOSED_WATER GATE VALVE(TYP.)

PROPOSED RETAINING WALL H

PROPOSED 1:1 REINFORCED SLOPE SEE DETAIL SHEET 53.

PROPOSED 4' CHAINLINK FENCE (TYP.)

PROPOSED ELECTRIC TELEPHONE CABLE

PROPOSED 3"-8" WASHED STONE

PROPOSED 4" PE GAS

PROPOSED 1 1/2" PE GAS

PAVEMENT SLOPED TO MEET SIDEWALK

6" ROOF LEADER S=1.0% INV AT CURB=334.42

FORESTED WETLAND

FORESTED WETLAND ◁ ACRES

REINFORCED 1:1 SLOPE

CROSSWALK TO BE STAMPED ASPHALT OR APPROVED EQUAL

RECEIVED
OCT 23 2009
RIDEM

RIDEM Submission

NOTE:
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OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
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Charles A. Horbert
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

SCALE: 1"=20'
0 10' 20' 40'

Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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
6	8-21-09	RIDEM Permit Application Resubmission
5	8-21-09	RIDEM Permit Application
4	03-25-09	RIDEM Response to Comments
3	03-25-09	Phase 1 Response to Comments
2	03-25-09	Utility Submission
1	8-31-07	Utility Submission
0	08-21-07	RIDEM Submission

GRADING–UTILITY PLAN – 6

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 28, 29, 30, 31, 32, 500, 61, 270 & 717 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DWN. BY: J.P.C.
DATE: MAY. 2007
DEA Job No. 1617-004-2

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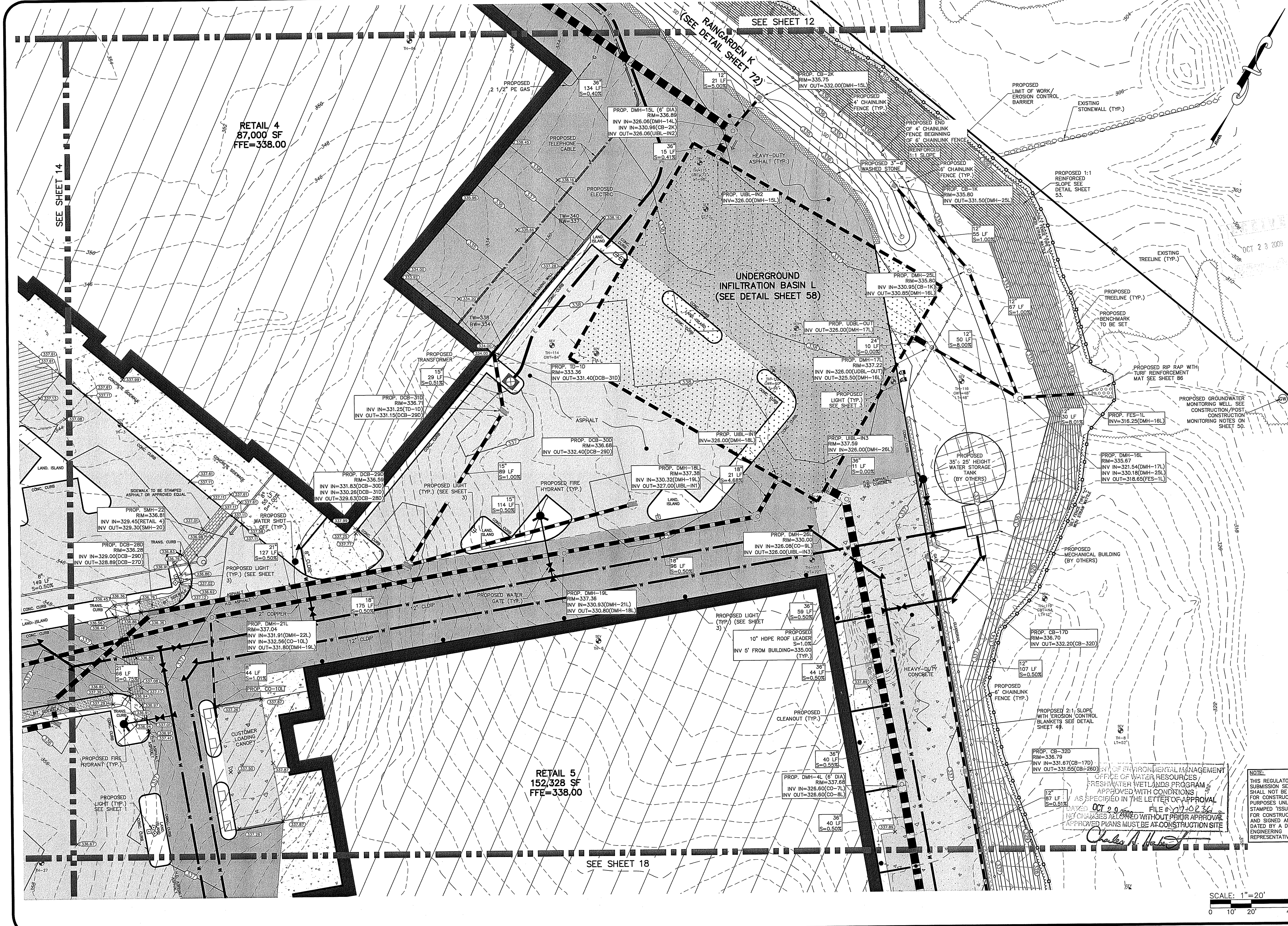
LEONARD R. BRADLEY, JR.
No. 6610
REGISTERED PROFESSIONAL ENGINEER
CIVIL

Sheet
14
of 89



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Two Stafford Court
Cranston, Rhode Island 02920
Tel: (401) 943-1000 Fax: (401) 464-6006

NO.	DATE	DESCRIPTION	BY
7	10-20-09	RIDEM Permit Modification Resubmission	B.C.G.
6	9-04-09	RIDEM Permit Modification Resubmission	B.C.G.
5	5-21-09	RIDEM Permit Modification	B.C.G.
4	03-28-08	RIDEM Response to Comments	B.C.G.
3	01-23-08	Sewer Response to Comments	B.C.G.
2	12-19-07	RIDEM Response to Comments	B.C.G.
1	9-17-07	Utility Submission	B.C.G.
0	05-18-07	RIDEM Submission	J.P.C.

RIDEM Submission

GRADING-UTILITY PLAN - 7

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

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LEONARD R. BRADLEY, JR.
No. 6610
REGISTERED PROFESSIONAL ENGINEER CIVIL

\\DEAstorage\DEAmain\Vault Working\0617-004-2\601 Preliminary\Plotting\0617-004-2 Grading-Utility.dwg, 10/23/2009 2:35:03 PM, Sheryl, DWF6 ePlot.pc3

SEE SHEET 13

RETAIL 7
7,000 SF
FF=335.40

RETAIL 8
20,000 SF
FFE=335.40

RESTAURANT 1
7,321 SF
FFE=337.50

UNDERGROUND DETENTION BASIN B (SEE DETAIL SHEET 57)

RAIN GARDEN R (SEE DETAIL SHEET 74)

AP 13 LOT 111
N/F
LUCIEN R. , ROYAL W., LILLIAN R. AUGER

AP 13 LOT 18
N/F
ROCKCLIFF FARM, LLC

EXISTING BUILDING

EXISTING DRIVEWAY

100' RIVERBANK WETLAND

UP 367B

PROPOSED LIMIT OF WORK/ EROSION CONTROL BARRIER

EXISTING TREELINE (TYP.)

PROPOSED TREELINE (TYP.)

PROPOSED RETAINING WALL "O"

REINFORCED 1:1 SLOPE

PROPOSED 1:1 REINFORCED SLOPE SEE DETAIL SHEET 53

PROPOSED BOLLARD (TYP.)

PROPOSED TRANSFORMER (TYP.)

PROPOSED CLEAN OUT

PROPOSED BUILDING ENTRANCE BY ARCHITECT (TYP.). CONTRACTOR AND/OR ARCHITECT TO NOTIFY DESIGN ENGINEER OF ANY CHANGES TO BUILDING ENTRANCE PRIOR TO CONSTRUCTION.

PROPOSED ROOF LEADER (TYP.). ROOF LEADER SHOWN SCHEMATICALLY ONLY. FINAL DESIGN TO BE COORDINATED WITH ARCHITECT PRIOR TO CONSTRUCTION

PROPOSED 1-1/8" PE GAS

PROPOSED LIGHT (TYP.) (SEE SHEET 3)

HEAVY-DUTY ASPHALT

PROP. DMH-2B
RIM=334.40
INV IN=320.28(DMH-1B)
INV OUT=320.15(DMH-3B)

PROP. DCB-1B
RIM=333.66
INV OUT=329.00(DMH-4B)

PROP. DMH-4B
RIM=333.94
INV IN=328.02(DCB-1B)
INV OUT=327.90(DCB-3B)

PROP. DMH-1B
RIM=333.97
INV IN=323.00(UDBB-OUT)
INV IN=321.50(SD)
INV OUT=321.00(DMH-2B)

PROP. DCB-3B
RIM=333.50
INV IN=327.34(DMH-4B)
INV OUT=327.25(DCB-4B)

PROP. DCB-4B
RIM=333.20
INV IN=327.10(DCB-3B)
INV OUT=327.00(DCB-5B)

PROP. DCB-6B
RIM=334.51
INV IN=329.51(CB-7B)
INV OUT=329.40(DCB-5B)

PROP. SMH-1B
RIM=334.29
INV IN=331.80(RTL7)
INV IN=331.80(RTL8)
INV OUT=331.60(SMH-17)

PROP. DCB-5B (5' DIA)
RIM=333.52
INV IN=328.60(DCB-2B)
INV IN=326.55(DCB-4B)
INV IN=327.74(DCB-6B)
INV OUT=325.95(BYPASS-1B)

PROP. DCB-8B
RIM=335.10
INV IN=327.77(DCB-9B)
INV OUT=327.10(BYPASS-1B)

PROP. BYPASS-1B (6'DIA)
RIM=335.22
INV IN=323.85(DCB-8B)
INV OUT=323.75(BYPASS-2B)
INV OUT=323.75(6' DD-B)

PROP. BYPASS-2B (6' DIA)
RIM=335.20
INV IN=323.15(BYPASS-1B)
INV IN=323.24(8' DD-B)
INV OUT=323.14(UDBB-IN)

PROP. 8' DD-B
RIM=335.62
INV IN=321.55(BYPASS-1B)
INV OUT=323.55(BYPASS-2B)

PROP. UDBB-IN
INV =323.00(BYPASS-2B)

PROP. UDBB-OUT
INV OUT=323.00(DMH-1B)

PROPOSED SUBDRAIN INV=321.50

PROPOSED THRUST BLOCK (TYP.)

PROPOSED WATER SHUT OFF (TYP.)

PROPOSED ELECTRIC TELEPHONE CABLE

PROPOSED 1-1/8" PE GAS

PROPOSED 3"-6" WASHED STONE

SILT FENCE TYPE "C" WITH STRAW WATTLE

SILT FENCE TYPE "A" WITH STRAW WATTLE

REINFORCED 1:1 SLOPE

PROPOSED 1:1 REINFORCED SLOPE SEE DETAIL SHEET 53.

APPROXIMATE 100-YEAR FLOOD PLAIN

FORESTED WETLAND <3 ACRES

50' PERIMETER WETLANDS

SWAMP

EDGE OF NARRAGANSETT ELECTRIC EASEMENT

OVERHEAD WIRES (TYP.)

WETLAND FLAG (TYP.)

PROPOSED 4' CHAINLINK FENCE (TYP.)

PROPOSED GUARDRAIL (TYP.)

SEE SHEET 17

UP 17-31A
UP 17-31B
UP 17-31C
UP 17-32A

SCALE: 1"=20'
0 10' 20' 40'

RECEIVED
OCT 2 3 2009
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
WATER RESOURCES

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 29 2009 FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

NOTE:
THIS REGULATORY SUBMISSION SET SHALL NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED "ISSUED FOR CONSTRUCTION" AND SIGNED AND DATED BY A DiPrete ENGINEERING REPRESENTATIVE

LEONARD R. BRADLEY, JR.
No. 6670
REGISTERED PROFESSIONAL ENGINEER
STATE OF RHODE ISLAND

RIDEM Submission

GRADING-UTILITY PLAN - 8

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 51, 67, 70, 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007
DWN. BY: J.P.C.
DEA Job No. 0617-004-2

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NO	DATE	DESCRIPTION	BY
6	9-24-09	RIDEM Permit Modification Resubmission	B.C.G.
5	8-24-09	RIDEM Permit Modification Submission	B.C.G.
4	03-26-08	Action Reponses to Comments	B.C.G.
3	03-05-08	Action Reponses to Comments	B.C.G.
2	8-17-07	Utility Submission	B.C.G.
1	05-31-07	DPW Submission	B.P.Z.

Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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

\\Zeastorage\DEFAMAIN\Vault Working\06 17-004-2\60 | Preliminary\Plotting\06 17-004-2 Grading-Utility-B.dwg, 9/9/2009 1:58:40 PM, dzauser1, DWFG ePlot.pc3

RESTAURANT 1
7,321 SF
FFE=337.50

RETAIL 6
15,000 SF
FFE=340.00

RESTAURANT 2
7,321 SF
FFE=340.50

UNDERGROUND DETENTION BASIN B (SEE DETAIL SHEET 57)

RAIN GARDEN S (SEE DETAIL SHEET 74)

SEE SHEET 14

SEE SHEET 16

SEE SHEET 18

SEE SHEET 19

PROPOSED BUILDING ENTRANCE BY ARCHITECT (TYP.). CONTRACTOR AND/OR ARCHITECT TO NOTIFY DESIGN ENGINEER OF ANY CHANGES TO BUILDING ENTRANCE PRIOR TO CONSTRUCTION.

PROPOSED ROOF LEADER

PROPOSED ROOF LEADER (TYP.). ROOF LEADER SHOWN SCHEMATICALLY ONLY. FINAL DESIGN TO BE COORDINATED WITH ARCHITECT PRIOR TO CONSTRUCTION

PROPOSED THRUST BLOCK (TYP.)

PROPOSED WATER GATE VALVE (TYP.)

PROPOSED 1 1/8" PE GAS

PROPOSED BOLLARD (TYP.)

PROPOSED CLEAN OUT

PROPOSED TRANSFORMER (TYP.)

PROPOSED WATER SHUT OFF (TYP.)

PROPOSED ELECTRIC TELEPHONE CABLE

PROPOSED SWITCH MODULE PER NATIONAL GRID (BY OTHERS)

PROPOSED LIGHT (TYP.) (SEE SHEET 1)

PROPOSED LIGHT (TYP.) (SEE SHEET 3)

PROPOSED SUBDRAIN INV=321.50

PROPOSED BENCHMARK TO BE SET

PROPOSED LIMIT OF WORK/ EROSION CONTROL BARRIER

PROPOSED 1:1 REINFORCED SLOPE SEE DETAIL SHEET 53.

PROPOSED TREELINE (TYP.)

APPROXIMATE 100-YR FLOOD PLAIN

PROPOSED 3"-6" WASHED STONE

SILT FENCE, TYPE "C" WITH STRAW WATTLE

50' WETLAND PERIMETER

PROP. DCB-10B
RIM=336.34
INV IN=330.76(DCB-11B)
INV OUT=330.65(DCB-9B)

PROP. CB-2S
RIM=339.40
INV IN=335.20(CB-1S)
INV OUT=335.10(DMH-1S)

PROP. CB-1S
RIM=339.57
INV OUT=335.50(CB-2S)

PROP. DCB-9B
RIM=336.44
INV IN=329.46(DCB-10B)
INV OUT=329.35(DCB-8B)

PROP. SMH-17
RIM=336.24
INV IN=332.58(REST1)
INV IN=330.55(SMH-18)
INV OUT=330.45(SMH-16)

PROP. SMH-16
RIM=339.36
INV IN=329.82(SMH-17)
INV IN=330.30(SMH-19)
INV IN=330.32(EONE)
INV IN=330.15(RETAIL 10)
INV OUT=329.67(SMH-15)

PROP. SMH-19
RIM=340.29
INV IN=332.25(REST2)
INV IN=332.25(RTL6)
INV OUT=332.06(SMH-16)

PROP. FES-1S
INV=333.50

PROP. DMH-1S
RIM=338.99
INV IN=333.88(CB-3S)
INV IN=333.87(CB-2S)
INV OUT=333.85(FES-1S)

PROP. CB-3S
RIM=338.29
INV OUT=334.20(DMH-1S)

PROP. DMH-24L
RIM=339.78
INV OUT=335.70(DMH-23L)

PROP. CB-19D
RIM=339.06
INV OUT=335.06(DMH-14D)

PROP. DMH-23L
RIM=339.09
INV IN=334.58(DMH-24L)
INV OUT=334.00(DMH-22L)

PROP. DCB-5D
RIM=336.73
INV OUT=332.23(DMH-2D)

PROP. DMH-2D (5' DIA)
RIM=337.51
INV IN=326.64(DMH-1D)
INV IN=331.36(DCB-5D)
INV IN=330.89(DCB-4D)
INV OUT=326.00(DMH-3D)

PROP. DMH-3D (6' DIA)
RIM=337.52
INV IN=325.39(DMH-2D)
INV IN=328.33(DCB-6D)
INV IN=328.41(DMH-13D)
INV OUT=324.80(DMH-4D)

PROP. DCB-7D
RIM=336.73
INV OUT=332.23(DMH-13D)

PROP. CB-21D
RIM=337.67
INV OUT=333.17(DMH-14D)

PROP. DMH-14D
RIM=337.82
INV IN=333.55(CB-19D)
INV IN=333.09(CB-21D)
INV OUT=333.00(DMH-13D)

PROP. DMH-13D
RIM=337.07
INV IN=332.15(DCB-7D)
INV IN=332.73(DMH-14D)
INV OUT=332.05(DMH-3D)

PROP. DCB-8D
RIM=336.73
INV OUT=332.23(DMH-4D)

PROP. DMH-4D (6' DIA)
RIM=337.46
INV IN=324.16(DMH-3D)
INV IN=331.15(DCB-8D)
INV IN=330.51(DCB-20D)
INV OUT=324.05(DMH-5D)

12" 59 LF S=1.00%
12" 119 LF S=1.00%
12" 105 LF S=1.50%
12" 60 LF S=0.50%
12" 98 LF S=1.25%
8" 12 LF S=0.50%
12" 26 LF S=1.36%
12" 64 LF S=0.50%
8" 92 LF S=1.90%
8" 71 LF S=2.00%
8" 38 LF S=1.50%
18" 124 LF S=0.50%
12" 223 LF S=0.50%
24" 133 LF S=0.50%
15" 87 LF S=1.00%
15" 81 LF S=0.50%
30" 122 LF S=0.50%
15" 87 LF S=1.25%
36" 130 LF S=0.50%
36" 128 LF S=0.50%
15" 16 LF S=0.50%
15" 54 LF S=0.50%
15" 17 LF S=0.48%
15" 77 LF S=4.74%
15" 78 LF S=3.74%
15" 101 LF S=1.49%

NOTE:
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DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 2 9 2009 FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Charles A. Horbert

SCALE: 1"=20'
0 10' 20' 40'

OCT 2 9 2009

Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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
6	9-24-09	RIDEM Technical Section Revisions
5	8-24-09	RIDEM Permit Application
4	05-29-09	RIDEM Response to Comments
3	05-04-09	RIDEM Response to Comments
2	04-03-09	Utility Submission
1	8-15-07	RIDEM Submission

RIDEM Submission

GRADING–UTILITY PLAN – 9

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, NORTH SMITHFIELD, RHODE ISLAND

DWN. BY: J.P.C.
CHK'D BY: R.E.D.
DATE: MAY. 2007
DEA Job No. 1617-004-2

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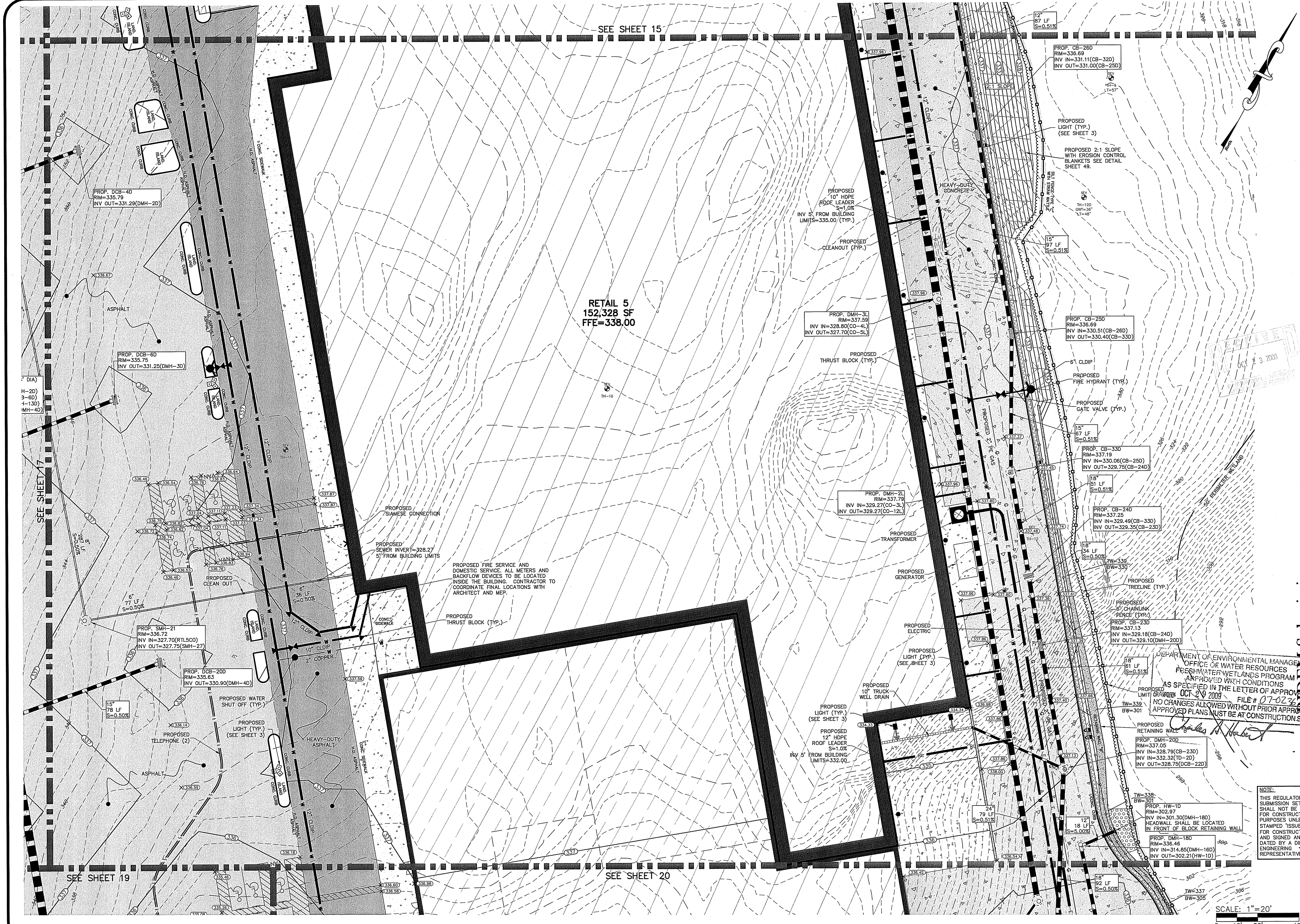
LEONARD R. BRADLEY, JR.
No. 6610
REGISTERED PROFESSIONAL ENGINEER

Sheet
17
of 89

\\Destorage\DEA\MAIN\Vault Working\0617-004-2\601 Preliminary\Plotting\0617-004-2 Grading-Utility-B.dwg, 9/9/2009 2:02:13 PM, deauser1, DWF6 ePlot.pc3



DEPARTMENT OF ENVIRONMENTAL MANAGEMENT OFFICE OF WATER RESOURCES FRESHWATER WETLANDS PROGRAM APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL OCT 29 2009 FILE # 07-023 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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
6	9-04-09	RIDEM Permit Modification Resubmission	B.C.G.
5	5-21-09	RIDEM Permit Modification	B.C.G.
4	03-28-08	RIDEM Response to Comments	B.C.G.
3	01-23-08	Sewer Response to Comments	B.C.G.
2	12-19-07	RIDEM Response to Comments	B.C.G.
1	9-17-07	Utility Submission	B.C.G.
0	05-18-07	RIDEM Submission	J.P.C.

GRADING-UTILITY PLAN – 10

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

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RIDEM Submission

NOTE:
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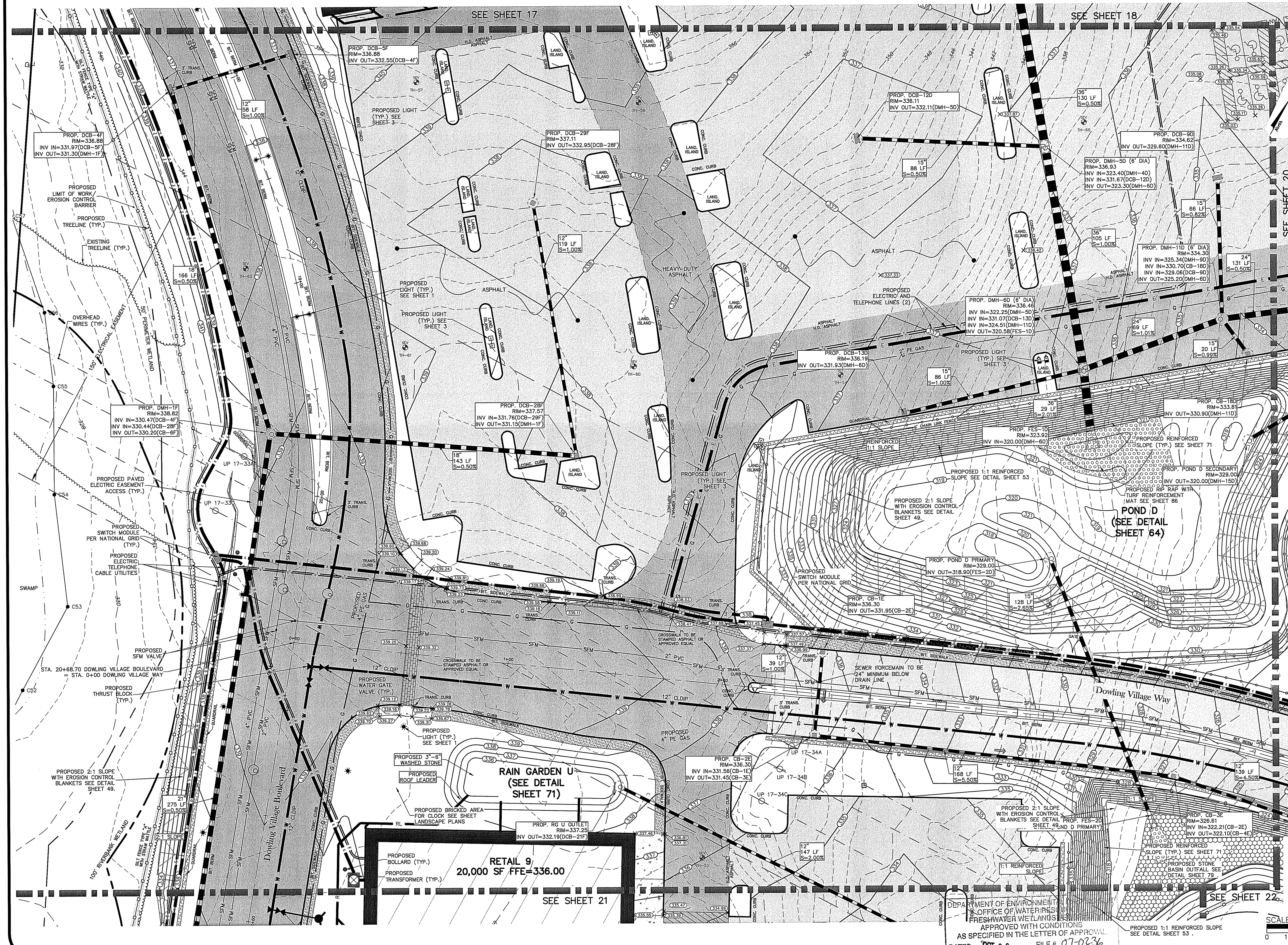
LEONARD P. BRADLEY No. 6610 REGISTERED PROFESSIONAL ENGINEER

\\Dea-storage\DEAMAIN\Vault Working\0617-004-2601 Preliminary\Plotting\0617-004-2 Grading-Utility-B.dwg, 9/8/2009 2:05:21 PM, deauser1, DWFG ePlot.pc3



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DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 2 0 2009 FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

RECEIVED OCT 2 3 2009

Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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
6	9-04-09	RIDEM Permit Modification Resubmission	B.C.G.
5	5-21-09	RIDEM Permit Modification	B.C.G.
4	03-28-08	RIDEM Response to Comments	B.C.G.
3	01-23-08	Sewer Response to Comments	B.C.G.
2	12-19-07	RIDEM Response to Comments	B.C.G.
1	9-17-07	Utility Submission	B.C.G.
0	05-18-07	RIDEM Submission	J.P.C.

RIDEM Submission

GRADING-UTILITY PLAN – 11

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

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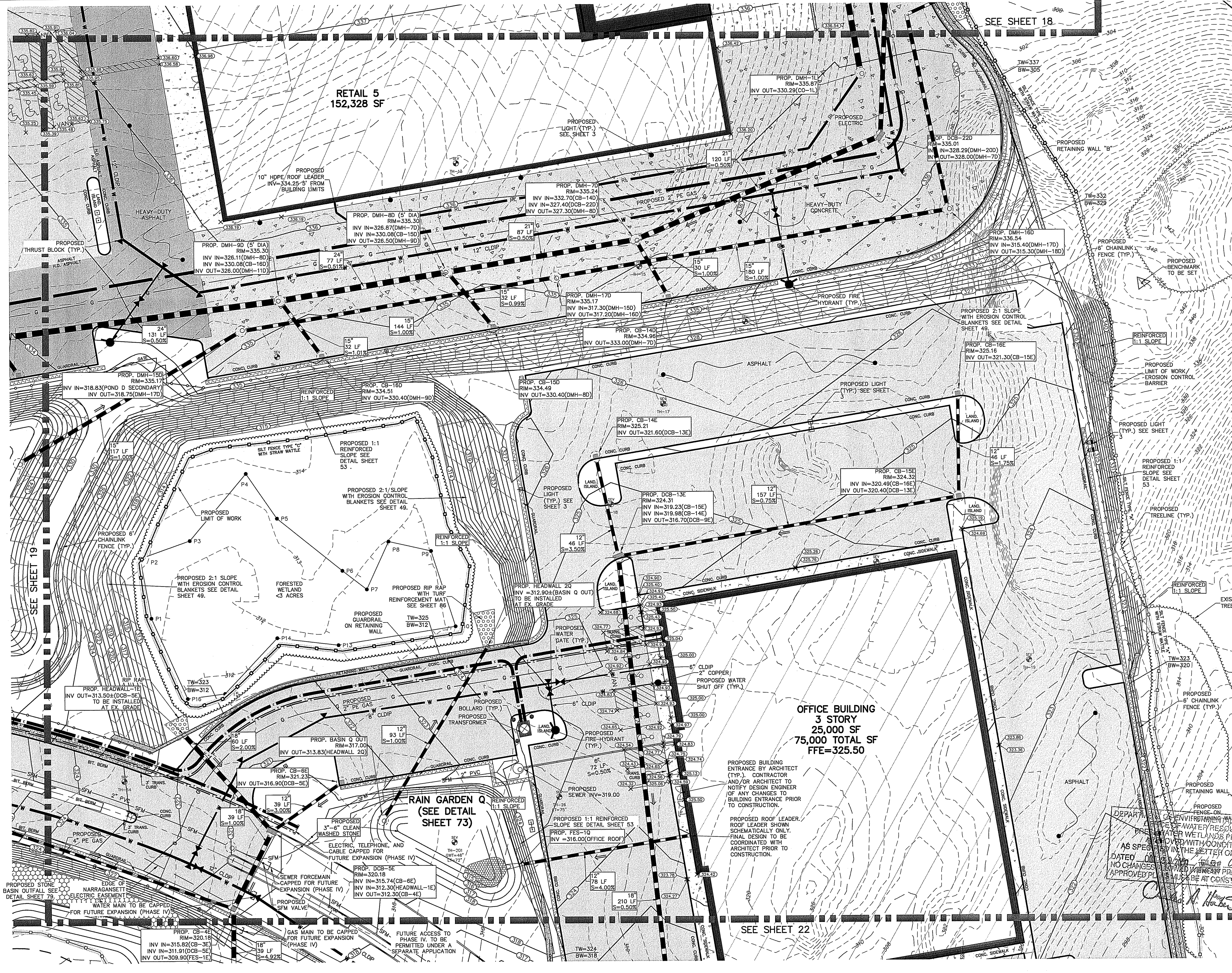
LEONARD R. BRADLEY, JR.
No. 6610
REGISTERED PROFESSIONAL ENGINEER CIVIL

\\Deastorage\DEAMAIN\Vault Working\0617-004-2\601 Preliminary\Plotting\0617-004-2 Grading-Utility-B.dwg, 9/8/2009 2:08:02 PM, deauser1, DWF6 ePlot.pc3



NOTE:
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Applicant:
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48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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
6	9-04-09	RIDEM Permit Modification Resubmission	B.C.G.
5	5-21-09	RIDEM Permit Modification	B.C.G.
4	03-28-08	RIDEM Response to Comments	B.C.G.
3	01-23-08	Sewer Response to Comments	B.C.G.
2	12-19-07	RIDEM Response to Comments	B.C.G.
1	9-17-07	Utility Submission	B.C.G.
0	05-18-07	RIDEM Submission	J.P.C.

RIDEM Submission

GRADING-UTILITY PLAN - 12

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

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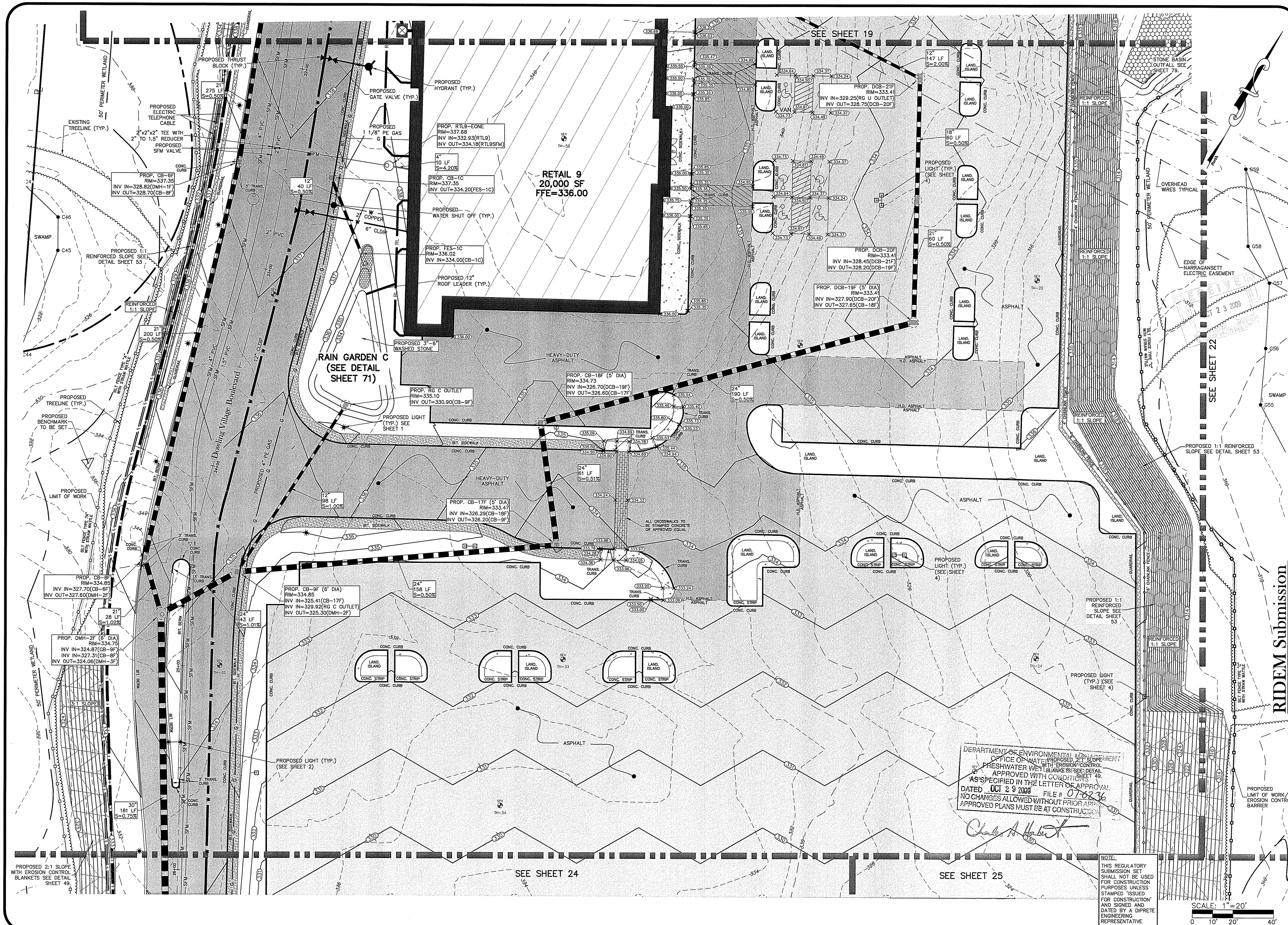
LEONARD R. BRADLEY JR. No. 6610 REGISTERED PROFESSIONAL ENGINEER CIVIL

\\Deastorage\DEAMAIN\Vault Working\0617-004-2\601 Preliminary\Plotting\0617-004-2 Grading-Utility-B.dwg, 9/8/2009 2:10:54 PM, deauser1, DWF6 ePlot.pc3



RIDEM Submission

Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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
6	9-04-09	RIDEM Permit Modification Resubmission	B.C.G.
5	5-21-09	RIDEM Permit Modification	B.C.G.
4	03-28-08	RIDEM Response to Comments	B.C.G.
3	01-23-08	Sewer Response to Comments	B.C.G.
2	12-19-07	RIDEM Response to Comments	B.C.G.
1	9-17-07	Utility Submission	B.C.G.
0	05-18-07	RIDEM Submission	J.P.C.

GRADING–UTILITY PLAN – 13

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

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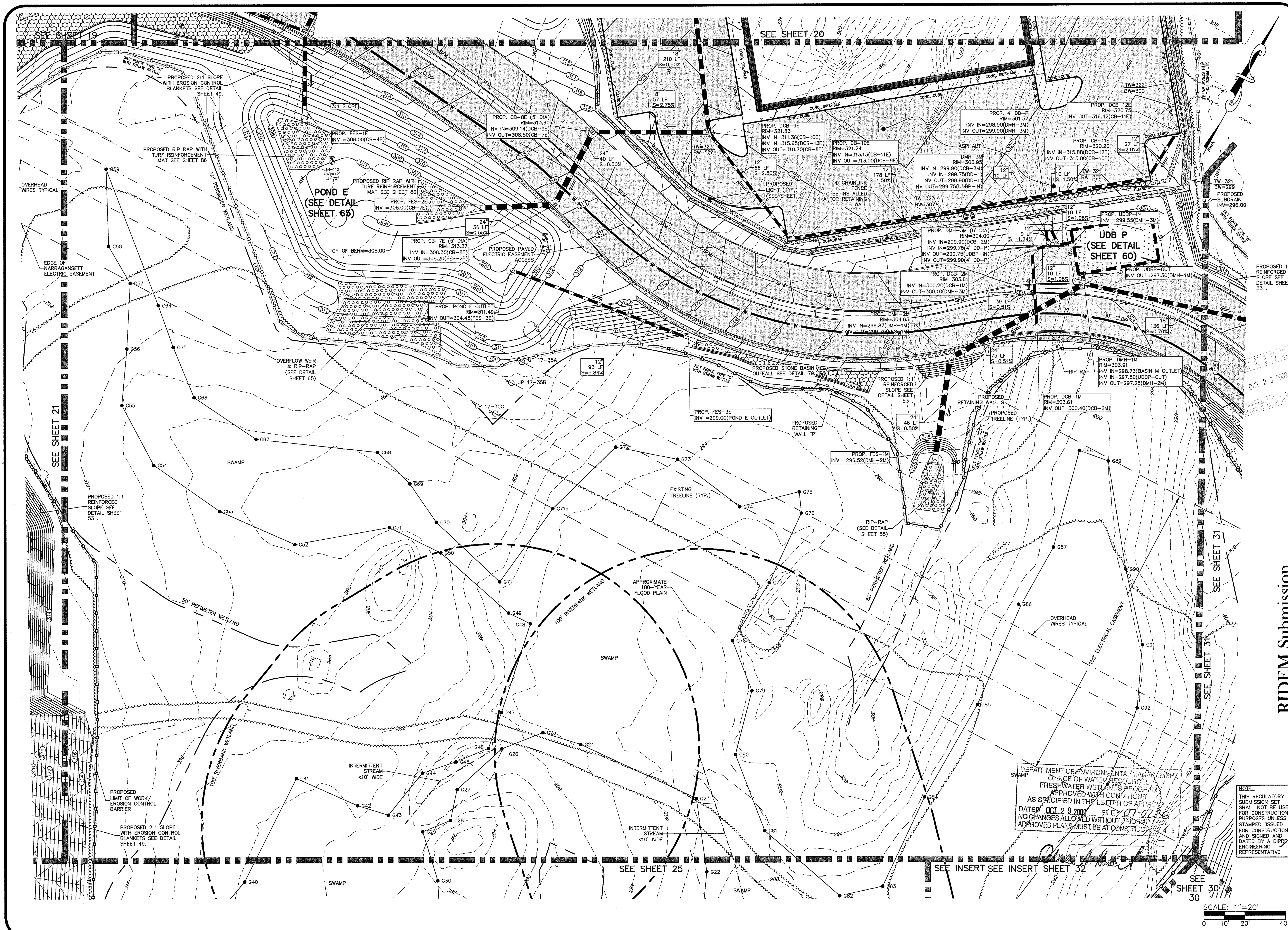
LEONARD R. BRADLEY, JR.
No. 6610
REGISTERED PROFESSIONAL ENGINEER CIVIL

\\Deastorage\DEAMAIN\Vault Working\0617-004-2\601 Preliminary\Plotting\0617-004-2 Grading-Utility-B.dwg, 9/8/2009 2:13:54 PM, deauser1, DWF6 ePlot.pc3



Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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
6	9-04-09	RIDEM Permit Modification Resubmission	B.C.G.
5	5-21-09	RIDEM Permit Modification	B.C.G.
4	03-28-08	RIDEM Response to Comments	B.C.G.
3	01-23-08	Sewer Response to Comments	B.C.G.
2	12-19-07	RIDEM Response to Comments	B.C.G.
1	9-17-07	Utility Submission	B.C.G.
0	05-18-07	RIDEM Submission	J.P.C.

RIDEM Submission

GRADING–UTILITY PLAN – 14

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 *DWN. BY: J.P.C.*

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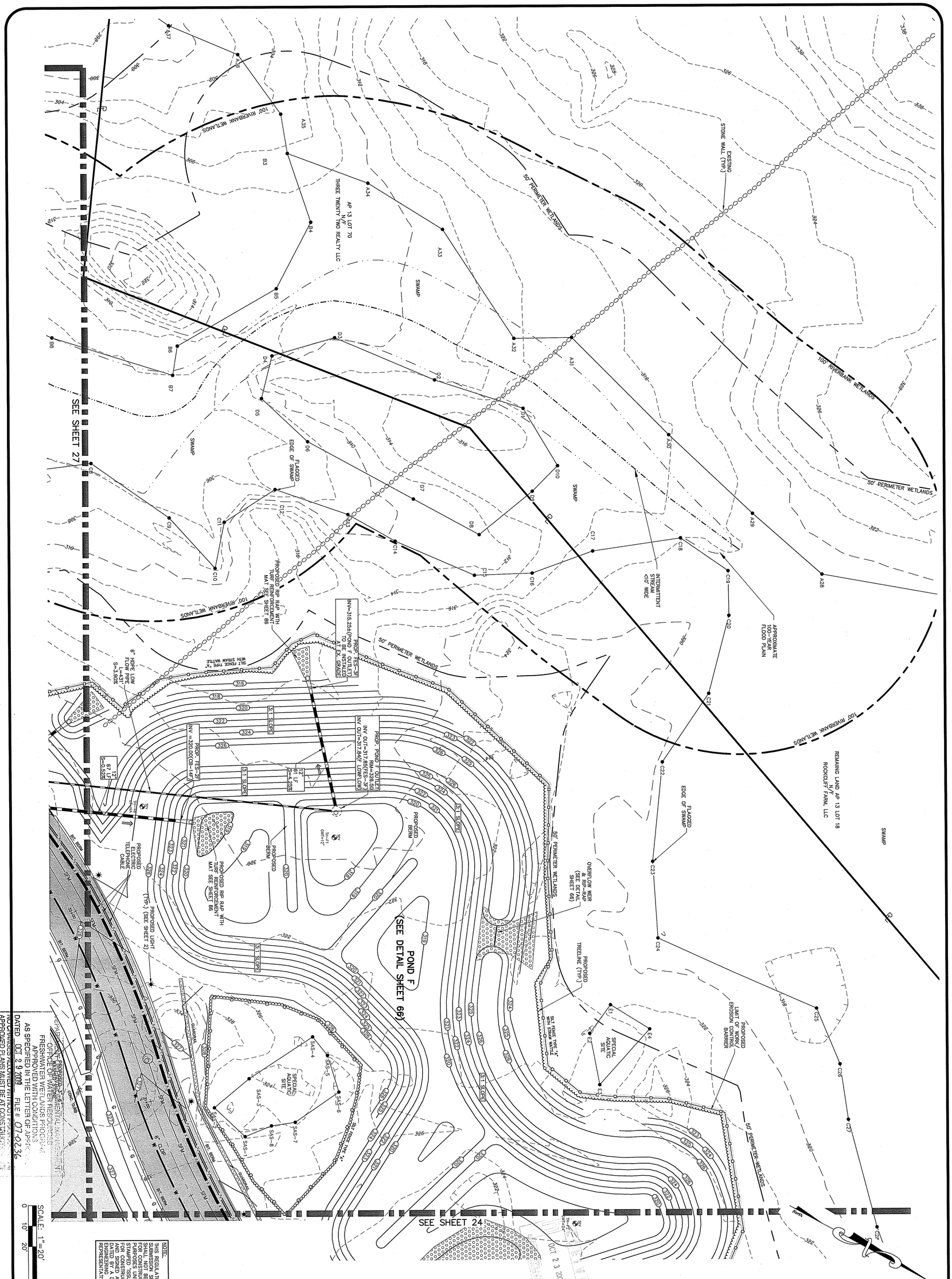
LEONARD R. BRADLEY, JR. No. 6610 REGISTERED PROFESSIONAL ENGINEER CIVIL



RIDEM Submission

NOTE:
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RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED: OCT 2 9 2009 FILE #: 07-0236
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

SCALE: 1" = 20'
0 10' 20' 40'

Sheet 23 of 89

GRADING–UTILITY PLAN – 15

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

LEONARD F. BRUCCI JR. No. 6810 REGISTERED PROFESSIONAL ENGINEER

NO	DATE	DESCRIPTION	BY
6	8-04-09	RIDEM Permit Modification Resubmission	B.C.G.
5	5-21-09	RIDEM Permit Modification	B.C.G.
4	03-26-08	RIDEM Response to Comments	B.C.G.
3	01-28-08	Sewer Response to Comments	B.C.G.
2	12-18-07	RIDEM Response to Comments	B.C.G.
1	8-17-07	Utility Submission	B.C.G.
0	05-16-07	RIDEM Submission	J.P.C.

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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:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

SEE SHEET 21

SEE SHEET 23

SEE SHEET 25

SEE SHEET 28

POND F (SEE DETAIL SHEET 66)

RAIN GARDEN V (SEE DETAIL SHEET 76)

RAIN GARDEN W (SEE DETAIL SHEET 76)

Dowling Village Boulevard

RETAIL 10
177,122 SF
FFE=331.00

GARDEN CENTER

CANOPY

CANOPY

SWAMP

SWAMP

50' PERIMETER WETLANDS

PROPOSED LIGHT (TYP.) SEE SHEET 2

PROPOSED 2:1 SLOPE WITH EROSION CONTROL BLANKETS SEE DETAIL SHEET 49.

PROPOSED SILT FENCE AT LIMIT OF WORK

SILT FENCE TYPE "A" WITH STRAW WATTLE

EXISTING TREELINE (TYP.)

PROPOSED TREELINE (TYP.)

PROPOSED ELECTRIC TELEPHONE CABLE

RIP RAP

PROPOSED RIP RAP WITH TURF REINFORCEMENT MAT SEE SHEET 86

PROPOSED SWITCH MODULE PER NATIONAL GRID

PROPOSED 3"-6" WASHED STONE

PROPOSED 12"x12"x6" TEE WITH 8" REDUCER

PROPOSED 4" PE GAS

PROPOSED 3" PE GAS

PROPOSED FIRE HYDRANT (TYP.)

PROPOSED WATER GATE VALVE (TYP.)

PROPOSED CURB CUT (TYP.)

PROPOSED THRUST BLOCK (TYP.)

PROPOSED WATER SHUT OFF

PROPOSED WATER SERVICE TO BE EQUIPPED WITH RPZ BACKFLOW PREVENTER

PROPOSED UTILITY BOLLARD

PROPOSED ROOF LEADER

ASPHALT

HEAVY-DUTY ASPHALT

CONC. SIDEWALK

CONC. CURB

CONC. STRIP

LAND. ISLAND

TRANS. CURB

GUARDRAIL

BIT. BERM

3:1 SLOPE

2:1 SLOPE

PROP. CB-1OF
RIM=332.53
INV OUT=328.30(DMH-3F)

PROP. DMH-3F(6' DIA)
RIM=332.66
INV IN=322.70(DMH-2F)
INV IN=328.15(CB-1OF)
INV OUT=322.19(DMH-4F)

PROP. DMH-4F(8' DIA)
RIM=331.24
INV IN=321.70(DMH-3F)
INV IN=322.20(DMH-7F)
INV OUT=321.66(DMH-5F)

PROP. FES-2J
INV=314.50±(DMH-4J)
TO BE INSTALLED AT EX. GRADE

PROP. DMH-5F(6' DIA)
RIM=330.27
INV IN=321.30(DMH-4F)
INV IN=323.30(RG V OUTLET)
INV OUT=320.79(DMH-6F)

PROP. DMH-6F(8' DIA)
RIM=329.02
INV IN=320.30(DMH-5F)
INV IN=323.67(CB-12F)
INV OUT=320.23(FES-1F)

PROP. FES-1F
INV =320.00(DMH-6F)

PROP. CB-12F
RIM=328.78
INV IN=323.86(CB-13F)
INV OUT=323.75(DMH-6F)

PROP. CB-13F
RIM=328.78
INV IN=324.09(RG W OUTLET)
INV OUT=324.00(CB-12F)

PROP. RG W OUTLET
RIM=327.50
INV OUT=324.25(CB-13F)

PROP. CB-2V
RIM=332.35
INV OUT=329.00(FES-2V)

PROP. FES-2V
RIM=330.38
INV IN=328.71(CB-2V)

PROP. DMH-7F(5' DIA)
RIM=328.73
INV IN=323.50(DCB-25F)
INV IN=323.50(DCB-22F)
INV OUT=322.73(DMH-4F)

PROP. RG V OUTLET
RIM=327.50
INV OUT=323.65(DMH-5F)

PROP. FES-1V
RIM=328.17
INV IN=326.50(CB-1V)

PROP. CB-1V
RIM=329.80
INV OUT=326.62(FES-1V)

PROP. DCB-25F
RIM=329.08
INV IN=324.40(DCB-26F)
INV OUT=324.15(DMH-7F)

PROP. DCB-26F
RIM=329.08
INV IN=325.25(DCB-27F)
INV OUT=324.71(DCB-25F)

PROP. DCB-27F
RIM=329.08
INV OUT=325.56(DCB-26F)

PROP. DCB-1G
RIM=329.08
INV OUT=324.75(DCB-2G)

PROP. DCB-22F
RIM=328.25
INV IN=323.90(DCB-23F)
INV OUT=323.65(DMH-7F)

PROP. DCB-23F
RIM=328.25
INV IN=324.50(DCB-24F)
INV OUT=324.21(DCB-22F)

PROP. DCB-24F
RIM=328.25
INV OUT=324.81(DCB-23F)

PROP. DCB-4G
RIM=328.25
INV OUT=323.90(DCB-5G)

18" 61 LF S=0.51%

12" 61 LF S=0.51%

12" 61 LF S=1.00%

21" 129 LF S=0.51%

12" 58 LF S=0.50%

30" 106 LF S=0.50%

21" 30 LF S=0.50%

18" 61 LF S=0.51%

15" 61 LF S=0.51%

12" 61 LF S=0.49%

30" 181 LF S=0.75%

12" 11 LF S=1.34%

36" 98 LF S=0.50%

36" 73 LF S=0.50%

12" 69 LF S=0.51%

42" 98 LF S=0.50%

42" 46 LF S=0.50%

12" 15 LF S=0.52%

12" 28 LF S=0.50%

12" 16 LF S=0.98%

12" 229 LF S=1.00%

4" PVC SDM 1.5% PVC

12" CLDIP

SCALE: 1"=20'
0 10' 20' 40'

NOTE:
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OCT 23 2009
COASTAL RESOURCES MANAGEMENT COUNCIL

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 29 2009 FILE # 07-0238
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Charles A. Horbert

LEONARD R. BRADLEY, JR.
No. 6610
REGISTERED PROFESSIONAL ENGINEER

BY	DATE	DESCRIPTION
B.C.G.	8-24-09	RIDEM Permit Modification Submission
B.C.G.	9-24-09	RIDEM Permit Modification Submission
B.C.G.	10-26-09	RIDEM Response to Comments
B.C.G.	10-26-09	Coastal Resources Mgt. Council Response to Comments
B.C.G.	10-27-09	Coastal Resources Mgt. Council Utility Submission
B.C.G.	10-27-09	RIDEM Utility Submission
B.F.C.	11-4-09	RIDEM Submission

RIDEM Submission

GRADING–UTILITY PLAN – 16

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

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Applicant:
Bucci Development, Inc.
48 Hewett Street
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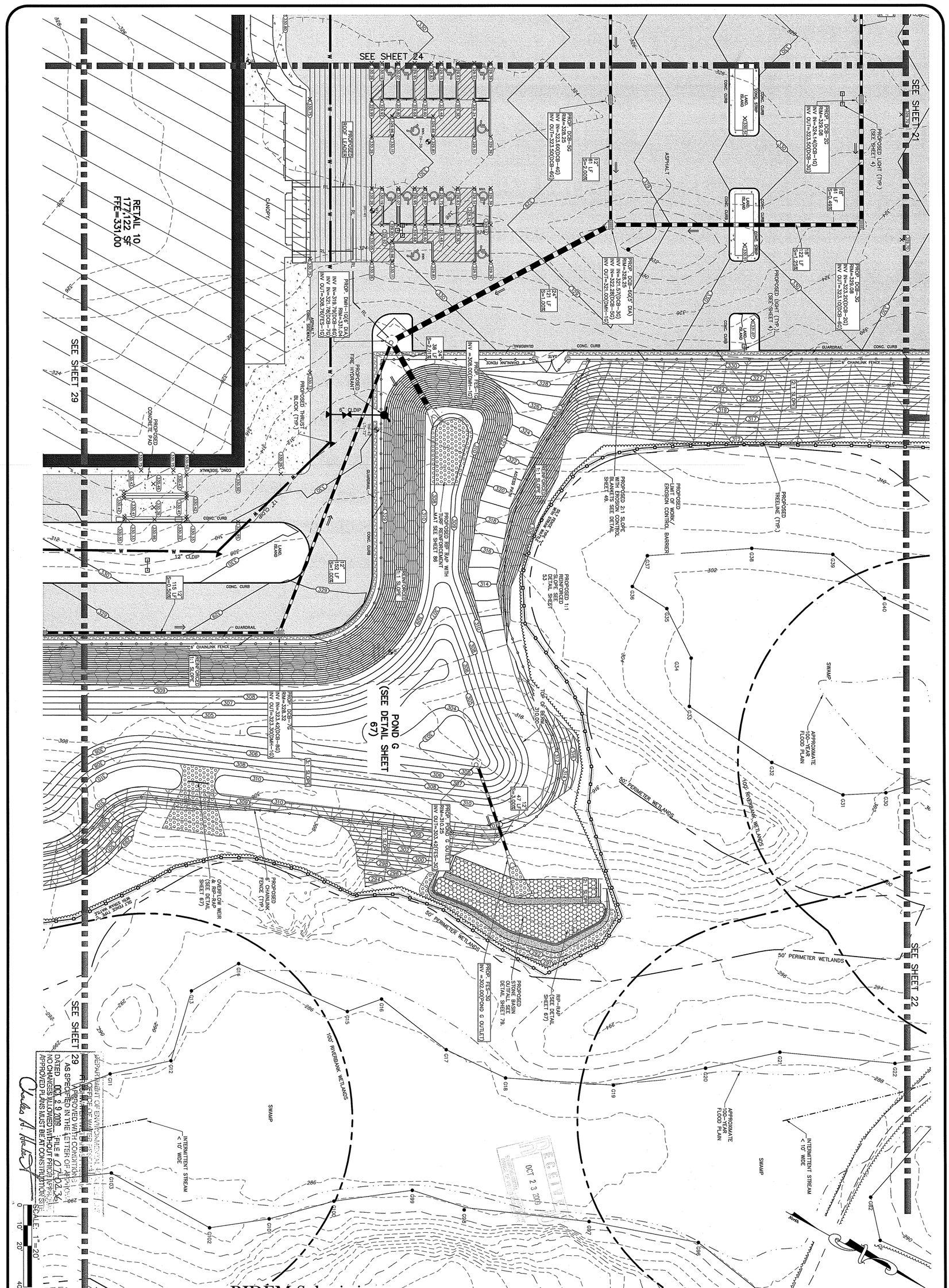
Tel: (401) 737-4111

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

Sheet
24
of 89



RIDEM Submission

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED Oct 9 2009 FILE # 07-1024
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

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OCT 2 9 2009
DiPrete Engineering

SCALE: 1"=20'

GRADING–UTILITY PLAN – 17

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

NO.	DATE	DESCRIPTION	BY
10	8-24-09	RIDEM Permit Modification Resubmission	B.C.G.
9	5-22-09	RIDEM Permit Modification	B.C.G.
8	03-26-08	RIDEM Response to Comments	B.C.G.
7	01-29-08	Sewer Response to Comments	B.C.G.
6	12-19-07	RIDEM Response to Comments	B.C.G.
5	9-17-07	Utility Submission	B.C.G.
4	05-16-07	RIDEM Submission	J.P.C.

LEONARD P. BRUNELLI No. 6807 REGISTERED PROFESSIONAL ENGINEER

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:
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48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

Sheet 25 of 89

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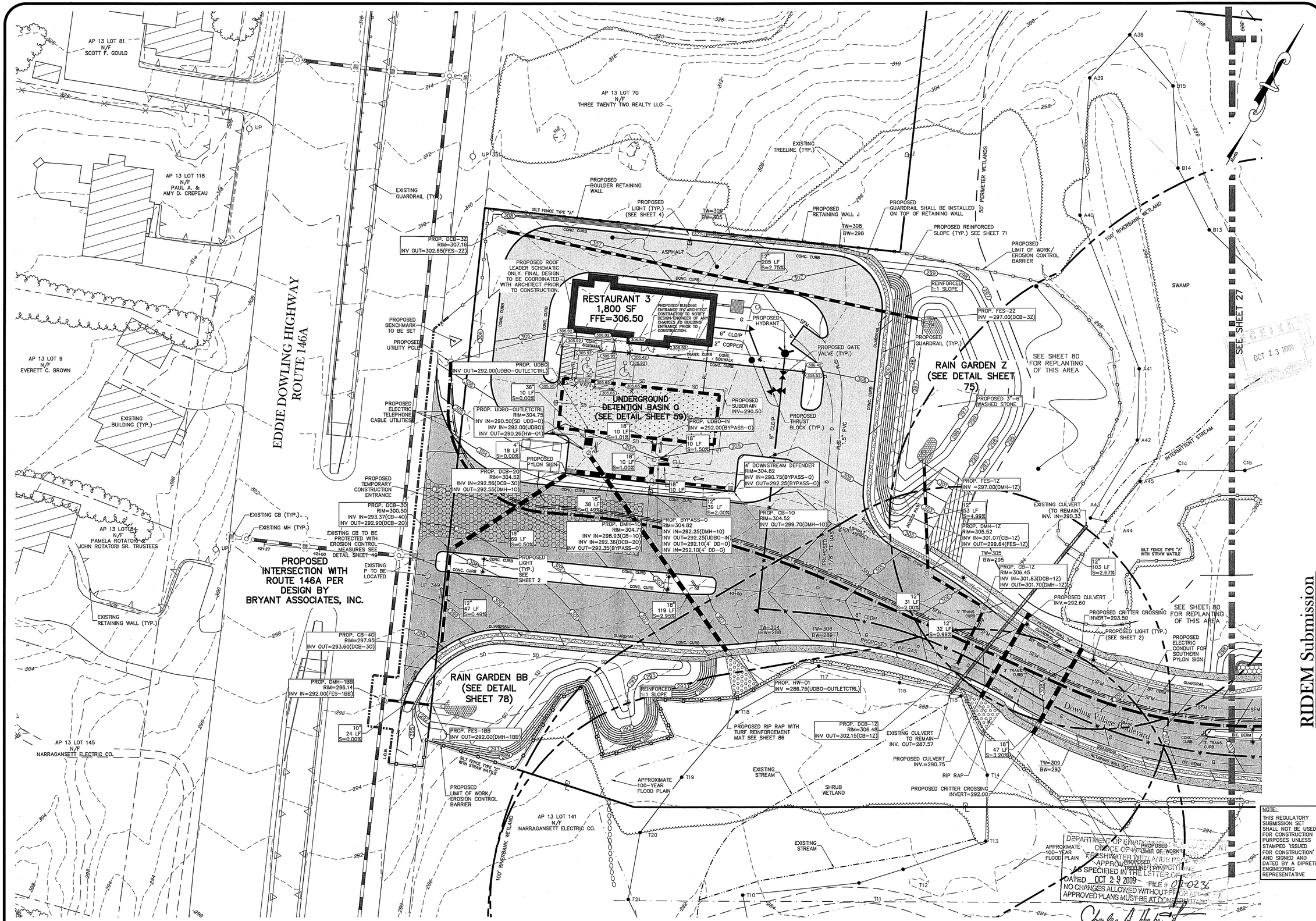

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LEONARD R. BRADLEY, JR.
No. 6570
REGISTERED PROFESSIONAL ENGINEER
CIVIL

NO	DATE	DESCRIPTION	BY
7	10-23-09	RIDEM Permit Resubmission	B.C.G.
6	9-30-09	RIDEM Permit Resubmission	B.C.G.
5	6-25-09	RIDEM Permit Resubmission	B.C.G.
4	6-25-09	RIDEM Permit Resubmission	B.C.G.
3	4-24-09	Sewer Response to Comments	B.C.G.
2	3-13-09	Sewer Response to Comments	B.C.G.
1	2-13-07	Utility Submission	B.C.G.
0	08-16-07	RIDEM Submission	D.P.C.

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

RIDEM Submission

GRADING–UTILITY PLAN – 18

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DWN. BY: J.P.C.

DATE: MAY, 2007

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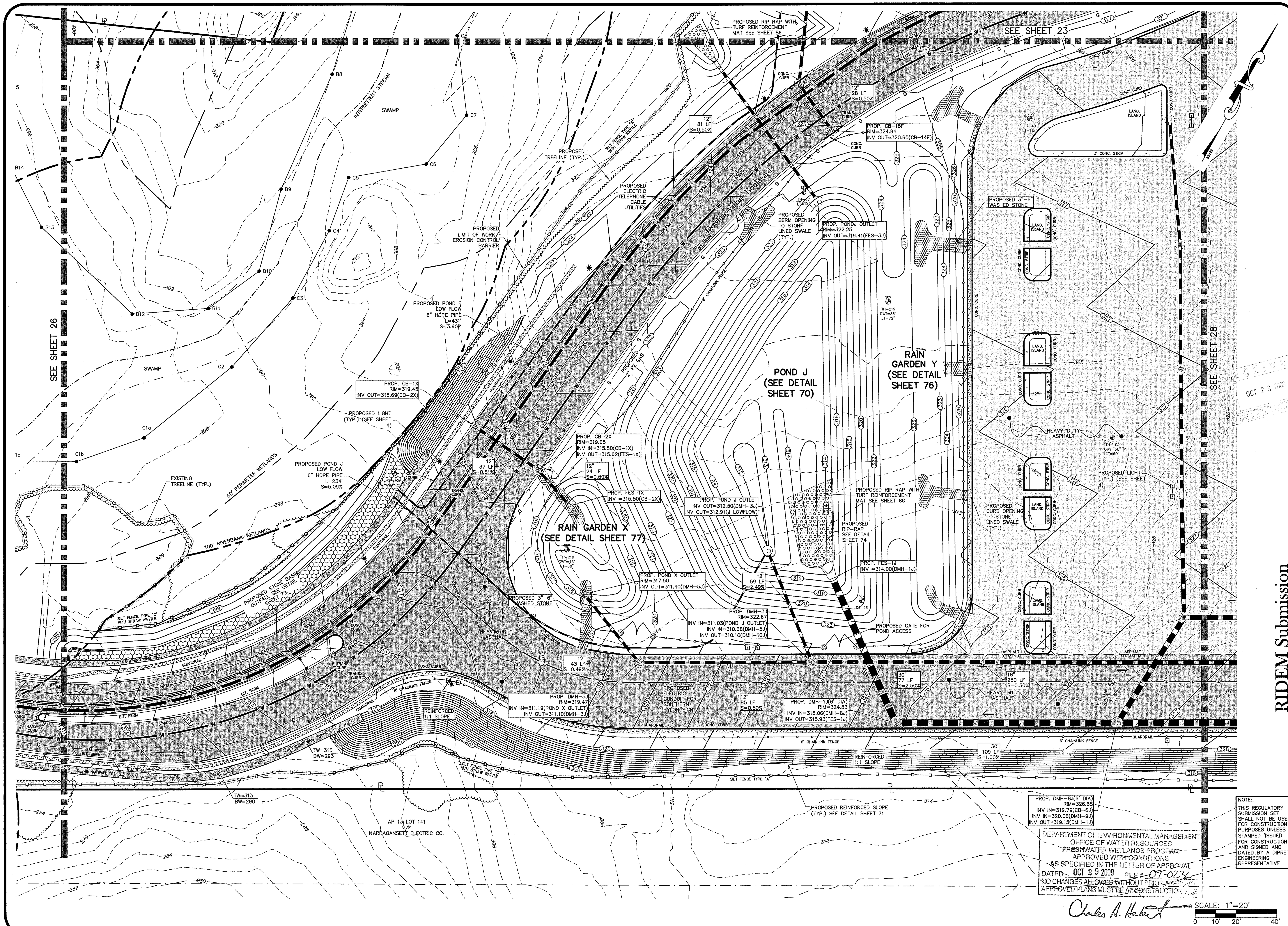
Sheet
26
of 89

\\Destorage\dataman\Vault Working\OG\17-004-2\OG1 Preliminary\Plotting\OG17-004-2 Grading-Utility-C.dwg, 10/23/2009 2:46:05 PM, Sheryl, DWF6 ePlot.pc3



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DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 2 9 2009 FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Charles A. Hobert

SCALE: 1"=20'
0 10' 20' 40'

RECEIVED OCT 2 3 2009

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:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

NO.	DATE	DESCRIPTION	BY
7	10-20-09	RIDEM Permit Modification Resubmission	B.C.G.
6	9-04-09	RIDEM Permit Modification Resubmission	B.C.G.
5	5-21-09	RIDEM Response to Comments	B.C.G.
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2	12-19-07	RIDEM Response to Comments	B.C.G.
1	9-17-07	Utility Submission	B.C.G.
0	05-18-07	RIDEM Submission	J.P.C.

RIDEM Submission

GRADING–UTILITY PLAN – 19

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

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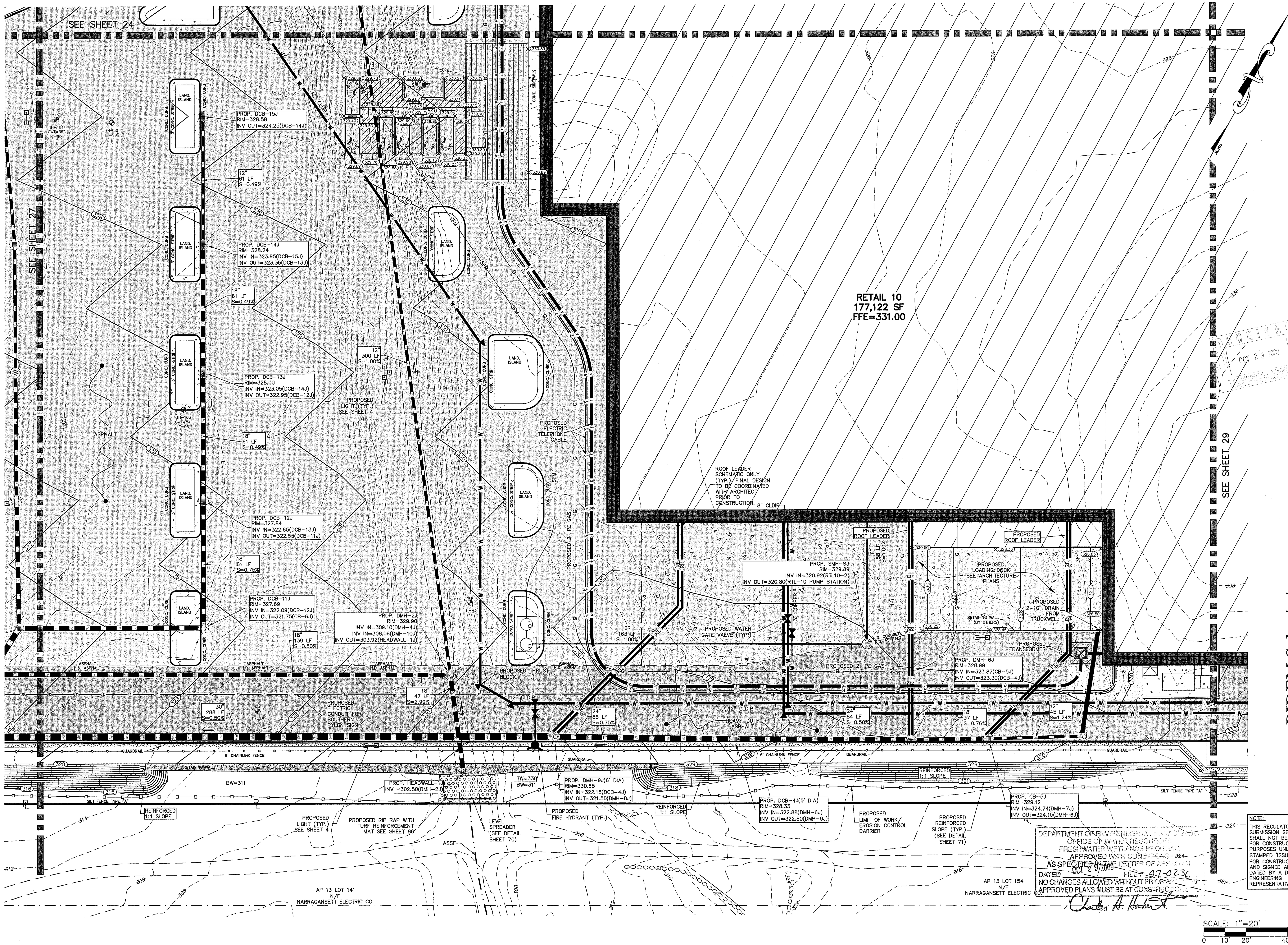
LEONARD R. BRADLEY, JR.
No. 6610
REGISTERED PROFESSIONAL ENGINEER CIVIL

\\Deastorage\deamain\Vault Working\0617-004-2\601 Preliminary\Plotting\0617-004-2 Grading-Utility-C.dwg, 10/23/2009 2:47:05 PM, Sheryl, DWF6 ePlot.pc3



DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
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OCT 2 3 2009

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1	9-17-07	Utility Submission	B.C.G.
0	05-18-07	RIDEM Submission	J.P.C.

RIDEM Submission

GRADING-UTILITY PLAN – 20

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

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LEONARD R. BRADLEY, JR.
No. 6610
REGISTERED PROFESSIONAL ENGINEER
CIVIL

SEE SHEET 25

SEE SHEET 28

RETAIL 10
177,122 SF
FFE=331.00

PROPOSED FIRE HYDRANT (TYP.)

PROPOSED WATER GATE (TYP.)

PROPOSED THRUST BLOCK (TYP.)

COMPRESSOR HOUSING AREA

ASPHALT

CONC. CURB

LAND. (ISLAND)

12" 115 LF S=0.50%

PROP. DCB-8G RIM=328.33 INV OUT=324.00(DCB-7G)

6" CLDIP

12" CLDIP

REINFORCED 1:1 SLOPE

PROP. CB-9G RIM=329.20 INV OUT=324.90(DMH-2G)

PROPOSED LIGHT (TYP.) SEE SHEET

12" 94 LF S=0.50%

PROPOSED REINFORCED SLOPE (TYP.) (SEE DETAIL SHEET 49)

POND G (SEE DETAIL SHEET 67)

PROPOSED RIP RAP WITH TURF REINFORCEMENT MAT SEE SHEET 86

3:1 SLOPE

2:1 SLOPE

PROP. FES-2G INV =305.00(DMH-2G)

24" 63 LF S=1.71%

PROPOSED 2:1 SLOPE WITH EROSION CONTROL BLANKETS SEE DETAIL SHEET 49.

PROPOSED 6' CHAINLINK FENCE (TYP.)

PROPOSED LIMIT OF WORK/ EROSION CONTROL BARRIER

SWAMP

INTERMITTENT STREAM < 10' WIDE

100' RIVERBANK WETLAND

PROPOSED REINFORCED SLOPE (TYP.) (SEE DETAIL SHEET 71)

APPROXIMATE 100-YEAR FLOOD PLAIN

PROPOSED 35'± 25' HEIGHT WATER TANK (BY OTHERS)

PROPOSED MECHANICAL BUILDING (BY OTHERS)

PROPOSED ROOF LEADER (TYP.) ROOF LEADER SHOWN SCHEMATICALLY ONLY, FINAL DESIGN TO BE COORDINATED WITH ARCHITECT PRIOR TO CONSTRUCTION

CONCRETE PAD

PROPOSED TRASH COMPACTOR

PROPOSED LOADING DOCK SEE ARCHITECTURE PLANS

ROOF LEADER (TYP.)

PROP. DMH-2G(6' DIA) RIM=329.45 INV IN=321.03(DCB-10G) INV IN=318.42(CB-11G) INV IN=324.43(CB-9G) INV OUT=306.08(FES-2G)

12" 97 LF S=1.00%

18" 127 LF S=2.50%

HEAVY DUTY CONCRETE

PROP. DCB-10G RIM=326.40 INV OUT=322.00(DMH-2G)

RETAINING WALL (BY OTHERS)

H.D. CONC. H.D.ASPHALT

HEAVY DUTY ASPHALT

PROPOSED 2-10' DRAIN FROM TRUCKWELL

12" 23 LF S=0.48%

18" 121 LF S=2.00%

PROP. CB-11G RIM=328.52 INV IN=321.68(DMH-3G) INV OUT=321.60(DMH-2G)

GUARDRAIL

6' CHAINLINK FENCE

PROPOSED 1:1 SLOPE

L.O.W.

RETAINING WALL (TYP.)

TW=329 BW=299

TW=328 BW=294

TW=328 BW=301

SILT FENCE TYPE "A"

SILT FENCE TYPE "A" WITH SPRAY WATER

PROPOSED TREELINE (TYP.)

EXISTING TREELINE (TYP.)

50' PERIMETER WETLANDS

PROP. DCB-12G RIM=329.16 INV OUT=324.80(DMH-3G)

PROP. DMH-3G RIM=329.38 INV IN=324.69(DCB-12G) INV OUT=324.10(CB-11G)

AP 13 LOT 154
N/F
NARRAGANSETT ELECTRIC CO.

G1 G10 G103 G104 G105 G106 G107 G9 G8 G7 G6 G5 G4 G3 G2

RECEIVED
OCT 23 2009

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
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SCALE: 1"=20'
0 10' 20' 40'

RIDEM Submission

GRADING-UTILITY PLAN - 21

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007

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DWN. BY: J.P.C.

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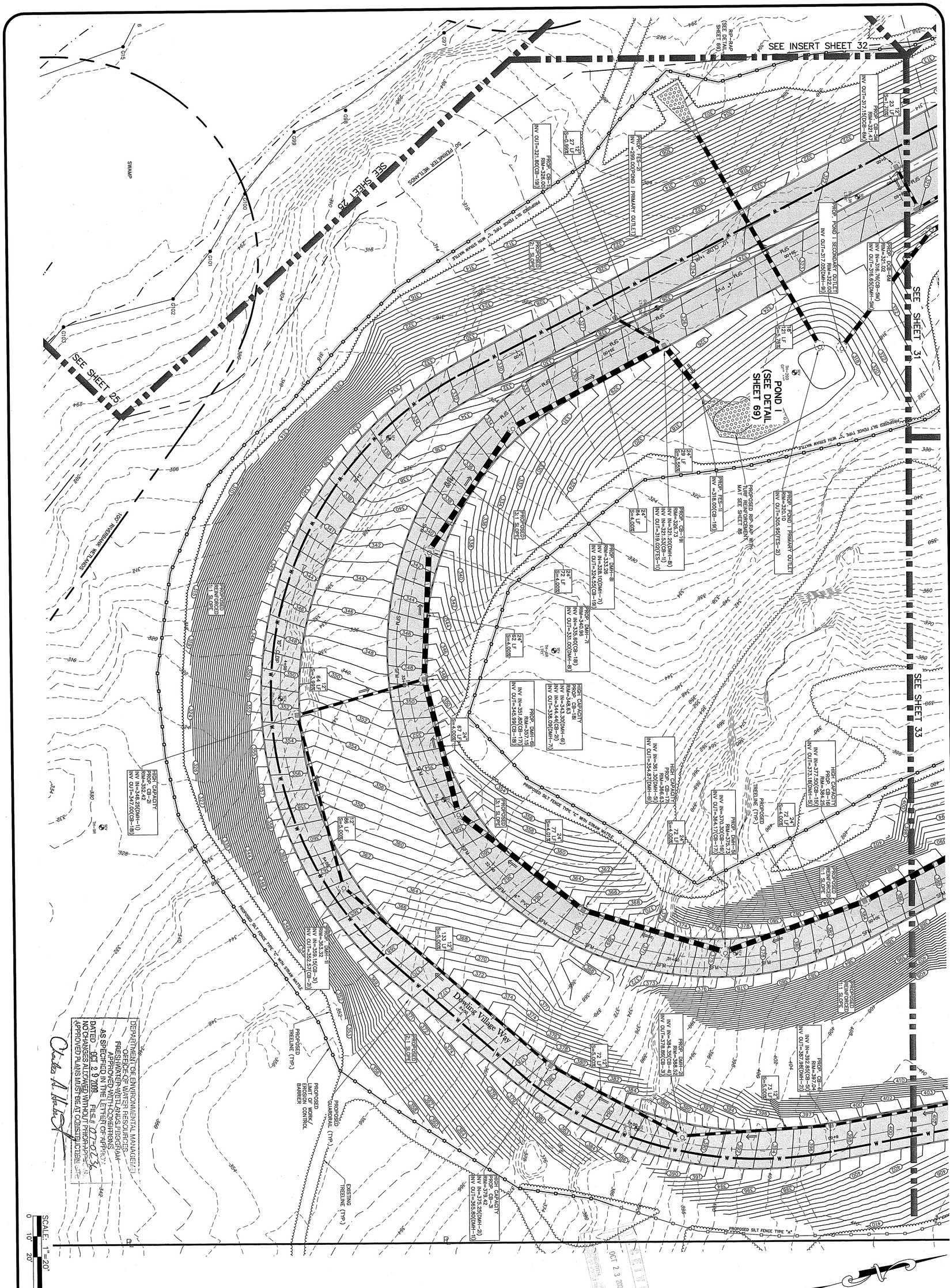
5	5-24-09	RIDEM Response to Comments	B.G.G.
4	4-24-09	Utility Submission	B.G.G.
3	3-24-09	Utility Submission	B.G.G.
2	2-24-09	Utility Submission	B.G.G.
1	1-24-07	Utility Submission	B.G.G.
0	05-24-07	RIDEM Submission	J.P.C.

LEONARD P. BRADLEY, JR.
No. 6670
REGISTERED PROFESSIONAL ENGINEER
CIVIL

Sheet
29
of 89

Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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



DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 2 9 2009 FILE # 07-0234
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
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OCT 2 9 2009

RIDEM Submission

Sheet 30 of 89

EDWARD B. BRUCCI No. 6602 REGISTERED PROFESSIONAL ENGINEER

GRADING–UTILITY PLAN – 22

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

NO	DATE	DESCRIPTION	BY
6	9-04-09	RIDEM Permit Modification Resubmission	B.C.G.
5	5-21-09	RIDEM Permit Modification	B.C.G.
4	03-26-08	RIDEM Response to Comments	B.C.G.
3	01-23-08	Sewer Response to Comments	B.C.G.
2	12-19-07	RIDEM Response to Comments	B.C.G.
1	9-21-07	Utility Submission	B.C.G.
0	05-18-07	RIDEM Submission	J.P.C.

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:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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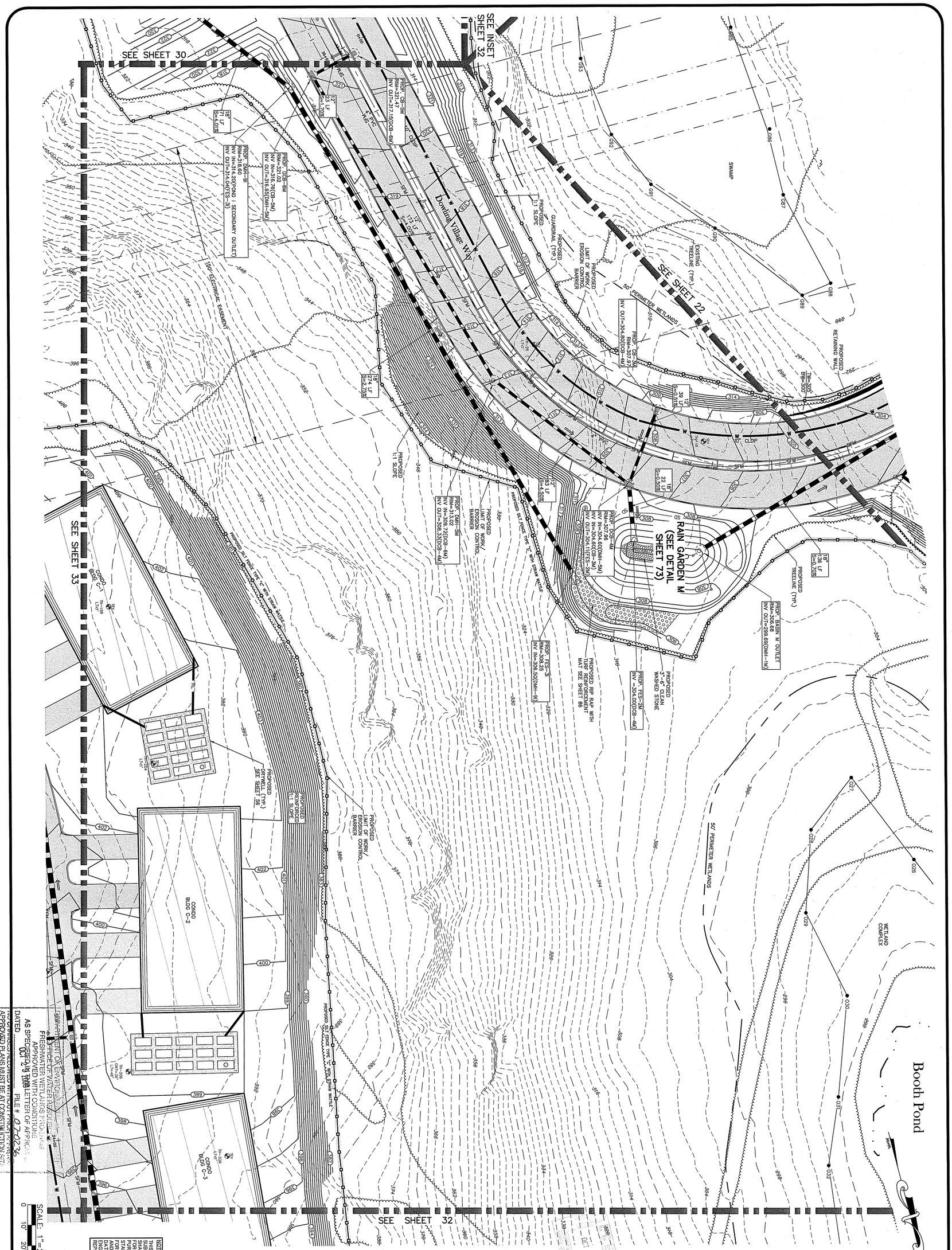
\\Deastorage\DEAMAIN\Vault Working\0617-004-2\G01 Preliminary\Plotting\0617-004-2 Grading-Utility-D.dwg, 9/8/2009 2:28:37 PM, deauser1, DWF6 ePlot.pc3



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RIDEM Submission

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED
FILE # 07-0236

APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Sheet 31 of 89

LEONARD J. BRUNELLE
No. 6870
REGISTERED PROFESSIONAL ENGINEER

GRADING—UTILITY PLAN — 23

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

NO	DATE	DESCRIPTION	BY
6	9-24-09	RIDEM Permit Modification Resubmission	B.C.G.
5	9-2-09	RIDEM Permit Modification	B.C.G.
4	05-26-08	RIDEM Response to Comments	B.C.G.
3	01-25-08	Sewer Response to Comments	B.C.G.
2	12-19-07	RIDEM Response to Comments	B.C.G.
1	9-17-07	Utility Submission	B.C.G.
0	05-16-07	RIDEM Submission	J.P.C.

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:
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48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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RIDEM Submission

GRADING–UTILITY PLAN – 24

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

NO	DATE	DESCRIPTION	BY
6	8-04-09	RIDEM Permit Modification Resubmission	B.C.G.
5	6-2-09	RIDEM Permit Modification	B.C.G.
4	05-08-08	RIDEM Response to Comments	B.C.G.
3	01-23-08	Sewer Response to Comments	B.C.G.
2	03-28-07	RIDEM Response to Comments	B.C.G.
1	9-17-07	Utility Submission	B.C.G.
0	05-18-07	RIDEM Submission	J.P.C.

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Tel: (401) 737-4111

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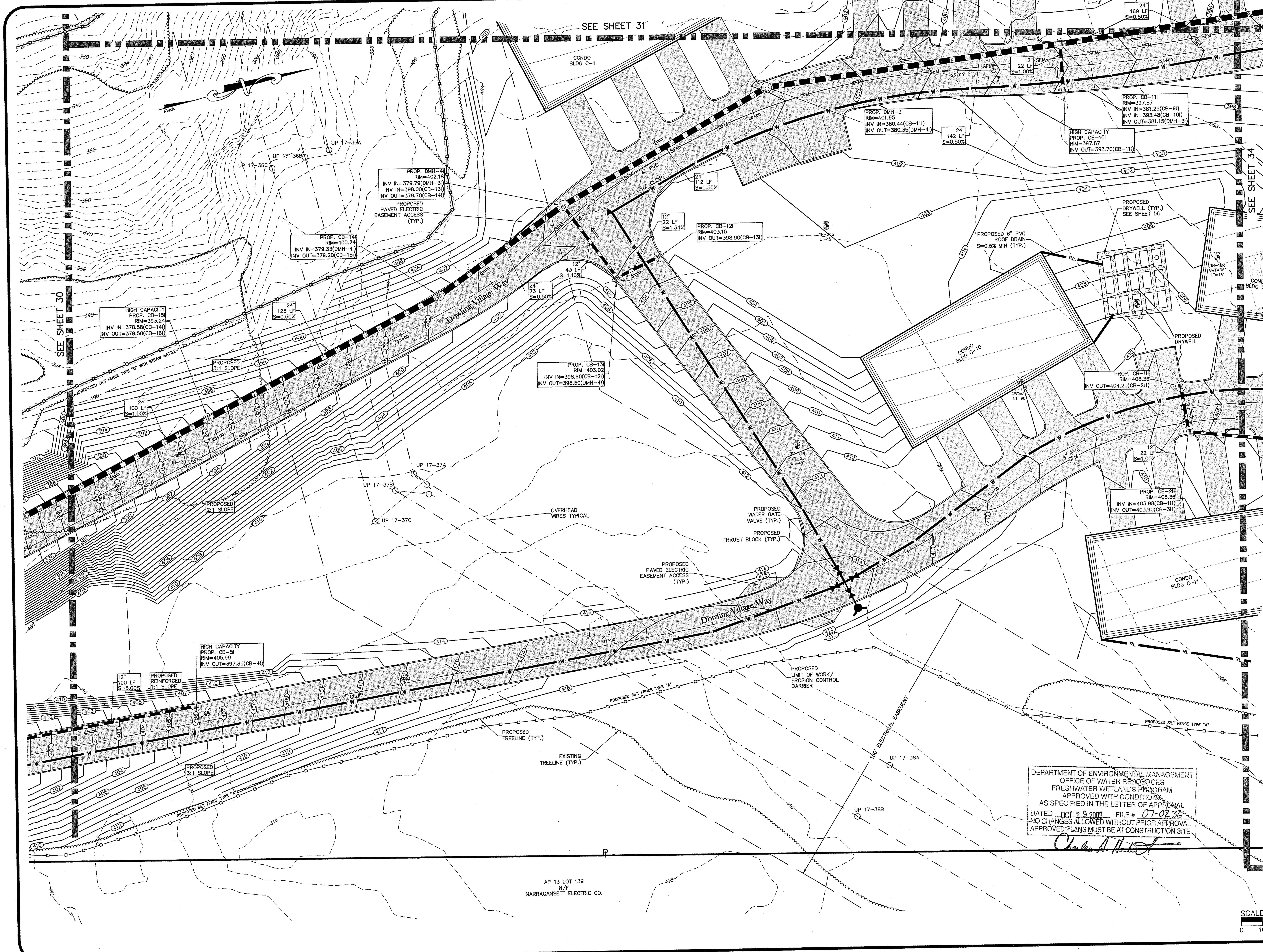

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DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 2 9 2009 FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

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Applicant:
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48 Hewett Street
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Tel: (401) 737-4111

Engineer:
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Tel: (401) 943-1000 Fax: (401) 464-6006

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1	9-17-07	Utility Submission	B.C.G.
0	05-18-07	RIDEM Submission	J.P.C.

RIDEM Submission

GRADING–UTILITY PLAN – 25

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

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LEONARD R. BRADLEY, JR. No. 6610 REGISTERED PROFESSIONAL ENGINEER CIVIL

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\\Deastorage\DEAMAIN\Vault Working\0617-004-2\601 Preliminary\Plotting\0617-004-2 Grading-Utility-D.dwg, 9/8/2009 2:34:33 PM, deauser1, DWF6 ePlot.pc3

RIDEM Submission

GRADING–UTILITY PLAN – 26

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

NO	DATE	DESCRIPTION	BY
10	8-04-09	RIDEM Permit Modification Resubmission	B.C.G.
9	5-21-09	RIDEM Permit Modification	B.C.G.
8	03-26-08	RIDEM Response to Comments	B.C.G.
7	01-29-08	Sewer Response to Comments	B.C.G.
6	12-10-07	RIDEM Response to Comments	B.C.G.
5	9-11-07	Utility Submission	B.C.G.
4	05-16-07	RIDEM Submission	J.P.C.

Engineer:
DiPrete Engineering Associates, Inc.
Engineering, Surveying, and Planning Consultants
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Tel: (401) 943-1000 Fax: (401) 464-6006

Applicant:
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48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

LEONARD P. BRUNELLI No. 6807 REGISTERED PROFESSIONAL ENGINEER

Sheet 34 of 89

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SEE SHEET 34

PROPOSED HYDRANT

PROP. DCB-9H
RIM=390.89
INV IN=386.00(DCB-10H)
INV IN=385.93(DCB-8H)
INV OUT=385.40(DMH-3H)

CONDO BLDG C-14

CONDO BLDG C-15

TH-21R

PROPOSED TREELINE (TYP.)

PROPOSED RIP RAP SPILLWAY

PROPOSED LIMIT OF WORK/ EROSION CONTROL BARRIER

18" 130 LF S=2.00%

PROPOSED LIMIT OF WORK/ EROSION CONTROL BARRIER

AP 33 LOT 19
N/F
PUBLIC WORKS DIRECTOR
CITY OF WOONSOCKET

150' ELECTRICAL EASEMENT

UP 17-39A

UP 17-39B

UP 17-39C

PROPOSED RIP RAP WITH TURF REINFORCEMENT MAT SEE SHEET 86

PROP. DMH-3H
RIM=386.00
INV IN=382.80(DCB-9H)
INV OUT=382.65(FES-1H)

18" 31 LF S=2.11%

POND H
(SEE DETAIL SHEET 68)

PROPOSED 33' WIDE "A"

EXISTING TREELINE (TYP.)

PROP. FES-1H
INV =382.00(DMH-3H)

PROP. POND H OUTLET
RIM=385.50
INV OUT=380.00(FES-2H)

AP 33 LOT 1
N/F
CITY OF WOONSOCKET

OVERHEAD WIRES (TYP.)

EMERGENCY OVERFLOW WEIR (SEE DETAIL SHEET 68)

12" 46 LF S=2.18%

PROP. FES-2H
INV =379.00(POND H OUTLET)

PROPOSED STONE BASIN OUTFALL SEE DETAIL SHEET 79.

AP 13 LOT 139
N/F
NARRAGANSETT ELECTRIC CO.

AP 13 LOT 23A
N/F
AMADO VELASQUEZ & CHRISTINA L. DUCH

SEE SHEET 36

AP 13 LOT 24A
N/F
SOUZA FAMILY LIMITED PATERNERSHIP

UP 17-40A

OVERHEAD WIRES TYPICAL

NOTE:
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DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 29 2009 FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Charles A. Horbert

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DEPT. OF ENVIRONMENTAL MANAGEMENT

SCALE: 1"=20'
0 10' 20' 40'

RIDEM Submission

GRADING-UTILITY PLAN - 27

Dowling Village - Phases II, III & IV

AP. 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP. 21 LOTS 25, 26, 28, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

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NO	DATE	DESCRIPTION	BY
6	9-24-09	RIDEM Permit Modification Resubmission	B.G.B.
5	5-4-09	RIDEM Permit Modification	B.G.B.
4	3-12-09	RIDEM Response to Comments	B.G.B.
3	01-29-08	Sewer Response to Comments	B.G.B.
2	10-15-07	RIDEM Response to Comments	B.G.B.
1	05-24-07	RIDEM Submission	J.P.C.

LEONARD R. BRADLEY, JR.
No. 6670
REGISTERED PROFESSIONAL ENGINEER
STATE OF RHODE ISLAND

Sheet
35
of 89

Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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

W:\Dasstorage\DEA\MAIN\Vault Working\06 17-004-2\601 Preliminary\Plotting\06 17-004-2 Grading-Utility-D.dwg, 9/9/2009 2:36:01 PM, deauser I, DWF6 ePlot.pc3

\\Deastorage\DEAMAIN\Vault Working\0617-004-2\601 Preliminary\Plotting\0617-004-2 Grading-Utility-D.dwg, 9/8/2009 2:37:29 PM, deauser1, DWF6 ePlot.pc3

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 2 9 2009 FILE # 07-0236
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Charles A. Horbert

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RIDEM Submission

GRADING–UTILITY PLAN – 28

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

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3	01-29-09	Sewer Response to Comments	B.C.G.
2	12-18-07	RIDEM Response to Comments	B.C.G.
1	9-17-07	Utility Submission	B.C.G.
0	06-26-07	RIDEM Submission	J.P.C.

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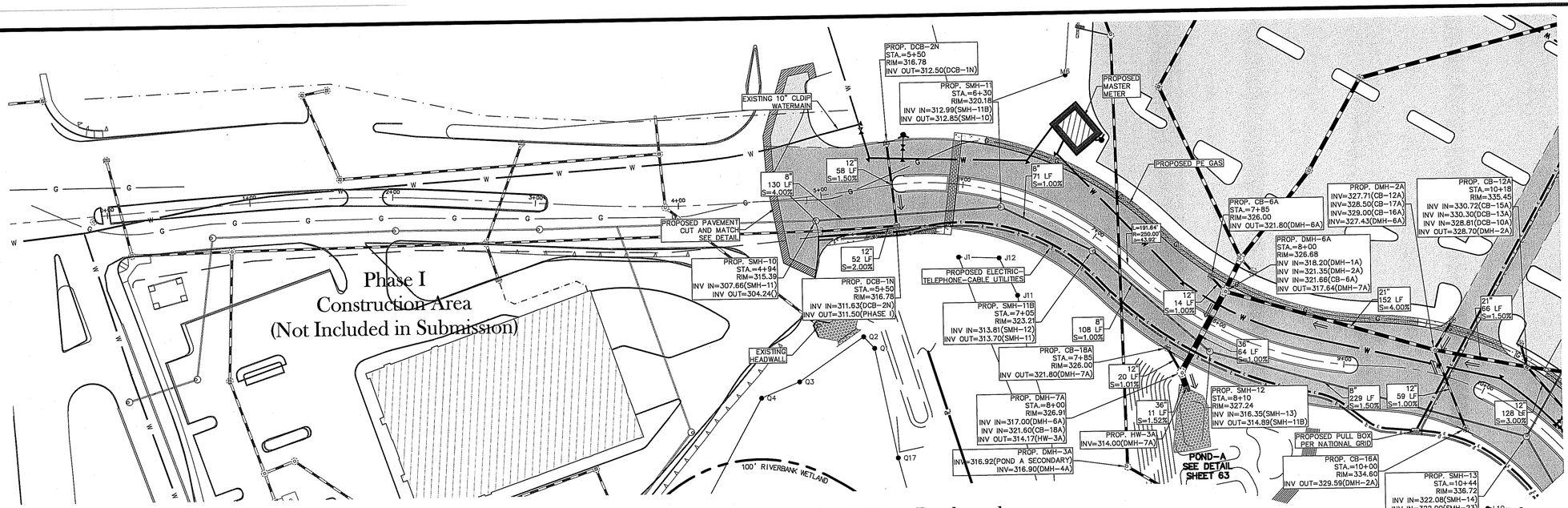
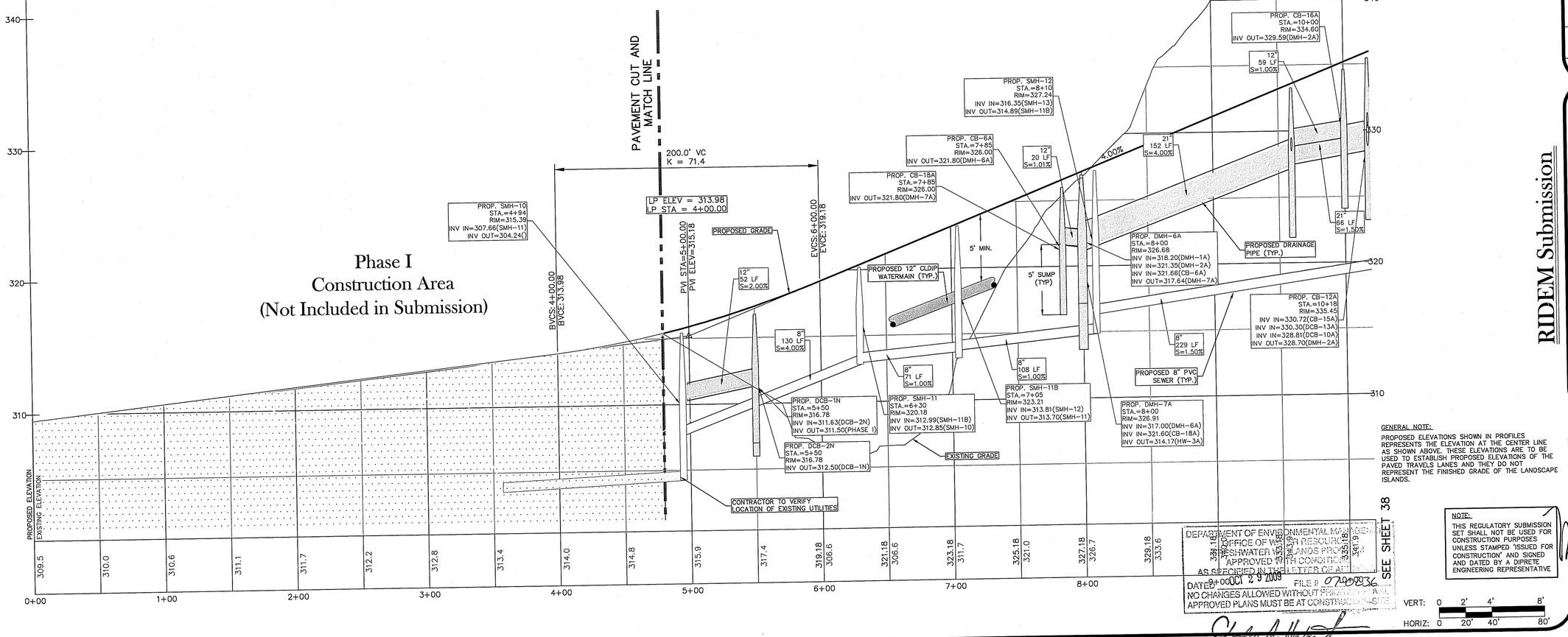
Engineering, Surveying, and Planning Consultants
Two Stafford Court
Cranston, Rhode Island 02920
Tel: (401) 943-1000 Fax: (401) 464-6006

Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

LEONARD P. BRUNELLE
No. 6600
REGISTERED PROFESSIONAL ENGINEER
STATE OF RHODE ISLAND



Plan & Profile - Dowling Village Boulevard
Sta. 0+00 - 10+00



GENERAL NOTE:
PROPOSED ELEVATIONS SHOWN IN PROFILES REPRESENTS THE ELEVATION AT THE CENTER LINE AS SHOWN ABOVE. THESE ELEVATIONS ARE TO BE USED TO ESTABLISH PROPOSED ELEVATIONS OF THE PAVED TRAVELS LANES AND THEY DO NOT REPRESENT THE FINISHED GRADE OF THE LANDSCAPE ISLANDS.

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OFFICE OF WATER RESOURCES

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
STORMWATER MANAGEMENT PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED: OCT 29 2009 FILE # 07-0036
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

VERT: 0 2' 4' 8'
HORIZ: 0 20' 40' 80'

LEONARD R. BRADLEY JR.
No. 6610
REGISTERED PROFESSIONAL ENGINEER
CIVIL

NO	DATE	DESCRIPTION	BY
6	9-21-09	RIDEM Permit Modification Resubmission	B.C.G.
5	8-24-09	RIDEM Resubmission	B.C.G.
4	7-29-09	RIDEM Response to Comments	B.C.G.
3	6-25-09	Sewer Response to Comments	B.C.G.
2	3-31-09	Utility Submission	B.C.G.
1	2-13-07	RIDEM Submission	B.C.G.

Applicant:
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Warwick, Rhode Island 02889
Tel: (401) 737-4111

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

RIDEM Submission

PLAN AND PROFILE – 1

Dowling Village - Phases II, III & IV

AP 13, LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

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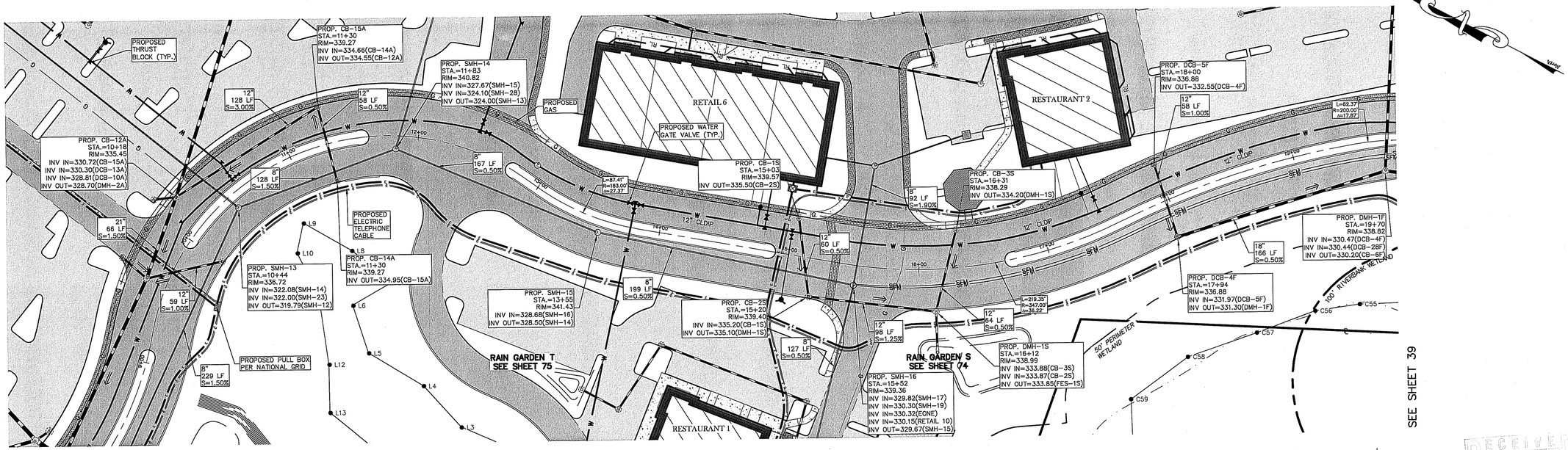
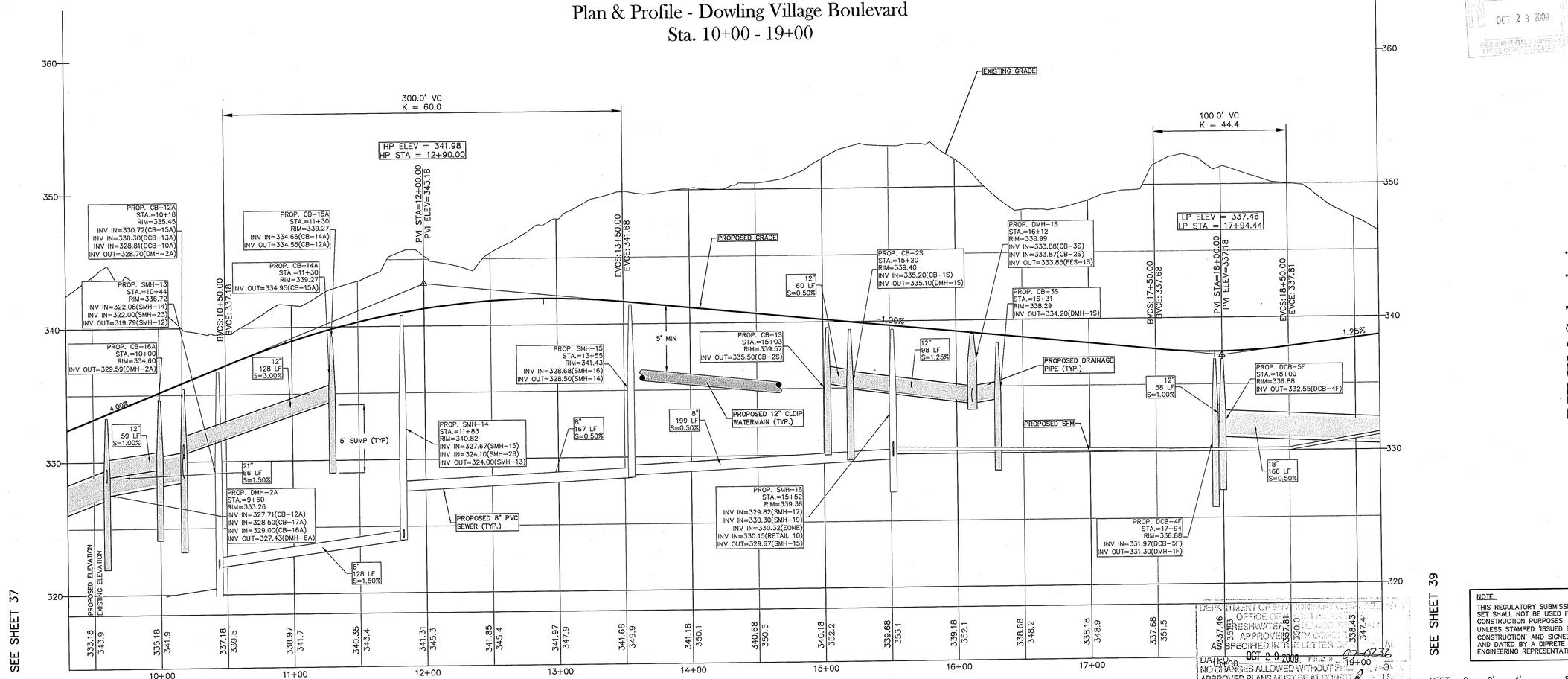
Sheet
37
of 89



Plan & Profile - Dowling Village Boulevard
Sta. 10+00 - 19+00



RIDEM Submission

PLAN AND PROFILE – 2

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

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NO.	DATE	DESCRIPTION
7	10-8-09	RIDEM Permit Modification Resubmission
6	9-24-09	RIDEM Permit Modification Resubmission
5	6-24-09	RIDEM Response to Comments
4	5-29-09	RIDEM Response to Comments
3	2-23-09	RIDEM Response to Comments
2	9-7-07	Utility Schedules
1	05-25-07	RIDEM Submission

Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

Engineer:
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LEONARD R. BRADLEY, JR.
No. 6617
REGISTERED PROFESSIONAL ENGINEER
CIVIL

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OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF
DATED: OCT 2 9 2009 FILE #
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Charles A. Horbert

07-0236

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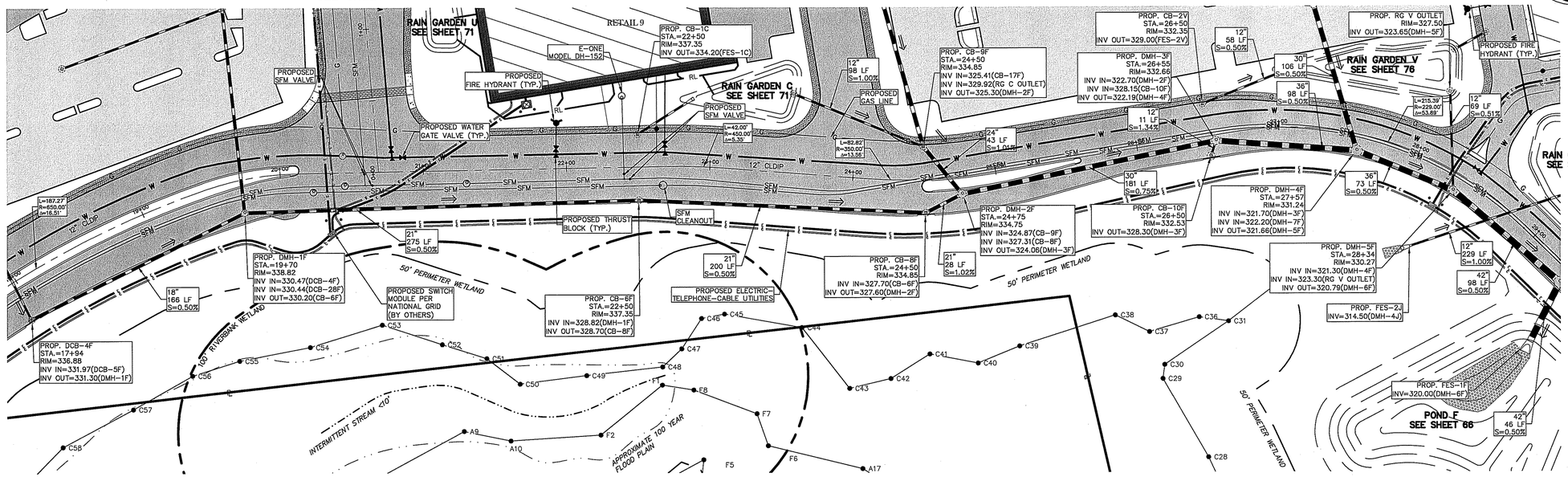
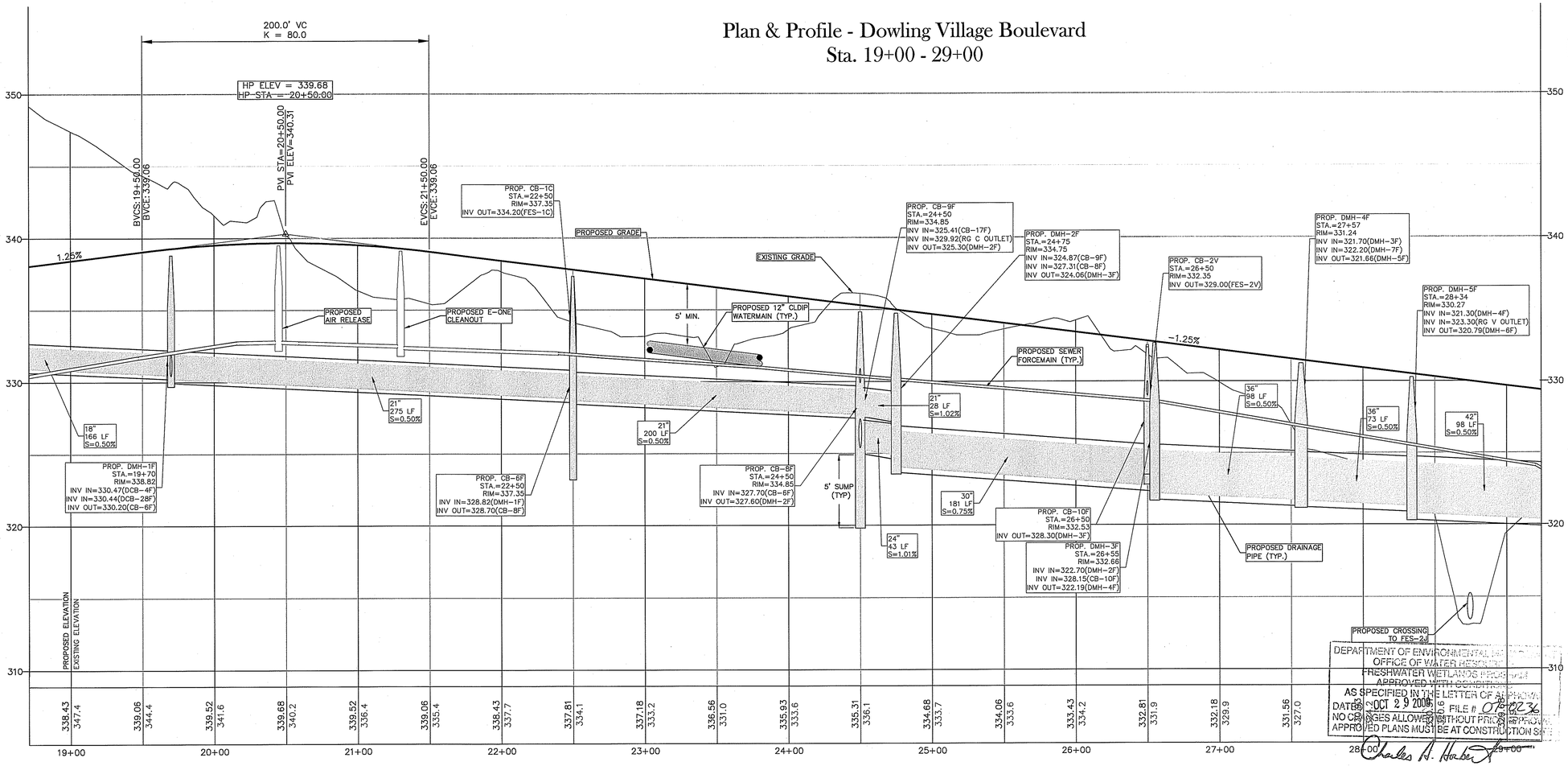
VERT: 0 2' 4' 8'
HORIZ: 0 20' 40' 80'

Sheet
38
of 89

SEE SHEET 42



Plan & Profile - Dowling Village Boulevard
Sta. 19+00 - 29+00



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OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED: OCT 29 2009 FILE # 07-0223
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Charles A. Horbert

NOTE:
THIS REGULATORY SUBMISSION SET SHALL NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED 'ISSUED FOR CONSTRUCTION' AND SIGNED AND DATED BY A DIPRETE ENGINEERING REPRESENTATIVE

RIDEM Submission

PLAN AND PROFILE – 3

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 28, 40, 41, 42, 43, 44, 45 & A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DWN. BY: J.P.C.

DATE: MAY, 2007

DEA Job No. 0617-004-2

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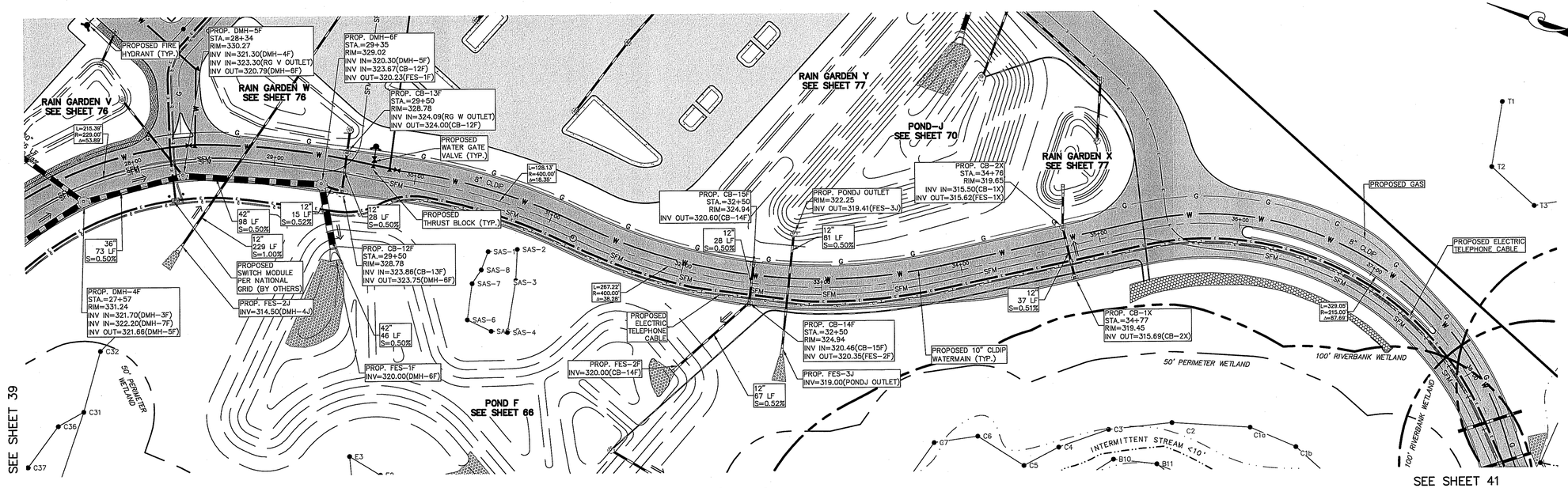
NO	DATE	DESCRIPTION	BY
0	6-27-07	Utility Submission	B.G.G.
1	8-17-07	RIDEM Resubmit to Comments	B.G.G.
2	10-31-07	RIDEM Resubmit to Comments	B.G.G.
3	03-04-08	Sheet 2 Resubmit to Comments	B.G.G.
4	03-24-08	Sheet 2 Resubmit to Comments	B.G.G.
5	5-22-09	RIDEM Permit Modification	B.G.G.
6	8-04-09	RIDEM Permit Modification	B.G.G.

LEONARD B. BRADLEY JR.
No. 6610
REGISTERED PROFESSIONAL ENGINEER
STATE OF RHODE ISLAND

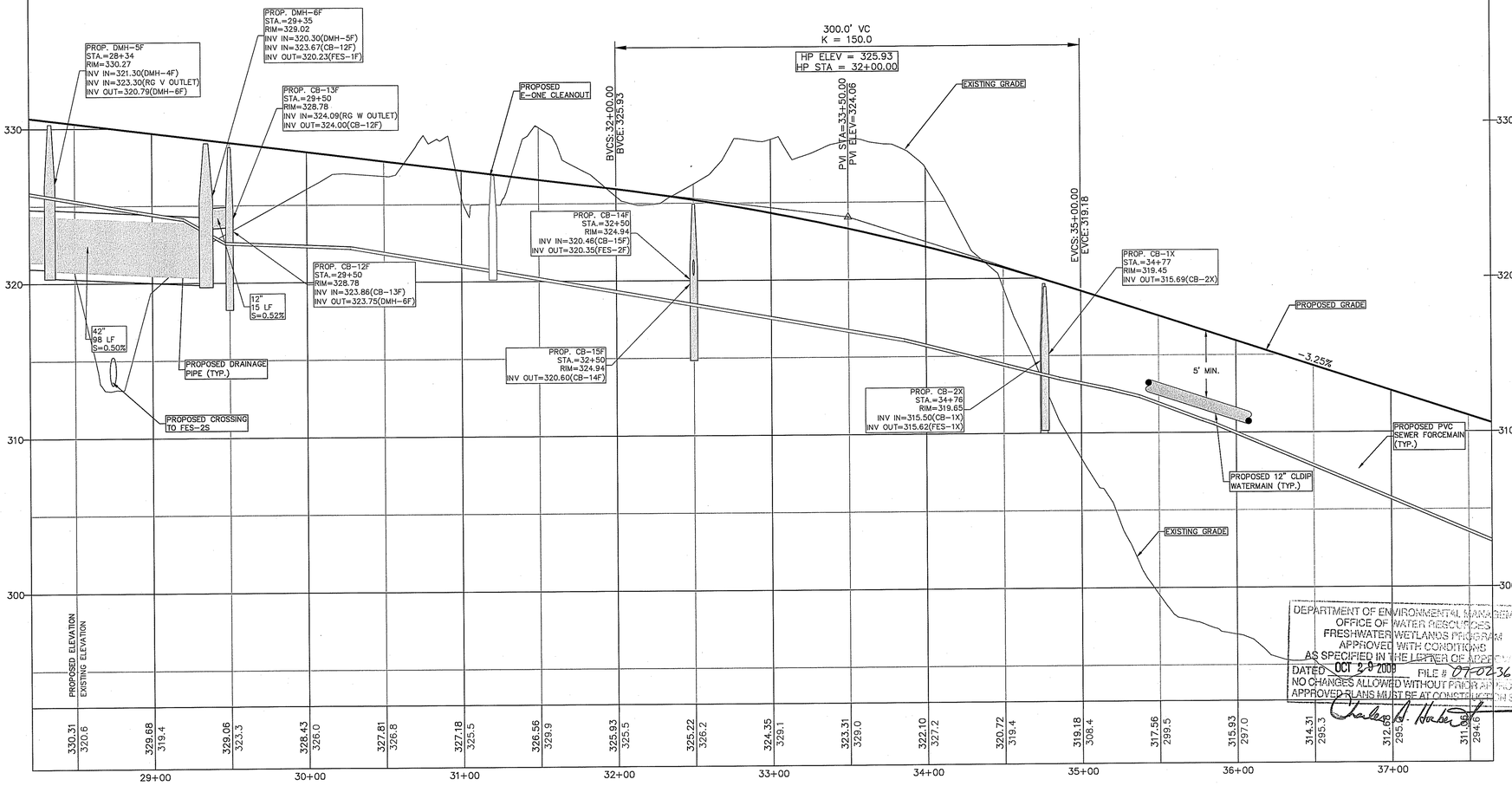
Sheet
39
of 89

Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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



Plan & Profile - Dowling Village Boulevard
Sta. 29+00 - 37+00



DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 29 2009 FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

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COASTAL RESOURCES MANAGEMENT COUNCIL

NOTE:
THIS REGULATORY SUBMISSION SET SHALL NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED 'ISSUED FOR CONSTRUCTION' AND SIGNED AND DATED BY A DIPRETE ENGINEERING REPRESENTATIVE

VERT: 0 2' 4' 8'
HORIZ: 0 20' 40' 80'

RIDEM Submission

PLAN AND PROFILE — 4

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

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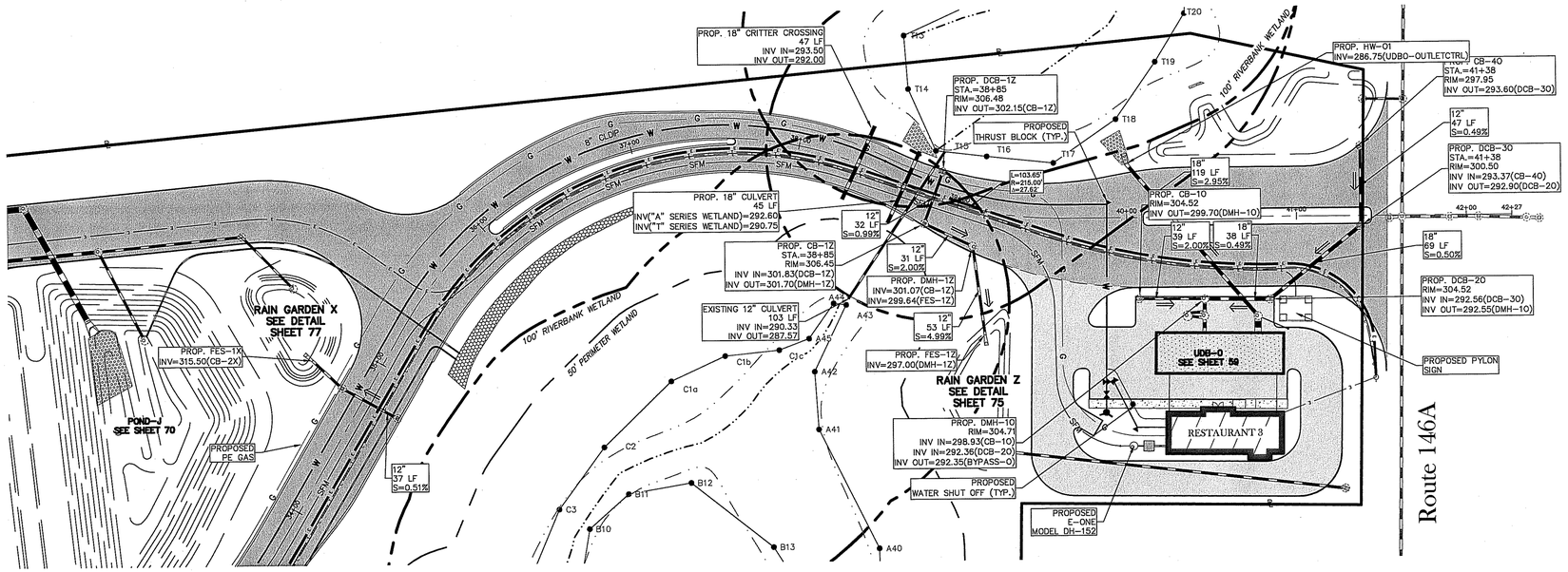
NO.	DATE	DESCRIPTION	BY
10	9-24-09	RIDEM Permit Modification Resubmission	B.G.G.
9	8-24-09	RIDEM Permit Modification	B.G.G.
8	06-26-08	RIDEM Response to Comments	B.G.G.
7	04-25-08	Sewer Response to Comments	B.G.G.
6	03-26-08	RIDEM Response to Comments	B.G.G.
5	8-31-07	Utility Submission	B.G.G.
4	06-15-07	RIDEM Submission	B.G.G.

LEONARD R. BRADLEY, JR.
No. 6670
REGISTERED PROFESSIONAL ENGINEER
STATE OF RHODE ISLAND

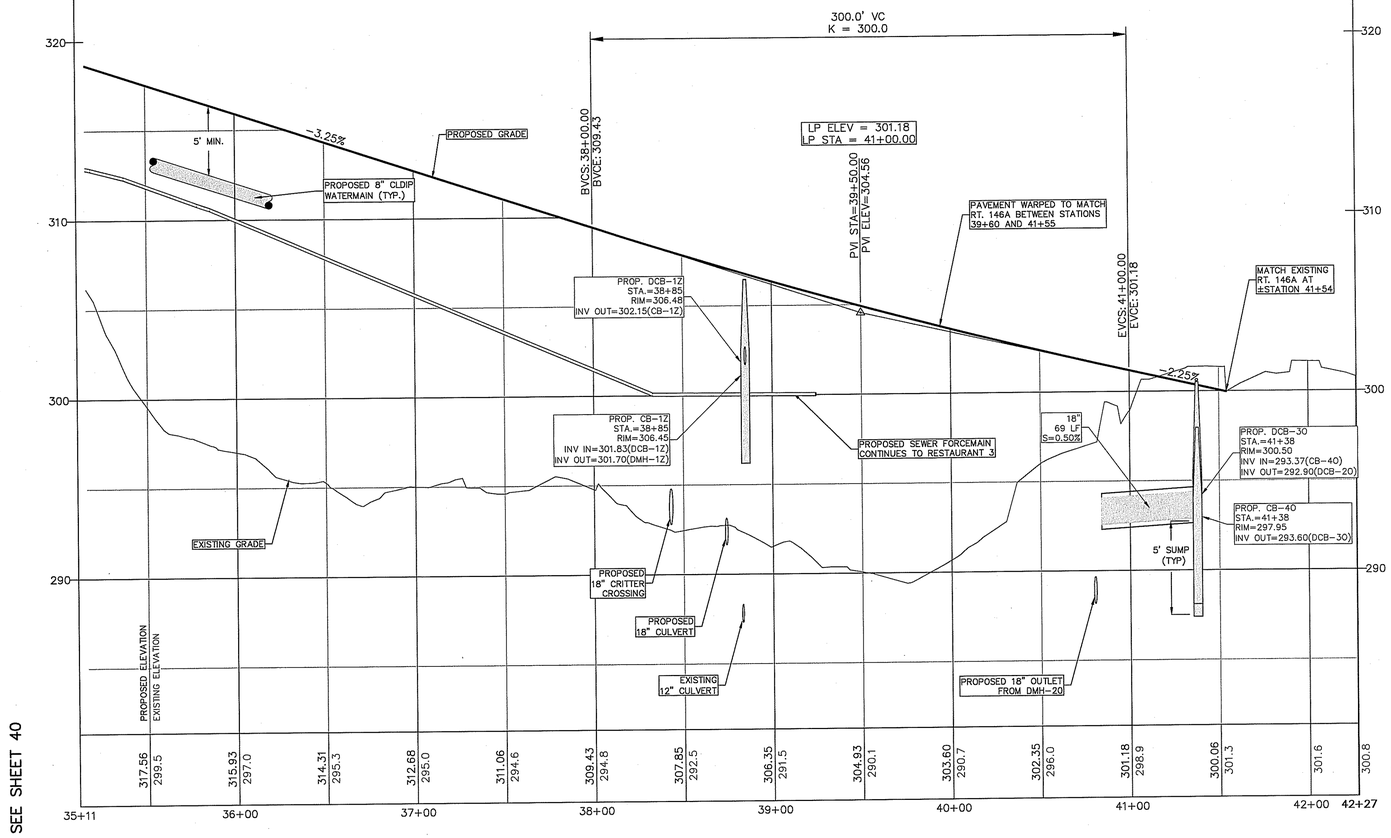
Sheet 40 of 89

Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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



Plan & Profile -Dowling Village Boulevard
Sta. 35+50 - 42+27



DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 2 9 2009 FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Charles A. Horbert

NOTE:
THIS REGULATORY SUBMISSION SET SHALL NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED "ISSUED FOR CONSTRUCTION" AND SIGNED AND DATED BY A DIPRETE ENGINEERING REPRESENTATIVE

VERT: 0 2' 4' 8'
HORIZ: 0 20' 40' 80'

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OCT 13 2009

Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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	10-23-09	RIDEM Preliminary Resubmission	B.C.G.
6	9-24-09	RIDEM Preliminary Resubmission	B.C.G.
5	08-28-09	RIDEM Preliminary Resubmission	B.C.G.
4	07-29-09	RIDEM Preliminary Resubmission	B.C.G.
3	07-29-09	Sewer Response to Comments	B.C.G.
2	07-29-09	Sewer Response to Comments	B.C.G.
1	01-27-09	Utility Submission	B.C.G.
0	05-15-07	RIDEM Submission	B.C.G.

RIDEM Submission

PLAN AND PROFILE – 5

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70, & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

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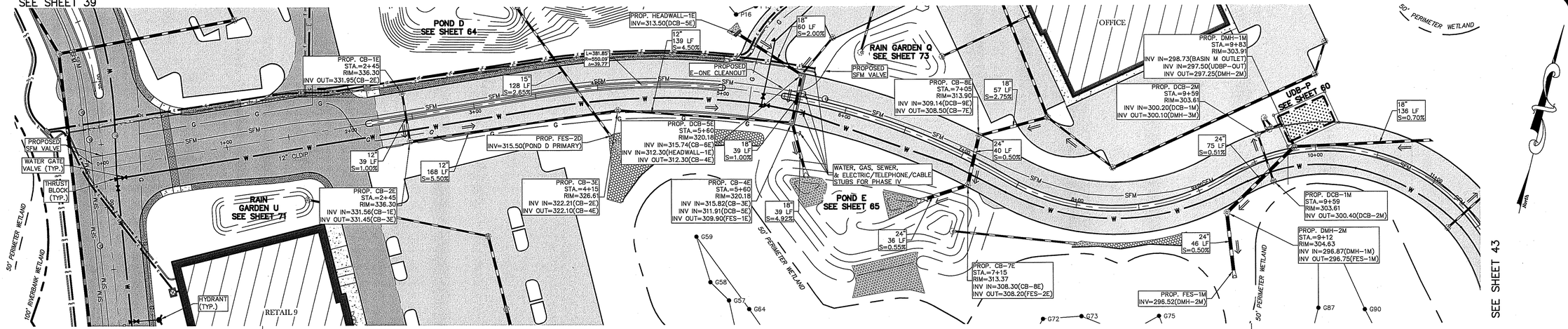
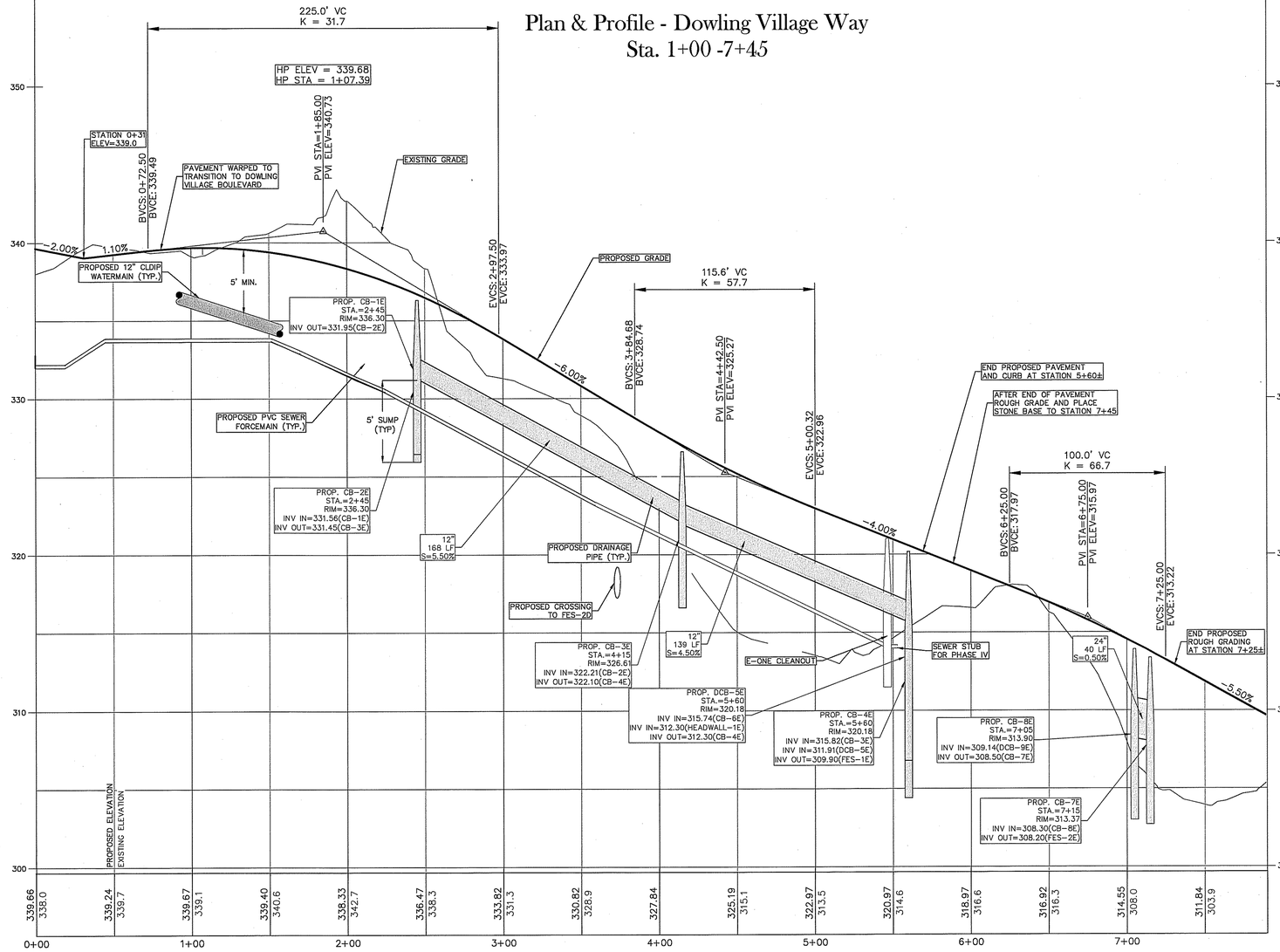
LEONARD R. BRADLEY, JR.
No. 6610
REGISTERED PROFESSIONAL ENGINEER
CIVIL

Sheet
41
of 89

\\Deastorage\deasmanVault Working\0617-004-2\601 | Preliminary\Plotting\0617-004-2 Plan and Profile.dwg, 10/23/2009 3:00:35 PM, Sheryl, DWFs ePlot.pc3



Plan & Profile - Dowling Village Way
Sta. 1+00 -7+45



RECEIVED
OCT 23 2009
ENVIRONMENTAL MANAGEMENT
BUREAU OF NATURAL RESOURCES

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 2 9 2009 FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

GENERAL NOTE:
PROPOSED ROAD ELEVATION SHOWN IN PROFILES REPRESENTS ELEVATION OF PAVEMENT REGARDLESS OF WHERE ISLANDS ARE SHOWN ON THE PLAN VIEW.

NOTE:
THIS REGULATORY SUBMISSION SET SHALL NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED 'ISSUED FOR CONSTRUCTION' AND SIGNED AND DATED BY A DIPRETE ENGINEERING REPRESENTATIVE

VERT: 0 2' 4' 8'
HORIZ: 0 20' 40' 80'

RIDEM Submission

PLAN AND PROFILE – 6

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 28, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.
DEA Job No. 0617-004-2

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NO	DATE	DESCRIPTION	BY
8	9-24-09	RIDEM Permit Modification Submission	B.C.G.
7	9-24-09	RIDEM Resubmission	B.C.G.
6	08-26-09	RIDEM Response to Comments	B.C.G.
5	08-26-09	RIDEM Response to Comments	B.C.G.
4	08-25-09	Sewer Response to Comments	B.C.G.
3	3-31-07	Utility Submission	B.C.G.
2	03-30-07	RIDEM Submission	J.P.C.

Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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

LEONARD R. BRADLEY, JR.
No. 6610
REGISTERED PROFESSIONAL ENGINEER
CIVIL

\\Destorage\DEAMAIN\vault Working\06 17-004-2\60 Preliminary Plotting\06 17-004-2 Plan and Profile Road B and C.dwg, 9/9/2009 2:44:00 PM, deaser1, DWF6 ePlot.pc3

Plan & Profile - Dowling Village Way
Sta. 11+00 - 13+85

Plan & Profile - Dowling Village Way
Sta. 0+00 - 7+00

SEE SHEET 42

SEE SHEET 44

VERT: 0 2' 4' 8'
HORIZ: 0 20' 40' 80'

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OCT 23 2009
RIDEM/OFFICE OF WATER RESOURCES

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER DATED
DATED OCT 29 2009 FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Charles A. Horbert

RIDEM Submission

Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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
6	9-24-09	RIDEM Permit Modification Resubmission	B.G.S.
5	8-5-09	RIDEM Permit Re-Submission	B.G.S.
4	6-25-09	RIDEM Permit Re-Submission	B.G.S.
3	05-29-09	Sewer Response to Comments	B.G.S.
2	4-13-09	Utility Submission	B.G.S.
1	3-13-07	RIDEM Submission	B.G.S.
0	05-31-07	RIDEM Submission	J.P.C.

PLAN AND PROFILE – 7

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 45, 111, 112, 122 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 23, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DWN. BY: J.P.C.
DATE: MAY, 2007
DEA Job No. 0617-004-2

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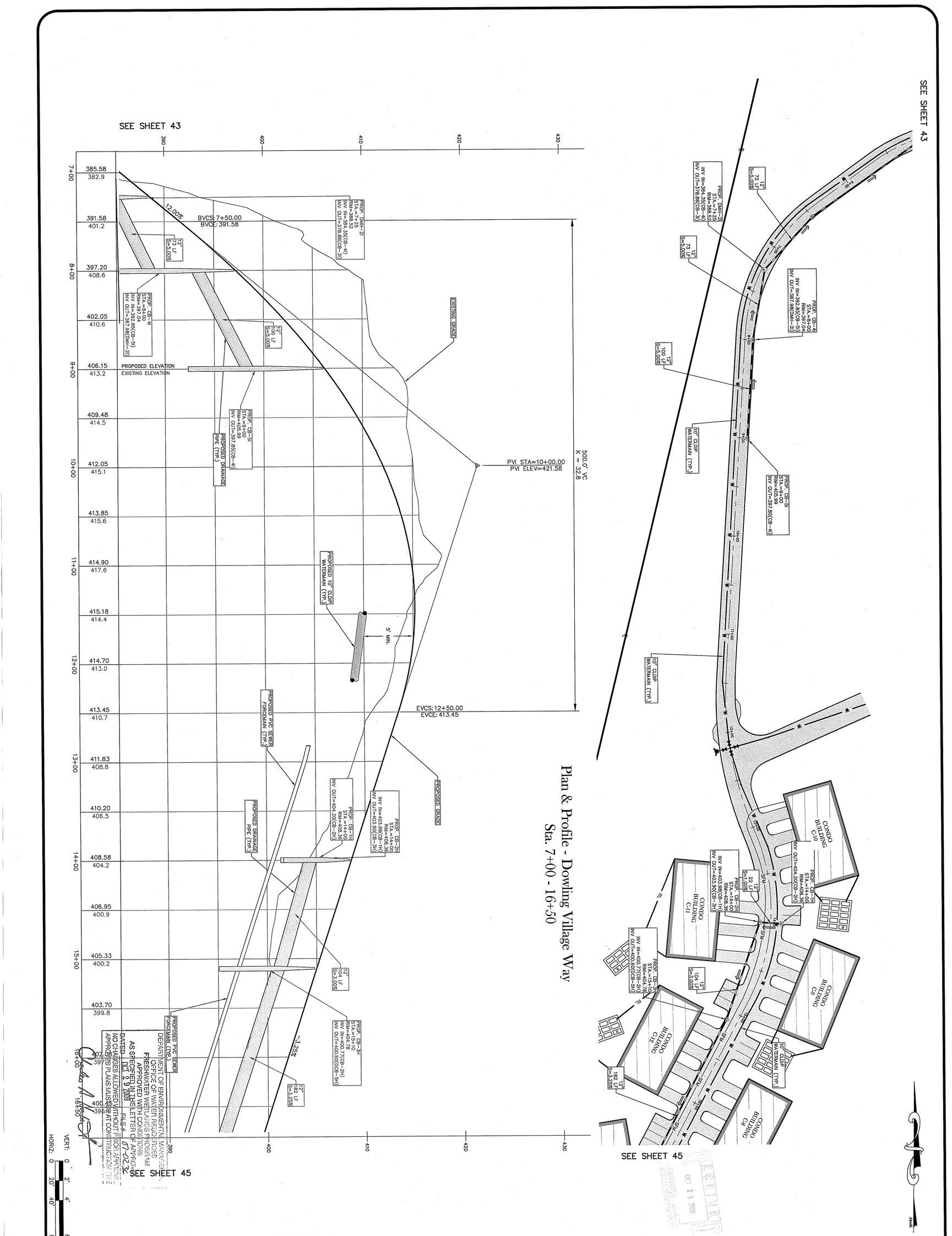
LEONARD R. BRADLEY, JR.
No. 6670
REGISTERED PROFESSIONAL ENGINEER
STATE OF RHODE ISLAND

Sheet
43
of 89

\\Destorage\DEA\MAIN\Vault Working\06 I 7-004-2\6O I PreliminaryPlots\mg\06 I 7-004-2 Plan and Profile Road B and C.dwg, 9/9/2009 2:57:20 PM, deasser I, DWF6 ePlot.pc3



Plan & Profile - Dowling Village Way
Sta. 7+00 - 16+50

RIDEM Submission

PLAN AND PROFILE – 8

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

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Sheet 44 of 89

LEONARD R. BRADLEY JR. 6805 REGISTERED PROFESSIONAL ENGINEER

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 29 2009 FILE # 07-0232
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

NO	DATE	DESCRIPTION	BY
10	8-04-09	RIDEM Permit Modification Resubmission	B.G.G.
9	5-21-09	RIDEM Permit Modification	B.G.G.
8	03-26-08	RIDEM Response to Comments	B.G.G.
7	03-25-08	Sewer Response to Comments	B.G.G.
6	12-28-07	RIDEM Response to Comments	B.G.G.
5	9-17-07	Utility Submission	B.G.G.
4	05-25-07	RIDEM Submission	J.P.C.

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:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

SEE SHEET 46

SEE SHEET 44

Plan & Profile - Dowling Village Way
Sta. 13+00 - 23+50

SEE SHEET 44

SEE SHEET 46

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 2 2009 FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

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OCT 23 2009
ENVIRONMENTAL MANAGEMENT
DIVISION OF WATER RESOURCES

RIDEM Submission

PLAN AND PROFILE – 9

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

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NO.	DATE	DESCRIPTION	BY
6	8/24/09	RIDEM Permit Modification Resubmission	B.C.G.
5	8/24/09	RIDEM Permit Modification Submission	B.C.G.
4	05-26-09	RIDEM Response to Comments	B.C.G.
3	05-26-09	Sewer Response to Comments	B.C.G.
2	03-27-07	Sewer Submission	B.C.G.
1	03-27-07	Site Submission	B.C.G.
0	05-18-07	RIDEM Submission	J.P.C.

Applicant:
Bucci Development, Inc.
46 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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

LEONARD R. BRADLEY, JR.
No. 6670
REGISTERED PROFESSIONAL ENGINEER
STATE OF RHODE ISLAND

Sheet
45
of 89

\\Destorage\DEA\MAIN\vault Working\OG I 7-004-2\OG I PreliminaryPlotting\OG I 7-004-2 Plan and Profile Road B and C.dwg, 9/9/2009 3:09:30 PM, deauser I, DWF6 ePlot.pc3

SEE SHEET 45

SEE SHEET 47

Plan & Profile - Dowling Village Way
Sta. 20+00 - 31+00

SEE SHEET 45

SEE SHEET 47

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OCT 23 2009
ENVIRONMENTAL ASSESSMENT
OFFICE OF WATER RESOURCES

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 23 2009 FILE NO. 07-0278
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Charles A. Horbert

LEONARD R. BRADLEY JR.
No. 6670
REGISTERED PROFESSIONAL ENGINEER
CIVIL

RIDEM Submission

PLAN AND PROFILE – 10

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DWN. BY: J.P.C.
DATE: MAY, 2007

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NO.	DATE	DESCRIPTION	BY
6	8-24-09	RIDEM Permit Modification Resubmission	C.C.G.
5	8-24-09	RIDEM Permit Modification Resubmission	C.C.G.
4	09-28-09	RIDEM Resubmittal Response to Comments	C.C.G.
3	09-24-09	RIDEM Resubmittal Response to Comments	C.C.G.
2	09-24-09	RIDEM Resubmittal Response to Comments	C.C.G.
1	08-10-07	RIDEM Submission	C.C.G.
0	04-30-07	RIDEM Submission	P.C.C.

Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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

Sheet
46
of 89

\\Deastorage\DEA\MAIN\Vault Working\0617-004-2\GD1 Preliminary\Plotting\0617-004-2 Plan and Profile Road B and C.dwg, 9/8/2009 3:14:02 PM, deasuer1, DWFx ePlot.pc3

Plan & Profile - Dowling Village Way Sta. 29+00 - 36+60

RIDEM Submission

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT. 29 2009 FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Charles A. Horbert

VERT: 0 2' 4' 8'
HORIZ: 0 20' 40' 80'

Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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
6	8-04-09	RIDEM Preliminary Resubmission	B.C.G.
5	6-23-09	RIDEM Preliminary Resubmission	B.C.G.
4	3-23-09	Response to Comments	B.C.G.
3	2-23-09	Sewer Response to Comments	B.C.G.
2	9-17-07	Utility Submission	B.C.G.
1	8-17-07	Utility Submission	B.C.G.
0	06-26-07	RIDEM Submission	D.P.C.

PLAN AND PROFILE – 11

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 51, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

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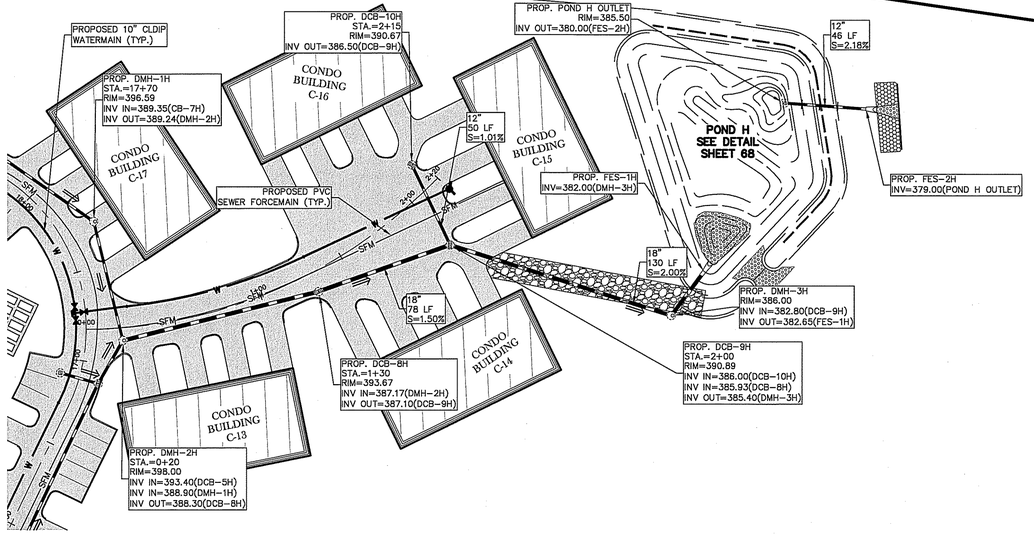
LEONARD R. BRADLEY JR. No. 6670 REGISTERED PROFESSIONAL ENGINEER

Sheet 47 of 89

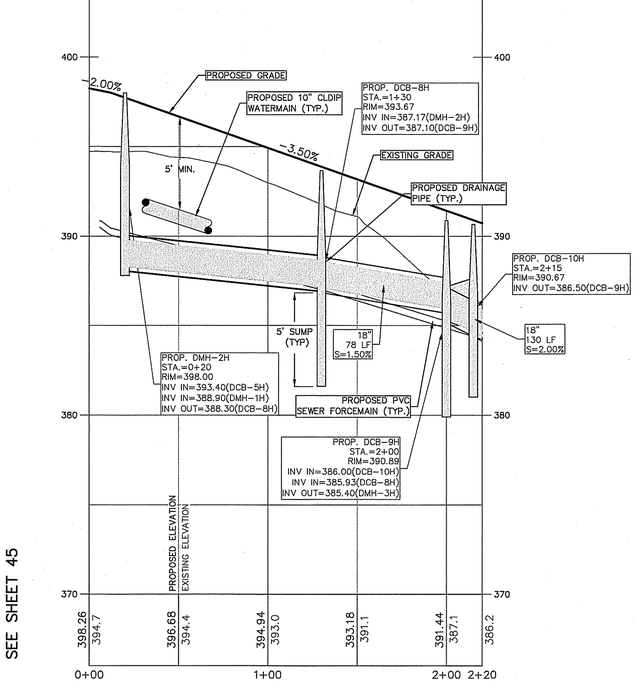
SEE SHEET 46

SEE SHEET 43

\\Destorage\DEA\MAINVault Working\06 17-004-2\60 I Preliminary\Plotting\06 17-004-2 Plan and Profile Road B and C.dwg, 9/8/2009 3:22:24 PM, deauser I, DWF6 ePlot.pc3



Plan & Profile - Road D
Sta. 0+00 - 2+20



SEE SHEET 45

VERT: 0 2' 4' 8'
HORIZ: 0 20' 40' 80'

RECEIVED
OCT 23 2009
ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 29 2009 FILE # 07-0234
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Charles A. Horbert

RIDEM Submission

PLAN AND PROFILE – 12

Dowling Village - Phases II, III & IV

AP 13 LOTS 14, 52, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 28, 30, 31, 45, 47, 70 & 71 AND A PORTION OF LOT 68
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

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DEA Job No. 0617-004-2

NO.	DATE	DESCRIPTION	BY
6	9-04-09	RIDEM Permit Modification Resubmission	C.A.G.
5	5-22-09	RIDEM Permit Modification	C.A.G.
4	03-24-08	Sheet Revised to Comments	C.A.G.
3	12-04-07	Sheet Revised to Comments	C.A.G.
2	10-19-07	RIDEM Resubmission	C.A.G.
1	8-14-07	Utility Submission	C.A.G.
0	6-26-07	RIDEM Submission	C.A.G.

LEONARD R. BRADLEY JR.
No. 6610
REGISTERED PROFESSIONAL ENGINEER
STATE OF RHODE ISLAND

Sheet
48
of 89

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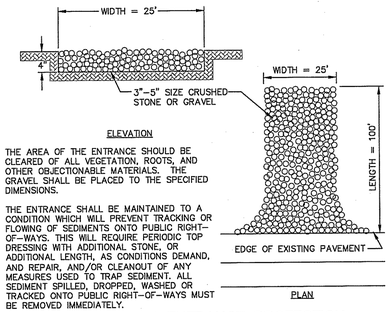
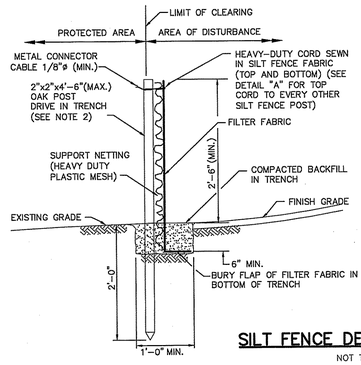


THE AREA OF THE ENTRANCE SHOULD BE CLEARED OF ALL VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIALS. THE GRAVEL SHALL BE PLACED TO THE SPECIFIED DIMENSIONS.

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.

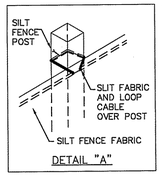
CONSTRUCTION ENTRANCE PROTECTION STONE STABILIZATION PAD

NOT TO SCALE



SILT FENCE DETAIL (TYPE "A")

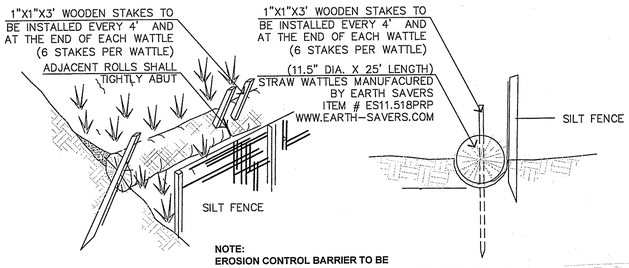
NOT TO SCALE



R.I. STANDARD 9.2.0

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 AN 4'–0"D (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.

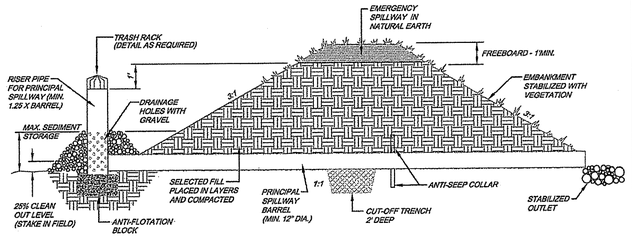
PLAN LEGEND:
LIMIT OF WORK/ SILT FENCE TYPE "A"
LIMIT OF WORK/ SILT FENCE TYPE "A" WITH STRAW WATTLE



NOTE:
EROSION CONTROL BARRIER TO BE INSTALLED PER MANUFACTURERS SPECIFICATIONS

SILT FENCE/STRAW WATTLE SEDIMENT BARRIER

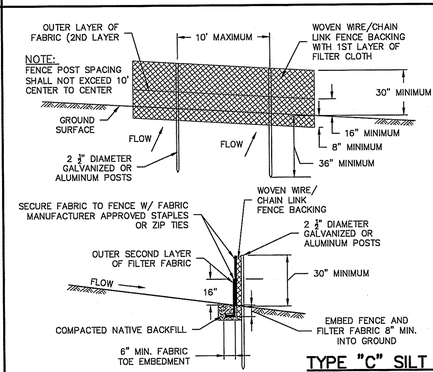
NOT TO SCALE



NOTES:
1) BASIN DEWATERING MUST OCCUR WITHIN 2 TO 7 DAYS.
2) INLET PROTECTION MUST BE PROVIDED AT RISER. WASHED STONE ON PERFORATED PIPE, GRAVEL HORSESHOE, SKIMMER OR ALTERNATE METHOD OF DEWATERING BASIN MUST BE IMPLEMENTED.

TEMPORARY PERFORATED RISER DETAIL

NOT TO SCALE



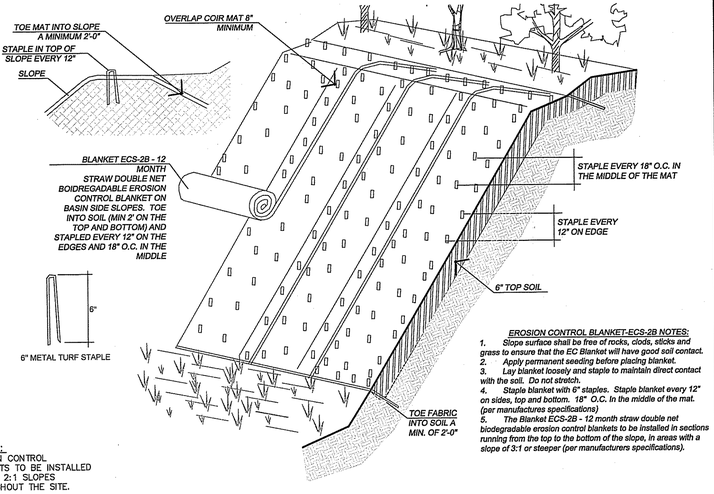
TYPE "C" SILT FENCE

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS:

1. WOVEN WIRE/CHAIN LINK FENCE SHALL BE FASTENED SECURELY TO THE FENCE POSTS WITH WIRE TIES.
2. FILTER CLOTH SHALL BE FASTENED SECURELY TO THE WOVEN WIRE/CHAIN LINK FENCE WITH TIES SPACED EVERY 24" AT THE TOP AND MID SECTION.
3. FILTER CLOTH SHALL BE EMBEDDED A MINIMUM OF 8" INTO THE GROUND WITH AN ADDITIONAL 6" MINIMUM TOE EMBEDMENT.
4. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 6" AND FOLDED.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND SILT BUILDUPS REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE, OR WHEN SILT REACHES 50% OF FENCE HEIGHT.
6. FILTER FABRIC SHALL BE MIRAFI 100 OR APPROVED EQUAL.

PLAN LEGEND:
LIMIT OF WORK/ SILT FENCE TYPE "C" WITH STRAW WATTLE

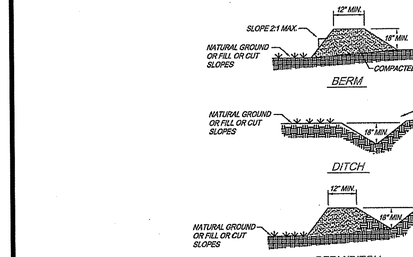


NOTES:
EROSION CONTROL BLANKETS TO BE INSTALLED ON ALL 2:1 SLOPES THROUGHOUT THE SITE.

EROSION CONTROL BLANKET-ECS-2B NOTES:
1. Slope surface shall be free of rocks, clods, sticks and grass to ensure that the EC Blanket will have good soil contact.
2. Apply permanent seeding before placing blanket.
3. Lay blanket loosely and staple to maintain direct contact with the soil. Do not stretch.
4. Staple blanket with 6" staples. Staple blanket every 12" on sides, top and bottom. 18" O.C. in the middle of the mat. (per manufactures specifications)
5. The Blanket ECS-2B - 12 month straw double net biodegradable erosion contrd blankets to be installed in sections running from the top to the bottom of the slope, in areas with a slope of 3:1 or steeper (per manufacturers specifications).

EROSION CONTROL BLANKET DETAIL

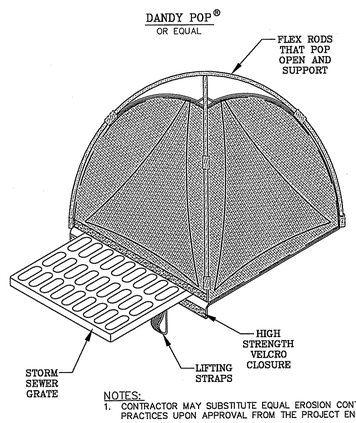
NOT TO SCALE



NOTES:
1. POSITIVE GRADE MUST BE PROVIDED TO ASSURE DRAINAGE. IF SLOPE EXCEEDS 2%, SEED AND MULCH DIVERSION. TRY NOT TO EXCEED 5% (HIGH RUNOFF VELOCITIES RESULT). MAXIMUM DRAINAGE AREA IS 5.00 ACRES WITHOUT SUPPORTING CALCULATIONS FOR PERMANENT CHANNEL. DIVERSIONS AT THE TOPS OF SLOPES MUST EMPTY INTO AN APPROVED SLOPE DRAIN (SEE DETAILS). THE BERM/DITCH IS THE MOST COMMONLY USED DIVERSION.
2. MACHINE COMPACTION OF ALL FILL IS REQUIRED.
3. DIVERSIONS SUFFICIENT TO DIRECT ALL SEDIMENT-LADEN STORMWATER INTO SEDIMENT CONTROL DEVICE MUST BE INSTALLED PRIOR TO CLEARING AND GRUBBING OF AREA (OR IN CONJUNCTION WITH THIS OPERATION IF SEDIMENT CONTROLS AND DIVERSIONS ARE INSTALLED AT EACH CRITICAL POINT AS INDICATED).
4. DIVERSIONS SHOULD BE LOCATED TO MINIMIZE DAMAGES BY CONSTRUCTION OPERATIONS.
5. DIVERSIONS SHOULD BE SEEDED AND MULCHED IF THEY ARE TO REMAIN IN PLACE OVER 14 DAYS.
6. CHECK DIVERSIONS AFTER EACH RAIN, OR ONCE PER WEEK WHICH EVER IS THE SHORTER DURATION. REPAIR AS NEEDED TO MAINTAIN FUNCTION.

TEMPORARY DIVERSION BERM/DITCH

NOT TO SCALE



NOTES:
1. CONTRACTOR MAY SUBSTITUTE EQUAL EROSION CONTROL PRACTICES UPON APPROVAL FROM THE PROJECT ENGINEER.

CATCH BASIN INLET SEDIMENT CONTROL DEVICES

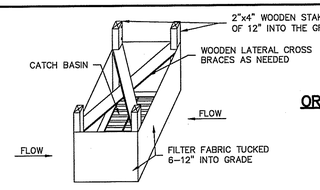
NOT TO SCALE

SOIL EROSION/SEDIMENTATION CONTROL OPERATION TIME SCHEDULE

NOTE: GENERAL CONTRACTOR TO COMPLETE TABLE WITH THEIR SPECIFIC PROJECT SCHEDULE

CONSTRUCTION SEQUENCE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
TEMPORARY CONSTRUCTION EXITS																		
TEMPORARY CONTROL MEASURES																		
SEDIMENT CONTROL BASINS																		
STRIP & STOCKPILE TOPSOIL																		
ROUGH GRADE																		
STORM FACILITIES																		
SITE CONSTRUCTION																		
PERMANENT CONTROL STRUCTURES																		
FOUNDATION / BUILDING CONSTRUCTION																		
FINISH GRADING																		
LANDSCAPING/SEED/FINAL STABILIZATION																		

1) CONTRACTOR SHALL UPDATE THE TABLE BY SHADING OR DATING THE APPLICABLE ACTIVITIES AS PROJECT PROGRESSES.
2) TIME SCHEDULE MUST COINCIDE WITH SEQUENCE OF CONSTRUCTION.



SILT FENCE INSTALLATION FOR CATCH BASINS

STRAW FILTER INSTALLATION FOR CATCH BASINS

NOTES:
1. ALL STORMWATER INLETS MUST BE PROTECTED UNTIL THE TRIBUTARY AREAS ARE PERMANENTLY STABILIZED.
2. INLET PROTECTION IN RING ROAD NORTH TO BE MAINTAINED AFTER CONSTRUCTION HAS BEEN COMPLETED
3. SEDIMENT MUST BE REMOVED FROM INLET PROTECTION AFTER EACH STORM.
4. REFER TO LONG TERM/SHORT TERM MAINTENANCE NOTES FOR TIMING OF PLACEMENT AND REMOVAL OF EROSION CONTROL ELEMENTS.
5. CONTRACTOR MAY SUBSTITUTE EQUAL EROSION CONTROL PRACTICES UPON APPROVAL FROM THE PROJECT ENGINEER.

CATCH BASIN EROSION CONTROL

NOT TO SCALE

RECEIVED
OCT 23 2009
RIDEM/OWR
FRESHWATER WETLANDS

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED _____ FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Charles A. Horbert

NOTE:
THIS REGULATORY SUBMISSION SET SHALL NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED "ISSUED FOR CONSTRUCTION" AND SIGNED AND DATED BY A DIPRETE ENGINEERING REPRESENTATIVE

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DATE	DESCRIPTION	BY
8-17-07	RIDEM Submission	J.P.C.
1-25-08	RIDEM Submission	J.P.C.
5-15-08	RIDEM Submission	J.P.C.
8-15-08	RIDEM Submission	J.P.C.
12-24-08	RIDEM Submission	J.P.C.
2-24-09	RIDEM Permit Modification Resubmission	B.C.G.
5-22-09	RIDEM Permit Modification	B.C.G.
6-29-09	RIDEM Response to Comments	B.C.G.
7-24-09	RIDEM Response to Comments	B.C.G.
8-31-09	RIDEM Submission	B.C.G.
10-6-09	RIDEM Submission	B.C.G.

RIDEM Submission

EROSION CONTROL DETAILS

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DWN. BY: J.P.C.
DATE: MAY, 2007
DEA Job No. 0617-004-2

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No. 6610
REGISTERED PROFESSIONAL ENGINEER
STATE OF RHODE ISLAND

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of 89

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CONSTRUCTION/POST CONSTRUCTION MONITORING

THE FOLLOWING MONITORING PROTOCOL SHALL BE IMPLEMENTED FOR THE DOWLING VILLAGE PROPOSED STORMWATER MANAGEMENT PLAN.

1. DISCHARGE MONITORING REPORT (DMR) SHALL BE SUBMITTED ANNUALLY TO THE TOWN OF NORTH SMITHFIELD WITH COPIES TO THE VASG AND RIDEM.

2. RECORDS OF MONITORING INFORMATION SHALL INCLUDE:
   a. THE DATE, EXACT PLACE, AND TIME OF SAMPLING OF MEASUREMENTS;
   b. THE INDIVIDUAL(S) WHO PERFORMED THE SAMPLING OF MEASUREMENTS;
   c. THE DATE(S) ANALYSES WERE PERFORMED;
   d. THE INDIVIDUAL(S) WHO PERFORMED THE ANALYSES;
   e. THE ANALYTICAL TECHNIQUES OR METHODS USED;
   f. THE RESULTS OF SUCH ANALYSES; AND
   g. THE RECORDING OF FLOW DEPTHS AT THE TIME OF SAMPLING OR MEASUREMENT.

3. DOWLING VILLAGE SHALL SUBMIT AN ANNUAL (DMR) REPORT TO THE TOWN OF NORTH SMITHFIELD WITH COPIES TO THE VASG AND RIDEM. THE REPORT SHALL INCLUDE:
   a. THE STATUS OF IMPLEMENTING THE COMPONENTS OF THE SWPPP PRESENTED TO THE TOWN OF NORTH SMITHFIELD AND RIDEM;
   b. PROPOSED CHANGES TO THE SWPPP PRESENTED TO THE TOWN OF NORTH SMITHFIELD AND RIDEM;
   c. A SUMMARY OF DATA, INCLUDING MONITORING DATA THAT IS ACCUMULATED THROUGHOUT THE REPORTING YEAR; AND
   d. IDENTIFICATION OF WATER QUALITY IMPROVEMENTS OR DEGRADATION.

4. DOWLING VILLAGE SHALL TAKE WATER QUALITY SAMPLES AT THE SITE PRIOR TO THE START OF CONSTRUCTION. DURING THE ACTIVE CONSTRUCTION OF THE SITE, DOWLING VILLAGE SHALL FOLLOW THE TESTING REQUIREMENTS OF THE SWPPP. INSTALLATION OF PAVEMENT AND ACTIVATION OF DRAINAGE SYSTEMS SHALL CONSTITUTE THE BEGINNING OF THE POST CONSTRUCTION PHASE OF THE PROJECT. THE POST CONSTRUCTION PHASE MAY BE INITIATED AT DIFFERENT TIMES FOR THE VARIOUS WATERSHEDS OF THE PROJECT AS THE CONSTRUCTION IS ANTICIPATED TO BE BUILT IN PHASES. DURING THE 6 MONTHS IMMEDIATELY AFTER CONSTRUCTION, THE RAIN GARDENS (AKA BIORETENTION) SHOULD BE INSPECTED AT LEAST TWICE OR MORE FOLLOWING PRECIPITATION EVENTS OF AT LEAST 1 INCH TO ENSURE THAT THE SYSTEM IS FUNCTIONING PROPERLY (SOURCE: APPENDIX E: MAINTENANCE PLANS, RI STORMWATER DESIGN AND INSTALLATION STANDARDS MANUAL, 2009).

5. FOR THE POST CONSTRUCTION PERIOD AT ALL SITES, COLLECTION AND ANALYSIS OF THE STORM WATER SAMPLES ARE TO BE TAKEN IN ACCORDANCE WITH THE EPA APPROVED TEST METHODS ACCEPTED BY RIDEM FOR A PERIOD OF TWO YEARS, THEN AGAIN AT FIVE YEARS FOLLOWING THE COMPLETION OF PHASES II AND III. IF PHASE IV IS BUILT BY BUCCI DEVELOPMENT OR AN AFFILIATED ENTITY, POST-CONSTRUCTION MONITORING SHOULD CONTINUE FOR ANOTHER 2 YEARS FOLLOWING THE COMPLETION OF PHASE IV FOR BOTH THE BOOTH POND WATERSHED AND THE S SERIES WETLANDS.

6. THE MONITORING SHALL BE DONE 3 TIMES PER YEAR, WITH ONE EVENT IN THE MONTH OF AUGUST. IF THERE IS NOT A SUITABLE MONITORING TIME DURING THE MONTH OF AUGUST, THE TESTING SHALL BE DONE IN SEPTEMBER.

7. THE FOLLOWING WATER QUALITY SAMPLING LOCATIONS WILL BE ESTABLISHED:
   a. G WETLANDS (INTERMITTENT STREAM NEAR WETLANDS FLAG G-10);
   b. A/B/C/D/F SERIES WETLANDS, WHERE CHANNELIZATION OCCURS;
   c. U WETLANDS (INTERMITTENT STREAM NEAR U5)
   d. IN THE EVENT PHASE 4 IS CONSTRUCTED BY BUCCI DEVELOPMENT OR AN AFFILIATED ENTITY, THEN S-SERIES WETLAND, DOWNSTREAM OF POND H (N SMITHFIELD AQUIFER OVERLAY DISTRICT);
   e. INFLOWS AND TO THE EXTENT THAT IT EXISTS, OUTFLOW OF UIB-L. THIS INCLUDES INFLOW FROM RG-K; AND PIPE NETWORK D FROM RETAIL 5 PARKING LOT
   f. CENTER OF BOOTH POND; AND
   g. OUTFLOW FROM BOOTH POND.

   WATER SAMPLES FROM THE INTERMITTENT STREAMS SHOULD BE TAKEN ONLY WHEN FLOW IS PRESENT (I.E. NOT FROM STAGNANT WATER).

8. THE SAMPLES WILL BE EVALUATED FOR THE FOLLOWING PARAMETERS:
   a. TEMPERATURE (SURFACE AND BOTTOM);
   b. PH;
   c. HARDNESS;
   d. CONDUCTIVITY;
   e. PHOSPHORUS – TOTAL PHOSPHOROUS CONCENTRATIONS; ANALYTICAL DETECTION LIMIT – 0.01 MG/L
   f. NITROGEN --TOTAL NITROGEN CONCENTRATIONS AND AMMONIUM/NITRATE/NITRITE; ANALYTICAL DETECTION LIMIT – 0.03 MG/L
   g. FECAL COLIFORM AND ENTEROCOCCI MPN/100 ML
   h. DISSOLVED METALS FOR COPPER, ZINC, LEAD, AND CADMIUM; ANALYTICAL DETECTION LIMITS SHOULD BE SPECIFIED IN ACCORDANCE WITH DEM'S SUMMARY GUIDANCE FOR REVIEWING ENVIRONMENTAL MONITORING DATA:

METAL	ANALYTICAL DETECTION LIMIT
DISSOLVED Cd	1.0 μG/L
DISSOLVED Pb	1.0 μG/L
DISSOLVED Cu	1.0 μG/L
DISSOLVED Zn	2.5 μG/L

   i. TURBIDITY AS NTUS;
   j. WATER CLARITY-- SECCHI DEPTH (BOOTH POND ONLY); AND
   k. CHLOROPHYLL PER UNIT AREA, LAKE TROPHIC STATUS (BOOTH POND ONLY).

9. DOWLING VILLAGE SHALL ESTABLISH BENCHMARK CONCENTRATIONS FOR THE ABOVE LISTED PARAMETERS TO ENSURE THAT THE ASSOCIATED WATER BODIES (BOOTH POND, CROOKFALL BROOK AND SPRING BROOK AND ITS TRIBUTARIES, AND THE ASSOCIATED BRANCH OF THE BLACKSTONE RIVER ARE NOT DEGRADED BY DOWLING VILLAGE. THESE BENCHMARK CONCENTRATIONS SHALL REFLECT STORM WATER FLOW LIMITATIONS, WHICH WHEN MET, WILL ENSURE THAT THE RECEIVING WATER BODIES ARE NOT DEGRADED BEYOND THEIR PRECONSTRUCTION IN-STREAM WATER QUALITY STATUS AS A RESULT OF DOWLING VILLAGE. THESE BENCHMARK CONCENTRATIONS WILL INDICATE IF STORM WATER DISCHARGE FROM THE PROJECT SITE MERITS FURTHER MONITORING AND ACTION TO ENSURE THAT THE PROJECT HAS BEEN SUCCESSFUL IN IMPLEMENTING ITS STORM WATER MANAGEMENT PLAN AND ARE MEETING THE APPLICABLE WATER QUALITY STANDARDS AND USES AS PROVIDED IN THE CLEAN WATER ACT AND THE ANTIDEGRADATION PROVISIONS. AS SUCH, THESE LEVELS REPRESENT A TARGET CONCENTRATION FOR DOWLING VILLAGE TO ACHIEVE THROUGH IMPLEMENTATION OF POLLUTION PREVENTION MEASURES AT THE PROJECT SITE.

10. POST CONSTRUCTION MONITORING WILL ALSO INCLUDE THE FOLLOWING TO MONITOR AND EVALUATE BOOTH POND FOR A PERIOD OF 2 YEARS THEN AGAIN AT FIVE YEARS FOLLOWING COMPLETION OF PHASE II, III AND/OR IV:
   a. INSTALL A PERMANENT WATER LEVEL MONITORING WELL IMMEDIATELY ADJACENT TO BOOTH POND.
   b. MEASURE WATER LEVELS OF BOOTH POND MONTHLY MANUALLY, OR INSTALL A SELF-RECORDING GAUGE FOR FIVE YEARS FOLLOWING COMPLETION OF CONSTRUCTION FOR PHASE III, AND FOR FIVE YEARS FOLLOWING COMPLETION OF PHASE II.
   c. ESTABLISH 5 (FIVE) PERMANENT VEGETATION PLANT TRANSECTS ALONG THE BOOTH POND SHORELINE.
   d. SAMPLE PRIOR TO CONSTRUCTION, AND ANNUALLY TO IDENTIFY ANY VEGETATION CHANGES DUE TO HYDROLOGY OR DISTURBANCE CHANGES, INCLUDING SAMPLING FOR INVASIVE SPECIES.

11. IF THE MONITORING FOR BOOTH POND AS DESCRIBED ABOVE REVEALS DELETERIOUS CHANGES TO THE POND'S VEGETATION, PH, HYDROLOGY, AND/OR OTHER PARAMETERS AFFECTING THE BIOLOGICAL, CHEMICAL, OR PHYSICAL INTEGRITY, DOWLING VILLAGE WILL UNDERTAKE APPROPRIATE STUDIES TO DETERMINE THE CAUSE OF THE CHANGE(S), AND IF THE STUDIES REVEAL THAT DOWLING VILLAGE IS THE CAUSE OF THE CHANGE(S), DOWLING VILLAGE WILL MONITOR AND SUBSEQUENTLY CORRECT AND MITIGATE THE SOURCES AND CAUSES OF THE CHANGES. DOWLING VILLAGE WILL INCLUDE THE MONITORING RESULTS, STUDIES AND PROPOSED MITIGATION PLANS IN THE ANNUAL REPORTS TO THE TOWN OF NORTH SMITHFIELD WITH COPIES TO THE VASG AND RIDEM.

12. GROUNDWATER QUALITY PROTECTION:
   a. GROUNDWATER QUALITY MONITORING WILL BE PERFORMED ALONG THE SOUTHERLY PROPERTY LINE OF DOWLING VILLAGE IN THE VICINITY OF DOWLING VILLAGE BOULEVARD AND RETAIL 10. BUCCI DEVELOPMENT WILL INSTALL A BEDROCK MONITORING WELL ADJACENT TO DOWLING VILLAGE BOULEVARD STATION 36+00 ALONG THE SOUTHERLY SIDE OF THE ROAD. IN ADDITION, A GROUNDWATER MONITORING WELL WILL BE INSTALLED WEST OF BOOTH POND AS INDICATED ON SHEET 15. THESE WELLS WILL BE USED TO MONITOR WATER QUALITY WITHIN THE BEDROCK.

   b. THE SAMPLES WILL BE EVALUATED FOR THE FOLLOWING PARAMETERS:
   i. pH;
   ii. HARDNESS;
   iii. CONDUCTIVITY;
   iv. PHOSPHORUS -- TOTAL PHOSPHOROUS CONCENTRATIONS;
   v. NITROGEN --TOTAL NITROGEN CONCENTRATIONS AND AMMONIUM/NITRATE/NITRITE;
   vi. FECAL COLIFORM AND ENTEROCOCCI MPN/100 ML;
   vii. DISSOLVED METALS FOR COPPER, ZINC, LEAD, AND CADMIUM;
   c. GROUNDWATER SAMPLES SHALL BE COLLECTED ON THE SAME SCHEDULE AND FREQUENCY AS THE SURFACE WATER SAMPLES, AS STATED ABOVE.

STRUCTURAL MEASURES

1. PRIOR TO ANY SITE GRADING OR SITE WORK, THE CONTRACTOR SHALL INSTALL ALL SPECIFIED SEDIMENT AND EROSION CONTROLS, WHICH WILL ALSO SERVE AS THE LIMIT OF CONSTRUCTION. THE SEDIMENT CONTROLS WILL BE A SILT FENCE WHICH HAS BEEN ENTRENCHED INTO THE GROUND, AND A STRAW WATTLE WHICH HAS BEEN STAKED IN FRONT OF THE SILT FENCE USING 6 STAKES/25' LENGTH OF WATTLE. PLEASE NOTE THAT THIS PLAN SPECIFIES THE USE OF STRAW WATTLES INSTEAD OF HAY BALES, AS THE STRAW WATTLES ALLOW FOR A LONGER CONTINUOUS UNBROKEN BARRIER, AND THEY DO NOT CONTAIN WEED SEEDS AS ARE FOUND IN HAY BALES. BEFORE WORK BEGINS, THE EROSION AND SEDIMENT CONTROLS SHALL BE INSPECTED BY THE INDEPENDENT EROSION CONTROL MONITOR.

2. RUNOFF WATER QUALITY IS IMPROVED UTILIZING WATER QUALITY/ SEDIMENTATION BASINS, SWALES, MICRO-POOL EXTENDED DETENTION BASINS AND RAIN GARDENS. CONSTRUCTION OF THE MICRO-POOL EXTENDED DETENTION BASINS AND RAIN GARDENS SHALL BE SUPERVISED BY THE DESIGN ENGINEER AND THE EROSION CONTROL CONSULTANT. THE MICRO-POOL EXTENDED DETENTION BASINS SHALL BE BUILT TO CONTROL RUNOFF FOR 2 THROUGH 100 YEAR STORM FREQUENCIES. SIDE SLOPES WITHIN THE DETENTION BASINS SHALL BE 3:1 MAXIMUM, UNLESS NOTED OTHERWISE. ALL EMBANKMENTS OF THE BASINS SHALL BE THOROUGHLY COMPACTED UPON PLACEMENT IN STRICT CONFORMANCE WITH R.I. STANDARD SPECIFICATION SECTION 202. THE EMERGENCY SPILLWAY SHALL BE PROTECTED BY RIP RAP DOWNSTREAM AND UPSTREAM. A GRADUATED GAGE IS TO BE SET WITHIN THE BASIN TO MONITOR ACCUMULATED SEDIMENTS. A REPORT AND PLAN OF AS-BUILT CONSTRUCTION SHALL BE MADE AVAILABLE TO THE TOWN OF NORTH SMITHFIELD.

3. A 100 FOOT (MINIMUM) CONSTRUCTION EXIT CONSISTING OF 3"-5" CRUSHED STONE SHALL BE CONSTRUCTED AT THE SITE ENTRANCES TO SHED DIRT FROM CONSTRUCTION VEHICLE TIRES AND REDUCE THE TRACKING OR FLOWING OF SEDIMENT ONTO THE PUBLIC RIGHT OF WAY.

4. THE DETENTION BASINS SHALL BE EXCAVATED AND USED AS SEDIMENTATION BASINS DURING CONSTRUCTION. DURING SITE GRADING, RUNOFF WATER FROM THE SITE SHALL BE DIRECTED INTO THESE BASINS.

5. ADDITIONAL SMALL SEDIMENTATION BASINS MAY BE CONSTRUCTED ON AN AS-NEEDED BASIS DURING CONSTRUCTION TO AID IN THE CAPTURE OF SITE RUNOFF AND SEDIMENT. IT WILL BE THE RESPONSIBILITY OF THE SITE CONTRACTOR, IN CONSULTATION WITH THE PROJECT ENGINEER (DIPRETE ENGINEERING) AND EROSION CONTROL MONITOR (NEE INC.), TO CREATE THESE BASINS IN APPROPRIATE LOCATIONS AND NOT CREATE ADDITIONAL EROSION ISSUES IN THE CONSTRUCTION PROCESS.

6. ALL DRAINAGE PIPE OUTLETS TO HAVE RIP RAP APRONS OVERLAID WITH TURF REINFORCEMENT MATS, TOP SOIL AND SEEDED WITH NEW ENGLAND EROSION CONTROL SEED MIX. LEVEL SPREADERS SHALL BE INSTALLED AT DRAINAGE PIPES OUTLETS WHERE SPECIFIED ON THE DESIGN PLANS.

7. UPON INSTALLATION OF EACH CATCH BASIN, THE CONTRACTOR SHALL INSTALL A SILT SACK, A DOMED INLET PROTECTOR, OR OTHER APPROVED DEVICE TO TRAP SEDIMENT.

8. IN AN EFFORT TO REDUCE THE LOAD OF SUSPENDED SOLIDS FROM LEAVING THE SITE, ONE FLOC LOG(R) SHALL BE INSTALLED WITHIN EACH CONSTRUCTED CATCH BASIN DURING CONSTRUCTION. ADDITIONALLY, 2-4 FLOC LOGS(R) E TO BE PLACED AT EACH OUTLET DISCHARGE LOCATION, OR AS DIRECTED BY THE INDEPENDENT EROSION CONTROL MONITOR.

9. THE SITE CONSTRUCTION FOREMAN SHALL HAVE THE OVERALL RESPONSIBILITY FOR STRUCTURAL MEASURE IMPLEMENTATION AND FOR SEEING THAT THE APPROPRIATE WORKERS ARE AWARE OF THE PROVISIONS OF THE PLAN.

10. REFERENCE THE "RHODE ISLAND SOIL EROSION AND SEDIMENT CONTROL HANDBOOK" PREPARED BY USDA SOIL CONSERVATION SERVICE 1989, AS A GUIDE.

CONSTRUCTION INSPECTION NOTES

THE FOLLOWING PROCEDURES SHALL BE FOLLOWED BY THE CONTRACTOR UNDER THE DIRECTION OF THE DEVELOPER OR DESIGNATED REPRESENTATIVE IN THE CONSTRUCTION OF THE PROPOSED SITE IMPROVEMENTS:

1. PRE-CONSTRUCTION MEETING: A PRE-CONSTRUCTION MEETING SHALL BE HELD WITH THE CIVIL ENGINEERING CONSULTANT (CEC) AT LEAST SEVEN (7) DAYS PRIOR TO THE START OF CONSTRUCTION. THE DEVELOPER (OR HIS DULY AUTHORIZED REPRESENTATIVE) AND THE ON-SITE PROJECT MANAGER SHALL ATTEND THIS MEETING.

2. NOTIFICATION: NO STEP IN THE CONSTRUCTION OF REQUIRED IMPROVEMENTS SHALL COMMENCE UNTIL THE DEVELOPER AND CEC HAVE BEEN NOTIFIED AT LEAST TWENTY-FOUR (24) HOURS IN ADVANCE OF THE PHASES OF CONSTRUCTION LISTED IN SECTION 3 BELOW.

3. INSPECTION OF IMPROVEMENTS: INSPECTION AND APPROVAL BY THE DEVELOPER AND THE CEC SHALL BE REQUIRED FOR THE FOLLOWING PHASES OF DEVELOPMENT IMPROVEMENTS:
   A. DURING AND FOLLOWING INSTALLATION OF ALL UNDERGROUND DRAINAGE STRUCTURES, SYSTEMS AND UTILITIES PRIOR TO BACK FILLING;
   B. DURING AND FOLLOWING THE PREPARATIONS OF THE ROAD SUB-GRADE AND SHOULDERS;
   C. DURING AND FOLLOWING THE SPREADING AND COMPACTION OF THE SUB-BASE COURSE;
   D. DURING AND FOLLOWING THE SPREADING AND COMPACTION OF THE BASE COURSE PRIOR TO THE APPLICATION OF THE ASPHALT BINDER COURSE;
   E. IMMEDIATELY PRIOR TO AND DURING THE APPLICATION AND COMPACTION OF THE ASPHALT SURFACE COURSE ON THE ROADWAYS AND, IF REQUIRED, SIDEWALKS;
   F. FOLLOWING COMPLETION OF ALL IMPROVEMENTS AND INSTALLATION OF BOUNDS; AND,
   G. AT PERIODIC INTERVALS AS REQUIRED TO ENSURE COMPLIANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.

   THE DEVELOPER OR CEC MAY REQUIRE INSPECTION AT SUCH OTHER INTERVALS AS HE/SHE MAY DEEM NECESSARY TO ASSURE PROPER CONSTRUCTION OF IMPROVEMENTS.

4. REQUEST FOR INSPECTION: WHENEVER AN INSPECTION IS REQUIRED THE CONTRACTOR SHALL REQUEST THE CEC TO MAKE SUCH INSPECTION. THE CEC SHALL WITHIN 48 HOURS EXCLUSIVE OF SATURDAY, SUNDAY AND HOLIDAYS, MAKE SUCH INSPECTION AND GIVE TO THE CONTRACTOR WRITTEN APPROVAL OR DISAPPROVAL OF THE IMPROVEMENTS INSPECTED BY HIM/HER. NO SUBSEQUENT STEP OR PHASE SHALL COMMENCE UNTIL AN INSPECTION HAS BEEN MADE AND APPROVAL GRANTED.

5. AS-BUILT DRAWINGS: AS REQUIRED BY THE DEVELOPER, UPON COMPLETION OF CONSTRUCTION OF ALL REQUIRED IMPROVEMENTS THE CEC SHALL PREPARE, AT THE COST OF THE DEVELOPER, AS-BUILT DRAWINGS OF THE REQUIRED IMPROVEMENTS AND PROVIDE THEM TO THE DEVELOPER.

MICRO-POOL EXTENDED DETENTION BASIN CONSTRUCTION SEQUENCING

1. FOLLOWING CLEARING, GRUBBING AND STRIPPING OF UNSUITABLE MATERIALS TEMPORARY DRAINAGE CONTROLS SHALL BE INSTALLED.

2. AS EARTHWORK OPERATIONS PROCEED, THE PROPOSED MICRO-POOL EXTENDED DETENTION BASIN LOCATIONS CAN BE USED FOR SEDIMENTATION BASINS DURING CONSTRUCTION.

3. ROUGH GRADE THE MICRO-POOL EXTENDED DETENTION BASINS IN ACCORDANCE WITH THE DESIGN PLANS.

4. ALL LEDGE IS TO BE REMOVED FROM WITHIN 3 FEET OF BOTTOM OF EACH MICRO-POOL EXTENDED DETENTION BASINS AND OVERLAIN WITH A MINIMUM OF 30 INCHES OF SANDY LOAM MATERIAL.

5. RIP RAP BERMS, RIP RAP OUTLET PROTECTION AND TEMPORARY OUTLET CONTROL STRUCTURES MAY BE USED AS NECESSARY TO CONTROL STORMWATER RUNOFF.

6. THE DETENTION PONDS SHALL BE TEMPORARILY SEEDED FOR USE AS SEDIMENTATION BASINS THROUGHOUT CONSTRUCTION.

7. FOLLOWING PERMANENT STABILIZATION OF THE AREAS TRIBUTARY TO A DETENTION POND THE DETENTION POND AND ASSOCIATED DRAINAGE NETWORK SHALL BE CLEANED OF ALL ACCUMULATED SEDIMENTS.

8. TEMPORARY VEGETATION SHALL BE REMOVED FROM THE DETENTION POND AND FINAL GRADING OF THE DETENTION POND SHALL BE COMPLETED IN ACCORDANCE WITH THE DESIGN PLANS.

9. INSTALL RIP RAP PROTECTION AS SPECIFIED ON DESIGN PLANS. RIP RAP PADS AT INLETS TO THE PROPOSED DETENTION PONDS ARE TO BE OVERLAIN WITH TOPSOIL AND TURF REINFORCEMENT MATS AND PLANTED IN ACCORDANCE WITH THE OUTLET SPLASH PAD DETAIL BY NEW ENGLAND ENVIRONMENTAL, INC. THE OUTFALLS FROM THE PROPOSED DETENTION PONDS SHALL INCORPORATE THE STONE BASIN INFILTRATION TRENCHES WHERE SPECIFIED ON THE DESIGN PLANS. IF THE STONE BASIN INFILTRATION TRENCH IS NOT SPECIFIED AT AN OUTFALL LOCATION THEN RIP RAP PADS OVERLAIN WITH TOPSOIL AND TURF REINFORCEMENT MATS SHALL BE INSTALLED AS SPECIFIED ON THE DESIGN PLANS.

10. A MINIMUM OF 6 INCHES OF LOAM SHALL BE INSTALLED IN EACH DETENTION POND.

11. INSTALL PROPOSED PLANTINGS AND PERMANENT SEEDING IN ACCORDANCE WITH THE PLANS BY NEW ENGLAND ENVIRONMENTAL INC.

ESTABLISHMENT OF VEGETATIVE COVER

1. SLOPES SHALL NOT BE LEFT UNATTENDED OR EXPOSED FOR EXCESSIVE PERIODS OF TIME SUCH AS THE INACTIVE WINTER SEASON. THE CONTRACTOR SHOULD INITIATE APPROPRIATE STABILIZATION PRACTICES ON ALL DISTURBED AREAS AS SOON AS POSSIBLE BUT NOT MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT AREA HAS TEMPORARILY OR PERMANENTLY CEASED, UNLESS THE ACTIVITY IS TO RESUME WITHIN 14 DAYS.

2. ALL DISTURBED SLOPES EITHER NEWLY CREATED OR CURRENTLY EXPOSED SHALL BE SEEDED OR PROTECTED AS SOON AS POSSIBLE BUT NOT MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY HAS TEMPORARILY OR PERMANENTLY CEASED.

3. THE TOPSOIL SHALL HAVE A SANDY LOAM TEXTURE RELATIVELY FREE OF SUBSOIL MATERIAL, STONES, ROOTS, LUMPS OF SOIL, TREE LIMBS, AND TRASH OR CONSTRUCTION DEBRIS AND SHALL CONFORM TO RHODE ISLAND'S STANDARD SPECIFICATION, M.20.

4. THE SEEDING DESIGN MIX SHALL BE AS SHOWN ON THE "STORMWATER MANAGEMENT/WATER QUALITY PLANS". EARLY SPRING OR LATE SUMMER SEEDING IS RECOMMENDED. THE SEED MIX SHALL BE INOCULATED WITHIN 24 HOURS AND BEFORE MIXING AND PLANTING, WITH APPROPRIATE INOCULUMS FOR EACH VARIETY.

5. ALL TEMPORARY PROTECTION SHALL REMAIN IN PLACE UNTIL 80% VEGETATIVE COVER OR APPROVED GROUND COVER IS ESTABLISHED.

6. ALL FILL SHALL BE THOROUGHLY COMPACTED UPON PLACEMENT IN STRICT CONFORMANCE WITH LOCAL MUNICIPAL REQUIREMENTS AND THE RHODE ISLAND STANDARD SPECIFICATION FOR ROAD AND BRIDGE SECTION 202.

7. STOCKPILES OF TOPSOIL SHALL NOT BE LOCATED NEAR WATERWAYS. THEY SHALL HAVE SIDE SLOPES NO GREATER THAN 2:1. ANY AREAS of SOIL STOCKPILES THAT WILL REMAIN INACTIVE FOR 14 OR MORE DAYS WILL BE COVERED WITH A LAYER OF STRAW MULCH APPLIED AT A RATE OF 40 KILOGRAMS PER 100 SQUARE METERS (90 LBS. PER 1,000 SQUARE FEET). THE MULCH IS TO BE ANCHORED WITH A TACKING COAT APPLIED BY HYDRO-SEEDER OR ANCHORED WITH NETTING AFFIXED WITH WIRE STAPLES. A SEDIMENT BARRIER SHALL BE INSTALLED ENCOMPASSING THE SOIL STOCKPILE. ALTERNATELY, THE SOIL STOCKPILES MAY BE COVERED WITH A PLASTIC TARP, ANCHORED AND SURROUNDED BY SILT FENCE.

8. MAXIMUM PERMANENT GRADED SLOPE WITHIN THE SITE IS TO BE 3:1 UNLESS NOTED OTHERWISE. 3:1 SLOPES SHALL BE GRASSED AND/OR VEGETATED AS SHOWN ON PLANS. EROSION CONTROL BLANKETS SHALL BE INSTALLED ON ALL SLOPES STEEPER THAN 3:1. RIP RAP SHALL BE USED ON SLOPES 1:1 OR STEEPER.

9. ALL AREAS PROPOSED TO BE VEGETATED THAT ARE DISTURBED BY CONSTRUCTION SHALL BE STABILIZED WITH PERMANENT SEEDING WITHIN 14 DAYS FOLLOWING FINISH GRADING. PERMANENTLY SEEDED AREAS SHALL BE PROTECTED DURING ESTABLISHMENT WITH MULCH OR EROSION CONTROL BLANKETS. ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND OF VEGETATION IS ESTABLISHED AND MAINTAINED. BARE OR ERODED AREAS SHALL BE IMMEDIATELY REPAIRED AND RESEEDED BY THE CONTRACTOR. ACTIVITIES SHALL BE CONFINED TO WITHIN THE LIMIT OF WORK AS SHOWN ON THE PLANS.

10. THE SITE CONSTRUCTION FOREMAN SHALL HAVE THE 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 TO THE OWNER.

11. ONCE THE FINAL PAVEMENT HAS BEEN INSTALLED, THE SITE HAS BEEN LOAMED AND SEEDED, THE DETENTION BASINS ARE AT THE FINAL GRADES AND FUNCTIONAL, AND THE SITE IS STABLE, THE SEDIMENT AND EROSION CONTROLS MAY BE REMOVED AND THE AREA SEEDED AS NECESSARY.

12. REFERENCE THE "RHODE ISLAND SOIL EROSION AND SEDIMENTATION CONTROL HANDBOOK" PREPARED BY THE USDA SOIL CONSERVATION SERVICE 1989 AS A GUIDE.

NON-STRUCTURAL MEASURES

1. CONSTRUCTION TRAFFIC SHALL BE LIMITED TO THE ACCESS ROAD, UTILITY EASEMENTS AND AREAS TO BE GRADED.

2. TOPSOIL SHALL BE STRIPPED FROM AREAS TO BE GRADED AND STOCKPILED FOR LATER USE. STOCKPILE LOCATION SHALL BE SUBJECT TO APPROVAL BY THE PROJECT ENGINEER OR EROSION CONTROL CONSULTANT. A SEDIMENT BARRIER SHALL SURROUND ALL TOPSOIL STOCKPILES.

3. ALL TYPES OF WASTE GENERATED AT THE SITE SHALL BE DISPOSED OF IN A MANNER CONSISTENT WITH STATE LAW AND/OR REGULATIONS. CONSTRUCTION DEBRIS SHALL BE DISPOSED OF DAILY TO AVOID EXPOSURE TO PRECIPITATION.

4. DEBRIS AND SEDIMENT SHALL NOT BE STORED WITHIN ANY RESOURCE AREA OR ASSOCIATED BUFFER ZONE. SEDIMENT REMOVED FROM CONTROL MEASURES AND DRAINAGE FACILITIES SHALL BE DISPOSED OF IN A MANNER CONSISTENT WITH FEDERAL, STATE AND LOCAL REGULATIONS.

5. THE SITE CONSTRUCTION FOREMAN SHALL HAVE THE OVERALL RESPONSIBILITY FOR PLAN IMPLEMENTATION OF NON-STRUCTURAL MEASURES AND FOR SEEING THAT THE APPROPRIATE WORKERS ARE AWARE OF THE PROVISIONS OF THE PLAN.

6. REFERENCE THE "RHODE ISLAND SOIL EROSION AND SEDIMENT CONTROL HANDBOOK" PREPARED BY THE USDA SOIL CONSERVATION SERVICE 1989, AS A GUIDE.

SEQUENCE OF CONSTRUCTION AND STAGING OF LAND DISTURBING ACTIVITIES

1. CONSTRUCTION TO BEGIN IN THE SUMMER OF 2009 OR UPON RECEIPT OF ALL NECESSARY APPROVALS.
2. INSTALL TEMPORARY CONSTRUCTION ENTRANCES IN LOCATIONS SHOWN ON PLANS. NO OTHER ENTRANCES SHALL BE USED TO GAIN ACCESS TO THE SITE BY ANY CONSTRUCTION OR DELIVERY VEHICLES.
3. SURVEY AND STAKE CENTERLINE OF THE PROPOSED ROADS, DETENTION BASINS, DRAINAGE LINES, AND LIMIT OF SEDIMENTATION BARRIERS/LIMIT OF DISTURBANCE.
4. PLACE SEDIMENTATION BARRIERS (STRAW WATTLES/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/LIMIT OF DISTURBANCE AS SHOWN ON THE PROJECT PLANS AS APPROVED BY THE RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT.
5. EXCAVATE AND GRADE THE PROPOSED DETENTION BASINS AND ANY ADDITIONAL TEMPORARY BASINS NECESSARY TO CONTROL SITE RUNOFF AND SEDIMENTS. PERMANENT DETENTION BASINS SHALL BE TEMPORARILY SEEDED. PERMANENT DETENTION BASIN SEEDING AND PLANTING SHALL BE COMPLETED AFTER THE AREA TRIBUTARY TO THE BASIN HAS REACHED A MINIMUM 80% STABILIZATION AND IS NO LONGER REQUIRED TO BE USED AS A CONSTRUCTION SEDIMENTATION BASIN.
6. BEGIN CLEARING AND GRUBBING IN AREA OF ROADWAYS AND DETENTION BASINS. TOPSOIL IS TO BE STRIPPED FROM THE AREA OF THE PROPOSED ROADWAYS AND DETENTION BASINS AND STOCKPILED IN APPROVED LOCATIONS. TOPSOIL STOCKPILES ARE TO BE PROTECTED BY A SEDIMENT BARRIER.
7. INSTALL TEMPORARY CONVEYANCE DEVICES (SWALES, CHECK DAMS, PIPES) AS NECESSARY TO CONVEY RUNOFF TO TREATMENT AREAS.
8. BEGIN ROUGH GRADING AREAS FOR ROADS PARKING AND BUILDINGS. BRING ROUGH GRADING TO PROPER ELEVATIONS AS SOON AS PRACTICABLE. WORK SHALL PROGRESS DILIGENTLY TO MINIMIZE TIME SOILS ARE UN-STABILIZED.
9. BEGIN UTILITY CONSTRUCTION (WATER, SEWER, ELECTRIC, TELEPHONE AND CABLE). CONTRACTOR SHALL BE FREE TO INSTALL UTILITIES IN ANY ORDER HE/SHE CHOOSES. ANY EROSION CONTROL DEVICE DISTURBED DURING THE UNDERGROUND UTILITY CONSTRUCTION SHALL BE IMMEDIATELY REPAIRED OR REPLACED IN KIND AND STABILIZED. MODIFY TEMPORARY CONVEYANCE DEVICES (SWALES, CHECK DAMS, PIPES) AS NECESSARY TO CONVEY RUNOFF TO TREATMENT AREAS.
10. INSTALL DRAIN PIPING, DRAINAGE MANHOLES AND CATCH BASINS, AND UNDERGROUND DETENTION BASINS. WORK SHALL BEGIN AT THE DETENTION BASINS AND PROGRESS UP-GRADIENT. PROTECT DISCHARGE OUTLETS WITH RIP-RAP APRONS. THE DETENTION BASINS AND DRAINAGE NETWORK ARE TO BE PROTECTED FROM SEDIMENT UNTIL ALL UN-STABILIZED AREAS ARE STABILIZED WITH STONE SUB-BASE OR VEGETATION. INSTALL SEDIMENT BARRIERS AT ALL POINTS OF ENTRY INTO THE DRAINAGE NETWORK. PARTICULAR CARE SHALL BE TAKEN TO PROTECT THE UNDERGROUND DETENTION BASINS FROM SEDIMENT.
11. BUILDING CONSTRUCTION MAY BEGIN UPON COMPLETION OF 10.
12. PERMANENTLY SEED ALL DISTURBED AREAS OUTSIDE OF THE AREA TO BE PAVED.
13. ONCE ALL UNDERGROUND UTILITIES HAVE BEEN CONSTRUCTED. PLACE COMPACTED GRAVEL FOUNDATION AND ROUGH GRADE THE ROADWAY IN ACCORDANCE WITH THE SITE PLANS AND IN ACCORDANCE WITH THE TOWN OF NORTH SMITHFIELD, RHODE ISLAND, LAND DEVELOPMENT AND SUBDIVISION REGULATIONS AS SOON AS POSSIBLE.
14. BEGIN ROAD AND PARKING CONSTRUCTION PER SITE PLANS AND IN ACCORDANCE WITH THE TOWN OF NORTH SMITHFIELD, RHODE ISLAND, LAND DEVELOPMENT AND SUBDIVISION REGULATIONS.
15. FINISH PERMANENT STABILIZATION. SWEEP THE ROADWAY TO REMOVE ALL SEDIMENTS. REPAIR DRAINAGE OUTLETS AND BASINS AS REQUIRED. THE CONTRACTOR SHALL CLEAN AND FLUSH THE DRAINAGE STRUCTURES AND PIPES AT THE END OF CONSTRUCTION AND ALL ACCUMULATED SEDIMENTS IN THE DETENTION BASINS SHALL BE REMOVED. CONTRACTOR SHALL INSPECT THE DRAINAGE NETWORK AND REPAIR ANY DAMAGE IMMEDIATELY.
16. COMPLETE ALL REMAINING PLANTING AND SEEDING.
17. REMOVAL OF ALL TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROL MEASURES FOLLOWING VEGETATIVE ESTABLISHMENT OF ALL DISTURBED AREAS SHALL BE APPROVED BY THE PROJECT ENGINEER OR EROSION CONTROL CONSULTANT AND WHEN THE TRIBUTARY AREA HAS REACHED A MINIMUM 80% STABILIZATION.

INTEGRATED PEST MANAGEMENT PLAN

AN INTEGRATED PEST MANAGEMENT PLAN (IPM) SHOULD BE DEVELOPED FOR DOWLING VILLAGE TO REDUCE HERBICIDES AND PESTICIDES FROM THE STORMWATER RUNOFF. THERE ARE MANY WAYS IN WHICH CHEMICAL APPLICATIONS MAY BE REDUCED OR ELIMINATED TO REDUCE RISKS OF DOWNSTREAM AND OFFSITE AQUATIC ANIMALS, SUCH AS DRAGONFLY NYMPHS. ACCORDING TO THE USEPA, INTEGRATED PEST MANAGEMENT (IPM) IS AN EFFECTIVE AND ENVIRONMENTALLY SENSITIVE APPROACH TO PEST MANAGEMENT THAT RELIES ON A COMBINATION OF COMMON-SENSE PRACTICES. IPM PROGRAMS USE CURRENT, COMPREHENSIVE INFORMATION ON THE LIFE CYCLES OF PESTS AND THEIR INTERACTION WITH THE ENVIRONMENT. THIS INFORMATION, IN COMBINATION WITH AVAILABLE PEST CONTROL METHODS, IS USED TO MANAGE PEST DAMAGE BY THE MOST ECONOMICAL MEANS, AND WITH THE LEAST POSSIBLE HAZARD TO PEOPLE, PROPERTY, AND THE ENVIRONMENT. IPM IS NOT A SINGLE PEST CONTROL METHOD BUT, RATHER, A SERIES OF PEST MANAGEMENT EVALUATIONS, DECISIONS AND CONTROLS. IN PRACTICING IPM, A FOUR-TIERED APPROACH IS RECOMMENDED. THE FOUR STEPS INCLUDE:

1. SET ACTION THRESHOLDS
BEFORE TAKING ANY PEST CONTROL ACTION, IPM FIRST SETS AN ACTION THRESHOLD, A POINT AT WHICH PEST POPULATIONS OR ENVIRONMENTAL CONDITIONS INDICATE THAT PEST CONTROL ACTION MUST BE TAKEN. SIGHTING A SINGLE PEST DOES NOT ALWAYS MEAN CONTROL IS NEEDED. THE LEVEL AT WHICH PESTS WILL EITHER BECOME AN ECONOMIC THREAT IS CRITICAL TO GUIDE FUTURE PEST CONTROL DECISIONS.

2. MONITOR AND IDENTIFY PESTS
NOT ALL INSECTS, WEEDS, AND OTHER LIVING ORGANISMS REQUIRE CONTROL. MANY ORGANISMS ARE INNOCUOUS, AND SOME ARE EVEN BENEFICIAL. IPM PROGRAMS WORK TO MONITOR FOR PESTS AND IDENTIFY THEM ACCURATELY, SO THAT APPROPRIATE CONTROL DECISIONS CAN BE MADE IN CONJUNCTION WITH ACTION THRESHOLDS. THIS MONITORING AND IDENTIFICATION REMOVES THE POSSIBILITY THAT PESTICIDES WILL BE USED WHEN THEY ARE NOT REALLY NEEDED OR THAT THE WRONG KIND OF PESTICIDE WILL BE USED.

3. PREVENTION
AS A FIRST LINE OF PEST CONTROL, IPM PROGRAMS WORK TO MANAGE THE CROP, LAWN, OR INDOOR SPACE TO PREVENT PESTS FROM BECOMING A THREAT. THIS MAY MEAN USING CULTURAL METHODS, SELECTING PEST-RESISTANT VARIETIES, AND PLANTING PEST-FREE ROOTSTOCK. THESE CONTROL METHODS CAN BE VERY EFFECTIVE AND COST-EFFICIENT AND PRESENT LITTLE TO NO RISK TO PEOPLE OR THE ENVIRONMENT.

4. CONTROL
ONCE MONITORING, IDENTIFICATION, AND ACTION THRESHOLDS INDICATE THAT PEST CONTROL IS REQUIRED, AND PREVENTIVE METHODS ARE NO LONGER EFFECTIVE OR AVAILABLE, IPM PROGRAMS THEN EVALUATE THE PROPER CONTROL METHOD BOTH FOR EFFECTIVENESS AND RISK. EFFECTIVE, LESS RISKY PEST CONTROLS ARE CHOSEN FIRST, INCLUDING HIGHLY TARGETED CHEMICALS, SUCH AS PHEROMONES TO DISRUPT PEST MATING, OR MECHANICAL CONTROL, SUCH AS TRAPPING OR WEEDING. IF FURTHER MONITORING, IDENTIFICATIONS AND ACTION THRESHOLDS INDICATE THAT LESS RISKY CONTROLS ARE NOT WORKING, THEN ADDITIONAL PEST CONTROL METHODS WOULD BE EMPLOYED, SUCH AS TARGETED SPRAYING OF PESTICIDES. BROADCAST SPRAYING OF NON-SPECIFIC PESTICIDES IS A LAST RESORT.

THE CONTRACTED LANDSCAPER SHALL DEVELOP AND IMPLEMENT AN INTEGRATED PEST MANAGEMENT PROGRAM FOR ALL HERBICIDE AND PESTICIDE USE.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 2 9 2009 FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

NOTE:
THIS REGULATORY SUBMISSION SET SHALL NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED 'ISSUED FOR CONSTRUCTION' AND SIGNED AND DATED BY A DIPRETE ENGINEERING REPRESENTATIVE

RECEIVED
OCT 2 3 2009

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NO.	DATE	DESCRIPTION	BY
7	10-20-09	RIDEM Permit Modification Resubmission	B.C.G.
6	9-04-09	RIDEM Permit Modification Resubmission	B.C.G.
5	5-21-09	RIDEM Permit Modification	B.C.G.
4	03-28-08	RIDEM Response to Comments	B.C.G.
3	01-23-08	Sewer Response to Comments	B.C.G.
2	12-19-07	RIDEM Response to Comments	B.C.G.
1	9-17-07	Utility Submission	B.C.G.
0	05-18-07	RIDEM Submission	J.P.C.

RIDEM Submission

EROSION CONTROL & INSPECTION NOTES

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

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LEONARD R. BRADLEY, JR.
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RAIN GARDEN MAINTENANCE

THE PRIMARY MAINTENANCE REQUIREMENT FOR RAIN GARDENS IS THAT OF INSPECTION AND REPAIR OR REPLACEMENT OF THE TREATMENT AREA'S COMPONENTS. GENERALLY, THIS INVOLVES ROUTINE PERIODIC MAINTENANCE THAT IS REQUIRED OF ANY LANDSCAPED AREA. NATIVE PLANT SPECIES SELECTED FOR USE IN THE RAIN GARDEN REDUCE THE NEED FOR FERTILIZER, PESTICIDES, AND WATER. SPECIFIC MAINTENANCE IS AS FOLLOWS

1. SOIL
   A. VISUALLY INSPECT AND REPAIR EROSION MONTHLY.
   B. CHECK THE PH TWICE A YEAR THE FIRST YEAR; AFTER THAT CHECK THE PH AT LEAST YEARLY. APPLY LIMESTONE, ONLY IF NEEDED.

2. MULCH
   A. APPLY 3 INCHES OF ORGANIC COMPOST MULCH WHEN RAIN GARDENS ARE INSTALLED. THIS KEEPS THE SOIL MOIST, WHICH ALLOWS INFILTRATION OF RAIN WATER. MULCHING PROTECTS THE PLANTS AND REDUCES WEED GROWTH.
   B. RE-MULCH ANY VOID AREAS AROUND PLANTS BY HAND AS NEEDED. UNMULCHED SURFACES MIGHT DRY, PREVENTING INFILTRATION AND DEVELOPING A HARDPAN.
   C. TAKE CARE NOT TO BURY THE CROWNS.
   D. EACH SPRING AND FALL, APPLY 2–3 INCHES OF ADDITIONAL MULCH AROUND PLANTS.
   E. AFTER 3 YEARS, REMOVE EXISTING MULCH AND REPLACE (MAY BE ONLY IF USING HARDWOOD MULCH).

3. PLANTS
   A. IMMEDIATELY AFTER INSTALLATION OF PLANT MATERIAL, WATER PLANTS REGULARLY FOR TWO WEEKS UNLESS THERE IS SUFFICIENT NATURAL RAINFALL.
   B. MONITOR RAINFALL DURING FIRST YEAR. IF LESS THAN 1 INCH A WEEK, WATER PLANTS IN RAIN GARDENS.
   C. IN SUBSEQUENT YEARS, WATER ONLY IF IN AN EXTENDED DROUGHT. AVOID FREQUENT WATERING AS IT ENCOURAGES SHALLOW ROOT DEPTHS AND CAN WEAKEN PLANTS. ONE THOROUGH WATERING EVENT EACH WEEK IS BEST. NATIVE PLANTS SHOULD BE ABLE TO WITHSTAND THE NATURAL VARIATION OF CONDITIONS. LOOK FOR PHYSICAL FEATURES OF STRESS (UNREVIVED WILTING, YELLOW, SPOTTED OR BROWN LEAVES, LOSS OF LEAVES, ETC.) WATER IN THE EARLY MORNING AS NEEDED DURING DROUGHTS.
   D. ONCE A MONTH, VISUALLY INSPECT VEGETATION FOR DISEASE OR PEST PROBLEMS. FOLLOW IPM METHODS.
   E. TWICE A YEAR (MAY AND OCTOBER), REMOVE AND REPLACE ANY DEAD OR DISEASED PLANTS CONSIDERED BEYOND TREATMENT.
   F. WEED REGULARLY, IF NEEDED.
   G. PRUNE EXCESS GROWTH ANNUALLY, OR MORE OFTEN IF DESIRED. TRIMMED MATERIALS MAY BE RECYCLED BACK IN WITH REPLENISHED MULCH, OR LANDFILL THE TRIMMINGS IF THERE IS CONCERN ABOUT HEAVY METAL ACCUMULATION IN PLANTS.

4. GENERAL
   A. AFTER RAINSTORMS, INSPECT THE RAIN GARDEN CELL AND MAKE SURE THE DRAINAGE PATHS ARE CLEAR, AND ENSURE THAT PONDING WATER DISSIPATES OVER 48 HOURS. (WATER MAY POND FOR LONGER TIMES DURING THE WINTER AND SPRING WHEN THE SOIL IS FROZEN).
   B. RAIN GARDENS ARE NOT PONDS AND SHOULD NOT OFFER A BREEDING GROUND FOR MOSQUITOES. MOSQUITOES NEED AT LEAST 4 DAYS OF STANDING WATER TO DEVELOP AS LARVA.
   C. MINIMIZE SEDIMENT FLOW INTO GARDEN. EXCESS SEDIMENT CAN DECREASE INFILTRATION AND CAN KILL PLANTS.
   D. REMOVE PET WASTE AND TRASH MONTHLY.
   E. RUNOFF IS NUTRIENT-RICH, AND RAIN GARDENS ARE TO REMOVE NUTRIENTS AND CHEMICALS FROM THE WATER. FERTILIZERS SHOULD NOT BE NECESSARY.
   F. INSPECT STONE PADS AND OVERFLOW PIPES ANNUALLY TO ENSURE THAT THESE ARE NOT CLOGGED WITH EXCESS ORGANIC DEBRIS.

ONGOING MANAGEMENT RESPONSIBILITIES

ONGOING MAINTENANCE IS AN INTEGRAL PART OF THE OPERATION AND MANAGEMENT OF THE DOWLING VILLAGE PHASE II AND III FACILITY. A PROFESSIONAL PROPERTY MANAGEMENT COMPANY WILL CARRY OUT AND / OR OVERSEE THE OPERATION AND MAINTENANCE OF THE FACILITY WHICH INCLUDES:

- OPERATION AND MAINTENANCE OF THE SEWER INFRASTRUCTURE INCLUDING SEWER FORCE MAINS AND PUMPS
- OPERATION AND MAINTENANCE OF THE WATER INFRASTRUCTURE INCLUDING MASTER METER AND FIRE PUMP EQUIPMENT
- MAINTENANCE OF LANDSCAPING
- INTEGRATED PEST MANAGEMENT PLAN
- SNOW REMOVAL
- PAVEMENT CLEANING
- OPERATION AND MAINTENANCE OF THE DRAINAGE INFRASTRUCTURE
- OPERATION AND MAINTENANCE OF STORMWATER BEST MANAGEMENT PRACTICES (BMPS) INCLUDING BI-WEEKLY (TWICE PER MONTH) PAVEMENT SWEEPING/VACUUMING

IN ADDITION TO THE PROPERTY MANAGEMENT COMPANY A PROFESSIONAL ENGINEER SHALL BE RETAINED TO ANNUALLY REVIEW THE PRACTICES AND PERFORMANCE OF THE PROPERTY MANAGEMENT COMPANY'S IMPLEMENTATION OF THE STORMWATER BMP'S AND TO SUBMIT AN ANNUAL REPORT TO THE TOWN OF NORTH SMITHFIELD.

THE FOLLOWING ITEMS ARE A SUMMARY OF THE STORMWATER MANAGEMENT RESPONSIBILITIES WHICH MUST BE CARRIED OUT FOR THE DEVELOPMENT ON AN ONGOING BASIS. FURTHER DETAIL OF THE MANAGEMENT RESPONSIBILITIES CAN BE FOUND ON THE EROSION CONTROL & INSPECTION NOTES AND MAINTENANCE NOTES SHEETS OF THE DOWLING VILLAGE PLANS AND WITHIN THE STORMWATER MANAGEMENT REPORT. THESE MANAGEMENT RESPONSIBILITIES WILL BE PART OF THE STATE AND LOCAL APPROVALS, WILL BE RECORDED IN THE TOWN OF NORTH SMITHFIELD LAND EVIDENCE RECORDS AND WILL BE A PERMANENT PART OF THE PROPERTY'S CHAIN OF TITLE.

1. MAINTENANCE AND INSPECTION REPORTING:
   - INSPECTION AND MAINTENANCE LOGS INCLUDING PROOF OF INSPECTION AND MAINTENANCE PERFORMED ON ITEMS 2 THROUGH 12 BELOW SHALL BE KEPT BY THE SITE OPERATOR/OWNER ONSITE.
   - THE INSPECTION AND MAINTENANCE LOGS SHALL BE PROVIDED TO THE PROFESSIONAL ENGINEER BY THE SITE OPERATOR/OWNER TO BE DOCUMENTED IN AN ANNUAL REPORT TO BE SUBMITTED TO THE TOWN PLANNING DEPARTMENT.
2. PAVEMENT CLEANING:
   - PAVEMENT CLEANING (MECHANICAL SWEEPING/VACUUMING) SHALL BE CARRIED OUT ON BIWEEKLY BASIS (TWICE PER MONTH). LOGS, REPORTS, OR PROOF OF IMPLEMENTATION TO BE KEPT BY THE PROPERTY MANAGEMENT COMPANY AND PROVIDED TO THE PROFESSIONAL ENGINEER TO BE INCLUDED IN THE ANNUAL REPORT.
3. CATCH BASINS:
   - INSPECT QUARTERLY FOR SEDIMENT BUILDUP. SEDIMENTS SHALL BE REMOVED IF THEY EXCEED 6" DEPTH OR EVERY 10 YEARS WHICHEVER COMES FIRST.
4. HYDRODYNAMIC SEPARATORS:
   - INSPECT QUARTERLY FOR SEDIMENT BUILDUP. SEDIMENTS SHALL BE REMOVED BASED ON THE MANUFACTURES RECOMMENDATIONS.
5. RIP RAP PADS:
   - INSPECT SEMIANNUALLY AND AFTER MAJOR STORMS FOR EROSION AND DEBRIS. REPAIR EROSION AND REMOVE DEBRIS AS NECESSARY.
6. MICRO-POOL EXTENDED DETENTION BASINS:
   - MONTHLY – INSPECT ENTIRE BASIN, OUTLET STRUCTURE AND SLOPES AS DETAILED IN OPERATION AND MAINTENANCE PLAN FOR THE MICRO-POOL EXTENDED DETENTION BASINS. REPAIR EROSIONS AND REMOVE SEDIMENT AS REQUIRED.
   - ANNUAL – MAINTAIN VEGETATION AS SPECIFIED IN OPERATION AND MAINTENANCE PLAN FOR THE MICRO-POOL EXTENDED DETENTION BASINS.
7. RAIN GARDENS:
   - MINIMIZE SEDIMENT FLOW INTO RAIN GARDEN.
   - INSPECT AFTER RAINSTORMS TO MAKE SURE FLOW PATHS ARE CLEAR AND PONDING WATER DISSIPATES OVER 48 HOURS.
   - REMOVE PET WASTE, TRASH AND DEBRIS MONTHLY.
   - INSPECT STONE PADS AND OVERFLOW STRUCTURES ANNUALLY FOR EXCESS ORGANIC DEBRIS.
8. STONE SWALES
   - INSPECT MONTHLY FOR AND REMOVE AS NECESSARY SEDIMENT, DEBRIS AND TRASH.
9. GRASS-LINED WATER QUALITY SWALES
   - MOW AS NEEDED.
   - INSPECT MONTHLY FOR AND REMOVE AS NECESSARY SEDIMENT, DEBRIS AND TRASH.
10. UNDERGROUND DETENTION BASINS:
    - INSPECT SEMIANNUALLY AND AFTER MAJOR STORMS FOR SEDIMENT BUILDUP AND DEBRIS. REMOVE SEDIMENT AND DEBRIS AS NECESSARY.
11. UNDERGROUND INFILTRATION BASIN:
    - INSPECT MONTHLY AND AFTER MAJOR STORMS FOR EXTENDED PONDING, SEDIMENTS AND DEBRIS. REMOVE SEDIMENT AND DEBRIS AS NECESSARY.
12. INFILTRATION BED
    - INSPECT AFTER RAINFALL EVENTS GREATER THAN ONE INCH FOR EROSION AND DEBRIS. REPAIR EROSION AND REMOVE DEBRIS AS NECESSARY.
    - INSPECT LEVEL SPREADER FOR SETTLEMENT AND EROSION. REPAIR AS NECESSARY.

MICRO-POOL EXTENDED DETENTION BASIN

1. MICRO-POOL EXTENDED DETENTION BASIN SYSTEMS: MICRO-POOL EXTENDED DETENTION BASINS REMOVE STORMWATER POLLUTANTS THROUGH PHYSICAL AND BIOLOGICAL PROCESSES, INCLUDING ADSORPTION, FILTRATION, PLANT UPTAKE, MICROBIAL ACTIVITY, DECOMPOSITION, SEDIMENTATION AND VOLATILIZATION (EPA, 1999). ADSORPTION IS THE PROCESS WHEREBY PARTICULATE POLLUTANTS ATTACH TO SOIL, ORGANIC MATERIAL OR VEGETATION SURFACES. ADEQUATE CONTACT TIME BETWEEN THE SURFACE AND POLLUTANT MUST BE PROVIDED FOR IN THE DESIGN OF THE SYSTEM FOR THIS REMOVAL PROCESS TO OCCUR. THUS, THE INFILTRATION RATE OF THE SOILS MUST NOT EXCEED THOSE SPECIFIED IN THE DESIGN CRITERIA OR POLLUTANT REMOVAL MAY DECREASE. POLLUTANTS REMOVED BY ADSORPTION INCLUDE METALS, PHOSPHORUS, AND HYDROCARBONS. FILTRATION OCCURS AS RUNOFF PASSES THROUGH THE BIO-FILTER AREA MEDIA, SUCH AS THE SAND BED, GROUND COVER, AND PLANTING SOIL. MICRO-POOL EXTENDED DETENTION BASIN SYSTEMS HAVE MANY ADVANTAGES AS AN URBAN BEST MANAGEMENT PRACTICE TO INCLUDE RELIABLE POLLUTANT REMOVAL, LONGEVITY, ADAPTABILITY TO MANY DEVELOPMENT SITES, AND WILDLIFE HABITAT.

2. AQUATICS AREA: THE AQUATICS AREA IS DESIGNED TO REMOVE COARSE SEDIMENTS, SOME HEAVY METALS, AND TRASH FROM THE WATER FLOW. EMERGENT VEGETATION HAS BEEN DESIGNED TO SLOW WATER VELOCITY THUS REDUCING CARRYING CAPACITY, INCREASING SEDIMENTATION, RETENTION TIME, AND ABSORPTION OF POLLUTANTS AND NUTRIENTS. THIS AREA OF THE BASIN IS DESIGNED TO BE CLEANED OF SEDIMENTS AT PERIODIC INTERVALS (SEE O&M PLAN). BASINS SHALL BE INSPECTED ONCE A MONTH FOR SEDIMENT ACCUMULATION, AND TRASH AND DEBRIS ACCUMULATION.

3. MICRO-POOL EXTENDED DETENTION BASINS: THE MICRO-POOL EXTENDED DETENTION BASINS ARE DESIGNED TO PROVIDE WATER QUALITY TREATMENT TO THE DETAINED STORM FLOWS THROUGH A SERIES OF LOW MARSH AND WET MEADOW WETLAND AREAS (MICRO-POOL AREA). THE MICRO-POOL AREA IS SIZED TO DETAIN THE DESIGN STORM TO PREDEVELOPMENT RATES. AQUATIC WEDGES EXTENDING ACROSS THE BASIN FLOOR ARE DESIGNED TO MAXIMIZE THE TRAVEL ROUTE OF LOW FLOWS THROUGH THE WETLAND, MAXIMIZING THE OPPORTUNITY FOR ENHANCING WATER QUALITY.

4. WETLAND PLANTINGS: THE WETLAND PLANTING DESIGN UTILIZES NATIVE PLANT SPECIES ADAPTED TO FLOURISH IN AN ENVIRONMENT OF FLUCTUATING WATER LEVELS AND SOIL MOISTURE REGIMES. THESE PLANTS HAVE ALSO BEEN SELECTED FOR THEIR ABILITIES TO ADSORB POLLUTANTS, TRAP SEDIMENT, GROW WELL IN FLUCTUATING HYDROLOGY, SOIL STABILIZATION, AND PROVIDE FOOD AND COVER FOR WILDLIFE. PLANTINGS ARE DIVIDED INTO DISCRETE ZONES BASED UPON FUNCTION AND DEGREE OF INUNDATION BY DETAINED STORMWATER. EVERY BASIN WILL HAVE VARIABLE HYDROLOGY AND WATER LEVELS; AS SUCH, THE FINAL SELECTION AND PLACEMENT OF PLANTS WILL BE DETERMINED BY THE PROJECT WETLAND SCIENTIST ONCE THE BASINS ARE FINAL-GRADED AND OPERATIONAL SO THAT PERMANENT AND TEMPORARY WATER DEPTHS MAY BE VERIFIED.

5. SOIL PLACEMENT: A SOIL MIXTURE OF A SANDY LOAM TOPSOIL WILL BE SPREAD OVER THE FLOOR OF THE STORMWATER BASINS TO MEET THE FINISHED GRADE SO THAT A TOTAL DEPTH AT THE BOTTOM OF THE BASIN IS A MINIMUM OF 6 INCHES DEEP. THE BASIN SIDE SLOPES (EXCLUDING PROPOSED 1:1 REINFORCED SLOPES) AND BERMS WILL BE COVERED WITH SIX (6) INCHES OF LOAM SPREAD UNIFORMLY ACROSS THE AREA. THOSE AREAS WILL BE SEEDED WITH THE SPECIFIED NATIVE SEED MIX.

6. MAINTENANCE: UNLIKE NATURAL WETLANDS, STORMWATER WETLANDS REQUIRE PERIODIC MAINTENANCE. THE MICRO-POOL EXTENDED DETENTION BASINS WILL BE MONITORED FOR 3 YEARS BY NEW ENGLAND ENVIRONMENTAL INC. THEY WILL ISSUE REPORTS ON HEALTH OF THE PLANTS AND NECESSARY MAINTENANCE WHICH WILL BE COMPLETED BY THE APPLICANT. AT THE END OF THE 3 YEAR PERIOD, NEW ENGLAND ENVIRONMENTAL INC. SHALL MAKE A RECOMMENDATION TO THE OWNER ON THE NEED FOR CONTINUED MONITORING. THE ENTIRE BASIN, OUTLET STRUCTURES AND SLOPES SHALL BE INSPECTED MONTHLY IN ACCORDANCE WITH THE OPERATION AND MAINTENANCE PLAN.

MICRO-POOL EXTENDED DETENTION BASIN OPERATION AND MAINTENANCE PLAN

THE OPERATION AND MAINTENANCE PLAN SHALL BE FOR THE LIFE OF THE STORMWATER MANAGEMENT FACILITY. THE PRIMARY MAINTENANCE REQUIREMENT FOR MICRO-POOL EXTENDED DETENTION BASINS IS THAT OF INSPECTION AND REPAIR OR REPLACEMENT OF THE TREATMENT AREA'S COMPONENTS. GENERALLY, THIS INVOLVES ROUTINE PERIODIC MAINTENANCE THAT IS REQUIRED OF ANY LANDSCAPED AREA. SPECIFIC MAINTENANCE IS AS FOLLOWS.

1. THE FOLLOWING MEASURES SHALL BE TAKEN ON A MONTHLY BASIS AFTER THE PROJECT HAS BEEN COMPLETED AND STABILIZED.
   A. INSPECTION AND MAINTENANCE OF ALL INLET AND OUTLET STRUCTURES. INLETS THAT CONTAIN MORE THAN 12 INCHES OR MORE OF ACCUMULATED MATERIAL WILL BE CLEANED. SEDIMENT SHALL BE DISPOSED OF OFF-SITE.
   B. INSPECT ALL UPSTREAM PRE-TREATMENT MEASURES FOR SEDIMENT AND DEBRIS. REMOVE AND DISPOSE SEDIMENTS AND DEBRIS AS NEEDED.
   C. EROSION CONTROL MAINTENANCE OF BASIN SIDE SLOPES, INFLOW AND OUTFLOW POINTS.
   D. CHECK FOR ANIMAL BURROWS.
   E. REMOVE ALL DEBRIS AND SEDIMENT FROM THE BASINS. THIS INCLUDES DEBRIS AND SEDIMENT REMOVAL FROM AROUND THE BASIN.
   F. SEED OR MULCH VOIDED AREAS.
   G. INVASIVE SPECIES CONTROL AND MAINTENANCE.
   H. CONTROL MOSQUITO HABITAT. ROUTINE INSPECTION FOR AREAS OF STANDING WATER WITHIN BASIN AND CORRECTIVE MEASURES TO RESTORE PROPER INFILTRATION RATES ARE NECESSARY TO PREVENT CREATING MOSQUITO AND OTHER VECTOR HABITAT.
   I. SWEEP ROADWAY AND PARKING LOT (BI-WEEKLY).

2. THE FOLLOWING MEASURES SHALL BE TAKEN ON AN ANNUAL BASIS AFTER THE PROJECT HAS BEEN COMPLETED AND STABILIZED.
   A. MOW SEEDED AREAS IN AND AROUND BASINS (CAREFUL ATTENTION TO BE TAKEN TO AVOID MOWING AQUATIC VEGETATION). CLIPPINGS ARE TO BE BAGGED.
   B. AQUATIC PLANTINGS IN THE BOTTOM OF BASINS TO BE INSPECTED AND REPLANTED IF NEEDED.
   C. PRUNE AND MAINTAIN ALL SHRUBS AND TREES ON SIDE SLOPES AND TOP OF SLOPES OF BASINS/RAIN GARDENS AS SHOWN ON THE DESIGN PLANS.
   D. ALL WOODY DEBRIS AND CLIPPINGS TO BE REMOVED FROM BASINS. WOODY DEBRIS AND GRASS CLIPPINGS SHALL NOT BE PLACED WITHIN ANY JURISDICTIONAL AREAS.

3. VEGETATION CONTROL PLAN TO REDUCE PESTICIDE, HERBICIDE AND NUTRIENT USAGE.
   A. HAND PULLING OF WEEDS SHOULD BE EMPLOYED BEFORE HERBICIDE USE CONSIDERED. NO APPLICATION OF HERBICIDES OR PESTICIDES SHALL OCCUR WITHIN 24 HOURS OF A RAIN EVENT.
   B. CHEMICAL CONTROL ACTIVITIES SHALL BE PERFORMED IN COMPLIANCE WITH ALL FEDERAL, STATE AND LOCAL USE REGULATIONS.
   C. ALL CHEMICAL CONTROL ACTIVITIES SHALL BE OVERSEEN BY A LICENSED APPLICATOR.
   D. APPLICATOR SHALL COMPLETE A CHEMICAL USE REPORT FORM WHICH WILL BE SUBMITTED TO THE OWNER. THESE FORMS SHALL INCLUDE DATE, LOCATION, CHEMICALS USED, AMOUNT USED, PURPOSE, WEATHER, WIND DIRECTION AND OTHER PERTINENT INFORMATION.

4. SNOW AND ICE CONTROL.
   A. DRAINAGE INLETS SHALL BE MAINTAINED WITH REMOVAL OF SNOW AND ICE.
   B. MINIMAL AMOUNTS OF DE-ICING MATERIALS SHALL BE APPLIED AT THE MOST EFFECTIVE TIME, AS DETERMINED BY STORM SEVERITY, DURATION AND TEMPERATURE.
   C. THE PRODUCTS MOST BENIGN TO RECEIVING WATERS SHALL BE USED.
   D. RECORDS SHALL BE MAINTAINED AS TO THE DATE OF MELTING AGENT APPLICATION, MELTING AGENT USED AND AMOUNT USED.

5. MANAGEMENT AND SUPPORT.
   A. NO VEHICLE OR EQUIPMENT REPAIR, MAINTENANCE FUELING, WASHING OR STORAGE SHALL OCCUR NEAR THE BASINS.
   B. NO STORAGE OF ANY MATERIALS FOR FUTURE USE SHALL OCCUR NEAR THE BASINS.

MICRO-POOL EXTENDED DETENTION BASIN CONSTRUCTION AND PLANTING NOTES

1. THE MICRO-POOL EXTENDED DETENTION BASIN AREA WILL BE EXCAVATED AND FORMED TO THE LIMITS SHOWN ON THE ACCOMPANYING SITE PLANS AND DETAILS.

2. DURING CONSTRUCTION THE MICRO-POOL WILL SERVE AS A TEMPORARY SEDIMENT TRAP (A STONE FILTER BERM WILL TEMPORARILY SEPARATE THIS AREA FROM THE BASIN AQUATIC BOTTOM). SEDIMENT FROM THIS AREA SHALL BE REMOVED AS NEEDED. WHEN THE CONSTRUCTION SITE IS STABILIZED THE AQUATICS AREA SHALL BE CLEANED OF ALL ACCUMULATED SEDIMENT, RE-LOAMED AND PLANTED AS SPECIFIED ON THE ACCOMPANYING PLAN.

3. THE MICRO-POOL EXTENDED DETENTION BASINS SHALL BE CONSTRUCTED WITH VARIABLE TOPOGRAPHY TO CREATE SUITABLE ENVIRONMENTS FOR PLANTS. ALL WORK SHALL BE COMPLETED BY AN EXCAVATOR LOCATED OUTSIDE THE BASIN TO MINIMIZE COMPACTION OF LOAM.

4. THE MICRO-POOL EXTENDED DETENTION BASIN'S CONSTRUCTION AND PLANTING PROCESS WILL BE SUPERVISED BY NEW ENGLAND ENVIRONMENTAL INC. AND/OR DIPRETE ENGINEERING.

5. WETLAND SOILS AND A HYDRIC SOIL MIX OF FINE SANDY LOAM OR SANDY LOAM WILL BE PLACED IN THE EXCAVATED BIOFILTER AREA TO A DEPTH OF NO LESS THAN SIX (6) INCHES AT FINISHED GRADE AND FINE GRADED TO FINAL ELEVATION ESTABLISHED BY THE PROJECT ENGINEER (DIPRETE ENGINEERING).

6. DETENTION BASIN SIDE SLOPES (EXCEPT PROPOSED 1:1 REINFORCED SLOPES), BASIN, AND INTERIOR SLOPES (EXCEPT PROPOSED 1:1 REINFORCED SLOPES) SHALL BE TOPSOILED WITH SIX (6) INCHES OF SCREENED LOAM OR SUITABLE MATERIAL STOCKPILED FROM SITE EXCAVATION. SUBSTRATE SHALL BE LOOSENED TO ENSURE BONDING BETWEEN THE SUBSTRATE AND TOPSOIL. SEEDING AND PLACEMENT OF EROSION CONTROL BLANKETS SHALL BE INSTALLED WITHIN 72 HOURS OF THE PLACEMENT OF TOPSOIL.

7. PLANTING WILL BE DELAYED AS NEEDED TO ACCOMMODATE FINAL GRADING AND SOIL CONDITIONING. CONTRACTOR SHALL VERIFY THE RECEIPT OF PLANTS IN GOOD CONDITION, AS SPECIFIED, AND IN THE QUANTITIES SHOWN ON THE PLAN. PLANT SUBSTITUTION MAY ONLY BE MADE BY NEW ENGLAND ENVIRONMENTAL INC.. WOODY AND HERBACEOUS MATERIALS WILL BE PURCHASED FROM COMMERCIAL SOURCES. ALL COMMERCIALLY OBTAINED TREES AND SHRUBS WILL BE CONTAINER-GROWN OR BALL AND BURLAP (B&B) FROM SECURED REGIONAL SOURCES TO ENSURE THAT PLANTS ARE ADAPTED TO LOCAL CLIMATE AND SITE-SPECIFIC EDAPHIC CONDITIONS. HERBACEOUS PLANTS SHALL EITHER BE 2" PLUGS OR BARE ROOT, IF INSTALLED BETWEEN APRIL 15TH – JUNE 15TH. BARE ROOT PLUGS MAY NOT BE INSTALLED AFTER JUNE 15TH.

8. NO PLANTING WILL OCCUR IN FROZEN GROUND OR WITHIN A MONTH OF PREDICTED GROUND FREEZE. PLANTING WILL BE TARGETED FOR DRY CONDITIONS. PLANTINGS WILL BE COMMENSURATE WITH ALL NOTES AND SPECIFICATIONS ON THIS PLAN. IN ORDER FOR PLANTING STOCK TO THRIVE IN THE COMPACT SOILS OF THE CREATED BASIN, THE PLANTING HOLES SHOULD BE THREE TIMES DEEPER AND WIDER THAN THE DIAMETER OF THE ROOT BALL FOR B&B STOCK, AND FIVE TIMES DEEPER AND WIDER FOR CONTAINER GROWN STOCK. NEW ENGLAND ENVIRONMENTAL INC. WILL BE ON SITE DURING PLANTING OPERATIONS TO FINALIZE EXACT LOCATIONS OF ALL PLANTS BASED UPON SPECIFIC HYDROLOGIC AND SITE REQUIREMENTS. BARE ROOT HERBACEOUS PLANT MATERIAL MAY ONLY BE INSTALLED BETWEEN APRIL 15TH AND JUNE 15TH.

9. EXCAVATE PITS FOR PLANT INSTALLATION IN ACCORDANCE WITH AMERICAN ASSOCIATION OF NURSERYMEN STANDARDS WITH VERTICAL SIDES AND SCARIFYING SIDES TO INSURE AGAINST GLAZING.

10. PLANTING WILL BE DONE IN ACCORDANCE WITH TYPICAL PLANTING DETAILS. PLANTS SHALL BE PLUMB AND IN CENTER OF PIT OR TRENCH WITH THE TOP OF THE ROOT BALL NO MORE THAN 2" (OR 1/8 OF THE ROOT BALL, WHICHEVER IS LESS) ABOVE FINISHED SOIL GRADE. NO SOIL SHALL BE AROUND THE ROOT FLARE OF THE TREE OR SHRUB. IF PLANTS ARE TO BE MULCHED, ATTENTION WILL BE GIVEN TO ENSURE MULCH IS NOT PILED AGAINST THE BASE OF THE TREE OR SHRUB TO CREATE A "MULCH VOLCANO".

11. SEED WILL BE MIXED IN THE SPECIFIED PROPORTIONS BY WEIGHT AND BEAR THE VENDOR'S GUARANTEE OF ANALYSIS. SEED WILL BE APPLIED BY THE BROADCAST METHOD AT THE RATE SPECIFIED. SEEDING WILL TAKE PLACE AFTER ALL OTHER PLANTING IS COMPLETE.

12. ALL DUE CARE WILL BE TAKEN DURING THE SITE PREPARATION AND PLANTING WORK TO AVOID COMPACTION OF WETLAND SOILS.

13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CAREFUL INSTALLATION, MAINTENANCE (INCLUDING WATERING), AND ESTABLISHMENT OF THE PLANT MATERIAL IN THE BIOFILTER AREA. ALL PLANTS SHALL BE GUARANTEED BY THE CONTRACTOR TO REMAIN ALIVE AND HEALTHY FOR A 12 MONTH PERIOD. BEYOND 12 MONTHS, THE OWNER WILL BE RESPONSIBLE FOR REPLACING VEGETATION, PREVENTING EROSION, AND MAINTAINING THE PROPER FUNCTION OF THE BASIN IN COMPLIANCE WITH THE OPERATION AND MAINTENANCE PLAN.

14. VEGETATION MONITORING: AQUATIC PLANTINGS, SIDE SLOPE PLANTING, AND BUFFER ZONE RESTORATION AREA SHALL BE MONITORED/MAINTAINED FOR THREE YEARS OR UNTIL VEGETATION BECOMES ESTABLISHED. SLOW RELEASE FERTILIZER MAY BE USED AS NEEDED. INVASIVE SPECIES SHALL BE CONTROLLED FOR A PERIOD OF FIVE YEARS. THESE SPECIES SHALL INCLUDE: PURPLE LOOSESTRIFE (LYTHRUM SALICARIA), COMMON REED (PHRAGMITES AUSTRALIS), AUTUMN OLIVE (ELEAGANUS UMBELLATA) AND ANY OTHER EXOTIC INVASIVES.

STONE SWALE MAINTENANCE

THE STONE SWALES ARE CONSTRUCTED FROM CURB CUTS AS INLETS INTO THE RAIN GARDENS. THEY ARE LINED WITH A GEOTEXTILE FABRIC THAT IS COVERED 8 INCH DEEP WITH WASHED NATIVE STONE FROM THE SITE (3 TO 6 INCHES IN DIAMETER). THE WASHED STONE PROTECTS THE SOIL BELOW FROM EROSION; IT ALSO SLOWS THE WATER AS IT FLOWS DOWNHILL. THE PRIMARY MAINTENANCE CONCERN IS SEDIMENT FILLING THE VOIDS BETWEEN STONES AND CLOGGING THE SWALE. PREVENTING SEDIMENT FROM ENTERING THE STONE SWALES IS THE BEST MAINTENANCE, BUT IS NOT ALWAYS POSSIBLE.

1. INSPECT SWALES DAILY DURING EXTENDED RAIN EVENTS, AND AFTER HEAVY RAIN EVENTS CHECK FOR EROSION AND EXCESSIVE PONDING.
2. INSPECT SWALES WEEKLY UNTIL DRAINAGE AREA IS STABILIZED FOR SEDIMENT IN THE STONE FILLED SWALES. IF SEDIMENTS ARE DETECTED, DETERMINE ITS SOURCE AND DETERMINE IF THE SEDIMENT MIGRATION CAN BE ELIMINATED.
3. INSPECT MONTHLY FOR AND REMOVE DEBRIS AND TRASH FROM STONE SWALES. INSPECT THE SWALE THE ENTRANCES AND EXITS. LOOK FOR OBSTRUCTIONS, VEGETATION, DEBRIS, LITTER, SEDIMENT, ETC. BLOCKING THE ENTRANCES AND EXITS OF THE SWALE. CLEAR ENTRANCES AND EXITS BY HAND AND WITH HAND TOOLS. ENSURE THAT WATER FLOWS FREELY INTO AND OUT OF SWALE AS DESIGNED.
4. INSPECT THE STONE PLACED AT THE ENTRANCES AND EXITS OF THE SWALES. LOOK FOR PLACES WHERE BARE EARTH IS EXPOSED. IF THE STONE IS DISPLACED, REPLACE AND SHAPE TO PRESERVE THE FLOW LINE OF THE SWALE.
5. A SCOURED, ENTRENCHED SWALE AND THE PRESENCE OF GULLYING ARE INDICATORS THAT SWALE MAINTENANCE MAY BE NECESSARY.
6. IF MAINTENANCE IS REQUIRED IT SHOULD BE COMPLETED DURING A DRY PERIOD AND NOT WHEN THERE IS WATER WITHIN THE SWALE. PROPERLY DISPOSE OF REMOVED MATERIAL. RECYCLE EXCAVATED MATERIAL WHEN FEASIBLE.

STONE BASIN OUTFALL MAINTENANCE

THE STONE BASIN OUTFALLS ARE CONSTRUCTED AT THE DISCHARGE POINTS OF THE MICRO-POOL EXTENDED DETENTION BASINS AND UNDERGROUND DETENTION BASINS TO PROVIDE AREAS WHERE STORMWATER VOLUME FROM SMALLER RAINFALL EVENTS CAN BE INFILTRATED BACK INTO THE GROUND. THE PRIMARY MAINTENANCE CONCERN IS SEDIMENT FILLING THE VOIDS BETWEEN STONES AND CLOGGING THE STONE BASIN OUTFALL. PREVENTING SEDIMENT FROM ENTERING THE STONE BASIN OUTFALL IS THE BEST MAINTENANCE PRACTICE. PROPER MAINTENANCE OF THE BMP'S PRECEDING THE STONE BASIN OUTFALLS IS ESSENTIAL TO THE PREVENTION OF SEDIMENTS FROM BEING DISCHARGED INTO THE STONE BASIN OUTFALLS.

1. THE STONE BASIN OUTFALL(S) SHALL NOT BE BROUGHT ONLINE UNTIL THE AREAS TRIBUTARY TO THE STONE BASIN OUTFALL(S) HAS BEEN STABILIZED.
2. INSPECT STONE BASIN OUTFALLS AFTER RAIN EVENTS GREATER THAN ONE INCH AND CHECK FOR EROSION AND EXCESSIVE PONDING.
3. INSPECT MONTHLY AND REMOVE DEBRIS AND TRASH FROM STONE BASIN OUTFALL(S).
4. INSPECT THE OBSERVATION WELLS. IF STORMWATER REMAINS IN THE STONE BASIN OUTFALL FOR A PROLONGED PERIOD, THE STONE BASIN OUTFALL SHALL BE REPAIRED OR REPLACED.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 2 9 2009 FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

MAINTENANCE: SHORT TERM / LONG TERM

1. THE SITE CONSTRUCTION FOREMAN SHALL BE DESIGNATED AS THE ON-SITE INDIVIDUAL WHO WILL BE RESPONSIBLE FOR THE DAILY MAINTENANCE OF ALL SEDIMENT AND EROSION CONTROLS, AND SHALL IMPLEMENT ALL MEASURES NECESSARY TO CONTROL EROSION AND TO PREVENT SEDIMENT FROM LEAVING THE SITE OR IMPACTING WETLAND RESOURCE AREAS ON-SITE. AREAS OF EROSION SHALL BE STABILIZED IMMEDIATELY. A CORRECTIVE ACTION LOG FOR THE REPLACEMENT OR MAINTENANCE OF ANY BMP SHALL BE KEPT TO DOCUMENT ACTIONS TAKEN DURING THE LIFE OF THE PROJECT.

2. DIPRETE ENGINEERING AND/OR NEW ENGLAND ENVIRONMENTAL, INC. SHALL BE DESIGNATED AS THE INDEPENDENT EROSION CONTROL MONITOR TO CONDUCT WEEKLY SITE INSPECTIONS DURING CONSTRUCTION AND UNTIL THE SITE IS STABILIZED. THESE SITE INSPECTIONS SHALL REVIEW ALL SEDIMENT AND EROSION CONTROLS TO ENSURE THEY ARE INSTALLED AND FUNCTIONING PROPERLY AND OVERSEE ANY EMERGENCY REPLACEMENT OF EROSION CONTROLS. IF EROSION CONTROL ISSUES ARE NOTED IN THE FIELD, A PROFESSIONAL ENGINEER FROM DIPRETE ENGINEERING AND/OR A CERTIFIED PROFESSIONAL EROSION AND SEDIMENT CONTROL SPECIALIST (CPESCS) FROM NEW ENGLAND ENVIRONMENTAL, INC. AND THE CONTRACTOR'S SITE REPRESENTATIVE WILL BE NOTIFIED SO APPROPRIATE REMEDIATION DISCUSSION CAN TAKE PLACE AND ACTION TAKEN. ADDITIONALLY, WATER SAMPLES FROM ALL STORMWATER OUTFALLS SHALL BE TAKEN DURING EACH SITE VISIT (IF FLOWING), AND AFTER EACH RAINFALL EVENT OF 0.5" OR MORE DURING CONSTRUCTION AND UNTIL THE SITE IS STABILIZED. THE SAMPLES WILL BE MEASURED FOR TURBIDITY USING A TURBIDITY METER. IF TURBIDITY SAMPLES EXCEED 100 NTU'S AS A RESULT OF CONSTRUCTION RUNOFF, IMMEDIATE MEASURES SHALL BE TAKEN TO REDUCE THESE LEVELS. ADDITIONAL WATER TURBIDITY READINGS SHALL ALSO BE TAKEN AT THE DISCHARGE POINTS OF THE DETENTION BASINS. MEASURES SHALL BE TAKEN TO INSURE A TURBIDITY LEVEL DOES NOT EXCEED 100 NTU'S AT THE DISCHARGE LOCATION. WATER SAMPLES FROM BOOTH POND WILL ALSO BE TESTED DURING EACH STORM EVENT.

3. THE STONE STABILIZATION PADS AT THE SITE ENTRANCES SHALL BE MAINTAINED BY THE SITE CONTRACTOR. THE CRUSHED STONE PAD WILL BE REPLACED/CLEANED AS NEEDED TO MAINTAIN ITS EFFECTIVENESS. THE MAINTENANCE SHALL INCLUDE TOP DRESSING WITH ADDITIONAL STONE OR ADDITIONAL LENGTH AS CONDITIONS DEMAND OR AS DIRECTED BY THE ENGINEER OR EROSION CONTROL CONSULTANT. ALL SEDIMENTS SPILLED, DROPPED, WASHED, OR TRACKED ON THE PUBLIC RIGHT OF WAY MUST BE REMOVED IMMEDIATELY BY THE CONTRACTOR.

4. ACCUMULATED SEDIMENT WITHIN THE DETENTION BASINS/SEDIMENTATION BASINS SHALL BE REMOVED AS NEEDED DURING CONSTRUCTION TO MAINTAIN THE BASINS' EFFECTIVENESS. THE OUTLET DISCHARGE SHALL BE FILTERED TO MAINTAIN A MAXIMUM DISCHARGE OF LESS THAN 100 NTU'S.

5. ALL STRAW WATTLES/SILT FENCE, AND OTHER TEMPORARY TREATMENTS/ PROTECTION SHALL BE MAINTAINED BY THE CONTRACTOR THROUGHOUT CONSTRUCTION. STRAW WATTLES/SILT FENCE SHALL BE INSPECTED BY THE CONTRACTOR AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS AFTER EACH STORM EVENT, FOR UNDERMINING AND DETERIORATION. A STORM EVENT SHALL BE DEFINED AS 1/4 INCH OF RAIN WITHIN A 24-HOUR PERIOD AND/OR AFTER A SIGNIFICANT AMOUNT OF RUNOFF. THE STRAW WATTLES/SILT FENCE SHALL BE REPAIRED OR REPLACED AS WARRANTED. THE CONTRACTOR SHALL CLEAN THE ACCUMULATED SEDIMENT IF 1/3 OF THE ORIGINAL HEIGHT OF THE SILT FENCE BECOMES FILLED IN WITH SEDIMENT. THE STRAW WATTLES/SILT FENCE SHALL REMAIN IN PLACE UNTIL AN 80% VEGETATIVE COVER OR APPROVED GROUND COVER IS ESTABLISHED. FOLLOWING CONFIRMATION FROM THE TOWN OF NORTH SMITHFIELD AND/OR THE DESIGN ENGINEER/EROSION CONTROL CONSULTANT THAT AN ACCEPTABLE STAND OF GRASS OR APPROVED GROUND COVER HAS BEEN ESTABLISHED, THE STRAW WATTLES/SILT FENCE SHALL BE REMOVED.

6. THE SILT SACK, DOMED INLET PROTECTOR, OR OTHER APPROVED INLET PROTECTION DEVICE AT EACH INSTALLED CATCH BASIN SHALL BE INSPECTED AFTER EACH SIGNIFICANT STORM EVENT AND REMOVED AND EMPTIED AS NEEDED DURING THE ENTIRE CONSTRUCTION PERIOD. CONSTRUCTION DEBRIS AND SEDIMENT SHALL BE KEPT ON SITE AND SHALL NOT BE PERMITTED TO MIGRATE BEYOND THE PROJECT BOUNDARIES.

7. THE FLOC LOGS(R) INSTALLED IN EACH CONSTRUCTED CATCH BASIN AND AT EACH OUTLET DISCHARGE LOCATION SHALL BE REPLACED EVERY 4 MONTHS DURING CONSTRUCTION, OR AS NEEDED UNTIL THE SITE IS STABILIZED.

8. THE CONTRACTOR SHALL MAINTAIN ALL TOPSOIL STOCKPILES AND SEDIMENT BARRIERS THROUGHOUT CONSTRUCTION. EXTREME CARE SHALL BE TAKEN TO ENSURE THAT SEDIMENTS DO NOT SPILL OVER THE SEDIMENT BARRIER.

9. ALL DISTURBED SLOPES EITHER NEWLY CREATED OR CURRENTLY EXPOSED SHALL BE SEEDED, PROTECTED, AND MAINTAINED BY THE CONTRACTOR WITH TEMPORARY STABILIZATION WITHIN 14 DAYS AFTER CONSTRUCTION HAS TEMPORARILY OR PERMANENTLY CEASED. FOLLOWING FINAL GRADING AND CONSTRUCTION, THE SITE SHALL BE STABILIZED WITH PERMANENT VEGETATIVE COVER WITHIN 14 DAYS. THE CONTRACTOR SHALL CHECK REGULARLY ALL SEEDED AREAS TO SEE THAT 80% VEGETATIVE COVER IS MAINTAINED. 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 TO THE OWNER.

10. THE CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE AND INSPECTION OF THE BASINS DURING AND UP TO ONE (1) YEAR AFTER COMPLETION OF CONSTRUCTION AND ACCEPTANCE BY THE OWNER. THE OWNER IS RESPONSIBLE FOR INSPECTIONS AND MAINTENANCE THEREAFTER. THE CONTRACTOR'S MAINTENANCE/INSPECTION RESPONSIBILITIES SHALL INCLUDE RESEEDING ANY UNSTABILIZED AREAS WITHIN THE BASINS AT NO ADDITIONAL EXPENSE TO THE OWNER, REMOVING ACCUMULATED SEDIMENTS AND MAINTAINING THE GRASS TO A GROWING HEIGHT BETWEEN 2"–10". THE CONTRACTOR SHALL INSPECT RIP RAP PADS AFTER EACH STORM AND REPAIR AS NECESSARY. THE OWNER'S MAINTENANCE/INSPECTION RESPONSIBILITIES SHALL INCLUDE INSPECTION OF THE BASINS AND RIP RAP PADS SEMIANNUALLY AND AFTER MAJOR STORMS. IF REPAIRS ARE NEEDED, THEY SHALL BE CARRIED OUT IMMEDIATELY. THE OWNER SHALL MAINTAIN A GOOD VEGETATIVE COVER (GRASS BETWEEN 2"–10" OR VEGETATION AS SPECIFIED). THE BOTTOM OF THE DETENTION BASINS SHALL BE INSPECTED ON A SEMI-ANNUAL BASIS AND ACCUMULATED SEDIMENTS SHALL BE REMOVED WHEN THEY REACH A HEIGHT OF SIX (6) INCHES OR EVERY 10 YEARS, WHICHEVER COMES FIRST.

11. THE CONTRACTOR SHALL MAINTAIN THE DRAINAGE NETWORK DURING AND UP TO ONE (1) YEAR AFTER COMPLETION OF CONSTRUCTION AND ACCEPTANCE BY THE OWNER. THE OWNER IS RESPONSIBLE FOR INSPECTIONS AND MAINTENANCE THEREAFTER. THE ACCUMULATED SEDIMENTS IN THE CATCH BASINS SHALL BE REMOVED AND DRAINAGE PIPES FLUSHED BY THE CONTRACTOR AT THE END OF CONSTRUCTION. CATCH BASIN SUMPS SHALL BE CHECKED QUARTERLY AND SEDIMENTS SHALL BE REMOVED IF THEY EXCEED 6" DEPTH OR EVERY 10 YEARS, WHICHEVER COMES FIRST.

12. THE CONSTRUCTION SUPERINTENDENT SHALL HAVE OVERALL RESPONSIBILITY FOR THE MAINTENANCE PROGRAM DURING THE CONSTRUCTION PHASE AND FOR A PERIOD OF ONE YEAR AFTER CONSTRUCTION. THE SUPERINTENDENT SHALL SEE THAT THE APPROPRIATE WORKERS ARE AWARE OF THE PROVISIONS OF THE PLAN.

13. AFTER ACCEPTANCE OF THE SITE BY THE OWNER, THE OWNER SHALL HAVE OVERALL RESPONSIBILITY FOR IMPLEMENTING THE MAINTENANCE PROGRAM FOR THE SITE. ALL PERMANENT EROSION CONTROL FEATURES ARE TO BE MAINTAINED BY THE PROPERTY OWNER IN ACCORDANCE WITH THE OPERATIONS AND MAINTENANCE PLAN. THIS WORK INCLUDES INITIAL AND BI-WEEKLY ROADWAY SWEEPING, VACUUMING SEDIMENT FROM THE CATCH BASINS, AND DETENTION BASIN MAINTENANCE.

14. MAINTENANCE AND INSPECTION REPORTING:
    - INSPECTION AND MAINTENANCE LOGS SHALL BE KEPT BY THE SITE OPERATOR/OWNER ONSITE.
    - THE OWNER SHALL SUBMIT A REPORT DOCUMENTING THE INSPECTION AND MAINTENANCE LOGS TO THE TOWN PLANNING DEPARTMENT ANNUALLY.

GRASS-LINED WATER QUALITY SWALE MAINTENANCE

USUALLY, GRASSED WATER QUALITY SWALES REQUIRE LITTLE MORE THAN NORMAL LANDSCAPE MAINTENANCE ACTIVITIES SUCH AS IRRIGATION AND MOWING TO MAINTAIN POLLUTANT REMOVAL EFFICIENCY. SWALES CAN BECOME A NUISANCE DUE TO MOSQUITO BREEDING IN STANDING WATER IF OBSTRUCTIONS DEVELOP (E.G., DEBRIS ACCUMULATION, INVASIVE VEGETATION) AND/OR IF PROPER DRAINAGE SLOPES ARE NOT IMPLEMENTED AND MAINTAINED. THE APPLICATION OF FERTILIZERS AND PESTICIDES SHOULD BE MINIMIZED.

1. INSPECT CONDITION OF GRASS IN SWALES MONTHLY. GRASS MUST BE OF SUFFICIENT DENSITY AND HEALTH TO PROVIDE FILTRATION AND PROTECTION FROM EROSION.
2. MOW SWALES AS NEEDED.
3. NOTE BARE SPOTS AND REMOVE DEAD GRASS. RESEED THESE AREAS AS NECESSARY.
4. INSPECT FOR GROWTH OF TREES OR INVASIVE PLANTS IN GRASSED SWALE AREAS. REMOVE INVASIVE PLANTS, WEEDS, SHRUBS, TREES, OR ANYTHING WITH A WOODY STEM FROM GRASS SWALES.
5. INSPECT THE SWALES FOR LITTER, DEBRIS, LEAVES, DEAD VEGETATION AND ANYTHING ELSE THAT MIGHT INTERFERE WITH FLOW, FILTRATION OR GROWTH OF GRASS. REMOVE ALL SUCH LITTER AND DEBRIS WITH HAND TOOLS AND REPLACE DEAD VEGETATION.
6. DETERMINE WHETHER THE WATER QUALITY SWALE IS DRAINING CORRECTLY. LOOK FOR STANDING WATER OR SOGGY/SATURATED SOIL. WATER SHOULD DRAIN FROM SWALE WITHIN 72 HOURS. AFTER 72 HOURS, THERE SHOULD BE NO PATCHES OF STANDING WATER. THE SWALE SHOULD DRAIN EVENLY.

NOTE:
THIS REGULATORY SUBMISSION SET SHALL NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED 'ISSUED FOR CONSTRUCTION' AND SIGNED AND DATED BY A DIPRETE ENGINEERING REPRESENTATIVE

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Engineer:
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NO.	DATE	DESCRIPTION	BY
6	9-04-09	RIDEM Permit Modification Resubmission	B.C.G.
5	5-21-09	RIDEM Permit Modification	B.C.G.
4	03-28-08	RIDEM Response to Comments	B.C.G.
3	01-23-08	Sewer Response to Comments	B.C.G.
2	12-19-07	RIDEM Response to Comments	B.C.G.
1	9-17-07	Utility Submission	B.C.G.
0	05-18-07	RIDEM Submission	J.P.C.

RIDEM Submission

MAINTENANCE NOTES

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

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LEONARD R. BRADLEY, P.E.
No. 6610
REGISTERED PROFESSIONAL ENGINEER
CIVIL

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STORMWATER POLLUTION PREVENTION PLANS

1. PRE–CONSTRUCTION AND ONGOING CONSTRUCTION SPILL PREVENTION PLAN

1.1 NON–STORMWATER DISCHARGE

NON–STORMWATER DISCHARGES THAT ARE NOT CONTAMINATED WILL BE DIRECTED TO AREAS WHERE THEY CAN RECHARGE GROUNDWATER. WASTEWATER IS SPECIFICALLY PROHIBITED FROM BEING DISCHARGED ON SITE DURING AND AFTER CONSTRUCTION. THE FOLLOWING CHART LISTS NON–STORMWATER DISCHARGES THAT ARE PLANNED OR NOT PLANNED FOR THIS PROJECT. THE PLANNED DISCHARGES MAY OR MAY NOT OCCUR BASED ON SITE CONDITIONS, EMERGENCY SITUATIONS AND THE TOWN OF NORTH SMITHFIELD REGULATIONS. THE DISCHARGES CAN BE FURTHER DEFINED AS DURING THE CONSTRUCTION PHASE AND/OR DURING POST CONSTRUCTION/ OCCUPANCY PHASE OF THE PROJECT.

Water source	Construction		Planned	Comments
	During	Post		
Fire fighting	☐	☒	Yes	Emergency only
Fire Hydrant Flushing	☐	☒	No	If needed
Vehicle Washing w/o Detergent	☐	☐	No	
Dust Control	☒	☐	Yes	If needed
Potable Water/Water Line Flushing	☒	☒	No	
Building Washing w/o Detergent	☒	☒	No	
Pavement Washing w/o Contaminants	☒	☒	No	
Air Conditioner Condensation	☐	☒	Yes	Based on building utility maintenance
Groundwater/springs	☐	☐	No	
Foundation Drains	☐	☐	No	
Excavation Dewatering	☒	☐	No	If needed
Landscape Irrigation	☐	☒	Yes	If allowed by Town

1.2 SANITARY AND SOLID WASTE CONTROL

SANITARY WASTE GENERATED ON–SITE DURING THE CONSTRUCTION PHASE WILL BE COLLECTED IN PORTABLE TOILETTES AND THEN DISPOSED OF AT AN OFFSITE LOCATION IN ACCORDANCE WITH LOCAL AND STATE REGULATIONS. SANITARY WASTE GENERATED DURING THE POST CONSTRUCTION PHASE WILL BE COLLECTED IN A PUBLIC SANITARY SEWER SYSTEM AND TREATED AT THE WOONSOCKET WASTEWATER TREATMENT FACILITY LOCATED IN WOONSOCKET, RHODE ISLAND.

ILLEGAL DUMPING OF TRASH ON SITE WILL BE MONITORED THROUGH SCHEDULED INSPECTIONS BY THE OWNER AND ANY TRASH WILL BE CLEANED UP AS NEEDED.

SOLID WASTE GENERATED DURING THE CONSTRUCTION PHASE MAY CONSIST OF, BUT IS NOT LIMITED TO, PACKAGING MATERIALS (WOOD, PAPER, PLASTIC, ETC.), SCRAPS OR SURPLUS BUILDING MATERIALS (SCRAP METALS, RUBBER, PLASTIC, GLASS, MASONRY, WOOD ETC.), PAINTS AND PAINT THINNERS. WASTE GENERATED BY THE SITE DURING CONSTRUCTION WILL BE HANDLED BY THE FOLLOWING MEANS:

- AN AREA WILL BE DESIGNATED AS A WASTE COLLECTION AREA AND A WASTE COLLECTION TIME SHALL BE ARRANGED SO CONTAINERS DO NOT OVERFLOW.
- CONSTRUCTION SITE WASTE MATERIALS WILL BE PROPERLY CONTAINED ON SITE, AND THEN DISPOSED OF AT AN OFFSITE LOCATION IN ACCORDANCE WITH LOCAL AND STATE REGULATIONS.
- ROLL–OFF CONTAINERS WILL BE MAINTAINED ON–SITE FOR PROPER DISPOSAL OF CONSTRUCTION WASTE/DEBRIS.
- ALL WASTES WILL BE DISPOSED OF OR RECYCLED IN ACCORDANCE WITH LOCAL AND STATE REGULATIONS BY A LICENSED CONTRACTOR.

SOLID WASTE GENERATED DURING THE POST CONSTRUCTION PHASE WILL BE HANDLED BY CONVENTIONAL MEANS. THEY WILL BE REMOVED TO AN APPROVED LOCATION.

1.3 TOTAL MAXIMUM DAILY LOAD (TMDL)

THERE ARE CURRENTLY NO TMDL'S IN PLACE FOR THE RECEIVING WATERS OF THE SITE. FOR THE STATE OF RHODE ISLAND, CONSTRUCTION ACTIVITIES FULLY AND PROPERLY IMPLEMENTING THE REQUIREMENTS OF A CONSTRUCTION GENERAL PERMIT ARE DEEMED TO BE MEETING THE REQUIREMENTS AND ASSUMPTIONS OF ANY TMDL AT THIS TIME. REFERENCE THE RIDEM WEB SITE, HTTP://WWW.DEM.RI.GOV/PROGRAMS/BENVIRON/WATER/PERMITS/RIPDES/INDEX.HTM FOR INFORMATION REGARDING THIS DETERMINATION.

1.4 SPILL PREVENTION

THE FOLLOWING PRACTICES WILL BE FOLLOWED ON SITE DURING CONSTRUCTION TO PREVENT SPILLS AND CONTAMINATION OF STORMWATER:

- STORE ONLY ENOUGH OF ANY PRODUCT ON SITE REQUIRED TO DO THE WORK.
- ALL MATERIALS STORED ON SITE WILL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR APPROPRIATE CONTAINERS.
- PRODUCTS WILL BE KEPT IN THEIR ORIGINAL CONTAINERS WITH THE ORIGINAL MANUFACTURER'S LABEL.
- SUBSTANCES WILL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER.
- WHENEVER POSSIBLE, ALL OF A PRODUCT WILL BE USED BEFORE DISPOSING OF THE CONTAINER.
- MANUFACTURER'S RECOMMENDATION FOR PROPER USE AND DISPOSAL WILL BE FOLLOWED.
- THE SITE SUPERINTENDENT WILL INSPECT DAILY TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS ON SITE.
- IF SURPLUS PRODUCTS MUST BE DISPOSED OF, THE MANUFACTURER'S OR THE LOCAL AND STATE RECOMMENDED METHODS FOR PROPER DISPOSAL WILL BE FOLLOWED.
- THE MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP WILL BE CLEARLY POSTED AND SITE PERSONNEL WILL BE MADE AWARE OF THE PROCEDURES AND THE LOCATION OF THE INFORMATION AND CLEANUP SUPPLIES.
- MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEANUP WILL BE KEPT IN THE MATERIAL STORAGE AREA ON SITE. EQUIPMENT AND MATERIALS WILL INCLUDE BUT ARE NOT LIMITED TO BROOMS, DUST PANS, MOPS, RAGS, GLOVES, GOGGLES, KITTY LITTER, SAND, SAWDUST, AND PLASTIC AND METAL TRASH CONTAINERS SPECIFICALLY FOR THIS PURPOSE.
- ALL SPILLS WILL BE CLEANED UP IMMEDIATELY AFTER DISCOVERY.
- THE SPILL AREA WILL BE KEPT WELL VENTILATED AND PERSONNEL WILL WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENT INJURY FROM CONTACT WITH A HAZARDOUS SUBSTANCE.
- SPILLS OF TOXIC OR HAZARDOUS MATERIAL WILL BE REPORTED TO THE APPROPRIATE STATE AND LOCAL GOVERNMENT AGENCY, REGARDLESS OF THE SIZE.
- THE SPILL PREVENTION PLAN WILL BE ADJUSTED TO INCLUDE MEASURES TO PREVENT THIS TYPE OF SPILL FROM RE–OCCURRING AND HOW TO CLEAN UP THE SPILL IF THERE IS ANOTHER ONE. A DESCRIPTION OF THE SPILL, WHAT CAUSED IT, AND THE CLEANUP MEASURES WILL ALSO BE INCLUDED.

FOR SPILLS AND RELEASES OF REPORTABLE MATERIALS AND/OR QUANTITIES, THE FOLLOWING STEPS MUST BE TAKEN:

- NOTIFY THE RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT AT (401) 222–3961, (401) 222–6519 OR (401) 222–2284 AT NIGHT AS SOON AS THERE IS KNOWLEDGE OF THE SPILL.
- NOTIFY THE PERMITTING AUTHORITY IN WRITING WITHIN 5 DAYS.
- THE SWPPP MUST BE MODIFIED WITHIN 14–DAYS TO PROVIDE A DESCRIPTION OF THE RELEASE, THE CIRCUMSTANCES LEADING TO THE RELEASE AND THE DATE OF THE RELEASE.

MATERIALS OR SUBSTANCES LISTED BELOW ARE EXPECTED TO BE PRESENT ON SITE DURING CONSTRUCTION:

- ASPHALT
- DETERGENTS
- CONCRETE
- FERTILIZERS
- LOAM
- PETROLEUM BASED PRODUCTS
- GRAVEL FOR ROADWAY
- CLEANING SOLVENTS
- STONE
- WOOD
- SEWER PIPE & FITTINGS
- PIPE LUBRICANT
- PAINTS (ENAMEL AND LATEX)
- DRAINAGE PIPE
- ROOFING SHINGLES
- WATER PIPE & FITTINGS
- CHLORINE FOR WATER PIPE CLEANING
- MASONRY BLOCK
- GAS PIPE
- SHEET ROCK / GYPSUM BOARD
- MANHOLES
- ELECTRICAL MATERIALS/SUPPLIES
- CATCH BASINS
- PLUMBING MATERIALS/SUPPLIES
- CATCH BASIN / MANHOLE FRAMES & GRATES

PRODUCT SPECIFIC SPILL PREVENTION PRACTICES:

PETROLEUM PRODUCTS: ALL ON SITE VEHICLES WILL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTATIVE MAINTENANCE TO REDUCE THE CHANCE OF LEAKAGE. PETROLEUM PRODUCTS WILL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. ANY ASPHALT SUBSTANCE USED ON SITE WILL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

FERTILIZERS: FERTILIZERS USED WILL BE APPLIED ONLY IN THE MINIMUM AMOUNTS RECOMMENDED BY THE MANUFACTURER. ONCE APPLIED, FERTILIZER WILL BE WORKED INTO THE SOIL TO LIMIT EXPOSURE TO STORMWATER. STORAGE WILL BE IN A COVERED SHED. THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILIZER WILL BE TRANSFERRED TO A SEALABLE PLASTIC BIN TO AVOID SPILLS.

PAINTS: ALL CONTAINERS WILL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE. EXCESS PAINT WILL NOT BE DISCHARGED TO THE STORM SEWER SYSTEM BUT WILL BE PROPERLY DISPOSED OF ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS OR LOCAL AND STATE REGULATIONS.

2. POST CONSTRUCTION SPILL PREVENTION PLAN

THIS SPILL CONTINGENCY PLAN (SPILL PLAN) IS FOR THE PROPOSED DOWLING VILLAGE DEVELOPMENT LOCATED OFF THE EDDIE DOWLING HIGHWAY (ROUTE 146A) IN NORTH SMITHFIELD, RHODE ISLAND (THE FACILITY). THE PURPOSE OF THE SPILL PLAN IS TO PROTECT THE STORMWATER DRAINAGE SYSTEMS, SEWER SYSTEMS, SURFACE WATER, AND GROUNDWATER BY MINIMIZING THE RISK OF POTENTIAL CHEMICAL PRODUCT SPILLS AND BY IMPLEMENTING PROCEDURES FOR SAFE, EFFECTIVE AND TIMELY RESPONSE IN THE EVENT OF A SPILL OF OIL OR HAZARDOUS MATERIAL AT INDIVIDUAL FACILITIES THROUGHOUT THE DEVELOPMENT. THE FOLLOWING SPILL PREVENTION PLAN WILL BE APPLICABLE PER FACILITY AS THE USE AND SIZE OF EACH BUILDING WARRANTS.

2.1 DEVELOPMENT DESCRIPTION

THE PROPOSED DEVELOPMENT CONSISTS OF APPROXIMATELY 576,000 SQUARE FEET OF RETAIL SPACE, 20,800 SQUARE FEET OF RESTAURANT SPACE AND 75,000 SQUARE FEET OF OFFICE SPACE AS WELL AS ASSOCIATED PARKING AREAS, LANDSCAPING AND UTILITY IMPROVEMENTS. THE DEVELOPMENT WILL BE SERVICED BY MUNICIPAL WATER AND SANITARY SEWER. WASTEWATER SOURCES AT THE DEVELOPMENT ARE LIMITED TO SANITARY WASTEWATER FROM BUILDING RESTROOMS AND TYPICAL CUSTODIAL WASTEWATER FROM FACILITY CLEANING. A LIMITED TRENCH DRAIN SYSTEM IN SEASONAL DISPLAY AREAS AND THE RESTROOMS ARE CONNECTED TO THE SANITARY SEWER TO HANDLE WASTEWATER FROM FLOOR WASHING. THERE ARE NO FLOOR DRAINS IN PRODUCT STOCK/DISPLAY AREAS WHERE OIL AND HAZARDOUS MATERIALS MAY BE STORED.

THE RETAIL PORTION OF THE DOWLING VILLAGE DEVELOPMENT WILL CONSIST OF SALES FLOOR, RECEIVING AND STORAGE AREAS, OFFICES, REST ROOMS, UTILITY SPACES, AND GARDEN CENTER AREA. RETAIL MERCHANDISE WILL BE STOCKED AND DISPLAYED ON RACKING AND PALLETS. MERCHANDISE TYPICALLY INCLUDES A WIDE VARIETY OF CONSTRUCTION AND HOME IMPROVEMENT PRODUCTS IN STANDARD CONSUMER–SIZED PACKAGING.

2.2 STORMWATER DRAINAGE

THE STORMWATER RUNOFF HAS BEEN DESIGNED TO REPLICATE THE FLOW PATTERNS OF THE NATURAL GRADES FOR THE SITE. A NETWORK OF STORM DRAINS COLLECT STORMWATER FROM THE DEVELOPMENT'S IMPERVIOUS AREAS AND DIRECTS STORMWATER RUN–OFF TO EITHER A DETENTION POND, RAIN GARDEN, OR SUBSURFACE DETENTION BASIN WITH CONTROLLED / MITIGATED FLOW INTO RECEIVING WATER BODIES.

THE SUBSURFACE DETENTION BASINS, RAIN GARDENS, AND THE DETENTION PONDS HAVE BEEN DESIGNED TO REDUCE THE IMPACT OF THE SITE RUNOFF TO THE SURROUNDING WETLAND AREAS. ALL STORMWATER FROM PAVED AREAS WILL BE TREATED USING DEEP SUMP CATCH BASINS, SNOUTS ON ALL CATCH BASINS, HYDRODYNAMIC SEPARATORS PRIOR TO ALL SUBSURFACE DETENTION BASINS OR RAIN GARDENS, AND SEDIMENT FOREBAYS AND/OR SEDIMENT SUMPS ON ABOVE GROUND DETENTION PONDS. IN ADDITION, EXTENDED DETENTION HAS BEEN PROVIDED ON BOTH SUBSURFACE DETENTION BASINS, RAIN GARDENS AND ABOVE GROUND DETENTION PONDS AS THE PRIMARY TREATMENT DEVICE. TRASH RACKS HAVE BEEN PROVIDED ON ALL OUTFALLS TO PROTECT AGAINST CLOGGING. THE UNDEVELOPED AREAS WILL CONTINUE TO FLOW AS IN EXISTING CONDITIONS. THESE UNDEVELOPED AREAS WILL NOT FLOW THROUGH THE PROPOSED DETENTION BASINS AND WILL NOT AFFECT PROPOSED RUNOFF RATES OR VOLUMES.

2.3 POTENTIAL SPILL SOURCES AND CONTROLS

THERE IS THE POTENTIAL FOR SMALL SPILLS OF OIL OR OTHER PETROLEUM–BASED RETAIL PRODUCTS AND VARIOUS HAZARDOUS MATERIAL RETAIL PRODUCTS (INCLUDING PESTICIDES, CLEANING MATERIALS, ADHESIVES, PAINTS, SOLVENTS, ETC.) THAT ARE TO BE STOCKED AND DISPLAYED AT THE FUTURE RETAIL FACILITIES. PRODUCTS ARE STOCKED IN CONSUMER–SIZED PACKAGING IN THEIR ORIGINAL DOT–COMPLIANT CONTAINERS, AS RECEIVED FROM THE MATERIAL SUPPLIER. MAXIMUM CONTAINER SIZES ARE 5 GALLONS OR LESS FOR LIQUIDS AND 100 POUNDS OR LESS FOR SOLIDS. THERE ARE NO FLOOR DRAINS PROPOSED IN THE GENERAL STOCK AND DISPLAY AREAS WHERE OIL OR HAZARDOUS MATERIAL RETAIL PRODUCTS ARE ROUTINELY STORED. FLOOR DRAINS ARE LOCATED IN THE RESTROOM AND SEASONAL DISPLAY AREAS WHICH DISCHARGE TO THE SANITARY SEWER. IMPLEMENTATION OF THE PROCEDURES OUTLINED IN THIS SPILL PLAN WILL PREVENT CONTAMINATED RUNOFF FROM LEAVING THE FACILITY OR PROPERTY.

BECAUSE PRODUCTS ARE WELL ORGANIZED AND STOCKED/DISPLAYED ON PALLETS AND RACKS AT THE RETAIL FACILITIES, A MAJOR SPILL INCIDENT IS UNLIKELY. STORE ASSOCIATES PERFORM FREQUENT INSPECTIONS OF THE STOCK AND DISPLAY AREAS AS PART OF NORMAL OPERATING PROCEDURES. IF A SPILL OCCURRED, THE FACILITY STAFF WOULD IMMEDIATELY RESPOND USING THE SPILL PROCEDURES OUTLINED IN THIS SPILL PLAN. TYPICAL RESPONSE FOR SMALL SPILLS IS THE USE OF ABSORBENT MATERIALS TO CLEAN UP THE SPILL AND SAFELY CONTAINERIZE THE WASTE MATERIAL WITHIN AN APPROPRIATE HAZMAT STORAGE DRUM FOR EVENTUAL OFF–SITE DISPOSAL IN COMPLIANCE WITH APPLICABLE HAZARDOUS WASTE REGULATIONS.

DISPOSAL OF ANY PRODUCTS THAT HAVE NOT SOLD AND HAVE EXPIRED SHALL BE DISPOSED OF IN ACCORDANCE TO ALL LOCAL, STATE, AND FEDERAL REGULATIONS.

DUE TO THE RETAIL NATURE OF THE DOWLING VILLAGE DEVELOPMENT, PRODUCTS CAN CHANGE OVER TIME. THE DEVELOPMENT'S LOSS PREVENTION, SAFETY & HAZMAT DEPARTMENT MAINTAINS UP–TO–DATE MATERIAL SAFETY DATA SHEET (MSDS) ON THE FACILITY'S PRODUCTS WHICH PROVIDE PRODUCT–SPECIFIC HAZMAT INFORMATION AND CAN BE PROVIDED IMMEDIATELY UPON REQUEST FOR USE BY THE FACILITY'S EMPLOYEES. THE FOLLOWING TABLE PROVIDES A SUMMARY OF THE TYPES OF HAZMAT PRODUCTS THAT COULD BE PRESENT AT THE PROPOSED FACILITY.

TABLE 1 – PRODUCT CATEGORIES FOR SPILL RESPONSE

HAZARD CATEGORY	PHYSICAL FORM	EXAMPLE PRODUCT TYPES
CORROSIVE MATERIALS		
	AEROSOLS:	SPRAY OVEN/GRILL CLEANERS
	LIQUIDS:	DRAIN CLEANERS, TILE CLEANER, TOILET BOWL CLEANER, ACIDIC CLEANERS
		DRAIN OPENERS, CHLORINE AND BROMINE TABLETS
IGNITABLE MATERIALS		
	AEROSOLS:	SPRAY PAINTS AND SOLVENTS ETC.
	LIQUIDS:	MISCELLANEOUS ADHESIVES, PAINT THINNERS, INSECTICIDES, ALCOHOL ETC.
	SOLIDS:	GRANULAR SOIL SULFUR
	GASES:	BUTANE LIGHTERS, SMALL PROPANE CYLINDERS
TOXIC MATERIALS		
	AEROSOLS:	BUG SPRAYS, SPRAY SOLVENTS, WEED SPRAY, ETC.
	LIQUIDS:	ADHESIVE RESINS, PAINTS AND SOLVENTS, ANTIFREEZE, LIQUID FERTILIZERS
	SOLIDS:	FERTILIZERS, INSECTICIDE, RODENT POISON, PLANT FOODS ETC.
REACTIVE MATERIALS		
	LIQUIDS:	CARPET CLEANERS, DRAIN OPENER, ADHESIVE RESINS
	SOLIDS:	CHLORINE TABLETS, DRAIN OPENER

THE DOWLING VILLAGE FUTURE RETAILERS WILL MANAGE ALL WASTE MATERIALS IN COMPLIANCE WITH APPLICABLE STATE AND FEDERAL HAZARDOUS WASTE REGULATIONS. WASTE MATERIALS COLLECTED FROM SPILLS AND LEAKING CONTAINERS WITHIN THE FACILITY ARE KEPT TEMPORARILY IN COMPATIBLE STORAGE DRUMS (INTENDED FOR A SPECIFIC GROUP OF COMPATIBLE COMMODITY CLASSES) UNTIL A LICENSED WASTE HAULER REMOVES THE WASTE MATERIAL FOR PROPER OFF–SITE TREATMENT AND DISPOSAL. WASTE ITEMS CAN INCLUDE OILS AND HAZMAT PRODUCTS, ACCORDING TO THE CATEGORIES SHOWN IN THE TABLE ABOVE.

POTENTIAL WASTE MATERIALS WILL CONSIST OF THE SPILLED/LEAKED PRODUCT, THE ABSORBENT PADS OR OTHER MATERIALS USED FOR CLEAN–UP AND THE ORIGINAL PRODUCT CONTAINER (IF A PORTION OF THE ORIGINAL PRODUCT REMAINS). THESE MATERIALS WILL BE PLACED IN A LABELED ZIP–LOCK PLASTIC BAG AND PLACED INTO A CONTAINMENT DRUM. A LIQUID SPILL FROM A CONTAINMENT DRUM IS UNLIKELY, SINCE EACH DRUM WILL BE A NEW VESSEL, COMPATIBLE WITH THE MIX OF PRODUCTS, ABSORBENTS AND ORIGINAL CONTAINERS FOR THE SPILLED MATERIAL. THE DRUM(S) WILL ACT AS THE PRIMARY CONTAINMENT VESSEL. IN ADDITION, THE DRUMS CONTAINING LIQUID WASTES WILL BE STORED ON SPILL CONTAINMENT PALLETS WHICH PROVIDE SECONDARY CONTAINMENT CAPABLE OF CONTAINING THE ENTIRE CONTENTS OF A DRUM. IN THE EVENT THAT A DRUM IS DISCOVERED TO BE LEAKING, THE STANDARD SPILL CLEAN–UP PROCEDURES ABOVE WOULD BE USED TO COLLECT THE CHEMICAL MATERIAL AND RE–CONTAINERIZE THE MATERIAL IN A NEW DRUM.

2.4 PERSONNEL SPILL TRAINING

EACH FACILITY MAINTAINS A COPY OF THE WRITTEN OSHA HAZARD COMMUNICATION PROGRAM (THE PROGRAM) FOR REFERENCE IN CASE OF A SPILL. EMPLOYEES DIRECTLY INVOLVED WITH RECEIVING PETROLEUM PRODUCTS AND HAZARDOUS MATERIALS SHALL RECEIVE HAZARDOUS MATERIALS TRAINING, WHICH INCLUDES SPILL RESPONSE. THIS TRAINING IS PERFORMED PRIOR TO AN EMPLOYEE ASSUMING DUTIES AND IS REFRESHED ANNUALLY THEREAFTER IN ACCORDANCE WITH THE FACILITY'S COMMUNICATION PROGRAM.

2.5 SECURITY

THE FACILITY AND THE PROPERTY ARE ILLUMINATED DURING THE EVENING HOURS. ILLUMINATION IS SUFFICIENT TO DETECT UNAUTHORIZED ENTRY AND SPILLS. THE BUILDING IS LOCKED DURING OFF–HOURS. THE FACILITY IS EQUIPPED WITH A FIRE ALARM THROUGHOUT THE BUILDING THAT CAN BE ACTIVATED AUTOMATICALLY OR BY MANUAL PULL STATIONS TO ALERT THE FIRE DEPARTMENT. SECURITY INCLUDES AND SHALL BE IN COMPLIANCE WITH THE FOLLOWING ITEMS:

1. ALL AREAS FOR HANDLING, USING AND STORING OIL SHALL BE FULLY FENCED, WITH ENTRANCE GATES LOCKED AND/OR GUARDED WHEN THE FACILITY IS CLOSED.
2. FACILITY LIGHTING SHALL BE SUFFICIENT FOR, (A) DISCOVERY OF SPILLS OCCURRING DURING HOURS OF DARKNESS, AND, (B) PREVENTION OF SPILLS OCCURRING THROUGH ACTS OF VANDALISM.

2.6 INSPECTIONS AND RECORD KEEPING

FACILITY PERSONNEL WILL PERFORM INSPECTION AND MAINTENANCE OF EQUIPMENT AND FACILITIES TO KEEP IT PERFORMING IN AN EFFICIENT AND ENVIRONMENTALLY SOUND MANNER. THE INSPECTIONS SHALL BE PERFORMED AS DISCUSSED IN THE FOLLOWING SUBSECTIONS.

INSPECTING STOCK/DISPLAY AREAS

A DESIGNATED FACILITY ASSOCIATE SHALL MAKE DOCUMENTED INSPECTIONS OF ALL HAZARDOUS MATERIAL STOCK/DISPLAY AREAS ON A WEEKLY BASIS. SPILL KITS SHALL BE CHECKED DURING THIS WEEKLY INSPECTION TO ENSURE THAT THERE IS AN ADEQUATE SUPPLY OF CLEAN–UP MATERIALS PRESENT.

2.7 SPILL PREVENTION PRACTICES

FACILITY EMPLOYEES ARE TRAINED TO IMPLEMENT SPILL PREVENTION A FACILITY'S PERSONNEL SHALL USE THEIR HAZARD COMMUNICATIONS PROGRAM TRAINING WHICH INCLUDES SPILL RESPONSE AND HAZARDOUS WASTE MANAGEMENT TO MINIMIZE THE POTENTIAL FOR A HAZARDOUS MATERIALS RELEASE DURING THE COURSE OF THEIR WORK DAY.

THE FOLLOWING PRACTICES ARE EMPLOYED, WHERE APPLICABLE:

- KEEP CONTAINER LIDS SECURELY FASTENED AT ALL TIMES;
- USE PADS, DRIP PANS, AND FUNNELS WHEN TRANSFERRING LIQUID HAZMAT PRODUCTS FROM A PORTABLE CONTAINER;
- PROTECT HAZMAT SOURCES FROM DAMAGE BY MOVING EQUIPMENT;
- UNLOADING OF PETROLEUM AND HAZARDOUS MATERIAL PRODUCTS SHALL BE ATTENDED AT ALL TIMES.

2.8 SPILL PREVENTION PRACTICES

THE UNCONTROLLED DISCHARGE OF OIL OR HAZARDOUS MATERIAL TO GROUNDWATER, SURFACE WATER OR SOIL IS PROHIBITED BY STATE AND FEDERAL LAWS. IT IS IMPERATIVE THAT PROMPT ACTION BE TAKEN TO RESPOND TO A SPILL ONCE IT HAS OCCURRED. THIS SECTION PROVIDES GUIDELINES AND PROCEDURES FOR RESPONDING TO A POTENTIAL SPILL OF OIL OR HAZARDOUS MATERIAL AT THE FACILITY.

EMERGENCY INFORMATION & CONTACTS

BEFORE STARTING ANY CLEANUP OF HAZARDOUS CHEMICAL MATERIALS, CHECK THE WARNING LABEL OF AN UNBROKEN CONTAINER OR THE MATERIAL SAFETY DATA SHEET (COMMONLY CALLED THE MSDS) OF THE PRODUCT INVOLVED IN THE SPILL OR LEAK. DUE TO THE LARGE NUMBER OF DIFFERENT PRODUCTS SOLD THROUGHOUT THE DEVELOPMENT, MSDS FOR PRODUCTS ARE MAINTAINED BY AN OUTSIDE PROFESSIONAL SERVICE AND ARE MADE AVAILABLE THROUGH EACH FACILITY'S HAZMAT SUPPORT LINE. FOR LOCAL SUPPORT, THE FOLLOWING AGENCIES CAN BE CONTACTED AT THE NUMBERS LISTED BELOW.

- RIDEM EMERGENCY RESPONSE
  WEEKDAYS 8:30 – 4:00 (401) 222–1360
  AFTER HOURS, WEEKENDS, HOLIDAYS (401) 222–3070 OR 1–800–498–1336
- EPA REGION 1/ NATIONAL RESPONSE CENTER : 1–800–424–8802

IN THE EVENT OF A CHEMICAL SPILL, HAZMAT SUPPORT WILL PROVIDE THE PROPER MSDS, PROVIDE INSTRUCTIONS ON HOW TO CLEANUP THE PRODUCT, AND PROVIDE ADVICE FOR PROPER DISPOSAL OPTIONS.

SPILL RESPONSE EQUIPMENT

SPILL PACKS ARE MAINTAINED READY FOR USE AND ARE EASILY ACCESSIBLE TO ALL EMPLOYEES IN THE EVENT OF A HAZARDOUS MATERIALS SPILL. SPILL PACKS ARE LOCATED IN THOSE AREAS WHERE THE POTENTIAL FOR A SPILL IS GREATEST AT THE FOLLOWING LOCATIONS:

- RECEIVING AREA
- LAWN & GARDEN
- PAINT DEPARTMENT
- CUSTOMER SERVICE DESK

SPILL PACK CONTENTS:

- ABSORBENT POWDER
- ABSORBENT PADS
- CHEMICAL RESISTANT GLOVES
- SAFETY GLASSES
- PLASTIC BAGS AND TIES
- LABELS
- MARKER

GENERAL GUIDELINES FOR CHEMICAL SPILL CLEAN–UP AND DISPOSAL

THE FOLLOWING SPILL RESPONSE GUIDANCE AND RECOMMENDED PROCEDURES HAVE BEEN IMPLEMENTED.

1. PRIOR TO CLEANING ANY SPILL, FACILITY EMPLOYEES MUST BE SURE THAT THEY ARE EDUCATED ON THE PROGRAM AND THE HAZARDS ASSOCIATED WITH THE CHEMICALS THAT ARE SPILLED OR LEAKING, INCLUDING,
   - WHERE TO LOCATE SPILL PACKS;
   - HOW TO OBTAIN THE MSDS INFORMATION FOR PERSONNEL SAFETY AND SPECIFIC CLEAN–UP INFORMATION;
   - THE FACILITY'S HAZMAT SUPPORT LINE NUMBER AND WHAT SERVICES THEY PROVIDE.
2. CONTROL THE AREA WHERE THE SPILL OCCURS; CLOSE OFF THE ENTIRE AISLE, IF APPLICABLE, WITH SAFETY CONES, AISLE BLOCKERS OR BARRICADE TAPE. DIRECT CUSTOMER AND EMPLOYEES AWAY FROM THE AREA.
3. PROPER VENTILATION IS VERY IMPORTANT AND MUST BE MAINTAINED AT ALL TIMES DURING SPILL CLEAN–UP. OPEN DOORS AND SET UP PORTABLE BOX FANS IF THE SPILL OR LEAK IS OF SUBSTANTIAL SIZE, ATTEMPT TO VENT FUMES OUTDOORS. ALSO, TEMPORARILY TURN OFF THE BUILDING VENTILATION SYSTEM TO REDUCE VAPOR CIRCULATION WITHIN THE BUILDING. IF FUMES BECOME TOO GREAT, EVACUATE THE AREA AND/OR STORE.
4. CONTACT HAZMAT SUPPORT TO ASSIST WITH INSTRUCTIONS ON CLEANUP PROCEDURES AND DISPOSAL OF THE WASTE. THEY WILL ALSO ASSIST YOU WITH ANY HANDLING AND STORAGE QUESTIONS YOU MAY HAVE. ENSURE THAT AN MSDS IS OBTAINED FROM THE HAZMAT SUPPORT LINE, PRIOR TO CLEANING THE SPILL.
5. USE PROPER PERSONAL PROTECTIVE EQUIPMENT AVAILABLE IN YOUR SPILL PACK WHEN HANDLING ANY OPEN CHEMICALS (SPILLS OR DEFECTIVE MERCHANDISE). BEFORE ATTEMPTING TO CLEANUP ANY SPILL, BE SURE THAT PROPER PERSONAL PROTECTIVE EQUIPMENT IS BEING USED.
6. DETERMINE HOW THE SPILL WILL BE CLEANED. IF A SPILL IS SMALL (ONE PINT OR LESS) TAKE UP THE MATERIAL WITH THE NON–COMBUSTIBLE ABSORBENT MATERIAL FROM THE SPILL PACK. ABSORBENT MATERIALS FOUND IN THE SPILL PACK ARE TO BE UTILIZED FOR "SMALL" SPILLS.

   NOTE: IF THE SPILL IS LARGE, CONTACT HAZMAT SUPPORT LINE OR THE EPA REGIONAL OFFICE IMMEDIATELY FOR ASSISTANCE.

   FOR "LARGE" SPILLS YOU SHOULD USE INERT ABSORBENT MATERIALS SUCH AS ABZORBIT®, DEHYDRATED LIME, SODIUM BICARBONATE (BAKING SODA), SODA ASH, PH PLUS, VERMICULITE, SAND, OR DIATOMACEOUS EARTH (POOL FILTER DUST WHICH CAN BE PURCHASED AT A LOCAL POOL SPECIALTY STORE). THESE MATERIALS SHOULD BE KEPT IMMEDIATELY ACCESSIBLE.
7. SURROUND THE SPILL WITH THE ABSORBENT MATERIALS SO THAT IT IS CONFINED TO A SMALL AREA. COVER THE SPILL WITH ABSORBENT MATERIALS TO HELP REDUCE EVAPORATION AND ODORS. ENSURE THAT THE SPILL IS BLOCKED BY SURROUNDING IT WITH THE ABSORBENT MATERIAL SO THAT IT CANNOT REACH THE DRAINAGE OR SEWAGE SYSTEMS.

   NOTE: IF INFILTRATION OF THE SEWAGE SYSTEM OR DRAINAGE SYSTEM EXISTS, NOTIFY THE HAZMAT SUPPORT LINE FOR FURTHER INSTRUCTIONS ON CLEAN–UP. THEY WILL INSTRUCT YOU ON HOW TO NOTIFY THE PROPER AUTHORITIES.
8. AFTER ABSORBING CHEMICALS AND MATERIALS USED FOR CLEANUP, THE SPILL SHOULD BE STORED IN A HAZARDOUS WASTE BAG (FROM THE SPILL PACK) AND PROPERLY LABELED WITH THE PRODUCT AND ABSORBENT MATERIAL NAMES AND WITH THE DATE OF SPILL ON THE BAG. THE WASTE SHOULD THEN BE PLACED IN A COMPATIBLE WASTE STORAGE DRUM FOR EVENTUAL OFFSITE DISPOSAL ACCORDING TO THE RELATED DISPOSAL PROGRAM.
9. THE ABSORBENT PADS OR MATERIAL SHOULD BE PLACED INTO THE HAZARDOUS MATERIALS PLASTIC BAGS, TIED OFF AND LABELED AS A HAZARDOUS WASTE. THE LABEL ON THE PLASTIC BAG MUST BE FILLED OUT WITH A PERMANENT MARKING PEN AND CONTAIN:
   a. THE NAME OF THE PRODUCT OR PRODUCTS CONTAINED IN THE BAG;
   b. THE QUANTITY OF THE MATERIAL;
   c. THE NAME OF THE MANUFACTURER;
   d. THE TYPE OF ABSORBENT USED IN THE CLEANUP;
   e. THE DATE OF THE SPILL; AND
   f. THE WORDS "HAZARDOUS WASTE" MUST BE CLEARLY MARKED.
10. THE BAGS SHOULD THEN BE PLACED IN PROPERLY LABELED CONTAINERS (DRUMS) FOR DISPOSAL.
11. AFTER ANY SPILL, REPLACE ANY USED MATERIALS FROM THE SPILL PACK WITH REPLACEMENTS. REPLENISHMENTS FOR THE SPILL PACK CAN BE ORDERED THROUGH XPEDX.
12. MAKE SURE THE FLOOR AREA IS COMPLETELY DRY OF ALL SPILL RESIDUES AND SCRUB IT WITH A MILD DETERGENT.

NOTE: NEVER USE AMMONIA! IT MAY HAVE A TOXIC REACTION WITH PRODUCTS CONTAINING CHLORINE.

ADDITIONAL SAFETY NOTES:

- WHEN CLEANING SPILLS, NEVER MIX DIFFERENT CATEGORIES OF HAZARDOUS MATERIALS: CORROSIVE, IGNITABLE, REACTIVE AND TOXIC.
- NEVER MIX ALKALINE AND ACIDIC PRODUCTS TOGETHER.
- IF TWO OR MORE UNLIKE MATERIALS ARE TO BE CLEANED UP AND DISPOSED OF TOGETHER, KEEP THEM IN SEPARATE PLASTIC BAGS. ALWAYS ASSUME THE PRODUCTS ARE NOT COMPATIBLE.

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OFFICE OF WATER RESOURCES

CLEANUP WASTE DISPOSAL

ALL WASTE AND RESIDUAL MATERIALS RESULTING FROM SPILL CLEANUP AND DECONTAMINATION MUST BE CHARACTERIZED AND DISPOSED IN ACCORDANCE WITH STATE AND FEDERAL HAZARDOUS WASTE REGULATIONS. CLEANUP AND DECONTAMINATION OF SPILLS INVOLVING HAZARDOUS CHEMICALS MAY REQUIRE SPECIAL DISPOSAL PROCEDURES AND PRECAUTIONS AS INDICATED ON THE MATERIAL'S MATERIAL SAFETY DATA SHEET (MSDS). DISPOSAL OF SPILL CLEANUP MATERIALS TYPICALLY REQUIRES TRANSPORT BY A LICENSED WASTE HAULER TO A LICENSED DISPOSAL FACILITY USING A HAZARDOUS WASTE MANIFEST.

NOTE: IF UNSURE OF HAZARDOUS WASTE DISPOSAL REQUIREMENTS, CONTACT THE FACILITY'S HAZMAT SUPPORT, EPA REGIONAL OFFICE, OR RIDEM FOR ASSISTANCE.

2.9 SPILL NOTIFICATION AND REPORTING

RELEASES OF OIL AND/OR HAZARDOUS MATERIALS AND WASTE MUST BE REPORTED TO THE EPA, THE NATIONAL RESPONSE CENTER (NRC), AND RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT. RELEASES OF THESE MATERIALS TO WATER SUPPLIES AND SEWER SYSTEMS MUST ALSO BE REPORTED TO LOCAL AUTHORITIES. A DISCUSSION OF REPORTING REQUIREMENTS AND CONTACT INFORMATION IS PROVIDED BELOW.

NOTE: IF UNSURE OF REPORTABLE QUANTITY DETERMINATION, CONTACT THE FACILITY'S HAZMAT SUPPORT LINE OR THE EPA REGIONAL OFFICE FOR ASSISTANCE.

SPILL NOTIFICATION AND REPORTING

INDIVIDUALS DISCOVERING AN OIL OR HAZARDOUS MATERIAL RELEASE THAT CAUSES A VISIBLE SHEEN ON A SURFACE WATER AND/OR SUSPECTED TO BE IN EXCESS OF A REPORTABLE QUANTITY MUST CONTACT THE FEDERAL GOVERNMENT'S CENTRALIZED REPORTING CENTER, THE NATIONAL RESPONSE CENTER (NRC) BY PHONE OR THEIR WEBSITE.

ALSO, OIL AND HAZARDOUS MATERIALS RELEASES MUST BE REPORTED TO THE RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (RIDEM). UNDER THE STATE OF RHODE ISLAND ENVIRONMENTAL REGULATIONS, A SPILL OF ANY QUANTITY OF OIL OR HAZARDOUS MATERIAL THAT REACHES SURFACE WATER, A SANITARY SEWER, STORM DRAIN, DITCH, OR CULVERT LEADING THERETO, IS IMMEDIATELY REPORTABLE, TO THE RIDEM.

RELEASES OR THREATS OF RELEASE REQUIRING REPORTING.

- A RELEASE OF A REPORTABLE QUANTITY OF A LISTED MATERIAL OR AN UNLISTED MATERIAL THAT IS IGNITABLE, CORROSIVE, REACTIVE, TOXIC OR INFECTIOUS AND WAS RELEASED WITHIN A 24 HOUR PERIOD;
- A RELEASE RESULTING IN A SHEEN ON SURFACE WATER;
- A RELEASE POSING AN IMMINENT HAZARD INCLUDING FIRE, EXPLOSION, PUBLIC SAFETY AND IMMEDIATE PUBLIC HEALTH AND ENVIRONMENTAL HAZARDS;
- A RELEASE THAT IS DISCHARGED TO A STORMWATER DRAINAGE OR THE SANITARY SEWER SYSTEM;
- A THREAT OF RELEASE THAT IS LIKELY TO EXCEED A REPORTABLE QUANTITY OR POSE AN IMMINENT HAZARD.

REGULATORY CONTACTS

CONTACT INFORMATION FOR REPORTING OIL AND HAZARDOUS MATERIALS RELEASES TO THE EPA, NRC, RIDEM, AND LOCAL AGENCIES ARE PROVIDED BELOW.

AGENCY	TELEPHONE NUMBER
NORTH SMITHFIELD FIRE DEPARTMENT	911 OR (401)762–1135
NORTH SMITHFIELD POLICE DEPARTMENT	911 OR (401) 762–1212
WOONSOCKET WATER AUTHORITY	(401) 767–9217
WOONSOCKET SEWER AUTHORITY	(401) 766–0555
RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT	(401) 222–3070
NATIONAL RESPONSE CENTER (NRC) EPA & US COAST GUARD	(800) 424–8802

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 2 9 2009 FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

NOTE:
THIS REGULATORY SUBMISSION SET SHALL NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED 'ISSUED FOR CONSTRUCTION' AND SIGNED AND DATED BY A DIPRETE ENGINEERING REPRESENTATIVE

Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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
6	9-04-09	RIDEM Permit Modification Resubmission	B.C.G.
5	5-21-09	RIDEM Permit Modification	B.C.G.
4	03-28-08	RIDEM Response to Comments	B.C.G.
3	01-23-08	Sewer Response to Comments	B.C.G.
2	12-19-07	RIDEM Response to Comments	B.C.G.
1	9-17-07	Utility Submission	B.C.G.
0	05-18-07	RIDEM Submission	J.P.C.

RIDEM Submission

SPILL PREVENTION NOTES

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

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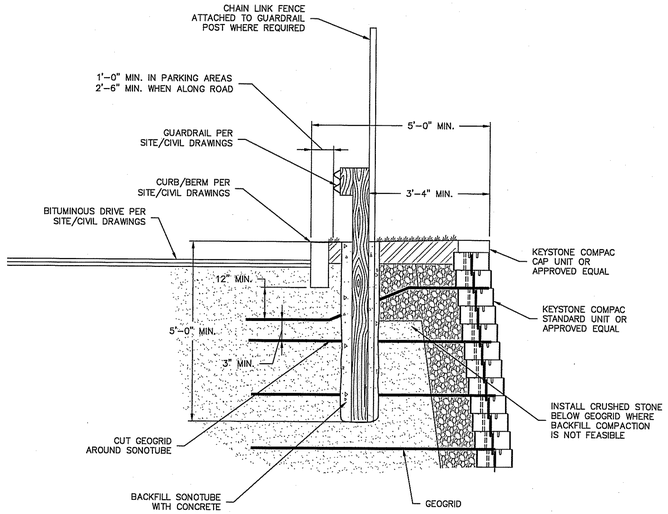
LEONARD R. BRADLEY, JR.
No. 6610
REGISTERED PROFESSIONAL ENGINEER
CIVIL

\\Deastorage\deamain\Vault Working\0617-004-2\601 Preliminary\Plotting\0617-004-2 Detail Sheets.dwg, 9/8/2009 3:38:04 PM, Briang, DWF6 ePlot.pc3

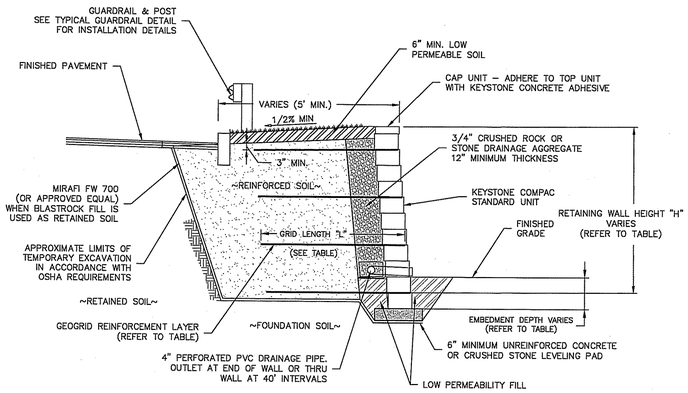


NOTE:

1. INSTALL SONOTUBE DURING WALL INSTALLATION.
2. CONCRETE GUARDRAIL POST IN PLACE.
3. SEE SITE/CIVIL DRAWINGS FOR ADDITIONAL DETAILS.

TYPICAL GUARDRAIL DETAIL

NOT TO SCALE



SEGMENTAL BLOCK WALLS ARE TO BE USED ON THE FOLLOWING RETAINING WALLS:

- RETAINING WALL "E"
- RETAINING WALL "F"
- RETAINING WALL "M"
- RETAINING WALL "N"

SEGMENTAL BLOCK WALL DETAIL (KEYSTONE OR APPROVED EQUAL)

NOT TO SCALE

NOTES:

1. RETAINING WALLS GREATER THAN 5 FEET SHALL BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER WITH STRUCTURAL EXPERTISE. SHOP DRAWINGS TO BE PROVIDED TO THE SITE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
2. SEGMENTAL BLOCK RETAINING WALLS SHALL BE KEYSTONE COMPAC OR APPROVED EQUAL AND SHALL DESIGNED IN ACCORDANCE WITH THE FOLLOWING DESIGN PARAMETERS:
   A. REINFORCED SOIL: TOTAL UNIT WEIGHT = 130 PCF, FRICTION ANGLE = 34 DEGREES
   B. RETAINED SOIL: TOTAL UNIT WEIGHT = 125 PCF, FRICTION ANGLE = 32 DEGREES
   C. RETAINING WALLS SHALL BE DESIGNED TO WITHSTAND SURCHARGE LOADS WHICH MAY BE PRESENT OVER THE LIFE OF THE STRUCTURE. THESE MAY INCLUDE TRAFFIC LOADS, SNOW LOADS, AS WELL AS LOADS FROM FILL OR CONSTRUCTION EQUIPMENT WHICH MAY BE PLACED ADJACENT TO THE WALL.
3. THE FOLLOWING MINIMUM RETAINING WALL PARAMETERS ARE BASED UPON REINFORCEMENT PLACED EVERY 24 INCHES AND SUBJECTED TO 500 PSF LOADING.

RETAINING WALL PARAMETERS

RETAINING WALL HEIGHT (FT)	GRID TYPE	EMBEDMENT DEPTH (FT)	GRID LENGTH TO WALL HEIGHT RATIO (L/H)
0–5	MIRAGRID 3XT	1.33	1.1
5.1–9.9	MIRAGRID 3XT	1.33	0.9
9.9–15	MIRAGRID 3XT	1.33	0.8
15.1 TO 17.9	MIRAGRID 3XT	1.33	0.7
18 TO 27.9	MIRAGRID 5XT	1.33	0.7
28 TO 33	MIRAGRID 8XT	1.62	0.7
>33	MIRAGRID 8XT	1.75	0.7

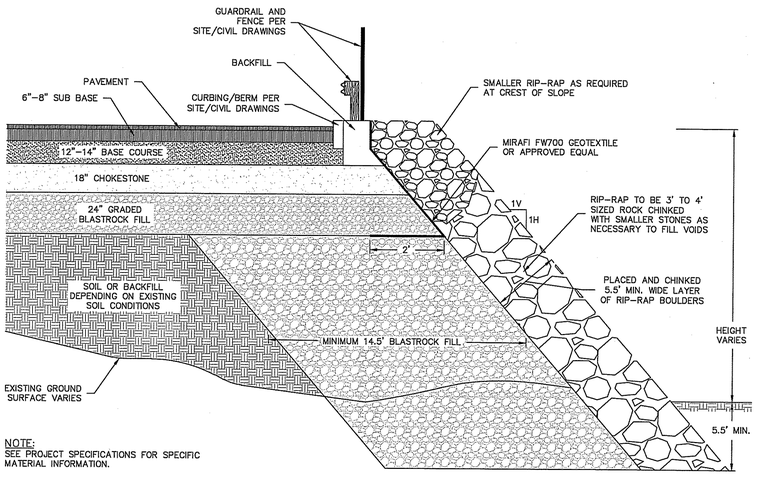
NOTE SEGMENTAL RETAINING WALLS GREATER THAN 33 FEET IN HEIGHT WILL REQUIRE REINFORCEMENT SPACING LESS THAN 24 INCHES.

4. THE GEOTECHNICAL ENGINEER SHALL VERIFY FOUNDATION SOILS AS BEING COMPETENT BEARING ON EITHER COMPACTED STRUCTURAL FILL OR UNDISTURBED GLACIAL TILL.
5. REINFORCED FILL SHALL MEET THE GRADATION REQUIREMENTS OF "GRANULAR FILL" AS PROVIDED IN THE PROJECT SPECIFICATIONS.
6. COMPACTION OF ALL FILL SHALL BE TO 95% OF MAXIMUM MODIFIED PROCTOR DENSITY (ASTM D-1557). COMPACTION TESTS SHALL BE TAKEN AS THE WALL IS INSTALLED. THE MINIMUM NUMBER OF TESTS SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER. COMPACTION WITHIN 5 FEET OF WALL SHALL BE LIMITED TO HAND OPERATED EQUIPMENT AND SHALL BE LIMITED TO 92% OF MAXIMUM MODIFIED PROCTOR.
7. IF SITE AND SOIL CONDITIONS, WALL GEOMETRY, OR WALL LOADINGS ARE DIFFERENT THAN SHOWN ON THE DRAWINGS AND THE DESIGN PARAMETERS, THE CONTRACTOR MUST NOTIFY THE ENGINEER PRIOR TO PROCEEDING WITH THE CONSTRUCTION OF THE WALL.

RETAINING WALL AND REINFORCED SLOPE NOTES AND CONSTRUCTION SEQUENCING

1. ALL 1:1 SLOPES TO BE REINFORCE RIP RAP SLOPES. ALL SLOPES STEEPER THAN 3:1 TO USE EROSION CONTROL BLANKETS. ALL 3:1 AND SHALLOWER SLOPES TO BE GRASSED AND/OR VEGETATED AS SHOWN ON PLANS.
2. FOR ADDITIONAL INFORMATION REGARDING RETAINING WALL SPECIFICATIONS REFER TO 02830–SEGMENTAL RETAINING WALL SYSTEMS OF THE DOWLING VILLAGE PROJECT SPECIFICATIONS.
3. SHOP DRAWINGS FOR THE INDIVIDUAL RETAINING WALLS DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER SHALL BE PROVIDED TO THE ENGINEER FOR REVIEW.
4. RETAINING WALL AND REINFORCED SLOPE CONSTRUCTION SHALL BE MONITORED BY A GEOTECHNICAL ENGINEER.
5. RETAINING WALL AND REINFORCED SLOPE CONSTRUCTION SEQUENCING:
   A. ALL DISTURBANCES SHALL BE LIMITED TO WITHIN THE LIMIT OF WORK.
   B. RETAINING WALLS AND REINFORCED SLOPES ADJACENT TO THE LIMIT OF WORK SHALL BE CONSTRUCTED IN SUCH A MANNER AS TO AVOID DISTURBANCE OF THE EROSION CONTROL BARRIER AND TO PREVENT SEDIMENTS FROM BEING DISCHARGED TOWARD WETLAND AREAS.
   C. FILLING OPERATIONS CAN BEGIN ONCE CLEARING AND GRUBBING AND STRIPPING OF UNSUITABLE MATERIALS HAS BEEN COMPLETED FOR THE AREA OF OPERATION.
   D. RETAINING WALLS SHALL BE BUILT IN SEQUENCE WITH THE FILLS AND BACKFILLED AS THE RETAINING WALL/REINFORCED SLOPE IS CONSTRUCTED.
   E. AT THE END OF EACH DAY'S OPERATION, SLOPE THE LAST BACKFILL LIFT AWAY FROM THE FACE OF THE RETAINING WALL/REINFORCED SLOPE TO RAPIDLY DIRECT RUNOFF AWAY FROM THE RETAINING WALL/REINFORCED SLOPE FACE. DO NOT ALLOW SURFACE RUNOFF FROM ADJACENT AREAS TO ENTER THE RETAINING WALL/REINFORCED SLOPE CONSTRUCTION SITE.

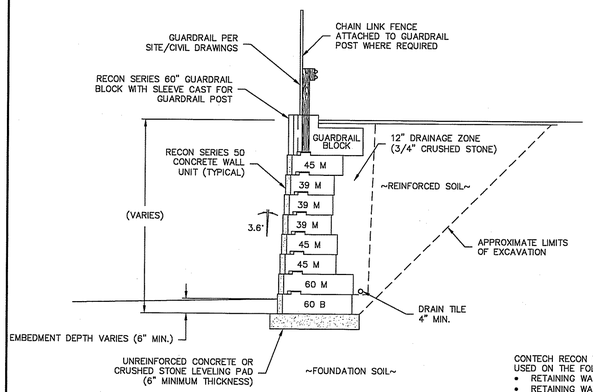
RECEIVED
OCT 23 2009
ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES



NOTE:
SEE PROJECT SPECIFICATIONS FOR SPECIFIC MATERIAL INFORMATION.

TYPICAL RIP–RAP SLOPE DETAIL (1:1 REINFORCED SLOPE)

NOT TO SCALE



CONTECH RECON WALL SYSTEMS ARE TO BE USED ON THE FOLLOWING RETAINING WALLS:

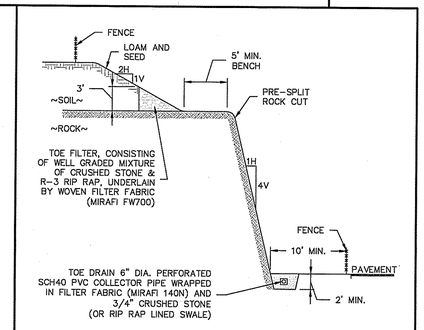
- RETAINING WALL "G"
- RETAINING WALL "J"

NOTES:

1. RETAINING WALLS GREATER THAN 5 FEET SHALL BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER WITH STRUCTURAL EXPERTISE. SHOP DRAWINGS TO BE PROVIDED TO THE SITE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
2. RETAINING WALLS THAT REQUIRE A GUARDRAIL TO BE INSTALLED CLOSER THAN FOUR FEET TO THE FACE OF THE WALL SHALL BE CONSTRUCTED USING THE CONTECH RECON WALL SYSTEM (GRAVITY OR MECHANICALLY STABILIZED EARTH) WITH A "GUARDRAIL" BLOCK AT THE TOP OF THE WALL. THESE LOCATIONS INCLUDE WALLS "C", "J", AND "G".
3. THE RECON RETAINING WALLS SHALL BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER. SHOP DRAWINGS SHALL BE PROVIDED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
4. RECON RETAINING WALLS SHALL DESIGNED IN ACCORDANCE WITH THE FOLLOWING DESIGN PARAMETERS:
   A. REINFORCED SOIL: TOTAL UNIT WEIGHT = 130 PCF, FRICTION ANGLE = 34 DEGREES
   B. RETAINED SOIL: TOTAL UNIT WEIGHT = 125 PCF, FRICTION ANGLE = 32 DEGREES
   C. FOUNDATION SOIL ALLOWABLE BEARING PRESSURE = 4,000 PSF
   D. RETAINING WALLS SHALL BE DESIGNED TO WITHSTAND SURCHARGE LOADS WHICH MAY BE PRESENT OVER THE LIFE OF THE STRUCTURE. THESE MAY INCLUDE TRAFFIC LOADS, SNOW LOADS, AS WELL AS LOADS FROM FILL OR CONSTRUCTION EQUIPMENT WHICH MAY BE PLACED ADJACENT TO THE WALL.
5. THE GEOTECHNICAL ENGINEER SHALL VERIFY FOUNDATION SOILS AS BEING COMPETENT BEARING ON EITHER COMPACTED STRUCTURAL FILL OR UNDISTURBED GLACIAL TILL.
6. BACKFILL SHALL MEET THE GRADATION REQUIREMENTS OF "GRANULAR FILL" AS PROVIDED IN THE PROJECT SPECIFICATIONS.
7. COMPACTION OF ALL BACKFILL SHALL BE TO 95% OF MAXIMUM MODIFIED PROCTOR DENSITY (ASTM D-1557). COMPACTION TESTS SHALL BE TAKEN AS THE WALL IS INSTALLED. THE MINIMUM NUMBER OF TESTS SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER. COMPACTION WITHIN 5 FEET OF WALL SHALL BE LIMITED TO HAND OPERATED EQUIPMENT AND SHALL BE LIMITED TO 92% OF MAXIMUM MODIFIED PROCTOR.

CONTECH RECON WALL SYSTEM WITH GUARDRAIL AT TOP OF WALL

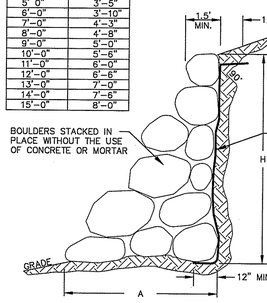
NOT TO SCALE



TYPICAL SLOPED OPEN–FACE ROCK CUT DETAIL

NOT TO SCALE

MINIMUM DIMENSIONS	
H	A
5' 0"	3'–5"
6'–0"	3'–10"
7'–0"	4'–3"
8'–0"	4'–8"
9'–0"	5'–0"
10'–0"	5'–6"
11'–0"	6'–0"
12'–0"	6'–6"
13'–0"	7'–0"
14'–0"	7'–6"
15'–0"	8'–0"



NOTE:
RETAINING WALLS GREATER THAN 5' HIGH TO BE DESIGNED BY A RHODE ISLAND PROFESSIONAL ENGINEER.
SHOP DRAWINGS TO BE PROVIDED TO SITE ENGINEER PRIOR TO CONSTRUCTION.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 29 2009 FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Charles A. Horbert

BOULDER RETAINING WALL

NOT TO SCALE

NOTE:
THIS REGULATORY SUBMISSION SET SHALL NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED 'ISSUED FOR CONSTRUCTION' AND SIGNED AND DATED BY A DIPRETE ENGINEERING REPRESENTATIVE

Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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
6	9-24-09	RICRI Permit Modification Resubmission	B.G.G.
5	8-24-09	RICRI Permit Modification	B.G.G.
4	7-28-09	RICRI Response to Comments	B.G.G.
3	6-26-09	RICRI Response to Comments	B.G.G.
2	12-29-07	RICRI Response to Comments	B.G.G.
1	10-24-07	Town Submission	B.G.G.
0	8-31-07	RICRI Submission	B.G.G.

RIDEM Submission

WALL & SLOPE DETAILS

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

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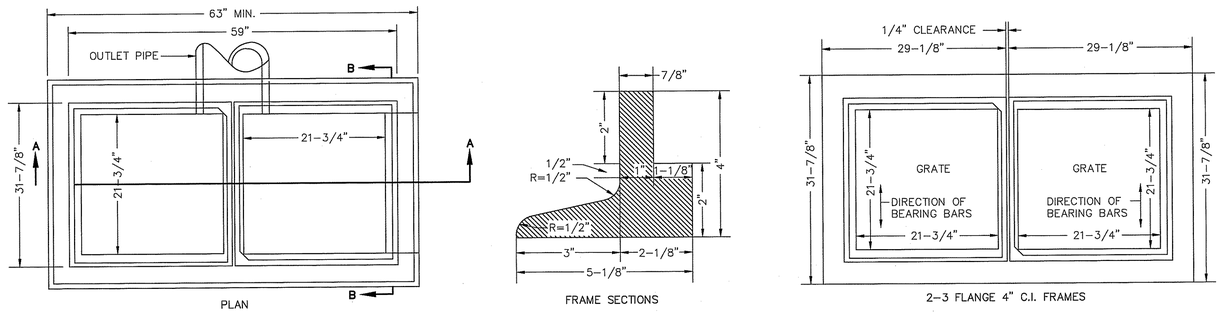
LEONARD R. BRADEE, JR.
No. 6670
REGISTERED PROFESSIONAL ENGINEER
STATE OF RHODE ISLAND

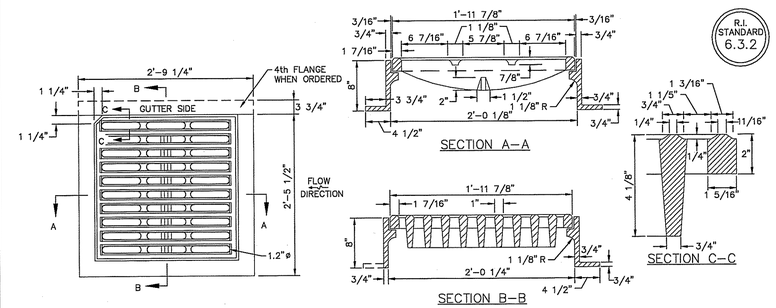
Sheet 53 of 89

\\Destorage\edeamin\Vault Working\0617-004-2\601 Preliminary\Plotting\0617-004-2 Detail Sheets.dwg, 9/9/2009 3:38:05 PM, Bnang, DWF6 ePlot.pc3



DOUBLE CATCHBASIN GRATE

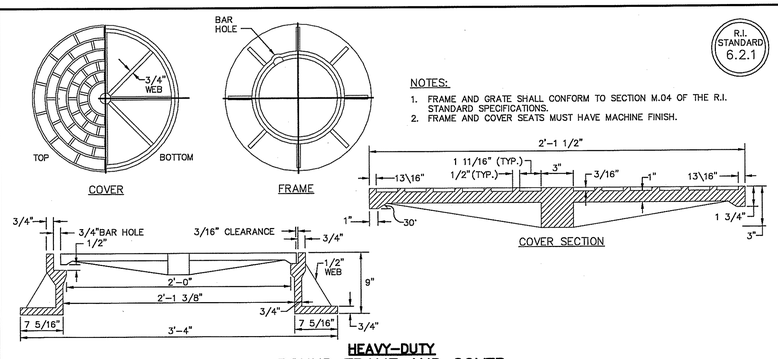
NOT TO SCALE



SQUARE FRAME AND GRATE (BICYCLE SAFE)

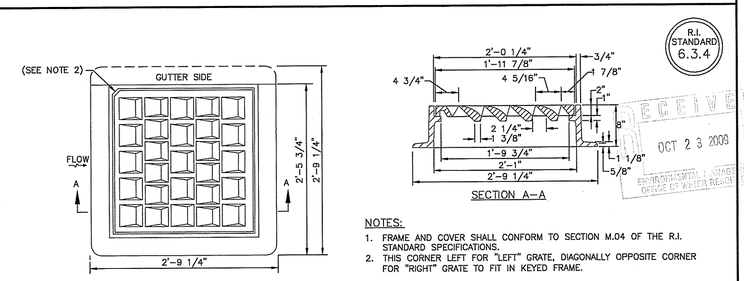
NOT TO SCALE

NOTE:
THIS REGULATORY SUBMISSION SET SHALL NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED 'ISSUED FOR CONSTRUCTION' AND SIGNED AND DATED BY A DIPRETE ENGINEERING REPRESENTATIVE



HEAVY-DUTY ROUND FRAME AND COVER

NOT TO SCALE

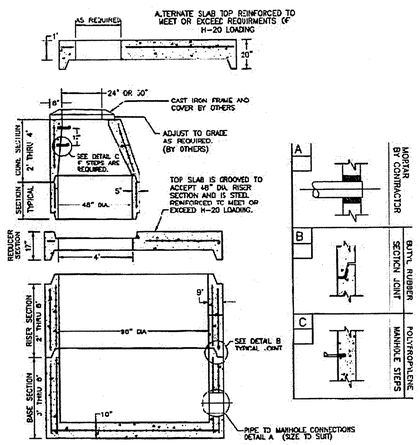


NOTES:
1. FRAME AND COVER SHALL CONFORM TO SECTION M.04 OF THE R.I. STANDARD SPECIFICATIONS.
2. THIS CORNER LEFT FOR "LEFT" GRATE, DIAGONALLY OPPOSITE CORNER FOR "RIGHT" GRATE TO FIT IN KEYED FRAME.

HIGH CAPACITY FRAME AND GRATE (BICYCLE SAFE)

NOT TO SCALE

NOTE:
CONTRACTOR TO SUBMIT SHOP DRAWINGS TO ENGINEER FOR STRUCTURES LARGER THAN 6' IN DIAMETER



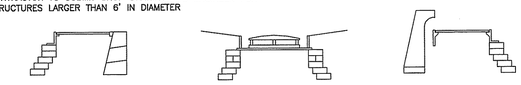
Manholes /Catch Basins
Typical 8FT. Dia. Drain Manhole

1. Manufactured to meet or exceed:
ASTM C-478 & AASHTO M 199 specs.
2. Reinforced steel conforms to latest ASTM A 185 specs.
0.24 Sq.In./ lineal Ft. and 0.24 Sq.In. (both ways) base bottom.
3. Concrete = 4000psi minimum. Cement per ASTM C-478 (6.1)
4. Manhole steps- polypropylene coated grade 60 reinforcing bar, per ASTM C-478 & O.S.H.A. (STD 1-1.9
5. Butyl rubber joint sealant per ASTM C-990 & Fed SS-S-210A
6. Water proofing per contact specs. as required.
7. Steel reinforcement to meet or exceed H- 20 Loading
8. One pour monolithic base section

8' PRECAST CONCRETE MANHOLE OR EQUAL

NOT TO SCALE

NOTE:
CONTRACTOR TO SUBMIT SHOP DRAWINGS TO ENGINEER FOR STRUCTURES LARGER THAN 6' IN DIAMETER



TYPE CATCH BASIN AS REQUIRED

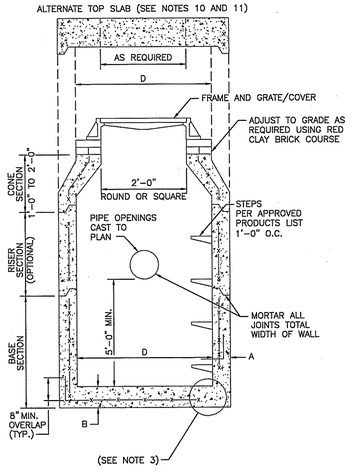


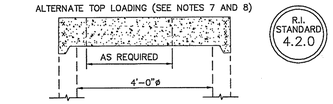
TABLE 1			
CATCH BASIN DIAMETER (D)	A	B	CIRCUMFERENTIAL STEEL REINFORCEMENT REQUIRED*
4'-0"	5"	6"	0.12 SQ. IN./LIN. FT.
5'-0"	6"	7"	0.15 SQ. IN./LIN. FT.
6'-0"	7"	8"	0.18 SQ. IN./LIN. FT.

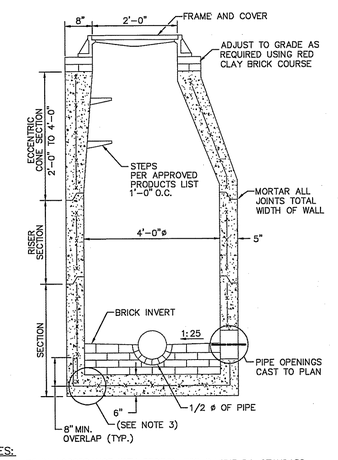
* FOR LONGITUDINAL (VERTICAL STANDING) REINFORCEMENT REFER TO ASTM C478, ITEM 8.1.2

NOTES:
1. MEETS OR EXCEEDS RIDOT STANDARD DETAIL 4.4.0.
2. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
3. SEE TABLE 1 FOR STEEL REINFORCEMENT REQUIREMENTS.
4. STEEL REINFORCEMENT FOR BASE SECTION BOTTOM SHALL BE A MINIMUM OF 0.12 SQ. IN./LIN. FT. (BOTH WAYS).
5. STEPS SHALL CONFORM TO STD. 5.3.0 AND SHALL BE INSTALLED AT THE CASTING PLANT.
6. ONE POUR MONOLITHIC BASE SECTION.
7. 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.
8. CORBEL MADE OF RED CLAY BRICK WILL BE PERMITTED FOR THE "CONE SECTION" OF THE 4'-0" CATCH BASIN ONLY.
9. FOR CATCH BASIN TYPES "D" AND "F" STEPS MUST BE INSTALLED ON THE CURB SIDE OF THE STRUCTURE.
10. THE CENTERLINE OF THE OPENING MUST BE WITHIN 2'-0" FROM THE STEPS.
11. ALTERNATE TOP SLAB IS STEEL REINFORCED TO MEET OR EXCEED H-25 LOADING (SEE STD. 4.7.2).
12. ALTERNATE TOP SLAB IS ONLY FOR USE WHEN REDUCING SECTION DOES NOT FIT BECAUSE OF STRUCTURE DEPT OR FOR DOUBLE CATCH BASIN.
13. REFER TO STD. 5.2.0 FOR MAXIMUM PIPE SIZES.

PRECAST ROUND CATCH BASIN

NOT TO SCALE



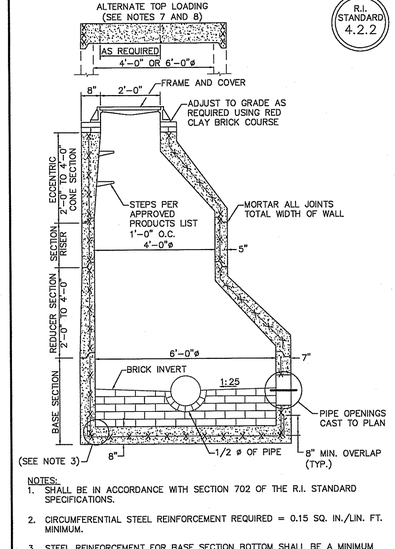


NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS. MINIMUM.
2. CIRCUMFERENTIAL STEEL REINFORCEMENT REQUIRED = 0.12 SQ. IN./LIN. FT.
3. STEEL REINFORCEMENT FOR BASE SECTION BOTTOM SHALL BE A MINIMUM OF 0.12 SQ. IN. / LIN. FT. (BOTH WAYS).
4. ONE POUR MONOLITHIC BASE 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'-0" ROUND MANHOLE

NOT TO SCALE

NOTE:
CONTRACTOR TO SUBMIT SHOP DRAWINGS TO ENGINEER FOR STRUCTURES LARGER THAN 6' IN DIAMETER



NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. CIRCUMFERENTIAL STEEL REINFORCEMENT REQUIRED = 0.15 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 6'-0" ROUND MANHOLE

NOT TO SCALE

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ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES

CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE RIDEM STANDARD SPECIFICATIONS AS SPECIFIED IN THE LETTER OF APPROVAL.
DATED: JULY 29, 2009 FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Charles A. Horbert

RIDEM Submission

DRAINAGE DETAILS – 1

Dowling Village - Phases II, III & IV
AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DWN. BY: J.P.C.
DATE: MAY, 2007
DEA Job No. 0617-004-2 Copyright© 2009 by DiPrete Engineering Associates, Inc.

NO	DATE	DESCRIPTION	BY
6	8-24-09	RIDEM Permit Modification Resubmission	B.G.G.
5	8-24-09	RIDEM Permit Modification	B.G.G.
4	06-24-09	RIDEM Response to Comments	B.G.G.
3	04-24-09	RIDEM Response to Comments	B.G.G.
2	03-25-09	RIDEM Response to Comments	B.G.G.
1	08-31-07	Utility Submission	B.G.G.
0	06-26-07	RIDEM Submission	B.G.G.

Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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

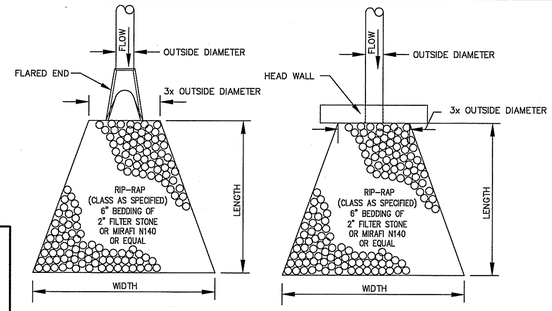
LEONARD R. BRADLEY, JR.
No. 6610
REGISTERED PROFESSIONAL ENGINEER
CIVIL

Sheet
54
of 89

\\DEAstorage\DEAmain\Vault Working\06-17-004-2\601 Preliminary\Plotting\06-17-004-2 Detail Sheets.dwg, 9/8/2009 3:36:47 PM, Bruno, DWFtc ePlot.pc3

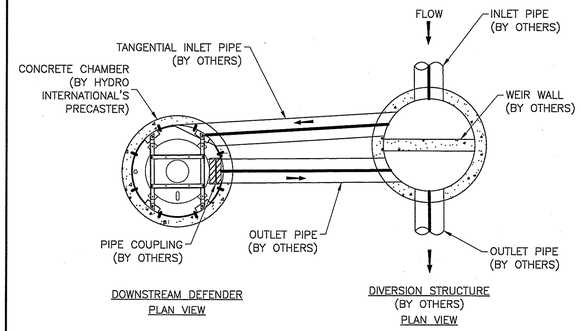
FLARE END	LENGTH	WIDTH	CLASS
HEADWALL-1B	19'	13'	R-3
FES-1L	10'	7'	R-2
FES-2M	23'	16'	R-2
HEADWALL-01	19'	13'	R-2
HEADWALL-2Q	16'	10'	R-3

FOR RIP-RAP SIZING OF PONDS SEE DETAIL SHEETS 63-70



RIP RAP APRON DETAIL

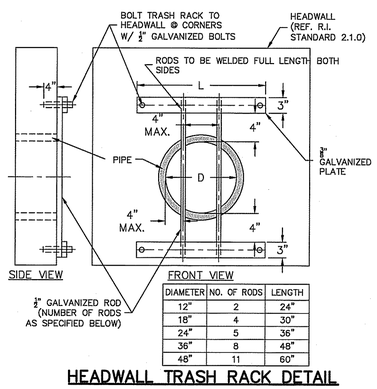
NOT TO SCALE



DOWN STREAM DEFENDER – OFFLINE ARRANGEMENT – UDB-0 (TYPICAL)

NOT TO SCALE

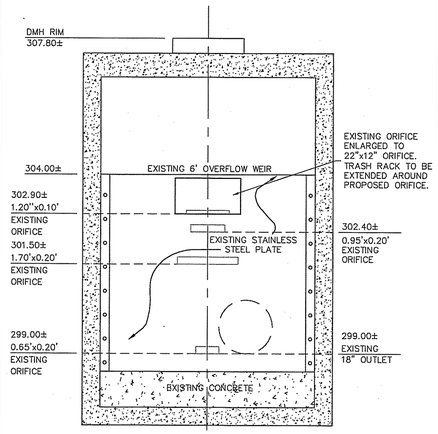
NOTE:
1. ALL RODS ARE TO BE WELDED AND GALVANIZED.
2. MANUFACTURED TRASH RACKS CAN BE SUBSTITUTED. MANUFACTURED TRASH RACKS SHALL BE APPROVED BY THE DESIGN ENGINEER PRIOR TO CONSTRUCTION.



DIAMETER	NO. OF RODS	LENGTH
12"	2	24"
18"	4	30"
24"	5	36"
36"	8	48"
48"	11	60"

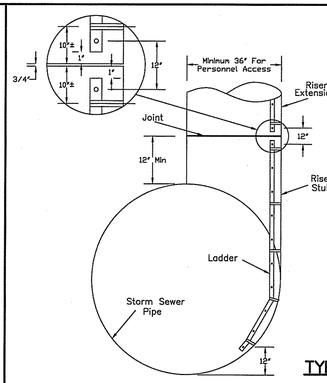
HEADWALL TRASH RACK DETAIL

NOT TO SCALE

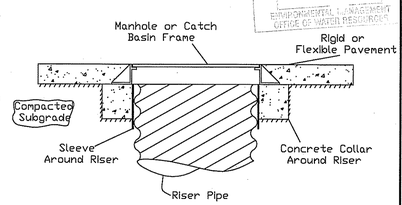


EXISTING PHASE I UDB OUTLET CONTROL STRUCTURE MODIFICATION

SCALE: 1"=2'



NOTES:
1. USE RISER MANHOLE WHEN PIPE IS EQUAL TO OR LARGER THAN THE RISER.
2. REFER TO LANE DRAWING NO. A0137 FOR DETAILS OF TYPICAL MANHOLE LADDER.
3. IF COVER OVER PIPE IS SHALLOW, A RISER EXTENSION MAY NOT BE NECESSARY.
4. IF RISER WILL BE SUBJECTED TO VEHICULAR LOAD, OPENING IN TOP OF PIPE MAY REQUIRE REINFORCEMENT.
5. REFER TO LANE DRAWING NO. A0148 FOR MANHOLE COVER DETAIL INTENDED TO KEEP VERTICAL LOADS OFF RISER.
6. RISERS TO BE LANE ENTERPRISES, INC. OR APPROVED EQUAL.

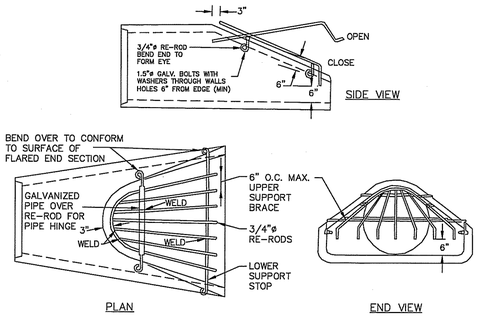


TYPICAL UDB RISER MANHOLE DETAIL

NOT TO SCALE
SEE SHEETS 57 – 60

RECEIVED
OCT 23 2009
RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES

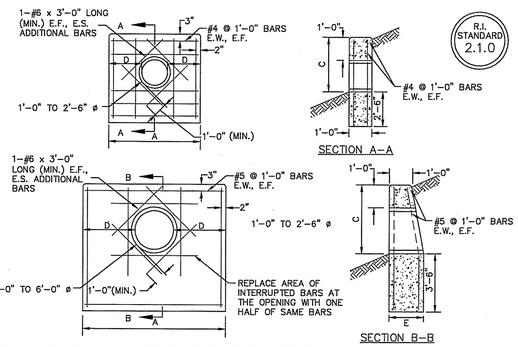
NOTE:
1. ALL RODS ARE TO BE WELDED AND GALVANIZED.
2. MANUFACTURED TRASH RACKS CAN BE SUBSTITUTED. MANUFACTURED TRASH RACKS SHALL BE APPROVED BY THE DESIGN ENGINEER PRIOR TO CONSTRUCTION.



GRATING FOR FLARED END OR EQUAL

NOT TO SCALE

DIAMETER OF PIPE	A	C	D	E	CU. FT. CONCRETE
1'-0"	3'-0"	2'-2"	1'-0"	–	13.2
1'-3"	3'-9"	2'-5"	1'-3"	–	17.2
1'-6"	4'-6"	2'-8"	1'-6"	–	21.5
1'-9"	5'-3"	2'-11"	1'-9"	–	26.0
2'-0"	6'-0"	3'-2"	2'-0"	–	30.9
2'-3"	6'-9"	3'-6"	2'-3"	–	36.5
2'-6"	7'-6"	3'-9"	2'-6"	–	42.0
3'-0"	9'-6"	4'-0"	3'-3"	1'-5"	84.1
3'-6"	11'-0"	4'-6"	3'-9"	1'-7"	111.8
4'-0"	12'-8"	5'-0"	4'-4"	1'-9"	146.5
4'-6"	14'-4"	5'-6"	4'-11"	1'-11"	186.3
5'-0"	16'-0"	6'-0"	5'-6"	2'-1"	232.6
5'-6"	17'-8"	6'-6"	6'-1"	2'-3"	284.9
6'-0"	19'-4"	7'-0"	6'-8"	2'-5"	343.6

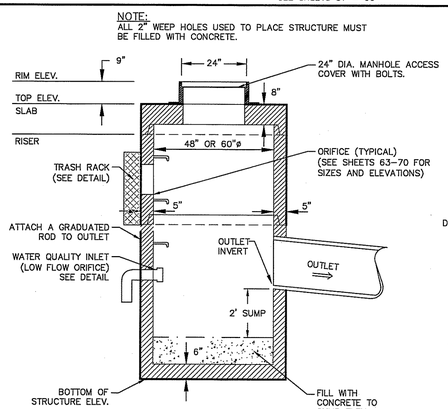


NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 709 OF THE R.I. STANDARD SPECIFICATIONS. 3/4"
2. CHAMFER ON ALL EXPOSED EDGES.
3. 1'-0" COMPACTED GRAVEL UNDER HEADWALL.
4. ALL REINFORCING BARS SHALL BE EPOXY COATED.

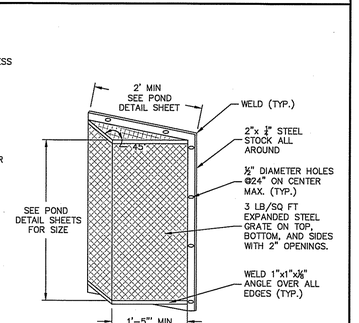
CONCRETE HEADWALLS FOR PIPE CULVERTS

NOT TO SCALE

NOTE:
ALL 2" WEEP HOLES USED TO PLACE STRUCTURE MUST BE FILLED WITH CONCRETE.

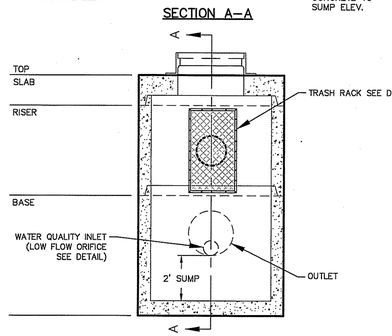


SECTION A-A

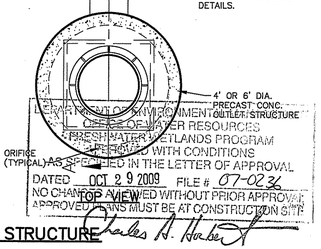


NOTE:
1. TRASH RACK TO BE CENTERED OVER OPENINGS.
2. STEEL TO CONFORM TO ASTM A-36
3. ALL SURFACES TO BE COATED WITH ZRC COLD GALVANIZING COMPOUND AFTER WELDING.

TRASH RACK DETAIL



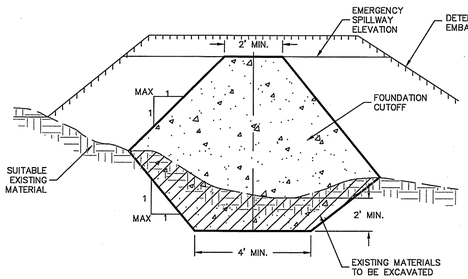
FRONT VIEW



NOTE:
SEE SHEETS 63 TO 70 FOR INDIVIDUAL OUTLET CONTROL STRUCTURE DETAILS.

4' OR 6' DIA. OUTLET STRUCTURE

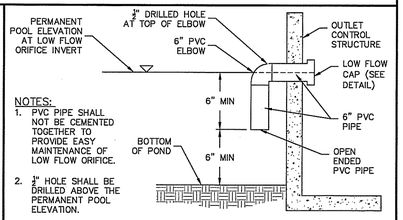
NOT TO SCALE



NOTES:
1. FOUNDATION CUTOFF TO BE PROVIDED FOR ALL DETENTION POND EMBANKMENTS.
2. FOUNDATION CUTOFF IS TO BE CONSTRUCTED OF RELATIVELY IMPERMEABLE MATERIALS.
3. MINIMUM DEPTH OF CUTOFF SHOULD BE 2'.
4. THE CUTOFF TRENCH, AS A MINIMUM SHALL EXTEND UP BOTH ABUTMENTS TO THE EMERGENCY SPILLWAY ELEVATION.
5. THE MINIMUM BOTTOM WIDTH SHALL BE 4', BUT WIDE ENOUGH TO PERMIT OPERATION OF COMPACTION EQUIPMENT.
6. SIDE SLOPES OF THE TRENCH SHALL BE NO STEEPER THAN 1:1.
7. COMPACTION REQUIREMENTS SHALL BE THE SAME AS THOSE FOR EMBANKMENT.
8. THE TRENCH SHALL BE KEPT FREE FROM STANDING WATER DURING THE BACKFILL OPERATION.

FOUNDATION CUTOFF FOR EMBANKMENT OF DETENTION POND

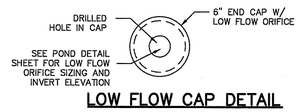
NOT TO SCALE



NOTES:
1. PVC PIPE SHALL NOT BE CEMENTED TOGETHER TO PROVIDE EASY MAINTENANCE OF LOW FLOW ORIFICE.
2. ¾" HOLE SHALL BE DRILLED ABOVE THE PERMANENT POOL ELEVATION.

LOW FLOW ORIFICE DETAIL

NOT TO SCALE



LOW FLOW CAP DETAIL

NOT TO SCALE

Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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	10/22/09	RIDEM Permit Modification Resubmission	B.G.G.
6	9/14/09	RIDEM Permit Modification Resubmission	B.G.G.
5	8/24/09	RIDEM Permit Modification	B.G.G.
4	5/29/08	RIDEM Response to Comments	B.G.G.
3	2/25/08	Sewer Response to Comments	B.G.G.
2	9/25/07	Sewer Submission	B.G.G.
1	9/17/07	Utility Submission	B.G.G.
NO.	DATE	DESCRIPTION	BY

RIDEM Submission

DRAINAGE DETAILS – 2

Dowling Village - Phases II, III & IV

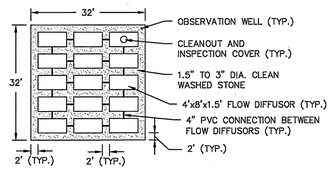
AP 13, LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21, LOTS 25, 26, 29, 30, 31, 32 & 33 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

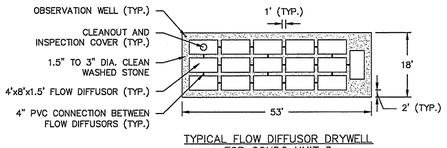
BEA Job No. 0617-004-2 Copyright © 2009 by DiPrete Engineering Associates, Inc.

Sheet
55
of 89

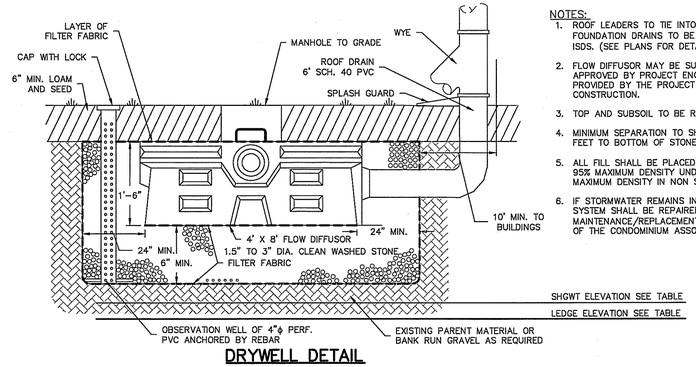
\\Destorage\Jeamain\Vault Working\06 17-004-2\60 Preliminary\Plotting\06 17-004-2 UDB Detail Sheets.dwg, 10/23/2009 3:11:07 PM, Sheryl, DWFc ePlot.pc3



TYPICAL FLOW DIFFUSOR DRYWELL
FOR CONDO UNITS 1,6,7,8,9, AND 10
SCALE 1"=20'



TYPICAL FLOW DIFFUSOR DRYWELL
FOR CONDO UNIT 3
SCALE 1"=20'

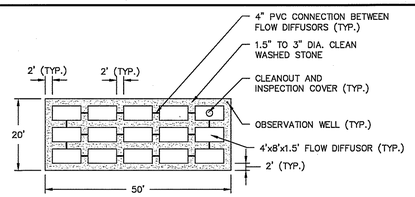


DRYWELL DETAIL
NOT TO SCALE

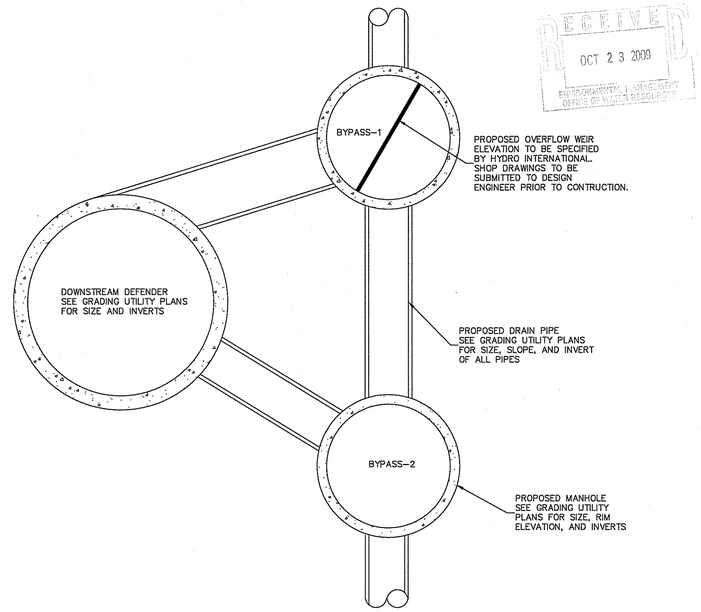
NOTES:
1. ROOF LEADERS TO TIE INTO PROPOSED DRYWELLS. FOUNDATION DRAINS TO BE 25' MIN. FROM ALL PROPOSED ISDS. (SEE PLANS FOR DETAILS)
2. FLOW DIFFUSOR MAY BE SUBSTITUTED WITH EQUAL AS APPROVED BY PROJECT ENGINEER. SHOP DRAWINGS TO BE PROVIDED BY THE PROJECT ENGINEER PRIOR TO CONSTRUCTION.
3. TOP AND SUBSOIL TO BE REMOVED.
4. MINIMUM SEPARATION TO SHGWT AND LEDGE SHALL BE 2 FEET TO BOTTOM OF STONE.
5. ALL FILL SHALL BE PLACED IN 12" LIFTS COMPACTED TO 95% MAXIMUM DENSITY UNDER STRUCTURAL AREAS OR 90% MAXIMUM DENSITY IN NON STRUCTURAL AREAS.
6. IF STORMWATER REMAINS IN SYSTEM AFTER 48 HOURS, SYSTEM SHALL BE REPAIRED OR REPLACED. MAINTENANCE/REPLACEMENT SHALL BE THE RESPONSIBILITY OF THE CONDOMINIUM ASSOCIATION.

CONDO BUILDING	PROPOSED GRADE ELEVATION	EXISTING GRADE ELEVATION	TOP OF DRYWELL	ELEVATION AT BOTTOM STONE OF DRYWELL	ELEVATION AT BOTTOM OF FLOW DIFFUSOR	MAXIMUM SHGWT	MAXIMUM LEDGE ELEVATION	NUMBER OF FLOW DIFFUSORS
1	403.25	398.75	402.75	400.75	401.25	NOT ENCOUNTERED	398.58	15
2	399.50	398.00	399.00	397.00	397.50	395.00	394.00	15
3	393.50	390.00	392.50	390.50	391.00	NOT ENCOUNTERED	388.50	16
4	390.00	380.00	385.00	383.00	383.50	377.75	NOT ENCOUNTERED	15
5	389.25	372.75	384.25	382.25	382.75	367.25	NOT ENCOUNTERED	15
6	394.00	390.40	391.50	389.50	390.00	385.40	382.40	15
7	390.00	383.75	389.00	387.00	387.50	378.75	377.75	15
8	396.00	394.10	394.00	392.00	392.50	389.10	387.60	15
9	404.00	398.20	401.00	399.00	399.50	394.20	392.20	15
10	408.00	404.75	405.50	403.50	404.00	NOT ENCOUNTERED	401.33	15
11	405.50	407.00	405.00	403.00	403.50	401.00	400.00	15
12	402.50	403.60	402.00	400.00	400.50	397.60	376.60	15
19	385.25	379.00	384.75	382.75	383.25	374.00	NOT ENCOUNTERED	15

DRYWELL TABLE
NOT TO SCALE



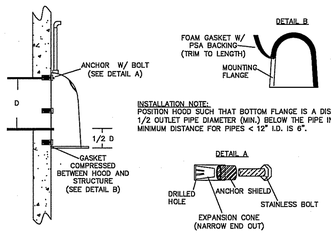
TYPICAL FLOW DIFFUSOR DRYWELL
FOR CONDO UNITS 2,4,5,11,12 AND 19
SCALE 1"=20'



DOWNSTREAM DEFENDER
BYPASS DETAIL
NOT TO SCALE

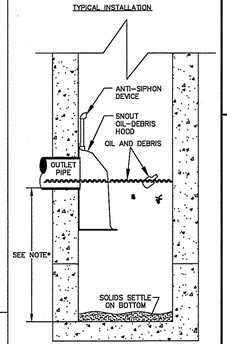
RECEIVED
OCT 23 2009
ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES

INSTALLATION DETAIL



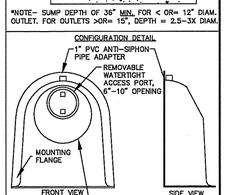
INSTALLATION NOTE:
POSITION HOOD SUCH THAT BOTTOM FLANGE IS A DISTANCE OF 1/2 OUTLET PIPE DIAMETER (MIN.) BELOW THE PIPE INVERT. MINIMUM DISTANCE FOR PIPES < 12" I.D. IS 6".

TYPICAL INSTALLATION



*NOTE- SUMP DEPTH OF 36" MIN. FOR < OR= 12" DIAM. OUTLET. FOR OUTLETS >OR= 15", DEPTH = 2.5-3X DIAM.

CONFIGURATION DETAIL



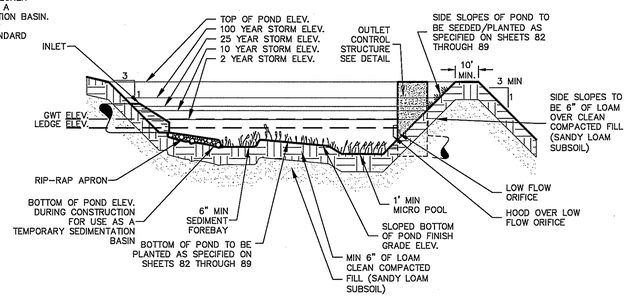
SNOUT OIL-WATER-DEBRIS SEPARATOR
HOOD SPECIFICATION FOR CATCH BASINS AND WATER QUALITY STRUCTURES

DESCRIPTION	DATE	SCALE
OIL- DEBRIS HOOD SPECIFICATION AND INSTALLATION (TYPICAL)	09/05/00	NONE
	DRAWING NUMBER SP-SN	
	US Patent # 6126817	

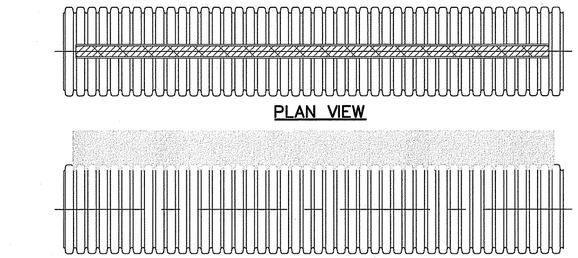
NOTES:
1. ALL HOODS AND TRAPS FOR CATCH BASINS AND WATER QUALITY STRUCTURES SHALL BE AS MANUFACTURED BY: BEST MANAGEMENT PRODUCTS, INC. 53 MT. ARCHER RD. LYME, CT 06371 (860) 434-0277, (860) 434-3195 FAX TOLL FREE: (800) 504-8008 OR (888) 354-7585 WEB SITE: www.bestmp.com OR PRE-APPROVED EQUAL
2. ALL HOODS SHALL BE CONSTRUCTED OF A GLASS REINFORCED RESIN COMPOSITE WITH ISO GEL COAT EXTERIOR FINISH WITH A MINIMUM 0.125" LAMINATE THICKNESS.
3. ALL HOODS SHALL BE EQUIPPED WITH A WATERTIGHT ACCESS PORT, A MOUNTING FLANGE, AND AN ANTI-SIPHON VENT AS DRAWN. (SEE CONFIGURATION DETAIL).
4. THE SIZE AND POSITION OF THE HOOD SHALL BE DETERMINED BY OUTLET PIPE SIZE AS PER MANUFACTURER'S RECOMMENDATION.
5. THE BOTTOM OF THE HOOD SHALL EXTEND DOWNWARD A DISTANCE EQUAL TO 1/2 THE OUTLET PIPE DIAMETER WITH A MINIMUM DISTANCE OF 6" FOR PIPES <12" I.D.
6. THE ANTI-SIPHON VENT SHALL EXTEND ABOVE HOOD BY MINIMUM OF 3" AND A MAXIMUM OF 24" ACCORDING TO STRUCTURE CONFIGURATION.
7. THE SURFACE OF THE STRUCTURE WHERE THE HOOD IS MOUNTED SHALL BE FINISHED SMOOTH AND FREE OF LOOSE MATERIAL.
8. THE HOOD SHALL BE SECURELY ATTACHED TO STRUCTURE WALL WITH 3/8" STAINLESS STEEL BOLTS AND OIL-RESISTANT GASKET AS SUPPLIED BY MANUFACTURER. (SEE INSTALLATION DETAIL)
9. INSTALLATION INSTRUCTIONS SHALL BE FURNISHED WITH MANUFACTURER SUPPLIED INSTALLATION KIT. INSTALLATION KIT SHALL INCLUDE:
   A) INSTALLATION INSTRUCTIONS
   B) PVC ANTI-SIPHON VENT PIPE AND ADAPTER
   C) OIL-RESISTANT CRUSHED CELL FOAM GASKET WITH PSA BACKING
   D) 3/8" STAINLESS STEEL BOLTS
   E) ANCHOR SHIELDS

OIL SEPARATOR DETAIL
TO BE INSTALLED IN ALL CATCH BASINS
NOT TO SCALE

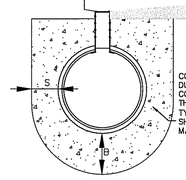
NOTES:
1. FINAL BASIN GRADING, FINAL BASIN FEATURES, FINAL SEEDING, AND FINAL PLANTING SHALL BE COMPLETED AFTER THE TRIBUTARY AREA TO THE BASIN HAS REACHED A MINIMUM 80% STABILIZATION AND IS NO LONER REQUIRED TO BE USED AS A CONSTRUCTION SEDIMENTATION BASIN.
2. LOAM TO MEET RIDOT STANDARD M.18.01



DETENTION POND – TYPICAL CROSS SECTION
SEE SHEETS 82 THROUGH 89 FOR ADDITIONAL DETAIL. SEE SPECIFIC POND DETAIL SHEET FOR POND CROSS SECTIONS
NOT TO SCALE



ELEVATION



CROSS SECTION

COMPLETELY SURROUND DURASLOT DRAIN PIPE BY CONCRETE FOR H-25 TRAFFIC. THE S AND B DIMENSIONS ARE TYPICALLY 3" TO 6" AND SHOULD BE OBTAINED FROM THE MANUFACTURER.

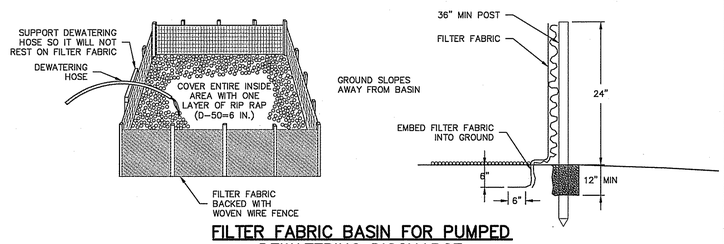
PIPE DIAMETER	PART NUMBER
6"	6000
8"	8000
10"	10000
12"	12000

TRUCK WELL DRAIN
DURASLOT WITH 6" SLOT (H-25 LOADING) OR EQUAL
NOT TO SCALE

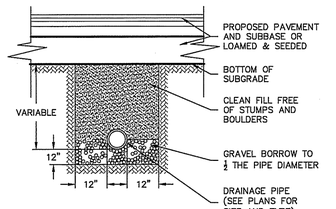
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 2 N 2009
FOR INVERT OF PIPE SEE GRADING AND UTILITY PLANS
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
FILE # 07-0236
Charles A. Horbert

NOTE:
THIS REGULATORY SUBMISSION SET SHALL NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED 'ISSUED FOR CONSTRUCTION' AND SIGNED AND DATED BY A DIPRETE ENGINEERING REPRESENTATIVE

NOTES:
1. THE BASIN STORAGE VOLUME SHOULD NOT BE LESS THAN THE TOTAL VOLUME OF WATER THAT COULD BE PUMPED DURING A 4-HOUR PERIOD.
2. FILTER FABRIC BASINS SHOULD BE CONSTRUCTED ON NEARLY LEVEL GROUND.
3. THE AREA AROUND THE FILTER FABRIC BASIN MUST BE STABILIZED TO PREVENT EROSION BY WATER EXITING THE BASIN.
4. REMOVE SEDIMENT WHEN ACCUMULATION REACHES ONE-HALF THE ORIGINAL HEIGHT OF THE FILTER FABRIC.
5. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE STRUCTURE IN PROPER WORKING CONDITIONS AS LONG AS IT IS IN PLACE.
6. FILTER FABRIC BASINS AND ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE BASIN'S USEFUL LIFE HAS BEEN COMPLETED. THE AREA COVERED BY THE BASIN SHALL BE SEEDED AND MULCHED IMMEDIATELY AFTER THE BASIN IS REMOVED.



FILTER FABRIC BASIN FOR PUMPED DEWATERING DISCHARGE
NOT TO SCALE



NOTES:
ALL PIPE TO BE RCP CLASS III OR HDPE UNLESS NOTED OTHERWISE

DRAINAGE TRENCH DETAIL
NOT TO SCALE

Applicant: Bucci Development, Inc. 48 Hewett Street Warwick, Rhode Island 02889 Tel: (401) 737-4111
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

BY	DESCRIPTION	DATE
6	R.C.G.	9-24-09
5	R.C.G.	5-14-09
4	R.C.G.	05-26-09
3	R.C.G.	03-9-09
2	R.C.G.	02-23-07
1	J.P.C.	05-23-07
NO.	BY:	DATE

RIDEM Submission

DRAINAGE DETAILS – 3

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

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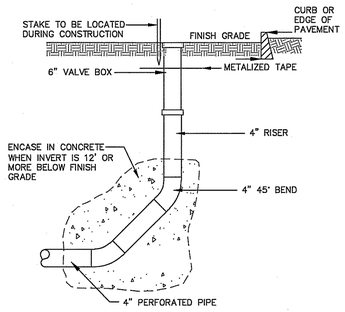
LEONARD R. BRADLEY, JR.
No. 6670
REGISTERED PROFESSIONAL ENGINEER
STATE OF RHODE ISLAND

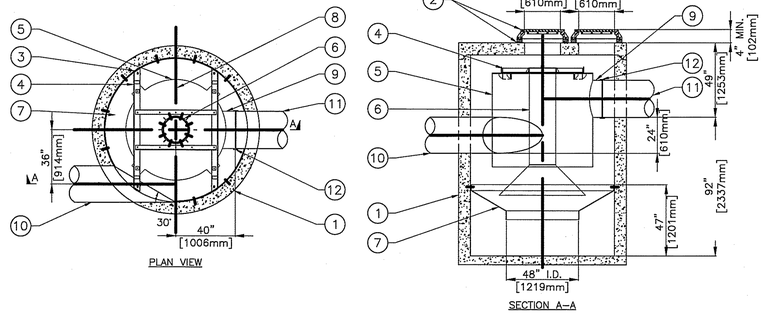
Sheet 56 of 89

\\Destorage\dsmain\Vault Working\06\17-004-2\60\ Preliminary\Plotting\06\17-004-2 Detail Sheets.dwg, 9/8/2009 3:43:47 PM, Bruno, DWF6 ePlot.pc3



4" SUBDRAIN CLEANOUT IN PAVEMENT (DIRECT DISCHARGE)

NOT TO SCALE



PARTS LIST			
ITEM	SIZE		DESCRIPTION
1	96 in.	2438mm	I.D. CONCRETE MANHOLE
2	24 in.	610mm	MANHOLE LIDS, FRAMES & COVERS
3			LEDGER ANGLE (TYP.)
4			SUPPORT FRAME
5			DIP PLATE
6			CENTER SHAFT & CONE
7			BENCHING SKIRT
8			FLOATABLES LID W/ VENT
9	24 in.	610mm	OVERFLOW PIPE STUB
10	24 in.	610mm	TANGENTIAL INLET PIPE (BY OTHERS)
11	24 in.	610mm	OVERFLOW PIPE (BY OTHERS)
12			PIPE COUPLING (BY OTHERS)

EQUIPMENT PERFORMANCE

The stormwater treatment unit shall adhere to the hydraulic parameters given in the chart below and provide the removal efficiencies and storage capacities as follows:

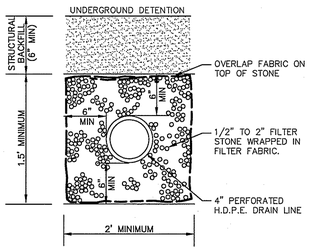
1. Performance objectives: The unit shall be capable of treating the peak flow rate listed below.
2. Peak treatment flow: 15.0 cfs [425 l/s]
3. Depth of flow in overflow pipe at 15.0 cfs: 19 in. [483mm]
4. Estimated headloss* at 15.0 cfs: 8 in. [204mm]
5. Sediment storage capacity: 4.65 Cu. yd. [3.56 cu.m.]
6. Oil storage capacity: 525 Gal. [1987 liters]
7. Sediment shall be stored in a zone that is isolated from the main flow path and protected from reintrainment by a benching skirt.

*Headloss is defined as the difference between static water level at the inlet of the Downstream Defender to the free water surface in the overflow pipe, assuming free discharge.

Dimensions are general and intended for guidance only. The orientation of the inlet pipe and overflow pipe can be adjusted to site requirements. See site plan for orientation.

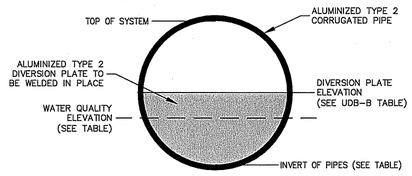
8FT DIA. DOWNSTREAM DEFENDER – HYDRO INTERNATIONAL

NOT TO SCALE



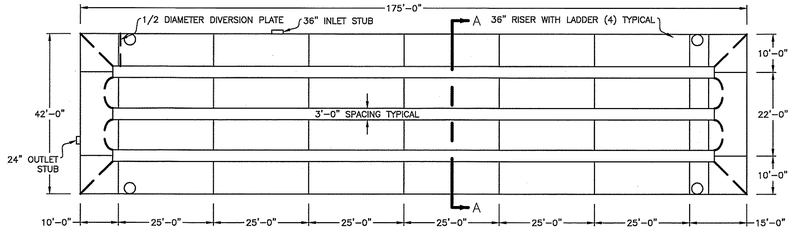
UDB SUBDRAIN TRENCH (TYPICAL)

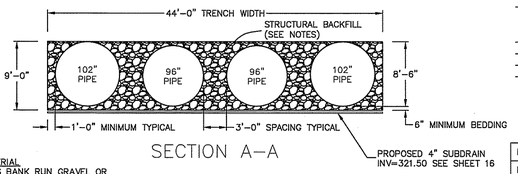
NOT TO SCALE



1/2 DIA. DIVERSION PLATE DETAIL

NOT TO SCALE





SECTION A–A

–All 102" & 96" pipe is 14 Gauge, 3" x 1" Corrugation, Aluminized Type 2.
–All 36" & 24" pipe is 16 Gauge, 2 2/3" x 1/2" Corrugation, Aluminized Type 2.
–Dashed lines indicates weld.
–Use Necessary Connecting Bands.
–All Reinforcement shall meet ASTM A998.
–Underground Detention Basin System Components to be Lane Enterprises, Inc. or Approved Equal.

NOTES:

STRUCTURAL BACKFILL MATERIAL
SELECT MATERIALS SUCH AS BANK RUN GRAVEL OR OTHER PROCESSED GRANULAR MATERIALS LESS THAN 3 IN. MAXIMUM WITH EXCELLENT STRUCTURAL CHARACTERISTICS ARE PREFERRED.

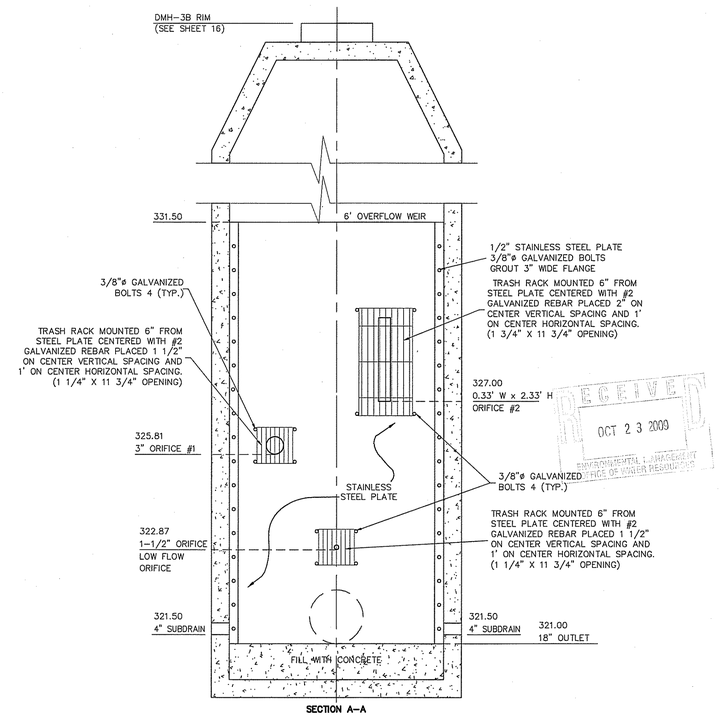
STRUCTURAL BACKFILL PLACEMENT
STRUCTURAL BACKFILL SHALL BE PLACED IN LAYERS FROM 6 TO 12 IN. IN DEPTH DEPENDING ON THE TYPE OF MATERIAL AND COMPACTION EQUIPMENT OR METHOD. EACH LAYER OR "LIFT" SHALL BE COMPACTED TO 95% PROCTOR DENSITY BEFORE ADDING THE NEXT.

UNDERGROUND DETENTION BASIN–B

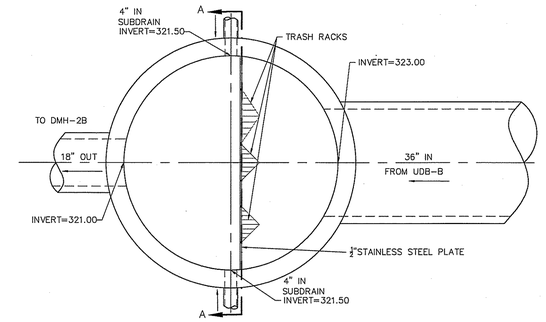
NOT TO SCALE. SEE SHEET 62 FOR ADDITIONAL SECTIONS

UDB–B TABLE

DESCRIPTION	POND #UDB–B
INVERT	323.00
100 YEAR STORM ELEVATION	331.49
25 YEAR STORM ELEVATION	329.44
10 YEAR STORM ELEVATION	328.70
2 YEAR STORM ELEVATION	327.36
DIVERSION WEIR PLATE ELEVATION	327.25
WATER QUALITY ELEVATION	325.81

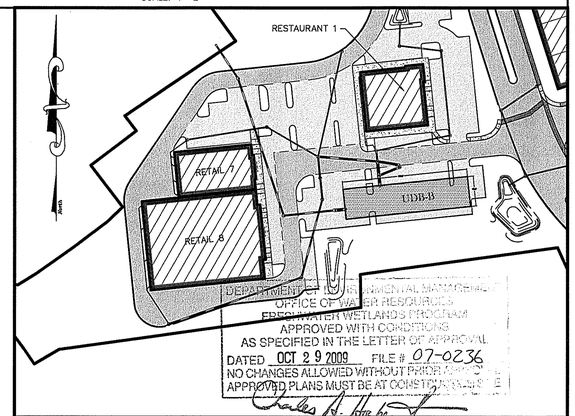


SECTION A–A



UDB–B OUTLET CONTROL STRUCTURE

PROPOSED DMH–3B (SEE SHEET 16)
SCALE: 1"=2'



UNDERGROUND DETENTION BASIN–B LOCATION MAP SCALE: 1"=100'

NOTE:
THIS REGULATORY SUBMISSION SET SHALL NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED 'ISSUED FOR CONSTRUCTION' AND SIGNED AND DATED BY A DIPRETE ENGINEERING REPRESENTATIVE

NOT FOR CONSTRUCTION
SHOP DRAWINGS TO BE PROVIDED TO ENGINEER FOR ALL SUBSURFACE DRAINAGE DEVICES. SHOP DRAWINGS ARE TO BE STAMPED BY A RHODE ISLAND PROFESSIONAL ENGINEER.

RECEIVED
OCT 23 2009
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 29 2009 FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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
6	9-04-09	RIDEM Permit Modification Resubmission	B.C./S.
5	8-24-09	RIDEM Permit Modification	B.C./S.
4	7-23-09	RIDEM Response to Comments	B.C./S.
3	6-25-09	Sewer Response to Comments	B.C./S.
2	9-11-07	Utility Submission	B.C./S.
1	9-11-07	Utility Submission	B.C./S.
0	08-8-07	RIDEM Submission	J.P.C.

RIDEM Submission

UNDERGROUND DETENTION BASIN B

Dowling Village - Phases II, III & IV

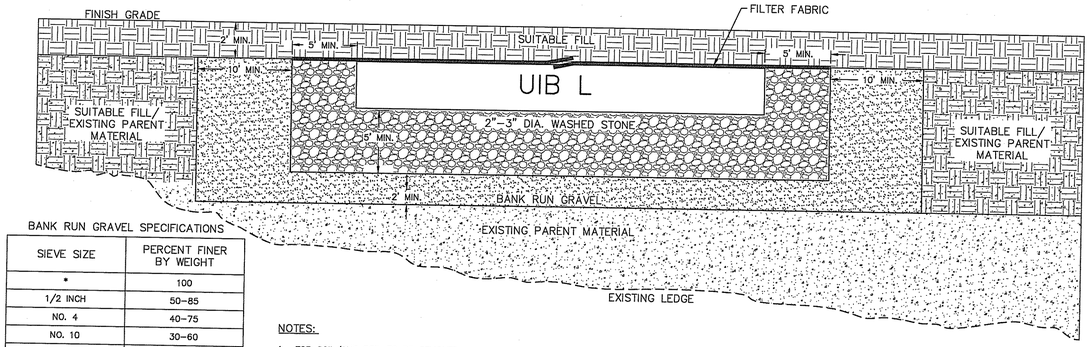
AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76 AP 21 LOTS 25, 26, 28, 30, 31, 32, 50, 67, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 *DWN. BY: J.P.C.*

DEA Job No. 0617-004-2 Copyright© 2009 by DiPrete Engineering Associates, Inc.

LEONARD R. BRADLEY JR.
No. 6670
REGISTERED PROFESSIONAL ENGINEER
STATE OF RHODE ISLAND

Sheet
57
of 89



BANK RUN GRAVEL SPECIFICATIONS

SIEVE SIZE	PERCENT FINER BY WEIGHT
*	100
1/2 INCH	50–85
NO. 4	40–75
NO. 10	30–60
NO. 40	10–35
NO. 50	8–28
NO. 100	5–20**
NO. 200	0–10

* FOUR INCHES (4") WHERE PLACED AS BASE COURSE; ELSEWHERE, TWO–THIRDS (2/3) OF THE LOOSE LIFT THICKNESS; TWO INCHES (2") WHERE PLACED AS BEDDING AND BACKFILL AROUND UTILITIES

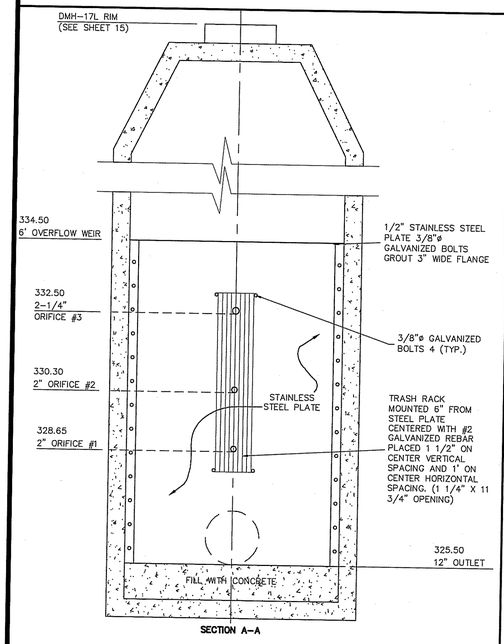
** THE AMOUNT PASS THE NO. 100 SIEVE SHOULD BE BETWEEN FORTY PERCENT (40%) AND SEVENTY PERCENT (70%) OF THAT AMOUNT PASSING THE NO. 40 SIEVE.

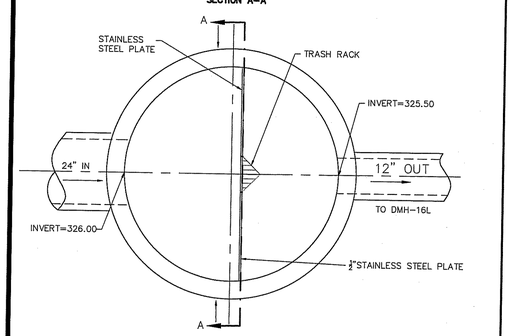
NOTES:

1. TOP SOIL/SUB SOIL TO BE REMOVED.
2. LEDGE TO BE REMOVED AS NECESSARY TO PROVIDE MINIMUM DEPTH OF BANK RUN GRAVEL 5' BELOW THE SYSTEM.
3. STRUCTURAL BACKFILL SHALL BE 2–3 IN. CLEAN WASHED STONE.
4. ALL PROPOSED FILL SHALL BE PLACED IN 12" LIFTS COMPACTED TO 95% MAXIMUM DENSITY.

EXCAVATION LIMITS/FILL MATERIAL DETAIL

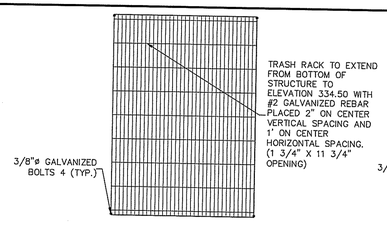
NOT TO SCALE



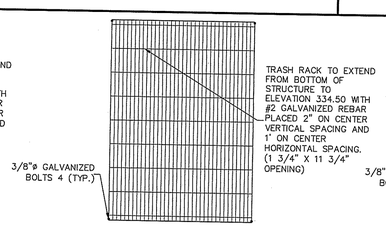


UIB–L OUTLET CONTROL STRUCTURE

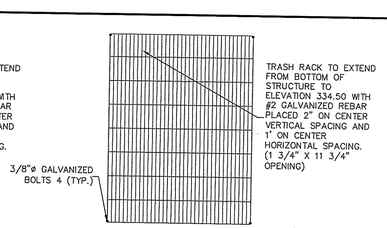
(PROPOSED DMH–17L SEE SHEET 15)
NOT TO SCALE



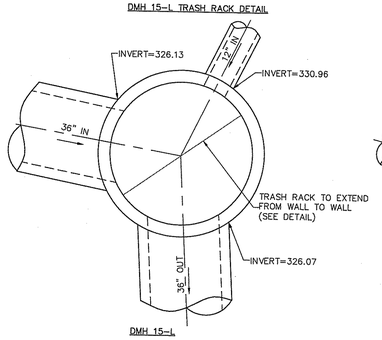
DMH 15–L TRASH RACK DETAIL



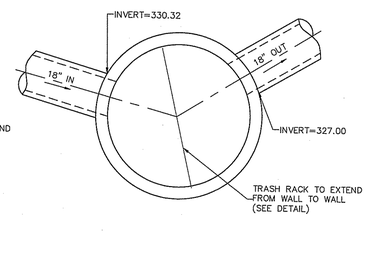
DMH 18–L TRASH RACK DETAIL



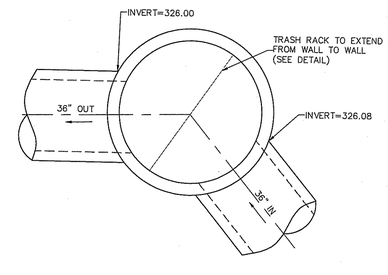
DMH 26–L TRASH RACK DETAIL



DMH 15–L



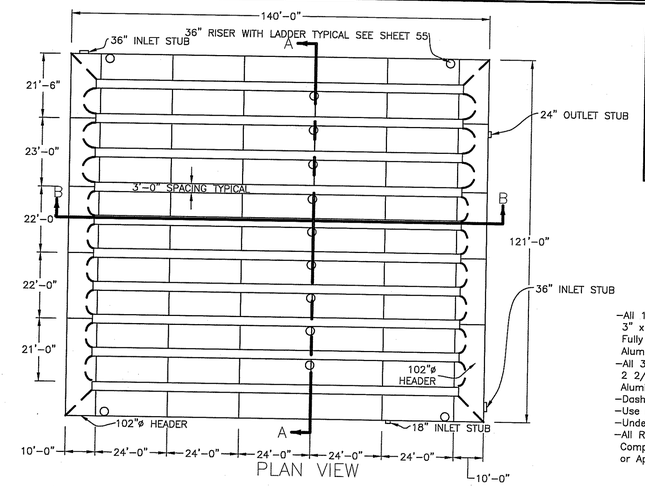
DMH 18–L



DMH 26–L

UIB–L INLET CONTROL STRUCTURES

(SEE SHEET 15)
NOT TO SCALE



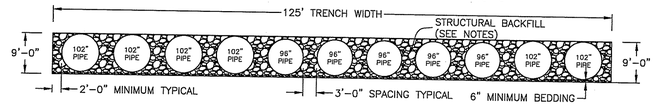
NOTES:

STRUCTURAL BACKFILL MATERIAL
SELECT MATERIALS SHALL BE 2–3 IN. CLEAN WASHED STONE.

STRUCTURAL BACKFILL PLACEMENT
STRUCTURAL BACKFILL SHALL BE PLACED IN LAYERS FROM 6 TO 12 IN. IN DEPTH DEPENDING ON THE TYPE OF MATERIAL AND COMPACTION EQUIPMENT OR METHOD. EACH LAYER OR "LIFT" SHALL BE COMPACTED BEFORE ADDING THE NEXT.

PIPES
ALL PIPES TO BE PERFORATED.

–All 102" & 96" pipe is 14 Gauge, 3" x 1" Corrugation, Fully Perforated, Aluminized Type 2.
–All 36" & 18" pipe is 16 Gauge, 2 2/3" x 1/2" Corrugation, Aluminized Type 2.
–Dashed lines indicates weld.
–Use Necessary Connecting Bands.
–Underground Detention Basin System
–All Reinforcement shall meet ASTM A998. Components to be Lane Enterprises, Inc. or Approved Equal.



SECTION A–A

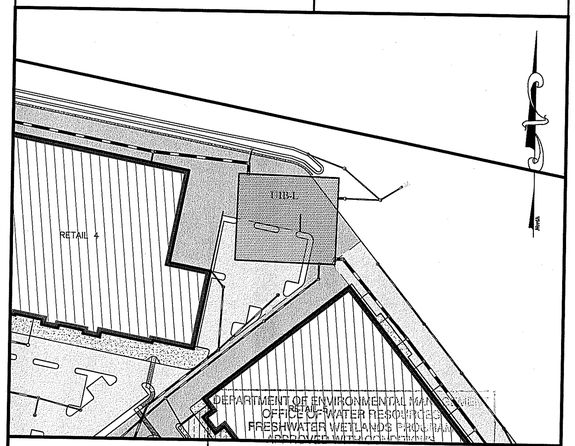
DESCRIPTION	POND #UIB–L
INVERT OF PIPES	326.00
100 YEAR STORM ELEVATION	333.64
25 YEAR STORM ELEVATION	331.39
10 YEAR STORM ELEVATION	330.15
2 YEAR STORM ELEVATION	327.62
SEASONAL HIGH GWT ELEVATION	319.00
LEDGE ELEVATION	316.00

UNDERGROUND INFILTRATION BASIN–L

NOT TO SCALE. SEE SHEET 61 FOR ADDITIONAL SECTIONS.

NOTE:
THIS REGULATORY SUBMISSION SET SHALL NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED 'ISSUED FOR CONSTRUCTION' AND SIGNED AND DATED BY A DIPRETE ENGINEERING REPRESENTATIVE

NOT FOR CONSTRUCTION
SHOP DRAWINGS TO BE PROVIDED TO ENGINEER FOR ALL SUBSURFACE DRAINAGE DEVICES. SHOP DRAWINGS ARE TO BE STAMPED BY A RHODE ISLAND PROFESSIONAL ENGINEER.



UNDERGROUND INFILTRATION BASIN LOCATION MAP SCALE: 1"=100'

RECEIVED
OCT 2 3 2009
ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 29 2009 FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Charles A. Horbert

RIDEM Submission

UNDERGROUND INFILTRATION BASIN L

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 122 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 28, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

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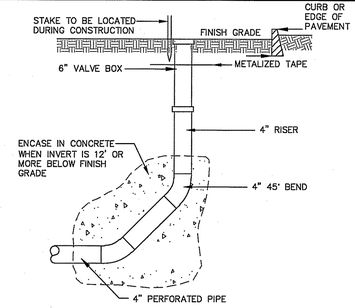
NO.	DATE	DESCRIPTION	BY
6	8-24-09	RIDEM Permit Modification Resubmission	BJG
5	2-26-09	RIDEM Response to Comments	BJG
4	10-28-08	RIDEM Response to Comments	BJG
3	9-24-08	Phase II Response to Comments	BJG
2	8-11-07	Utility Submission	BJG
1	06-15-07	RIDEM Submission	JPC

LEONARD A. BRADLEY, JR. No. 6610 REGISTERED PROFESSIONAL ENGINEER STATE OF RHODE ISLAND

Sheet 58 of 89

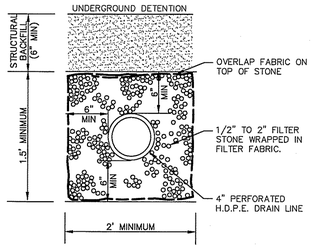
Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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



4" SUBDRAIN CLEANOUT IN PAVEMENT (DIRECT DISCHARGE)

NOT TO SCALE

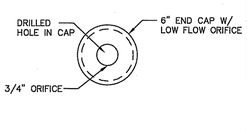


UDB SUBDRAIN TRENCH (TYPICAL)

NOT TO SCALE

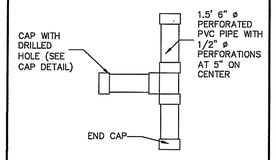
1/2 DIA. DIVERSION PLATE DETAIL

NOT TO SCALE



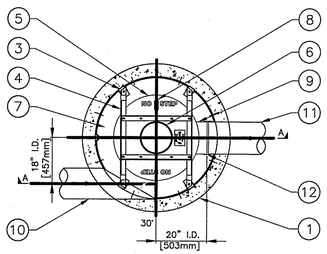
CAP DETAIL

NOT TO SCALE

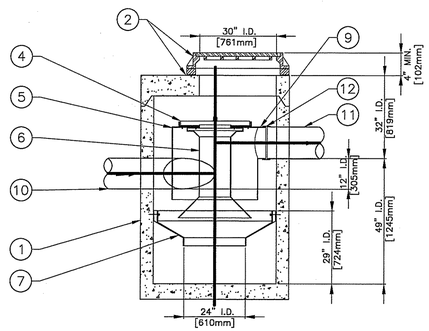


LOW FLOW PIPE DETAIL

NOT TO SCALE



PLAN VIEW



SECTION A–A

PARTS LIST			
ITEM	SIZE		DESCRIPTION
1	48 in.	1219mm	I.D. CONCRETE MANHOLE
2	30 in.	761mm	MANHOLE LID, FRAME & COVER
3			LEDGER ANGLES (TYP.)
4			SUPPORT FRAME
5			DIP PLATE
6			CENTER SHAFT & CONE
7			BENCHING SKIRT
8			FLOATABLES LID W/ VENT
9	12 in.	305mm	OVERFLOW PIPE STUB
10	12 in.	305mm	TANGENTIAL INLET PIPE (BY OTHERS)
11	12 in.	305mm	OVERFLOW PIPE (BY OTHERS)
12			PIPE COUPLING (BY OTHERS)

EQUIPMENT PERFORMANCE

The stormwater treatment unit shall adhere to the hydraulic parameters given in the chart below and provide the removal efficiencies and storage capacities as follows:

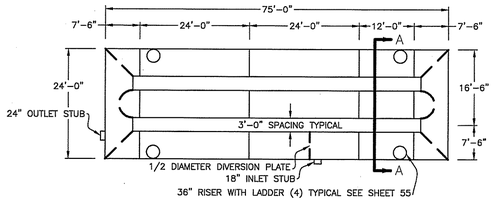
1. Performance objectives: The unit shall be capable of treating the peak flow rate listed below.
2. Peak treatment flow: 3.0 cfs [85 l/s]
3. Depth of flow in overflow pipe at 3.0 cfs: 8 in. [204mm]
4. Estimated headloss* at 3.0 cfs: 5 in. [127mm]
5. Sediment storage capacity: 0.70 Cu. yd. [0.54 cu.m.]
6. Oil storage capacity: 70 Gal. [265 liters]
7. Sediment shall be stored in a zone that is isolated from the main flow path and protected from reintrainment by a benching skirt.

*Headloss is defined as the difference between static water level at the inlet of the Downstream Defender to the free water surface in the overflow pipe, assuming free discharge.

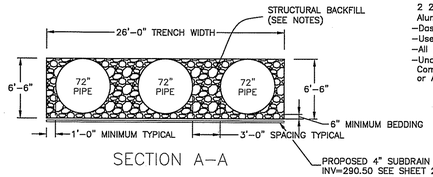
Dimensions are general and intended for guidance only. The orientation of the inlet pipe and overflow pipe can be adjusted to site requirements. See site plan for orientation.

4FT DOWNSTREAM DEFENDER – HYDRO INTERNATIONAL

NOT TO SCALE



PLAN VIEW



SECTION A–A

–All 72" pipe is 16 Gauge, 3" x 1" Corrugation, Aluminized Type 2.
–All 36", 24" & 18" pipe is 16 Gauge, 2 2/3" x 1/2" Corrugation, Aluminized Type 2.
–Dashed lines indicates weld.
–Use Necessary Connecting Bands.
–All Reinforcement shall meet ASTM A998.
–Underground Detention Basin System Components to be Lane Enterprises, Inc. or Approved Equal.

NOTES:

STRUCTURAL BACKFILL MATERIAL
SELECT MATERIALS SUCH AS BANK RUN GRAVEL OR OTHER PROCESSED GRANULAR MATERIALS LESS THAN 3 IN. MAXIMUM WITH EXCELLENT STRUCTURAL CHARACTERISTICS ARE PREFERRED.

STRUCTURAL BACKFILL PLACEMENT
STRUCTURAL BACKFILL SHALL BE PLACED IN LAYERS FROM 6 TO 12 IN. IN DEPTH DEPENDING ON THE TYPE OF MATERIAL AND COMPACTION EQUIPMENT OR METHOD. EACH LAYER OR "LIFT" SHALL BE COMPACTED TO 95% PROCTOR DENSITY BEFORE ADDING THE NEXT.

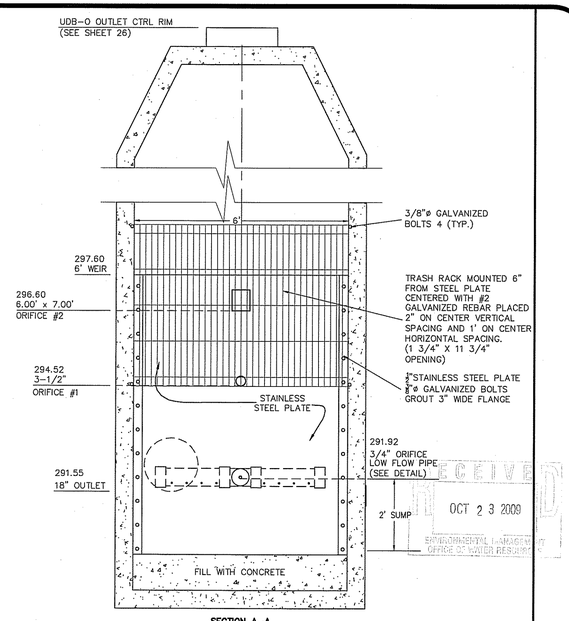
UDB–O TABLE

DESCRIPTION	POND #UDB–O
INVERT OF PIPES	292.00
100 YEAR STORM ELEVATION	297.99
25 YEAR STORM ELEVATION	297.63
10 YEAR STORM ELEVATION	297.02
2 YEAR STORM ELEVATION	295.27
DIVERSION WEIR PLATE ELEVATION	295.00
WATER QUALITY ELEVATION	294.52

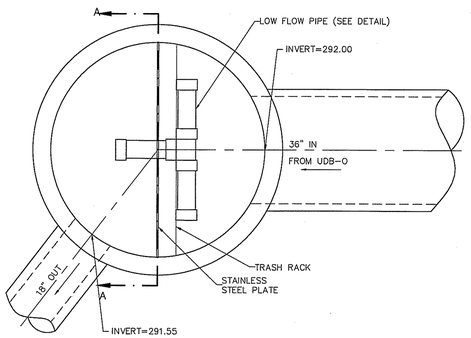
UNDERGROUND DETENTION BASIN–O

NOT TO SCALE. SEE SHEET 62 FOR ADDITIONAL SECTIONS

NOT FOR CONSTRUCTION
SHOP DRAWINGS TO BE PROVIDED TO ENGINEER FOR ALL SUBSURFACE DRAINAGE DEVICES. SHOP DRAWINGS ARE TO BE STAMPED BY A RHODE ISLAND PROFESSIONAL ENGINEER.



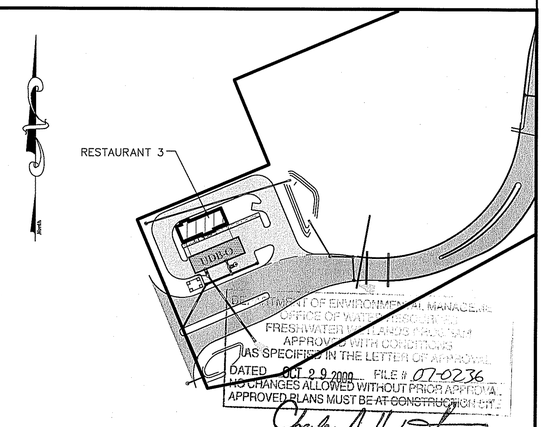
SECTION A–A



POND UDB–O OUTLET CONTROL STRUCTURE

(SEE SHEET 26)
SCALE: 1"=2'

NOTE:
THIS REGULATORY SUBMISSION SET SHALL NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED "ISSUED FOR CONSTRUCTION" AND SIGNED AND DATED BY A DIPRETE ENGINEERING REPRESENTATIVE



UNDERGROUND DETENTION BASIN–O LOCATION MAP SCALE: 1"=100'

Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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
6	8-24-09	RIDEM Permit Modification Resubmission	B.J.C.
5	6-25-09	RIDEM Response to Comments	B.J.C.
4	5-29-09	RIDEM Response to Comments	B.J.C.
3	2-23-09	Sewer Response to Comments	B.J.C.
2	11-21-07	Sewer Submission	B.J.C.
1	8-31-07	Utility Submission	B.J.C.
0	05-16-07	RIDEM Submission	J.P.C.

RIDEM Submission

UNDERGROUND DETENTION BASIN O

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76 AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 67, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DWN. BY: J.P.C.
DATE: MAY, 2007
DEA Job No. 0617-004-2

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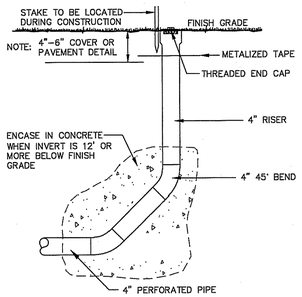
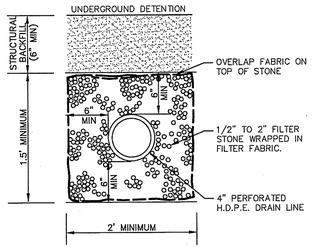
LEONARD R. BRADEE, JR.
No. 6610
REGISTERED PROFESSIONAL ENGINEER
STATE OF RHODE ISLAND

Sheet
59
of 89



4" SUBDRAIN CLEANOUT (DIRECT DISCHARGE)

NOT TO SCALE

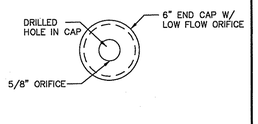


UDB SUBDRAIN TRENCH (TYPICAL)

NOT TO SCALE

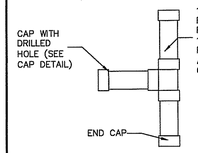
3/4 DIA. DIVERSION PLATE DETAIL

NOT TO SCALE



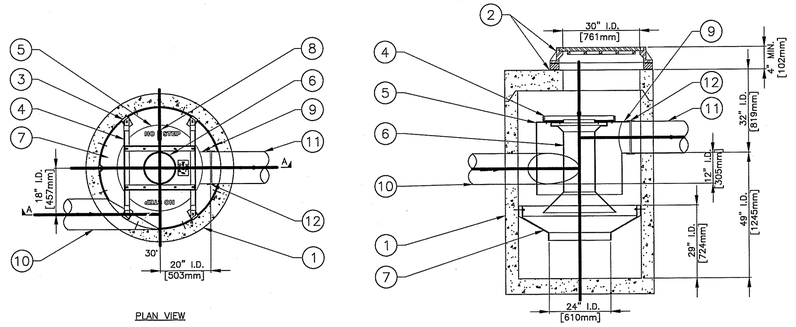
CAP DETAIL

NOT TO SCALE



LOW FLOW DETAIL

NOT TO SCALE



PARTS LIST			
ITEM	SIZE		DESCRIPTION
1	48 in.	1219mm	I.D. CONCRETE MANHOLE
2	30 in.	761mm	MANHOLE LID, FRAME & COVER
3			LEDGER ANGLE (TYP.)
4			SUPPORT FRAME
5			DIP PLATE
6			CENTER SHAFT & CONE
7			BENCHING SKIRT
8			FLOATABLES LID W/ VENT
9	12 in.	305mm	OVERFLOW PIPE STUB
10	12 in.	305mm	TANGENTIAL INLET PIPE (BY OTHERS)
11	12 in.	305mm	OVERFLOW PIPE (BY OTHERS)
12			PIPE COUPLING (BY OTHERS)

EQUIPMENT PERFORMANCE

The stormwater treatment unit shall adhere to the hydraulic parameters given in the chart below and provide the removal efficiencies and storage capacities as follows:

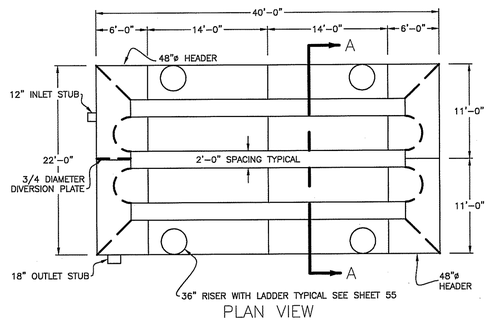
1. Performance objectives: The unit shall be capable of treating the peak flow rate listed below.
2. Peak treatment flow: 3.0 cfs [85 l/s]
3. Depth of flow in overflow pipe at 3.0 cfs: 8 in. [204mm]
4. Estimated headloss* at 3.0 cfs: 5 in. [127mm]
5. Sediment storage capacity: 0.70 Cu. yd. [0.54 cu.m.]
6. Oil storage capacity: 70 Gal. [265 liters]
7. Sediment shall be stored in a zone that is isolated from the main flow path and protected from reintrainment by a benching skirt.

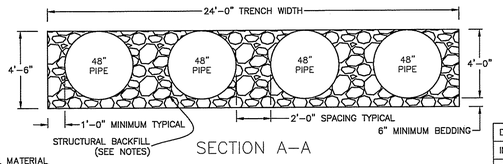
*Headloss is defined as the difference between static water level at the inlet of the Downstream Defender to the free water surface in the overflow pipe, assuming free discharge.

Dimensions are general and intended for guidance only. The orientation of the inlet pipe and overflow pipe can be adjusted to site requirements. See site plan for orientation.

4FT DIA. DOWNSTREAM DEFENDER – HYDRO INTERNATIONAL

NOT TO SCALE





–All 48" pipe is 16 Gauge, 2 2/3" x 1/2" Corrugation, Aluminized Type 2.
–All 18" & 12" pipe is 16 Gauge, 2 2/3" x 1/2" Corrugation, Aluminized Type 2.
–Dashed lines indicates weld.
–Use Necessary Connecting Bands.
–All Reinforcement shall meet ASTM A998.
–Underground Detention Basin System Components to be Lane Enterprises, Inc. or Approved Equal.

NOTES:

STRUCTURAL BACKFILL MATERIAL
SELECT MATERIALS SUCH AS BANK RUN GRAVEL OR OTHER PROCESSED GRANULAR MATERIALS LESS THAN 3 IN. MAXIMUM WITH EXCELLENT STRUCTURAL CHARACTERISTICS ARE PREFERRED.

STRUCTURAL BACKFILL PLACEMENT
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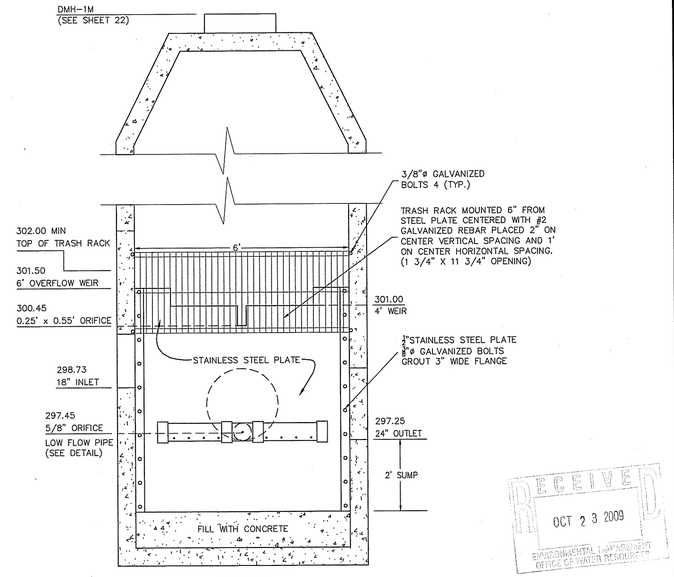
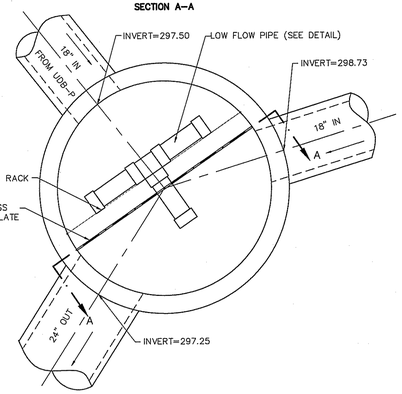
UNDERGROUND DETENTION BASIN–P

NOT TO SCALE. SEE SHEET 61 FOR ADDITIONAL SECTIONS.

UDB–P TABLE

DESCRIPTION	POND #UDB–P
INVERT	297.50
100 YEAR STORM ELEVATION	301.40
25 YEAR STORM ELEVATION	301.33
10 YEAR STORM ELEVATION	301.28
2 YEAR STORM ELEVATION	301.06
DIVERSION WEIR PLATE ELEVATION	300.50
WATER QUALITY ELEVATION	300.45





POND UDB–P OUTLET CONTROL STRUCTURE

DMH–1M (SEE SHEET 22)
SCALE: 1"=2'

NOTE:
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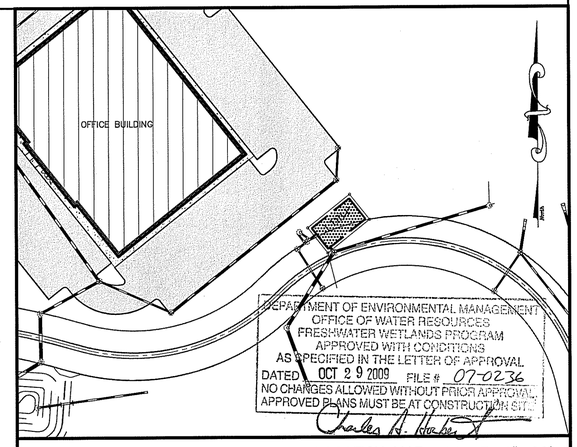

UNDERGROUND DETENTION BASIN–P LOCATION MAP SCALE: 1"=60'

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OFFICE OF WATER RESOURCES

RIDEM Submission

Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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
6	8-24-09	RIDEM Permit Application Resubmission	B.C.G.
5	6-25-09	RIDEM Permit Resubmission	B.C.G.
4	05-26-09	RIDEM Response to Comments	B.C.G.
3	05-06-09	Town Response to Comments	B.C.G.
2	04-07-09	Town Submission	B.C.G.
1	03-10-07	Utility Submission	B.C.G.
0	05-24-07	RIDEM Submission	B.C.G.

UNDERGROUND DETENTION BASIN P

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DWN. BY: J.P.C.
DATE: MAY, 2007
DEA Job No. 0617-004-2

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LEONARD R. BRADLEY, JR.
No. 6610
REGISTERED PROFESSIONAL ENGINEER
STATE OF RHODE ISLAND

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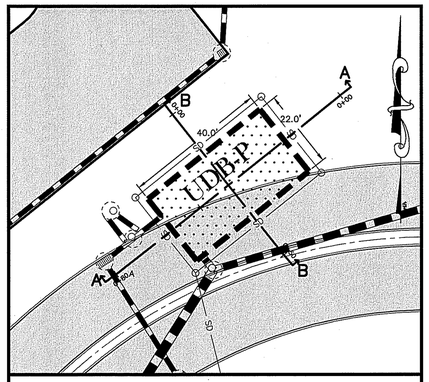
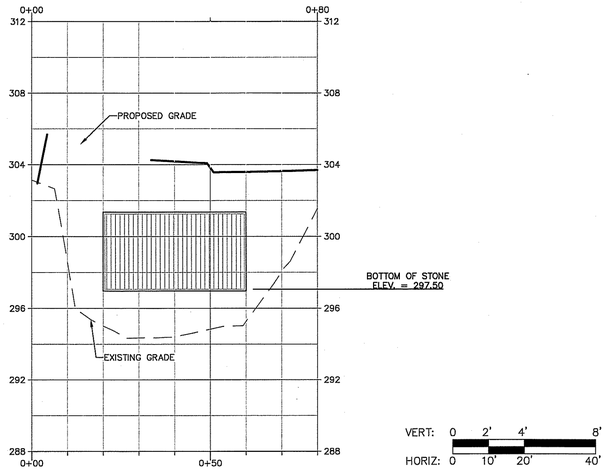
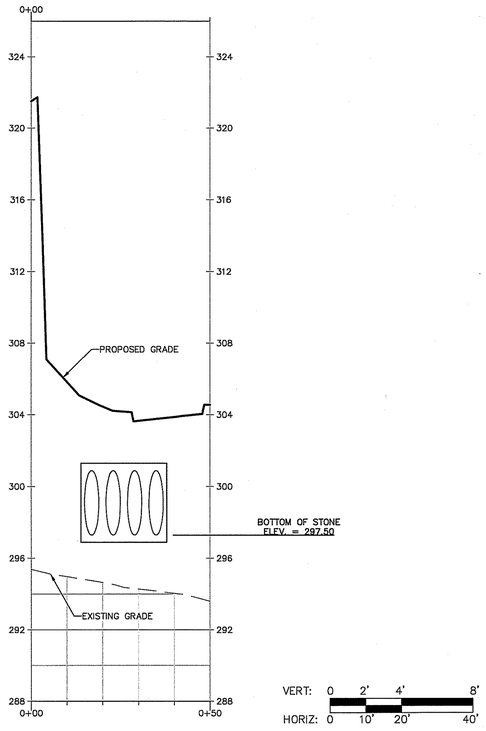
60
of 89



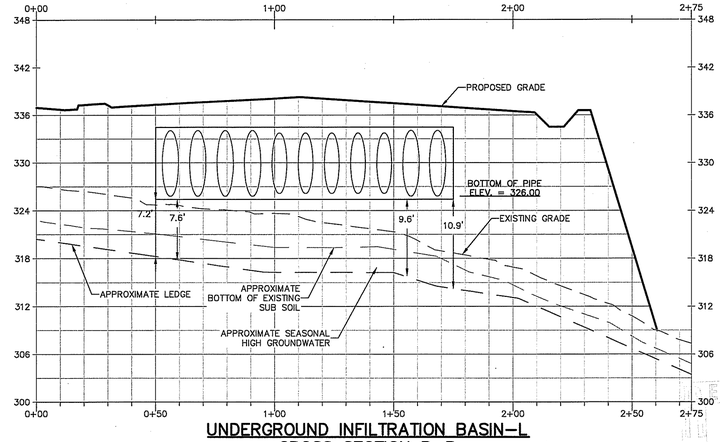
UNDERGROUND DETENTION BASIN–P LOCATION MAP
SCALE: 1"=20'



UNDERGROUND DETENTION BASIN–P
CROSS SECTION A–A



UNDERGROUND DETENTION BASIN–P
CROSS SECTION B–B



UNDERGROUND INFILTRATION BASIN–L
CROSS SECTION B–B

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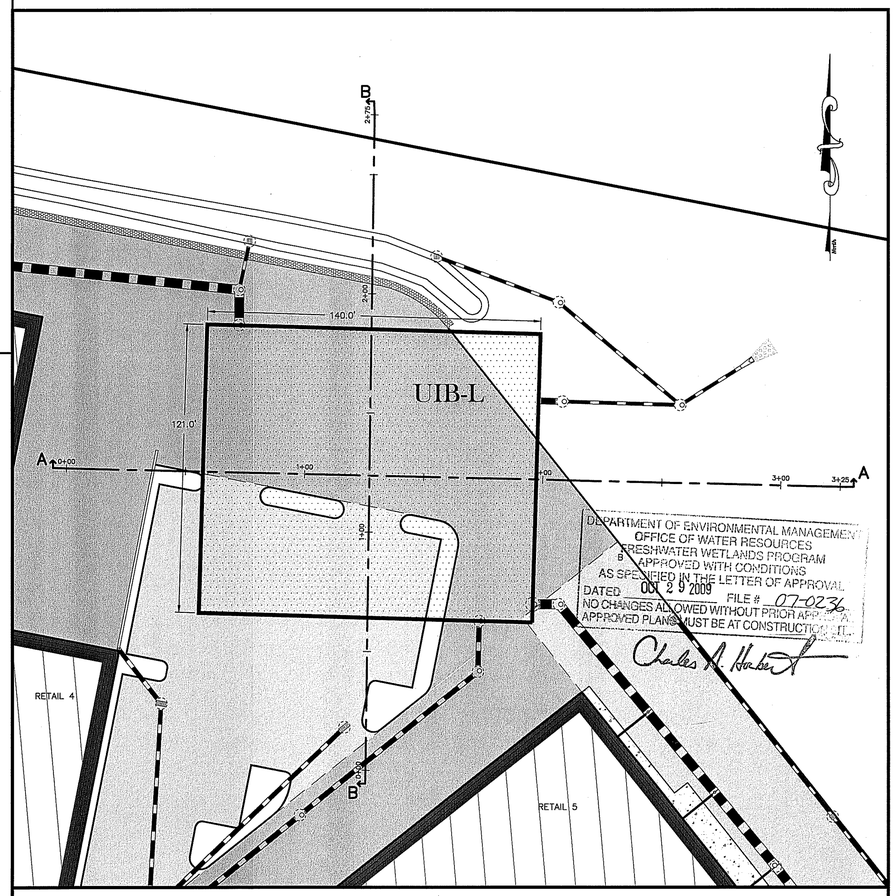
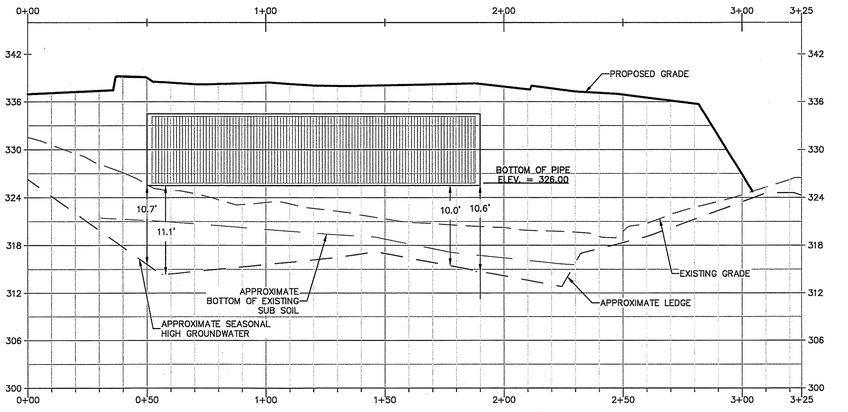
ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES



UNDERGROUND INFILTRATION BASIN–L LOCATION MAP SCALE: 1"=30'



UNDERGROUND INFILTRATION BASIN–L
CROSS SECTION A–A

NOTE:
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Cranston, Rhode Island 02920
Tel: (401) 943-1000 Fax: (401) 464-6006

NO	DATE	DESCRIPTION	BY
6	8-04-09	RIDEM Permit Modification Resubmission	B.C.G.
5	5-2-09	RIDEM Permit Modification	B.C.G.
4	05-30-08	Second Resubmission to Comments	B.C.G.
3	01-04-08	Resubmission to Comments	B.C.G.
2	09-07-07	Resubmission to Comments	B.C.G.
1	8-17-07	Utility Submission	B.C.G.
0	7-24-07	RIDEM Submission	B.C.G.

RIDEM Submission

UIB–L & UDB–P SECTIONS

Dowling Village - Phases II, III & IV

AP 15, LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 28, 30, 31, 32, 33, 34, 35, 36, 37, 38 AND A PORTION OF LOT 39
NORTH SMITHFIELD, RHODE ISLAND

DWN. BY: J.P.C.
DATE: MAY, 2007
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LEONARD R. BRADLEY JR.
No. 6617
REGISTERED PROFESSIONAL ENGINEER
STATE OF RHODE ISLAND

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61
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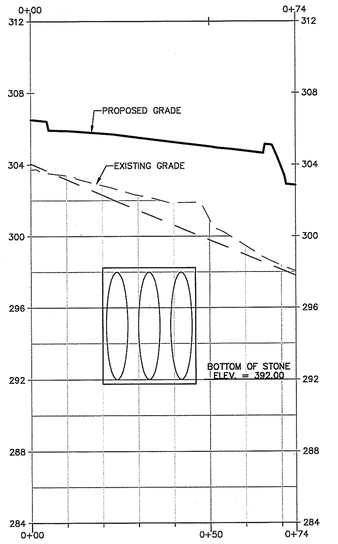
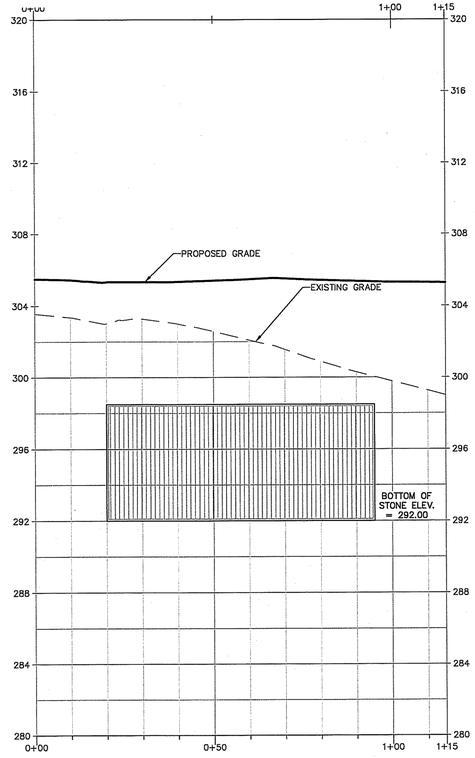
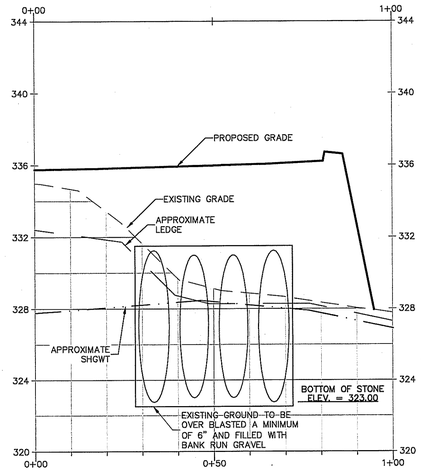


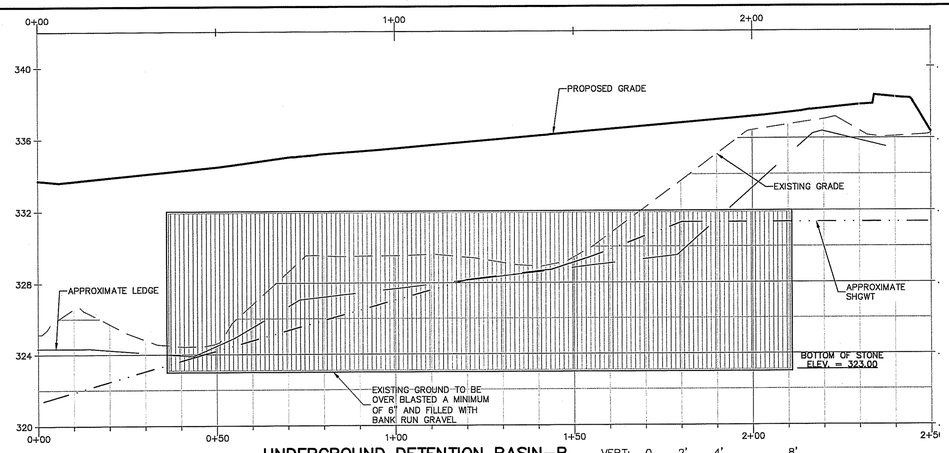
UNDERGROUND DETENTION BASIN–O
CROSS SECTION A–A



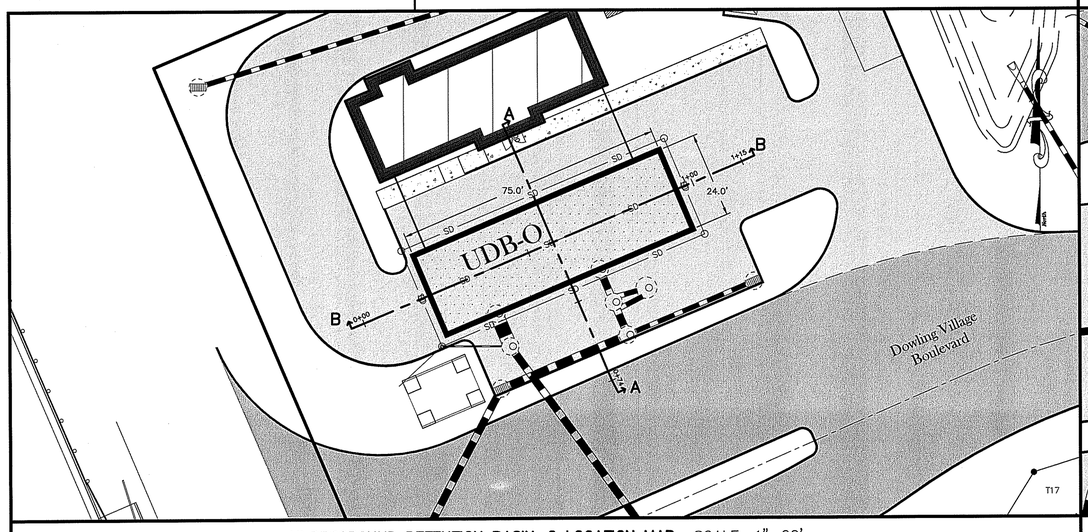
UNDERGROUND DETENTION BASIN–O
CROSS SECTION B–B



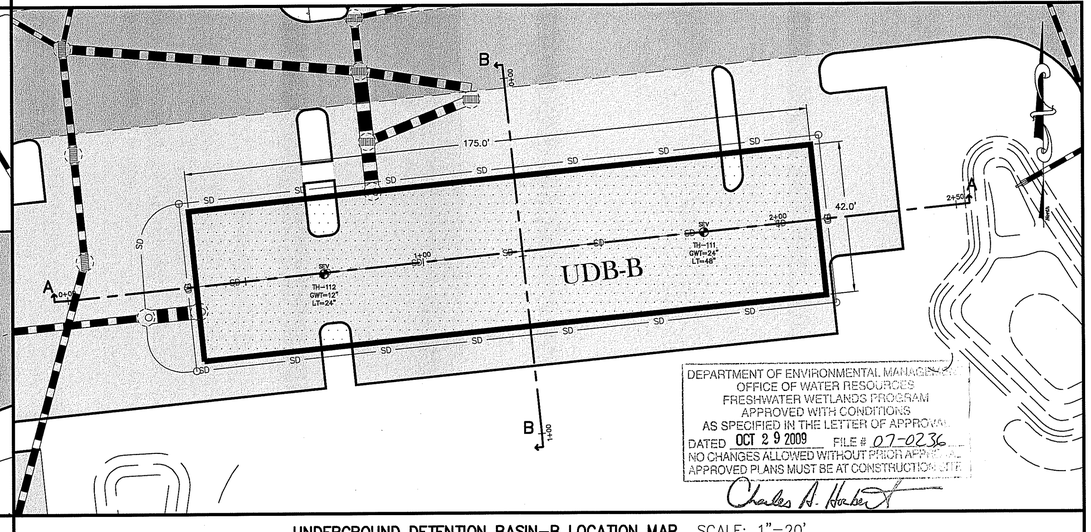
UNDERGROUND DETENTION BASIN–B
CROSS SECTION B–B



UNDERGROUND DETENTION BASIN–B
CROSS SECTION A–A



UNDERGROUND DETENTION BASIN–O LOCATION MAP SCALE: 1"=20'



UNDERGROUND DETENTION BASIN–B LOCATION MAP SCALE: 1"=20'

NOTE:
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OFFICE OF WATER RESOURCES

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Warwick, Rhode Island 02889
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Engineering, Surveying, and Planning Consultants
Two Stafford Court
Cranston, Rhode Island 02920
Tel: (401) 943-1000 Fax: (401) 464-6006

NO	DATE	DESCRIPTION	BY
6	9-04-09	RIDEM Permit Modification Resubmission	B.J.G.
5	08-28-08	RIDEM Permit Modification	B.J.G.
4	05-29-08	RIDEM Response to Comments	B.J.G.
3	05-23-08	Sewer Response to Comments	B.J.G.
2	03-31-08	Sewer Submission	B.J.G.
1	03-31-07	Utility Submission	J.P.C.
0	05-15-07	RIDEM Submission	B.J.G.

RIDEM Submission

UDB–B & UDB–O SECTIONS

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DWN. BY: J.P.C.

DATE: MAY, 2007

DEA Job No. 0617-004-2

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LEONARD R. BRADLEY JR.
No. 6670
REGISTERED PROFESSIONAL ENGINEER
STATE OF RHODE ISLAND

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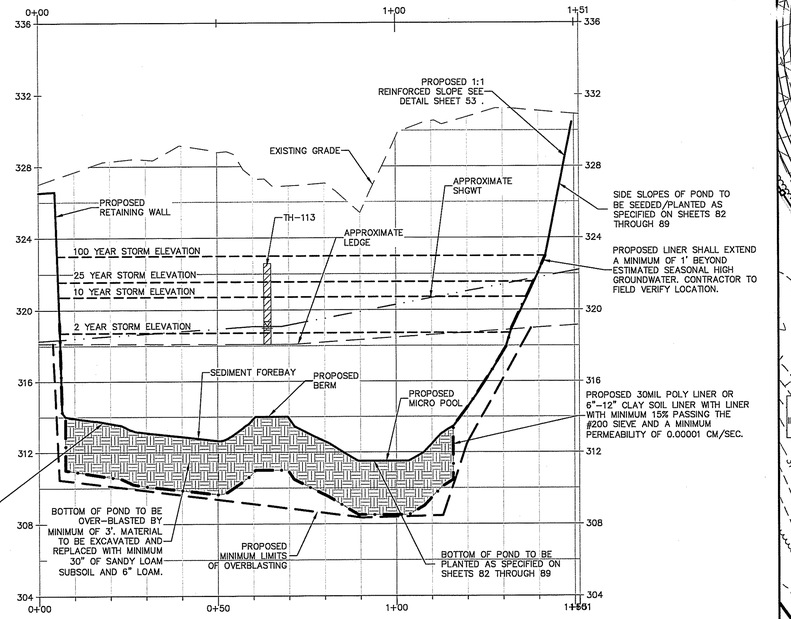
of 89

DESCRIPTION	POND A
TOP OF POND ELEVATION	324.00
BOTTOM OF POND	313.00
BOTTOM OF MICRO POOL	311.50
100 YEAR STORM ELEVATION	323.00
25 YEAR STORM ELEVATION	321.57
10 YEAR STORM ELEVATION	320.73
2 YEAR STORM ELEVATION	318.78
AVERAGE POND WIDTH	120'±
AVERAGE POND LENGTH	120'±
PROPOSED SHGWT ELEVATION*	<309.00±
PROPOSED LEDGE ELEVATION**	<309.0±

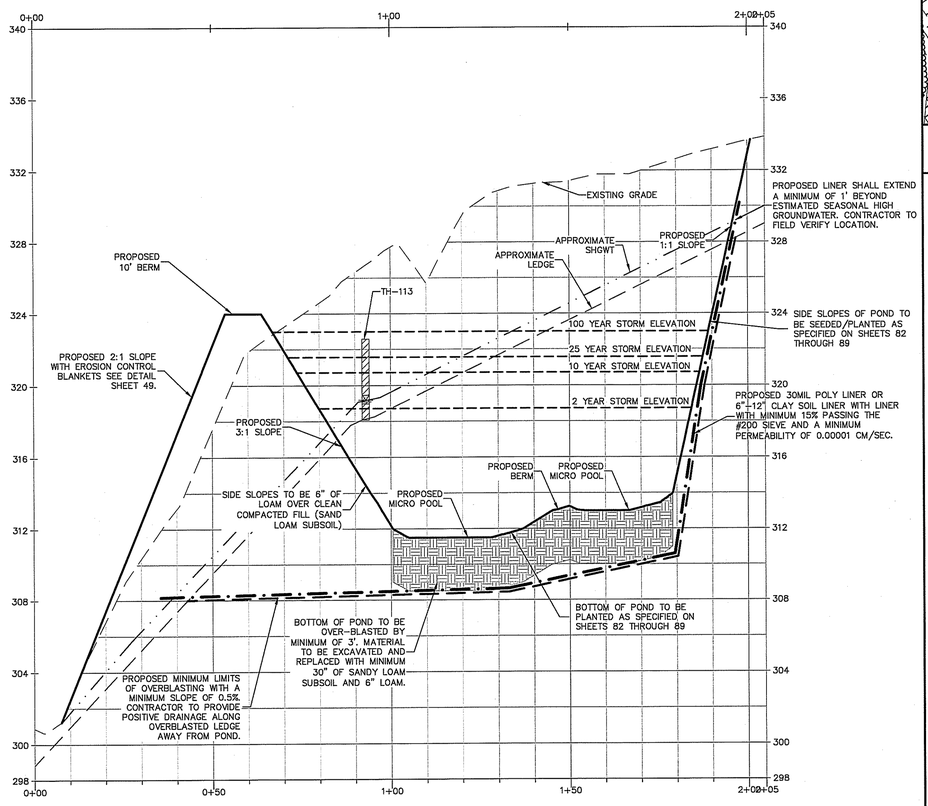
*PROPOSED SHGWT ASSUMED TO BE BOTTOM OF LINER (30" BELOW BOTTOM OF POND AND MICRO POOLS)
**PROPOSED LEDGE ASSUMED TO BE A MINIMUM OF 30" BELOW MICRO POOL ELEVATION. PROPOSED LEDGE SHALL SLOPE AWAY FROM THE BASIN AT A MINIMUM OF 0.5% SLOPE.

TEST HOLE	GROUND ELEVATION	SHGWT ELEVATION	LEDGE ELEVATION
TH-113	322.6±	319.1±	318.1±

NOTES:
1. FINAL BASIN GRADING, FINAL BASIN FEATURES, FINAL SEEDING, AND FINAL PLANTING SHALL BE COMPLETED AFTER THE TRIBUTARY AREA TO THE BASIN HAS REACHED A MINIMUM 80% STABILIZATION AND IS NO LONER REQUIRED TO BE USED AS A CONSTRUCTION SEDIMENTATION BASIN.
2. LOAM TO MEET RIDOT STANDARD M.18.01



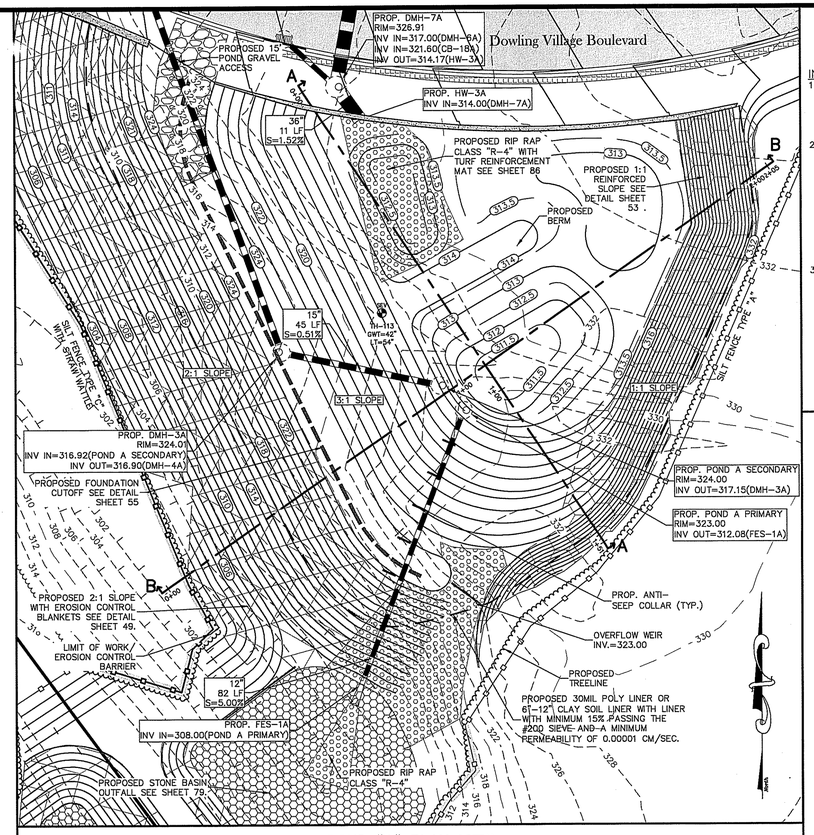
Pond A Section A-A



Pond A Section B-B

POND A CROSS SECTIONS (FOR TYPICAL POND CROSS SECTION SEE SHEET 56)

SCALE: HORIZONTAL 1"=20', VERTICAL 1"=4'



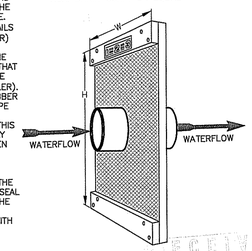
POND "A" PLAN VIEW

SEE SHEET 13 & 14
SCALE: 1"=20'

LOCATION	WIDTH	HEIGHT	QUANTITY
POND A	4.0'	4.0'	5

INSTALLATION NOTES:
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.

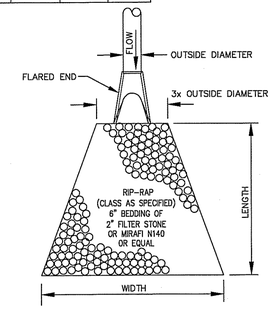
NOTE:
AGRI DRAIN CORP. OR EQUAL



ANTI-SEEP COLLAR

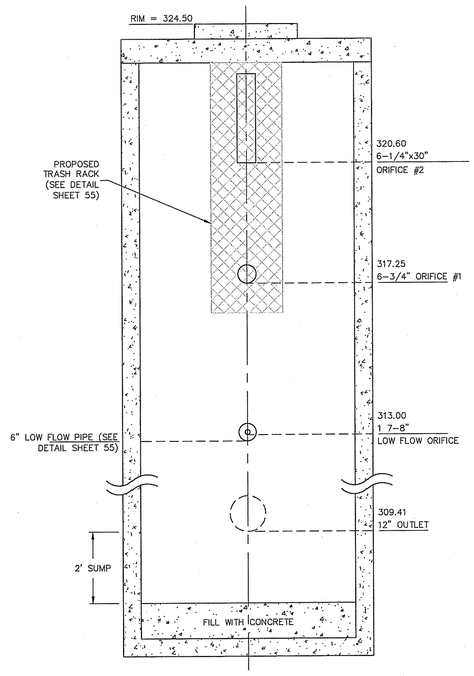
NOT TO SCALE

FLARE END	LENGTH	WIDTH	CLASS
FES-1A	23'	13'	R-4
HEADWALL-1A (SEE SHEET 10)	15'	9'	R-2
HEADWALL-3A	41'	26'	R-4



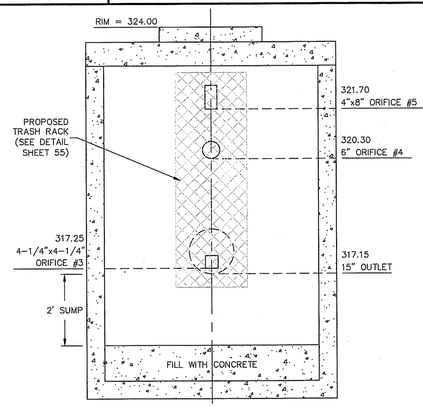
RIP-RAP APRON DETAIL

NOT TO SCALE



POND A PRIMARY OUTLET CONTROL STRUCTURE

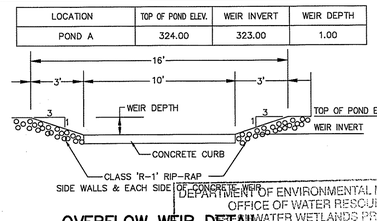
SCALE: 1"=2'



POND A SECONDARY OUTLET CONTROL STRUCTURE

SCALE: 1"=2'

LOCATION	TOP OF POND ELEV.	WEIR INVERT	WEIR DEPTH
POND A	324.00	323.00	1.00



NOTE:
THIS REGULATORY SUBMISSION SET SHALL NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED 'ISSUED FOR CONSTRUCTION' AND SIGNED AND DATED BY A DIPRETE ENGINEERING REPRESENTATIVE

OVERFLOW WEIR DETAIL

NOT TO SCALE

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
WATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 2 0 2009 FILE #
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Charles A. Horbert

RECEIVED
OCT 23 2009
ENVIRONMENTAL LAND REGULATION

Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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
6	9-24-09	RIDEM Permit Modification Submission	B.G.B.
5	8-25-09	RIDEM Permit Modification	B.G.B.
4	06-26-08	RIDEM Response to Comments	B.G.B.
3	03-26-08	RIDEM Response to Comments	B.G.B.
2	02-06-07	RIDEM Submission	B.G.B.
1	8-31-07	John's Submission	B.G.B.
0	8-31-07	RIDEM Submission	B.G.B.

RIDEM Submission

POND A

Dowling Village - Phases II, III & IV
AP 13 LOTS 44, 53, 110, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 33, 34 & A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DWN. BY: J.P.C.
DATE: MAY, 2007
DEA Job No. 0617-004-2

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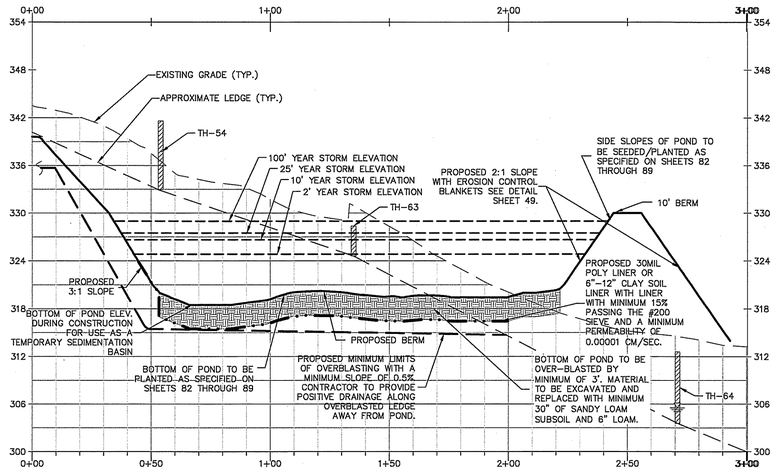
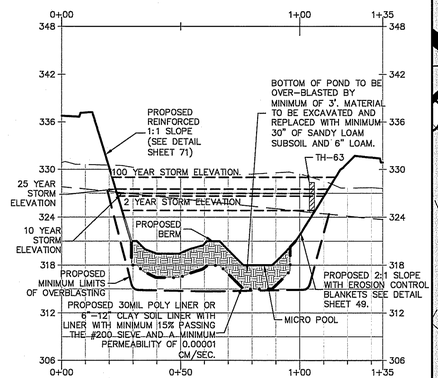
LEONARD R. BRADLEY
No. 6610
REGISTERED PROFESSIONAL ENGINEER

Sheet
63
of 89

\\Destorage\ideaman\Vault Working\0617-004-2\601 Preliminary\Plotting\0617-004-2 Pond Detail Sheets.dwg, 9/8/2009 2:36:26 PM, Bnarig, DWF6 ePlot.pc3



Pond D Section A-A



Pond D Section B-B

DESCRIPTION	POND D
TOP OF POND ELEVATION	330.00
BOTTOM OF POND	319.00
BOTTOM OF MICRO POOL	318.00
100 YEAR STORM ELEVATION	329.00
25 YEAR STORM ELEVATION	327.50
10 YEAR STORM ELEVATION	326.65
2 YEAR STORM ELEVATION	324.84
AVERAGE POND WIDTH	100'±
AVERAGE POND LENGTH	200'±
PROPOSED SHGWT ELEVATION*	<315.5-316.5
PROPOSED LEDGE ELEVATION**	<315.5

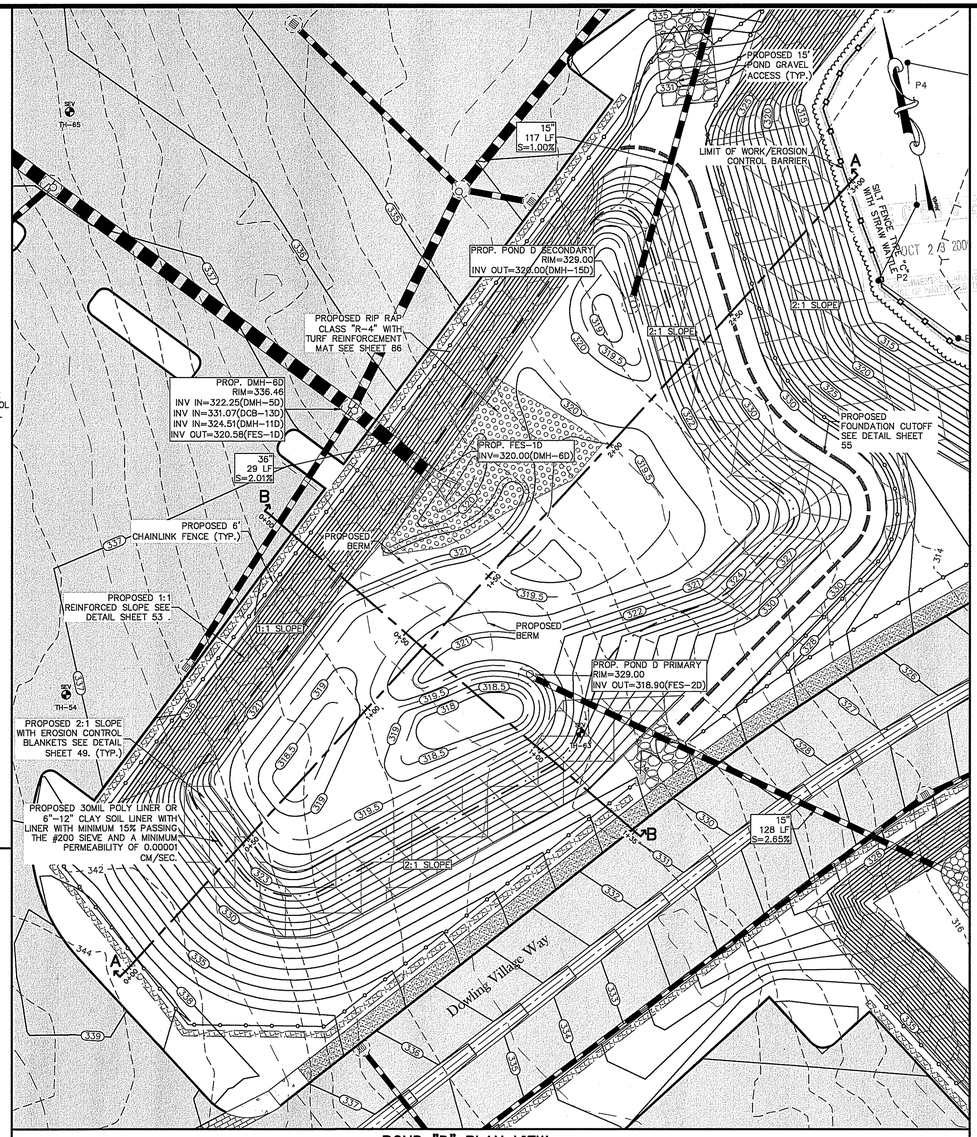
*PROPOSED SHGWT ASSUMED TO BE BOTTOM OF LINER (30" BELOW BOTTOM OF POND AND MICRO POOLS)
**PROPOSED LEDGE ASSUMED TO BE A MINIMUM OF 30" BELOW MICRO POOL ELEVATION. PROPOSED LEDGE SHALL SLOPE AWAY FROM THE BASIN AT A MINIMUM OF 0.5% SLOPE.

TEST HOLE	GROUND ELEVATION	SHGWT ELEVATION	LEDGE ELEVATION
TH-54	341.6±	NOT ENCOUNTERED	332.9±
TH-60	347.1±	NOT ENCOUNTERED	340.5±
TH-63	328.4±	NOT ENCOUNTERED	324.7±
TH-64	312.7±	305.6±	303.6±

NOTES:
1. FINAL BASIN GRADING, FINAL BASIN FEATURES, FINAL SEEDING, AND FINAL PLANTING SHALL BE COMPLETED AFTER THE TRIBUTARY AREA TO THE BASIN HAS REACHED A MINIMUM 80% STABILIZATION AND IS NO LONER REQUIRED TO BE USED AS A CONSTRUCTION SEDIMENTATION BASIN.
2. LOAM TO MEET RIDOT STANDARD M.18.01

POND D CROSS SECTIONS (FOR TYPICAL POND CROSS SECTION SEE SHEET 56)

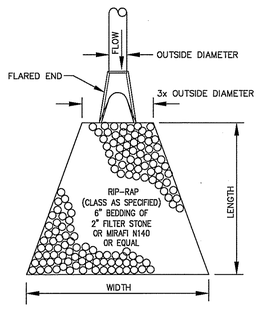
SCALE: HORIZONTAL 1"=30', VERTICAL 1"=9'



POND "D" PLAN VIEW

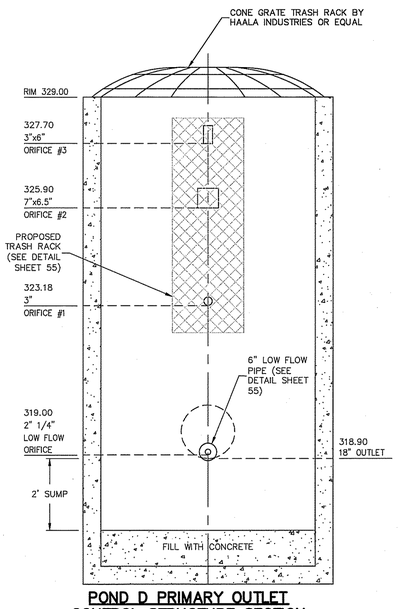
SEE SHEET 19
SCALE 1"=20'

FLARE END	LENGTH	WIDTH	CLASS
FES-1D	45'	27'	R-4
FES-2D	16'	10'	R-3
HEADWALL-1D	9'	7'	R-2



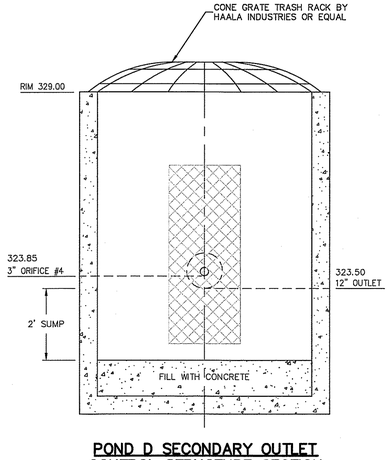
RIP RAP APRON DETAIL

NOT TO SCALE



POND D PRIMARY OUTLET CONTROL STRUCTURE SECTION

SCALE: 1"=2'



POND D SECONDARY OUTLET CONTROL STRUCTURE SECTION

SCALE: 1"=2'

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 29 2009 FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Charles A. Horbert

NOTE:
THIS REGULATORY SUBMISSION SET SHALL NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED 'ISSUED FOR CONSTRUCTION' AND SIGNED AND DATED BY A DIPRETE ENGINEERING REPRESENTATIVE

RIDEM Submission

Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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
5	5-14-09	RIDEM Permit Application Submission	B.G.G.
4	5-5-09	RIDEM Permit Application Submission	B.G.G.
3	03-04-09	Added Response to Comments	B.G.G.
2	02-26-09	Added Response to Comments	B.G.G.
1	12-15-08	Added Response to Comments	B.G.G.
0	8-7-07	Utility Submission	B.G.G.
	6-26-07	Original Submission	B.G.G.

POND D

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 145 AND A PORTION OF LOTS 18, 20, 21 & 76 AP 21 LOTS 25, 26, 28, NORTH SMITHFIELD, RHODE ISLAND AND AP 37 LOTS 57 & 58

DATE: MAY, 2007 DWN. BY: J.P.C.

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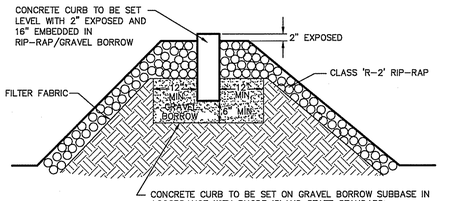
LEONARD R. BRADLEY JR. No. 6670 REGISTERED PROFESSIONAL ENGINEER STATE OF RHODE ISLAND

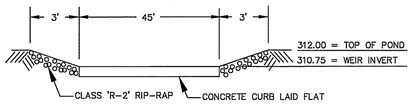
Sheet 64 of 89

\\Destorage\deasmanVault Working\06 17-004-2\601 Preliminary\Plotting\06 17-004-2 Pond Detail Sheets.dwg, 9/9/2009 2:36:41 PM, Bnang, DWFg ePlot.pc3



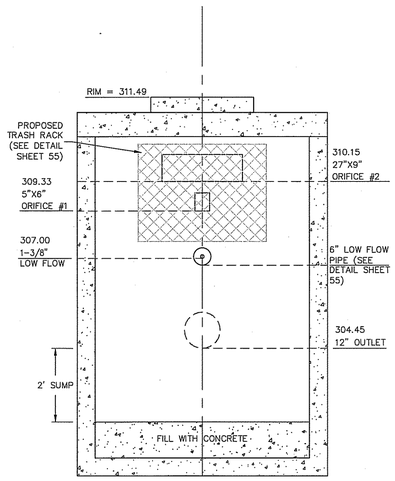
POND E OUTLET WEIR CROSS SECTION

NOT TO SCALE



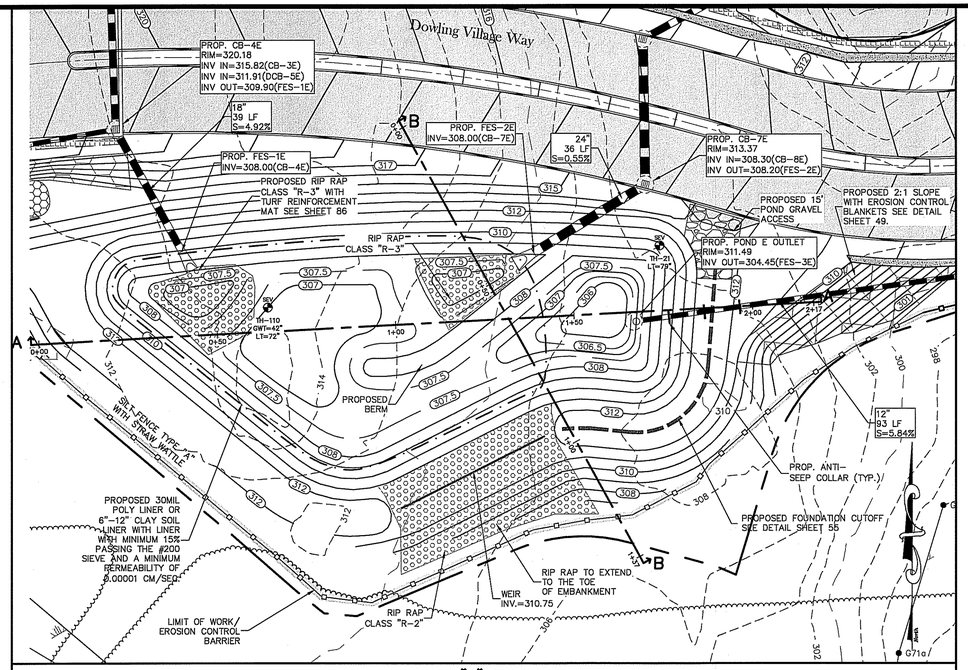
POND E OUTLET WEIR DETAIL

NOT TO SCALE



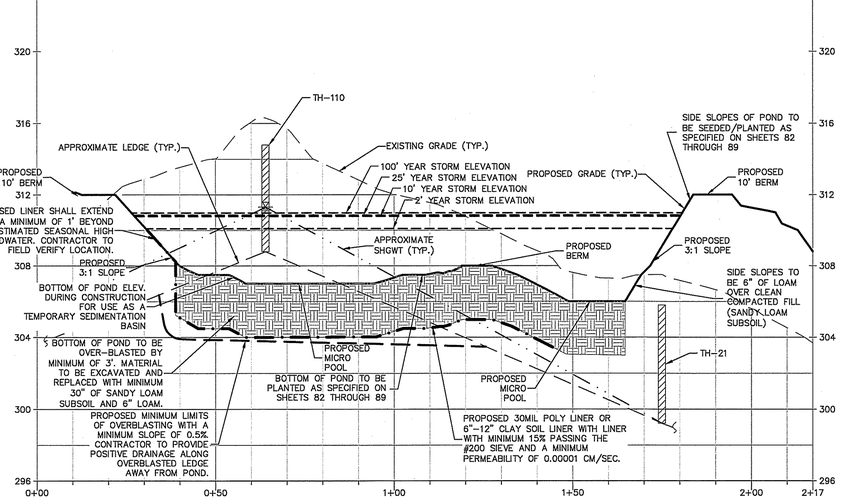
POND E OUTLET CONTROL STRUCTURE

SCALE: 1"=2'

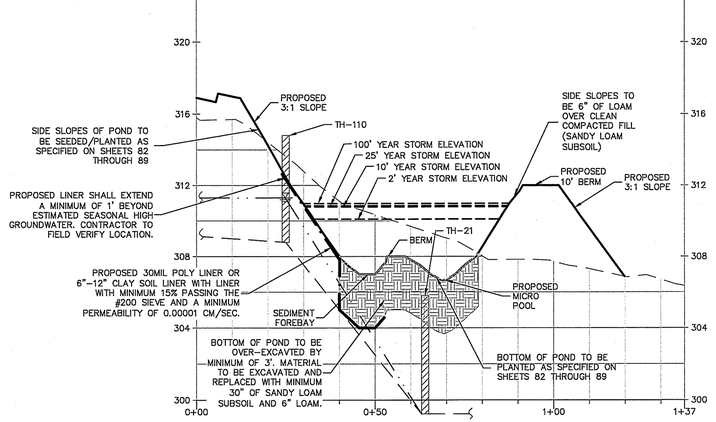


POND "E" PLAN VIEW

SEE SHEET 22
SCALE: 1"=20'



Pond E Section A-A



Pond E Section B-B

DESCRIPTION	POND E
TOP OF POND ELEVATION	312.00
BOTTOM OF POND	307.00
BOTTOM OF MICRO POOL	306.00
100 YEAR STORM ELEVATION	310.97
25 YEAR STORM ELEVATION	310.86
10 YEAR STORM ELEVATION	310.76
2 YEAR STORM ELEVATION	309.98
AVERAGE POND WIDTH	45'±
AVERAGE POND LENGTH	147'±
PROPOSED SHGWT ELEVATION*	<303.5-304.5
PROPOSED LEDGE ELEVATION**	<303.5

TEST HOLE	GROUND ELEVATION	SHGWT ELEVATION	LEDGE ELEVATION
TH-21	305.8±	NOT ENCOUNTERED	299.2±
TH-64	312.7±	305.6±	303.6±
TH-110	314.8±	311.3±	308.8±
TH-201	315.0±	311.0±	309.0±

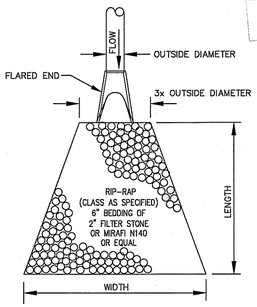
*PROPOSED SHGWT ASSUMED TO BE BOTTOM OF LINER (30" BELOW BOTTOM OF POND AND MICRO POOLS)
**PROPOSED LEDGE ASSUMED TO BE A MINIMUM OF 30" BELOW MICRO POOL ELEVATION. PROPOSED LEDGE SHALL SLOPE AWAY FROM THE BASIN AT A MINIMUM OF 0.5% SLOPE.

NOTES:
1. FINAL BASIN GRADING, FINAL BASIN FEATURES, FINAL SEEDING, AND FINAL PLANTING SHALL BE COMPLETED AFTER THE TRIBUTARY AREA TO THE BASIN HAS REACHED A MINIMUM 80% STABILIZATION AND IS NO LONER REQUIRED TO BE USED AS A CONSTRUCTION SEDIMENTATION BASIN.
2. LOAM TO MEET RIDOT STANDARD M.18.01

POND E CROSS SECTIONS (FOR TYPICAL POND CROSS SECTION SEE SHEET 56)

SCALE: HORIZONTAL 1"=20', VERTICAL 1"=4'

FLARE END	LENGTH	WIDTH	CLASS
FES-1E	23'	14'	R-3
FES-2E	25'	16'	R-3
FES-3E	20'	11'	R-3

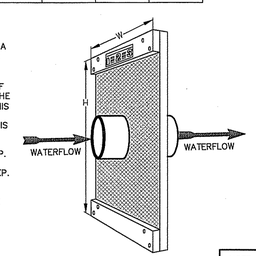


RIP RAP APRON DETAIL

NOT TO SCALE

LOCATION	WIDTH	HEIGHT	QUANTITY
POND E	4.0'	4.0'	3

INSTALLATION NOTES:
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.



NOTE: ALL DRAIN CORP. OR EQUAL

ANTI-SEEP COLLAR

NOT TO SCALE

RECEIVED
OCT 23 2009
ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 29 2009 FILE # 07-0236
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Charles A. Horbert

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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
6	9-04-09	RIDEM Permit Modification Resubmission	B.C.G.
5	5-21-09	RIDEM Permit Modification	B.C.G.
4	3-25-08	RIDEM Permit Modification	B.C.G.
3	01-29-08	Sewer Response to Comments	B.C.G.
2	9-28-07	RIDEM Response to Comments	B.C.G.
1	07-31-07	RIDEM Submission	J.P.C.
0	06-14-07	RIDEM Submission	J.P.C.

RIDEM Submission

POND E

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

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LEONARD R. BRADLEY JR. No. 6670 REGISTERED PROFESSIONAL ENGINEER STATE OF RHODE ISLAND

Sheet 65 of 89

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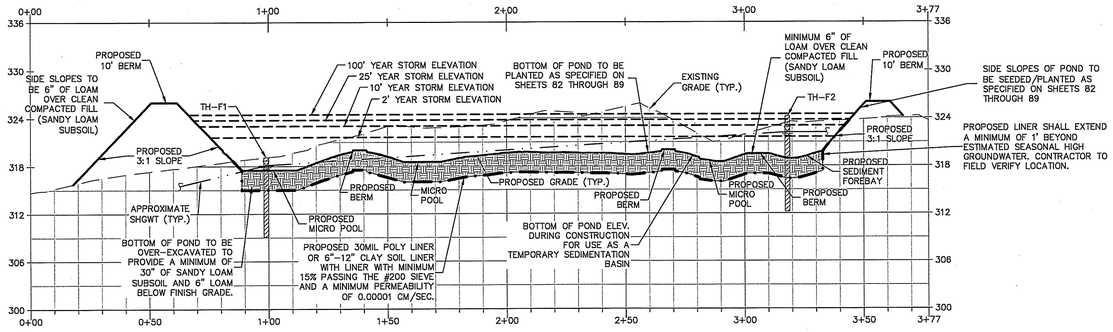
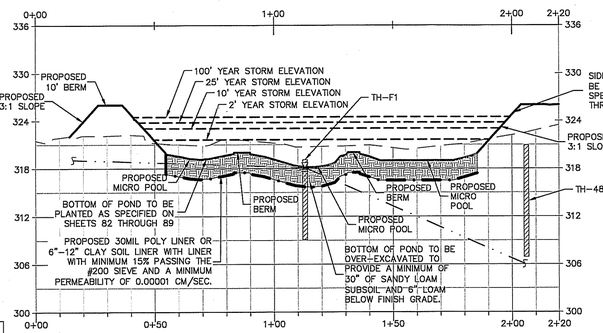


Pond F Section A-A

DESCRIPTION	POND F
TOP OF POND ELEVATION	326.00
BOTTOM OF POND	318.50
BOTTOM OF MICRO POOL	317.50
100 YEAR STORM ELEVATION	324.46
25 YEAR STORM ELEVATION	323.78
10 YEAR STORM ELEVATION	323.04
2 YEAR STORM ELEVATION	321.63
AVERAGE POND WIDTH	10'-173'±
AVERAGE POND LENGTH	250'±
PROPOSED SHGWT ELEVATION*	<315.5-316.5
PROPOSED LEDGE ELEVATION**	<315.5

*PROPOSED SHGWT ASSUMED TO BE BOTTOM OF LINER (30" BELOW BOTTOM OF POND AND MICRO POOLS)
**PROPOSED LEDGE ASSUMED TO BE A MINIMUM OF 30" BELOW MICRO POOL ELEVATION. PROPOSED LEDGE SHALL SLOPE AWAY FROM THE BASIN AT A MINIMUM OF 0.5% SLOPE.

TEST HOLE	GROUND ELEVATION	SHGWT ELEVATION	LEDGE ELEVATION
TH-F1	319.1±	318.1±	NOT ENCOUNTERED
TH-F2	324.2±	322.2±	NOT ENCOUNTERED
TH-48	320.9±	NOT ENCOUNTERED	NOT ENCOUNTERED

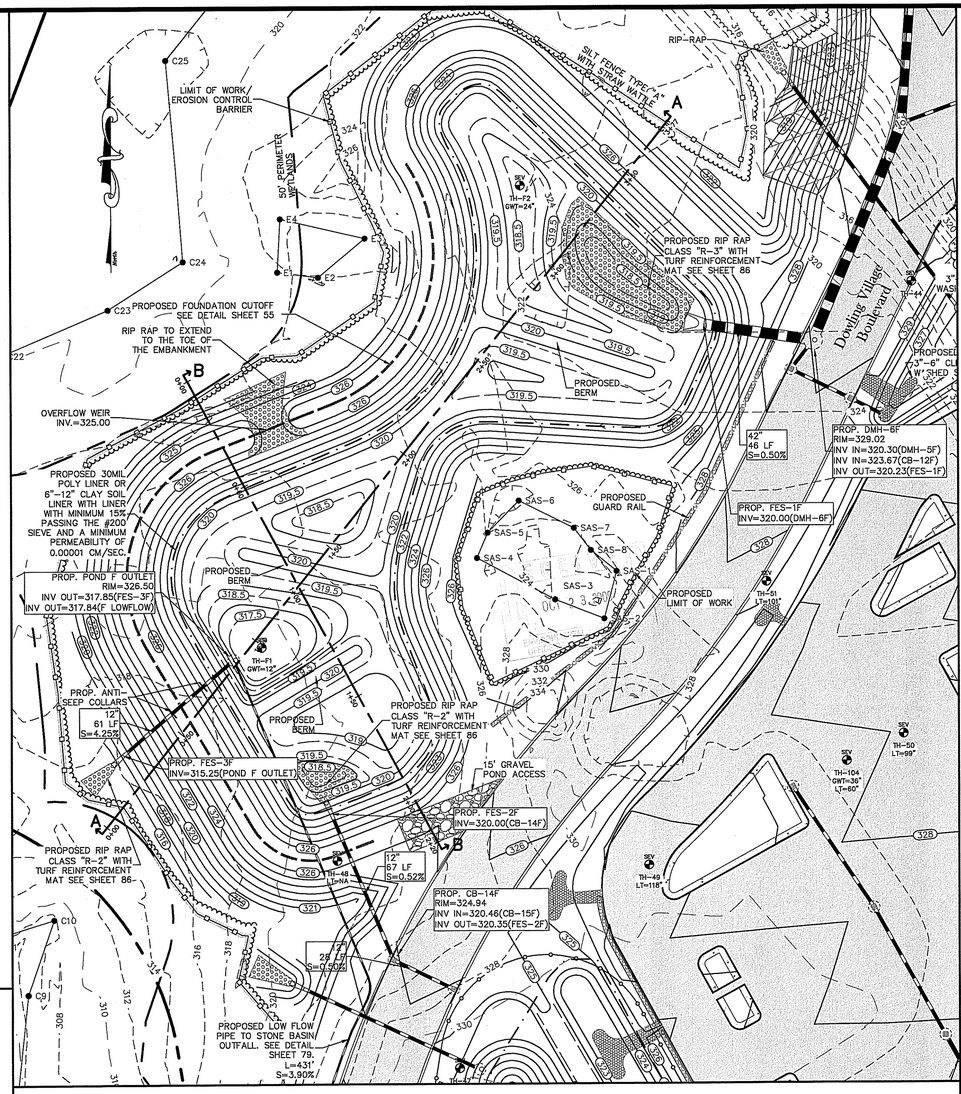


Pond F Section B-B

NOTES:
1. FINAL BASIN GRADING, FINAL BASIN FEATURES, FINAL SEEDING, AND FINAL PLANTING SHALL BE COMPLETED AFTER THE TRIBUTARY AREA TO THE BASIN HAS REACHED A MINIMUM 80% STABILIZATION AND IS NO LONER REQUIRED TO BE USED AS A CONSTRUCTION SEDIMENTATION BASIN.
2. LOAM TO MEET RIDOT STANDARD M.18.01

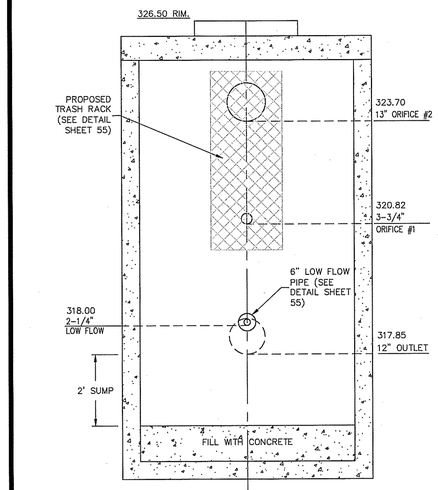
POND F CROSS SECTIONS (FOR TYPICAL POND CROSS SECTION SEE SHEET 56)

SCALE: HORIZONTAL 1"=30', VERTICAL 1"=9'



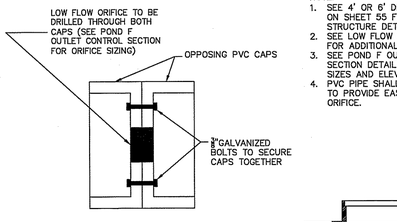
POND "F" PLAN VIEW

SEE SHEET 23 & 24
SCALE: 1"=30'



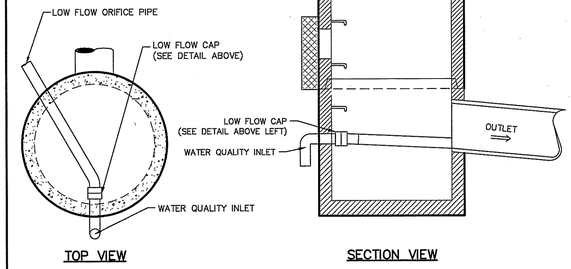
POND F OUTLET CONTROL STRUCTURE SECTION

SCALE: 1"=2'



LOW FLOW CAP DETAIL

NOTE:
1. SEE 4' OR 6' DIA. OUTLET STRUCTURE DETAIL ON SHEET 55 FOR ADDITIONAL OUTLET STRUCTURE DETAILS.
2. SEE LOW FLOW ORIFICE DETAIL ON SHEET 55 FOR ADDITIONAL LOW FLOW ORIFICE DETAILS.
3. SEE POND F OUTLET CONTROL STRUCTURE SECTION DETAIL FOR SPECIFIC POND F ORIFICE SIZES AND ELEVATIONS.
4. PVC PIPE SHALL NOT BE CEMENTED TOGETHER TO PROVIDE EASY MAINTENANCE OF LOW FLOW ORIFICE.



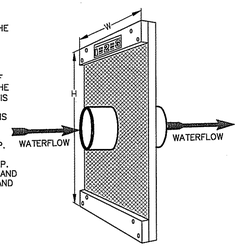
TOP VIEW — SECTION VIEW

POND F LOW FLOW OUTLET VARIATION

NOT TO SCALE

LOCATION	WIDTH	HEIGHT	QUANTITY
POND F	5.0'	5.0'	2

INSTALLATION NOTES:
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.

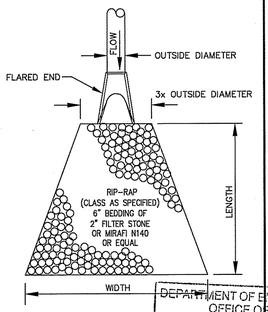


NOTE:
AGRI DRAIN CORP. OR EQUAL

ANTI-SEEP COLLAR

NOT TO SCALE

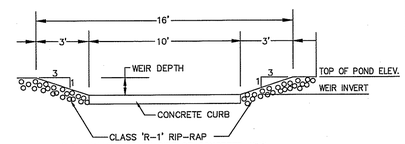
FLARE END	LENGTH	WIDTH	CLASS
FES-1F	43'	28'	R-3
FES-2F	11'	8'	R-2
FES-3F	14'	9'	R-2



RIP-RAP APRON DETAIL

NOT TO SCALE

LOCATION	TOP OF POND ELEV.	WEIR INVERT	WEIR DEPTH
POND F	326.00	325.00	1.00



OVERFLOW WEIR DETAIL

NOT TO SCALE

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 29 2009 FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Charles A. Horbert

NOTE:
THIS REGULATORY SUBMISSION SET SHALL NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED 'ISSUED FOR CONSTRUCTION' AND SIGNED AND DATED BY A DIPRETE ENGINEERING REPRESENTATIVE

RIDEM Submission

Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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
6	8-04-08	RIDEM Permit Modification Resubmission	B.C.G.
5	2-5-08	RIDEM Permit Modification	B.C.G.
4	12-28-07	RIDEM Permit Modification	B.C.G.
3	05-24-07	Sewer Responses to Comments	B.C.G.
2	03-30-07	DiPrete Responses to Comments	B.C.G.
1	01-26-07	RIDEM Submission	J.P.C.
0	05-25-07	RIDEM Submission	J.P.C.

POND F

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76 AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58 NORTH SMITHFIELD, RHODE ISLAND

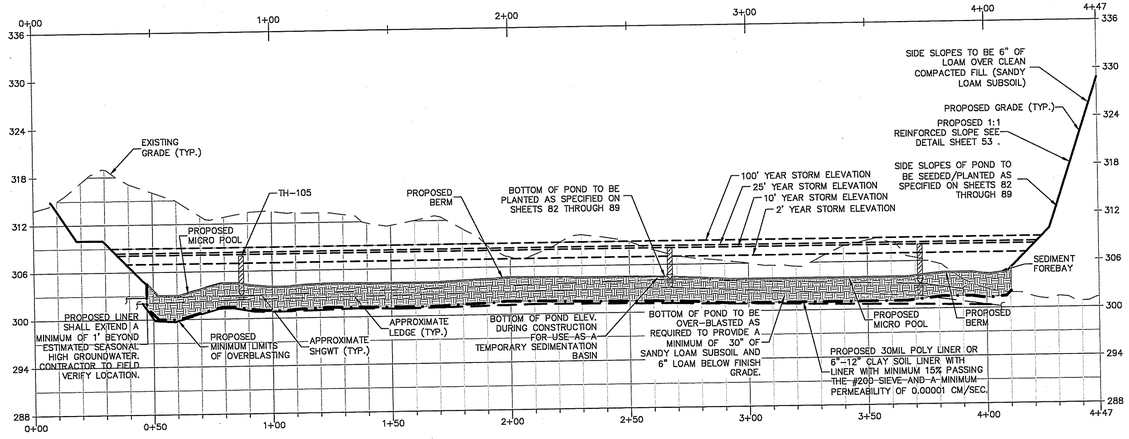
DATE: MAY, 2007 — DWN. BY: J.P.C.

DEA Job No. 0617-004-2 Copyright© 2009 by DiPrete Engineering Associates, Inc.

LEONARD R. BRADLEY No. 6670 REGISTERED PROFESSIONAL ENGINEER CIVIL

Sheet 66 of 89

\\Destorage\deamain\Vault Working\0617-004-2\601 Preliminary\Plotting\0617-004-2 Pond Detail Sheets.dwg, 9/9/2009 2:42:24 PM, Bruno, DWF6 ePlot.pc3



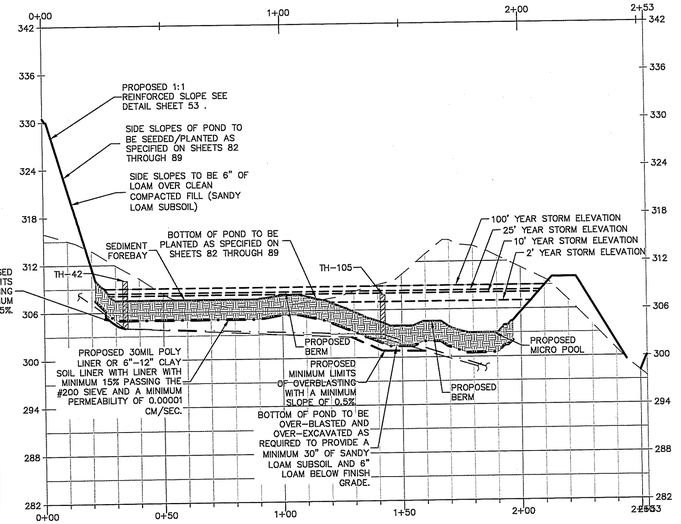
Pond G Section A-A

DESCRIPTION	POND G
TOP OF POND ELEVATION	310.00
BOTTOM OF POND	304.00
BOTTOM OF MICRO POOL	303.00
100 YEAR STORM ELEVATION	309.00
25 YEAR STORM ELEVATION	308.40
10 YEAR STORM ELEVATION	308.11
2 YEAR STORM ELEVATION	307.01
AVERAGE POND WIDTH	15'-157'±
AVERAGE POND LENGTH	363'±
PROPOSED SHGWT ELEVATION*	<300.5-301.5
PROPOSED LEDGE ELEVATION**	<300.5

*PROPOSED SHGWT ASSUMED TO BE BOTTOM OF LINER (30" BELOW BOTTOM OF POND AND MICRO POOLS)
**PROPOSED LEDGE ASSUMED TO BE A MINIMUM OF 30" BELOW MICRO POOL ELEVATION. PROPOSED LEDGE SHALL SLOPE AWAY FROM THE BASIN AT A MINIMUM OF 0.5% SLOPE.

TEST HOLE	GROUND ELEVATION	SHGWT ELEVATION	LEDGE ELEVATION
TH-42	310.0±	NOT ENCOUNTERED	304.0±
TH-105	307.9±	302.9±	302.3±
TH-106	308.1±	304.1±	303.1±
TH-107	308.1±	303.1±	301.6±

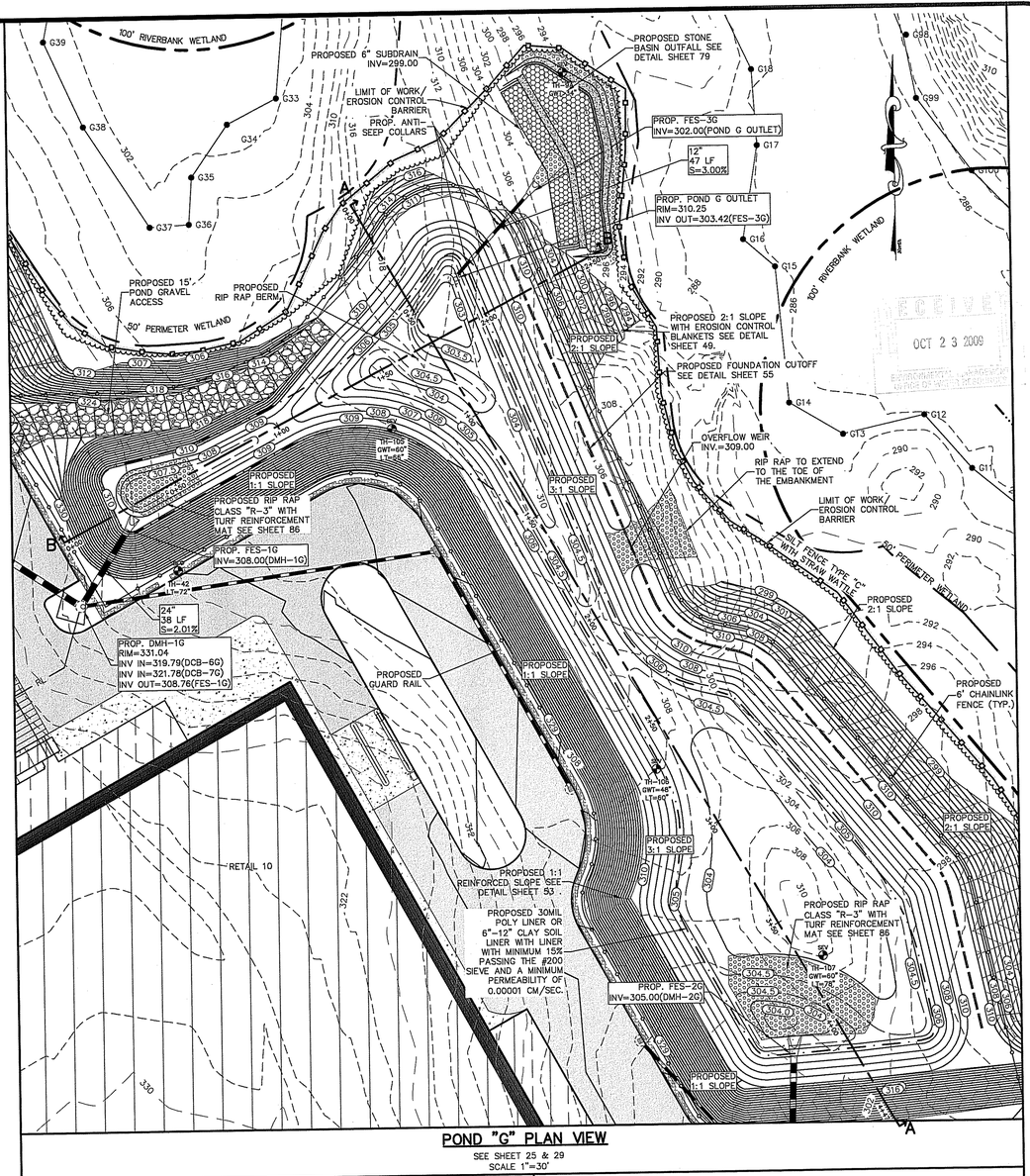
NOTES:
1. FINAL BASIN GRADING, FINAL BASIN FEATURES, FINAL SEEDING, AND FINAL PLANTING SHALL BE COMPLETED AFTER THE TRIBUTARY AREA TO THE BASIN HAS REACHED A MINIMUM 80% STABILIZATION AND IS NO LONER REQUIRED TO BE USED AS A CONSTRUCTION SEDIMENTATION BASIN.
2. LOAM TO MEET RIDOT STANDARD M.18.01



Pond G Section B-B

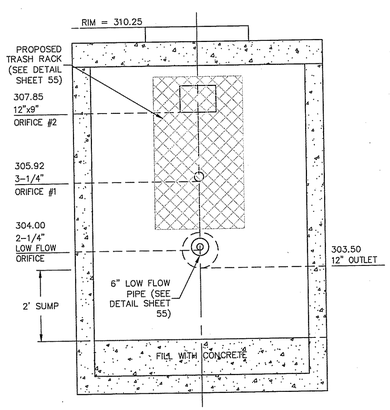
POND G CROSS SECTIONS (FOR TYPICAL POND CROSS SECTION SEE SHEET 56)

SCALE: HORIZONTAL 1"=30', VERTICAL 1"=9'



POND "G" PLAN VIEW

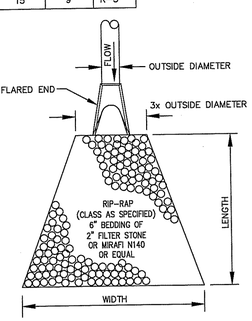
SEE SHEET 25 & 29
SCALE 1"=30'



POND G OUTLET CONTROL STRUCTURE SECTION

SCALE: 1"=2'

FLARE END	LENGTH	WIDTH	CLASS
FES-1G	30'	18'	R-3
FES-2G	28'	18'	R-3
FES-3G	15'	9'	R-3



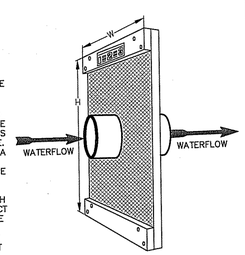
RIP RAP APRON DETAIL

NOT TO SCALE

LOCATION	WIDTH	HEIGHT	QUANTITY
POND G	5.0'	5.0'	3

INSTALLATION NOTES:
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.

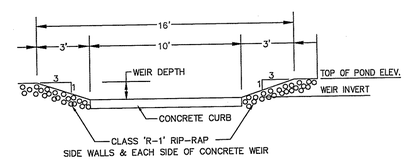
NOTE:
AGRI DRAIN CORP. OR EQUAL



ANTI-SEEP COLLAR

NOT TO SCALE

LOCATION	TOP OF POND ELEV.	WEIR INVERT	WEIR DEPTH
POND G	310.00	309.00	1.00



OVERFLOW WEIR DETAIL

NOT TO SCALE

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED Oct 2 8 2009 FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION UNIT

Charles A. Horbert

NOTE:
THIS REGULATORY SUBMISSION SET SHALL NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED 'ISSUED FOR CONSTRUCTION' AND SIGNED AND DATED BY A DIPRETE ENGINEERING REPRESENTATIVE

RIDEM Submission

POND G

Dowling Village - Phases II, III & IV

AP 13, LOTS 44, 53, 111, 112, 122 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 23, 26, 28, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

DEA Job No. 0617-004-2 Copyright© 2009 by DiPrete Engineering Associates, Inc.

Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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
0	05-30-07	RIDEM Submission	J.P.C.
1	08-30-07	RIDEM Resubmission	B.G.S.
2	12-20-07	RIDEM Resubmission to Comments	B.G.S.
3	4-23-08	RIDEM Permit Modification Resubmission	B.G.S.
4	5-23-08	RIDEM Permit Mod Comm	B.G.S.
5	6-25-08	Sewer Resubmission to Comments	B.G.S.
6	10-15-08	RIDEM Resubmission	B.G.S.
7	2-23-09	RIDEM Resubmission to Comments	B.G.S.
8	8-31-09	RIDEM Resubmission	B.G.S.

RECEIVED
OCT 23 2009
ENVIRONMENTAL MANAGEMENT
FRESHWATER WETLANDS

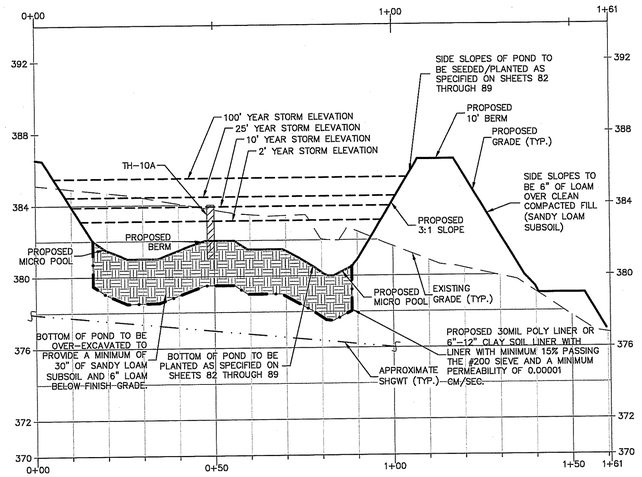
LEONARD R. BRADLEY
No. 6610
REGISTERED PROFESSIONAL ENGINEER

Sheet
67
of 89

\\DeaStorage\deasmanVault Working\0617-004-2\GO1 PreliminaryPlotting\0617-004-2 Pond Detail Sheets.dwg, 9/8/2009 2:44:01 PM, Bnang, DWF6 ePlot.pc3

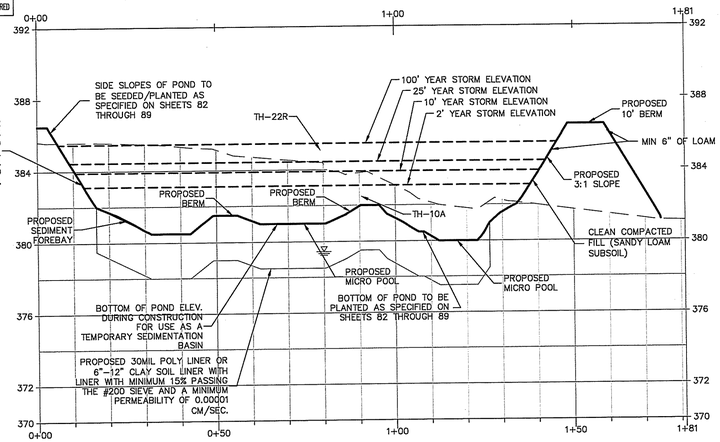
DESCRIPTION	POND H
TOP OF POND ELEVATION	386.50
BOTTOM OF POND	381.00
BOTTOM OF MICRO POOL	380.00
100 YEAR STORM ELEVATION	385.49
25 YEAR STORM ELEVATION	384.46
10 YEAR STORM ELEVATION	383.91
2 YEAR STORM ELEVATION	383.11
AVERAGE POND WIDTH	100'±
AVERAGE POND LENGTH	133'±
PROPOSED SHGWT ELEVATION*	<377.5–378.5
PROPOSED LEDGE ELEVATION**	<377.5

*PROPOSED SHGWT ASSUMED TO BE BOTTOM OF LINER (30" BELOW BOTTOM OF POND AND MICRO POOLS)
**PROPOSED LEDGE ASSUMED TO BE A MINIMUM OF 30" BELOW MICRO POOL ELEVATION. PROPOSED LEDGE SHALL SLOPE AWAY FROM THE BASIN AT A MINIMUM OF 0.5% SLOPE.



Pond H Section A-A

TEST HOLE	GROUND ELEVATION	SHGWT ELEVATION	LEDGE ELEVATION
TH-22R	385.1±	379.4±	NOT ENCOUNTERED
TH-21R	389.2±	387.2±	NOT ENCOUNTERED
TH-121	367.8±	363.8±	311.3±
TH-10A	384.0±	>381.0±	NOT ENCOUNTERED



NOTES:
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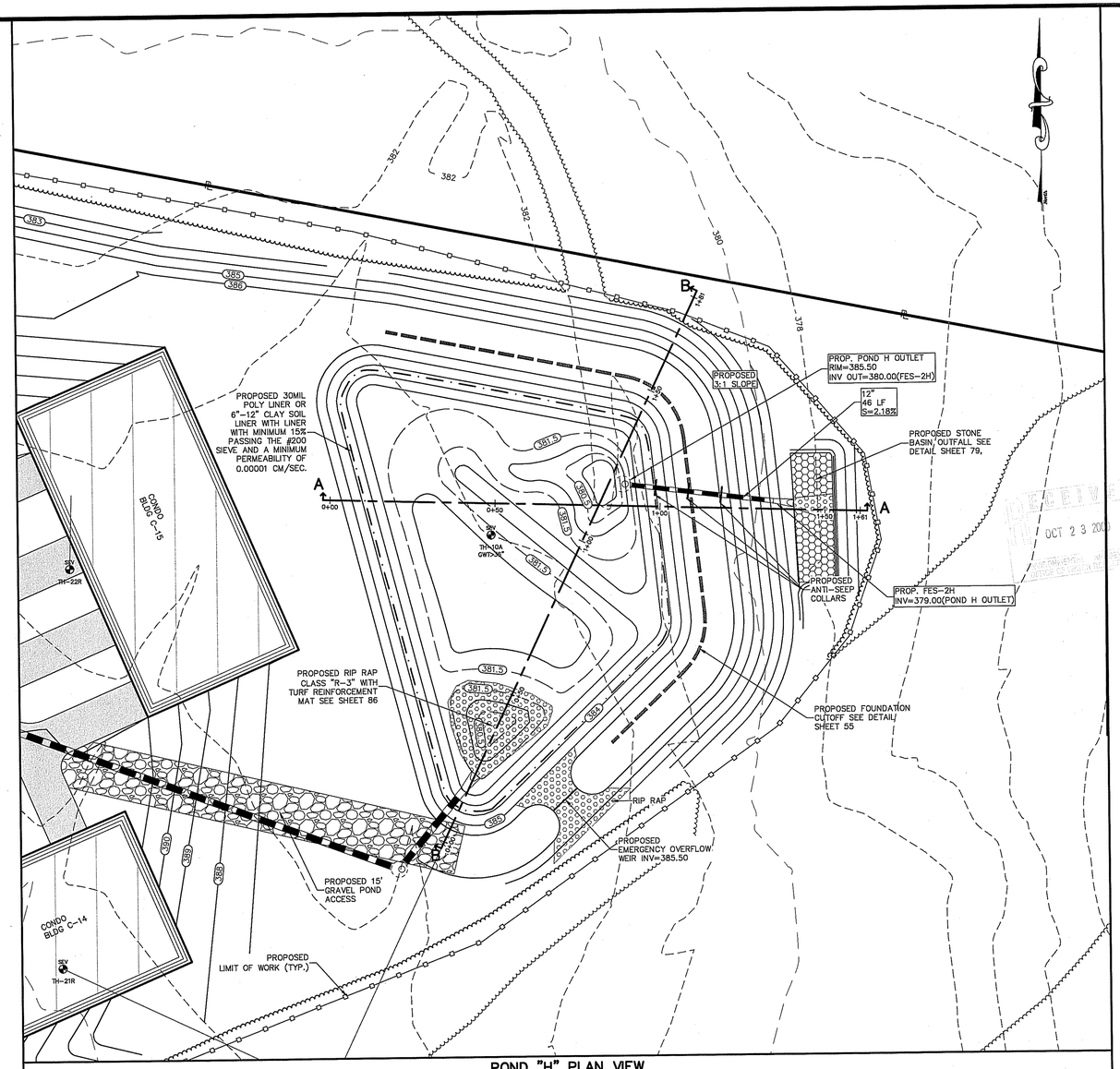
2. LOAM TO MEET RIDOT STANDARD M.18.01

Pond H Section B-B

POND H CROSS SECTIONS (FOR TYPICAL POND CROSS SECTION SEE SHEET 56)

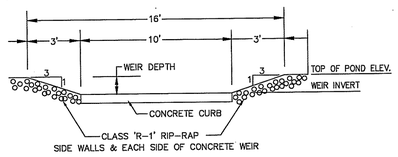
SCALE: HORIZONTAL 1"=20', VERTICAL 1"=4'



POND "H" PLAN VIEW

SEE SHEET 36
SCALE: 1"=20'

LOCATION	TOP OF POND ELEV.	WEIR INVERT	WEIR DEPTH
POND H	386.50	385.50	1.00

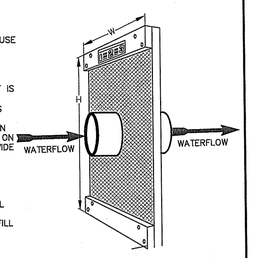


OVERFLOW WEIR DETAIL

NOT TO SCALE

LOCATION	WIDTH	HEIGHT	QUANTITY
POND H	5.0'	5.0'	3

INSTALLATION NOTES:
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.

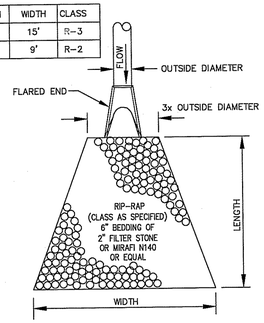


NOTE:
AGRI DRAIN CORP. OR EQUAL

ANTI-SEEP COLLAR

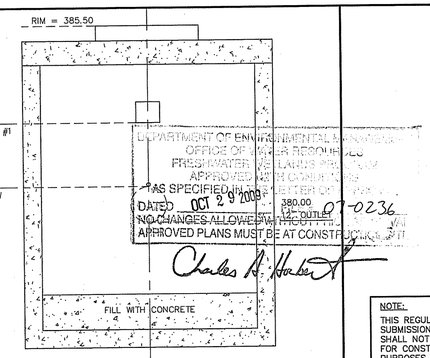
NOT TO SCALE

FLARE END	LENGTH	WIDTH	CLASS
FES-1H	25'	15'	R-3
FES-2H	14'	9'	R-2



RIP-RAP APRON DETAIL

NOT TO SCALE



POND H OUTLET CONTROL STRUCTURE SECTION

SCALE: 1"=2'

NOTE:
THIS REGULATORY SUBMISSION SET SHALL NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED 'ISSUED FOR CONSTRUCTION' AND SIGNED AND DATED BY A DIPRETE ENGINEERING REPRESENTATIVE

RIDEM Submission

Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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
6	9-04-09	RIDEM Permit Modification Resubmission
5	5-25-08	RIDEM Permit Modification
4	10-30-07	RIDEM Permit Resubmission
3	10-25-07	Sewer Response to Comments
2	08-31-07	RIDEM Response to Comments
1	06-15-07	RIDEM Submission
BY		

POND H

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 122 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 28, NORTH SMITHFIELD, RHODE ISLAND

DWN. BY: J.P.C.

DATE: MAY, 2007

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LEONARD R. BRADLEY, JR.
No. 6610
REGISTERED PROFESSIONAL ENGINEER

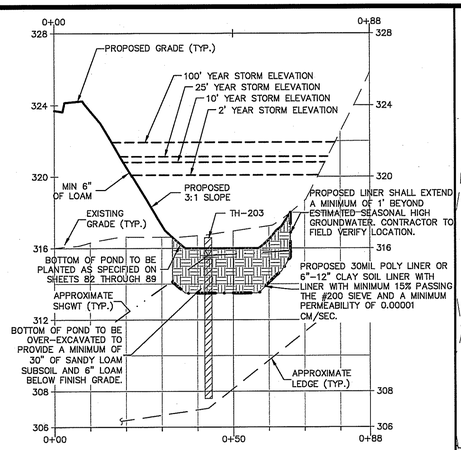
Sheet
68
of 89

\\Deastorage\Jeaman\Vault Working\06 17-004-2\60 | Preliminary\Plotting\06 17-004-2 Pond Detail Sheets.dwg, 9/8/2009 2:45:42 PM, Bruno, DWF6 ePlot.pc3

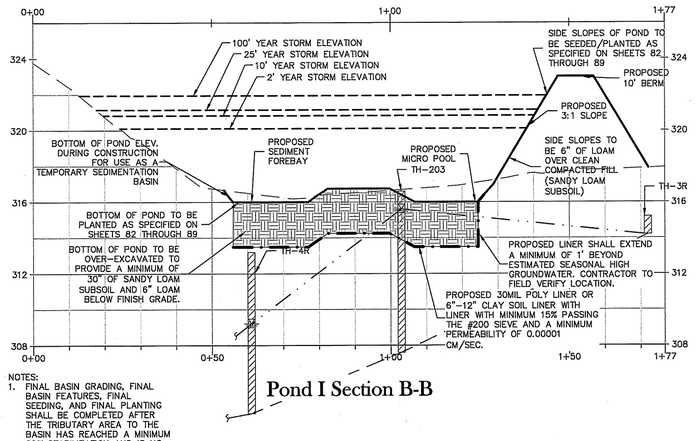
DESCRIPTION	POND I
TOP OF POND ELEVATION	323.00
BOTTOM OF POND	316.75
BOTTOM OF MICRO POOL	316.00
100 YEAR STORM ELEVATION	321.99
25 YEAR STORM ELEVATION	321.19
10 YEAR STORM ELEVATION	320.82
2 YEAR STORM ELEVATION	320.10
AVERAGE POND WIDTH	25'±
AVERAGE POND LENGTH	75'±
PROPOSED SHGWT ELEVATION*	<313.5–314.5
PROPOSED LEDGE ELEVATION**	<313.5

*PROPOSED SHGWT ASSUMED TO BE BOTTOM OF LINER (30" BELOW BOTTOM OF POND AND MICRO POOLS)
**PROPOSED LEDGE ASSUMED TO BE A MINIMUM OF 30" BELOW MICRO POOL ELEVATION. PROPOSED LEDGE SHALL SLOPE AWAY FROM THE BASIN AT A MINIMUM OF 0.5% SLOPE.

TEST HOLE	GROUND ELEVATION	SHGWT ELEVATION	LEDGE ELEVATION
TH–203	316.6±	315.6±	NOT ENCOUNTERED
TH–3R	315.2±	NOT ENCOUNTERED	314.2±
TH–4R	313.2±	309.2±	304.2±



Pond I Section A-A

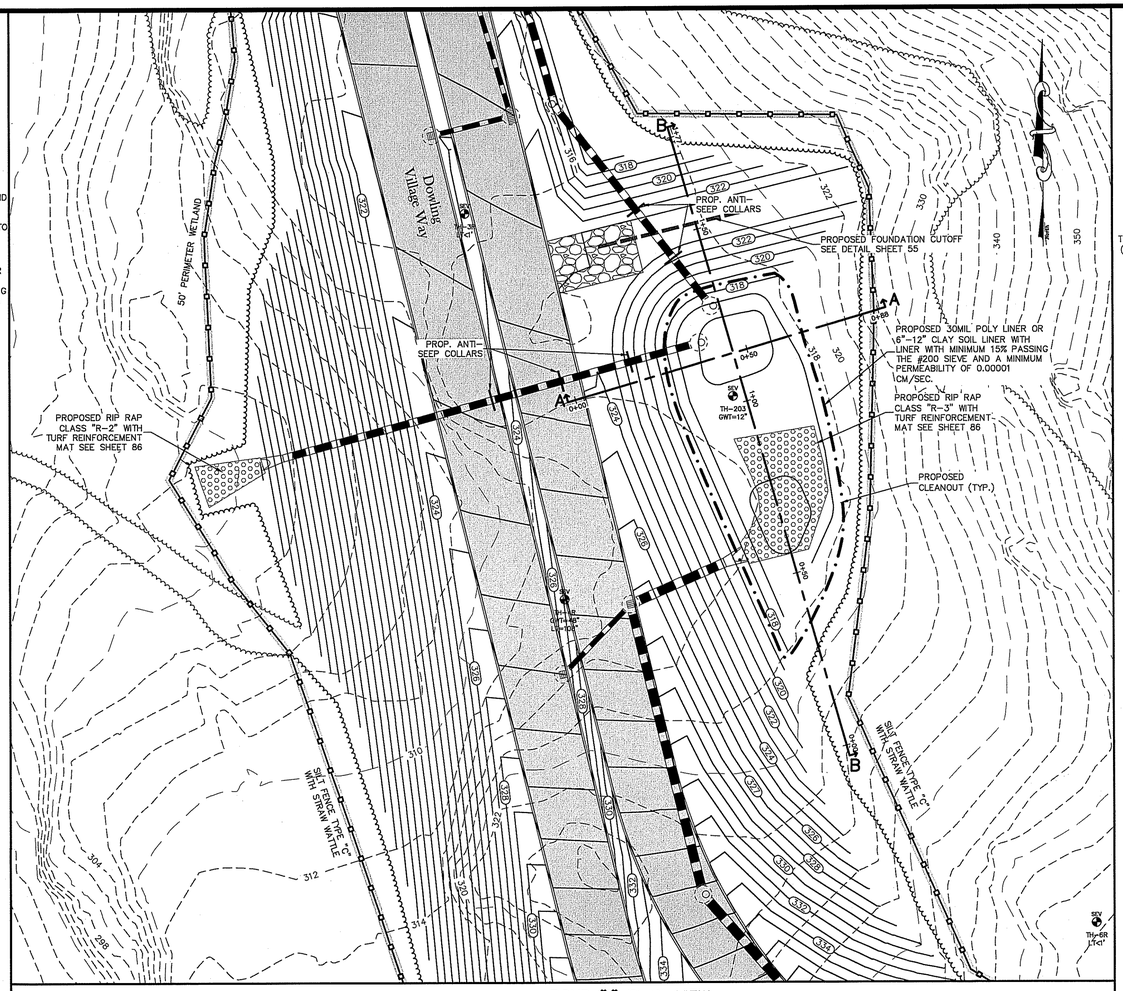


Pond I Section B-B

NOTES:
1. FINAL BASIN GRADING, FINAL BASIN FEATURES, FINAL SEEDING, AND FINAL PLANTING SHALL BE COMPLETED AFTER THE TRIBUTARY AREA TO THE BASIN HAS REACHED A MINIMUM 80% STABILIZATION AND IS NO LONER REQUIRED TO BE USED AS A CONSTRUCTION SEDIMENTATION BASIN.
2. LOAM TO MEET RIDOT STANDARD M.18.01

POND I CROSS SECTIONS (FOR TYPICAL POND CROSS SECTION SEE SHEET 56)

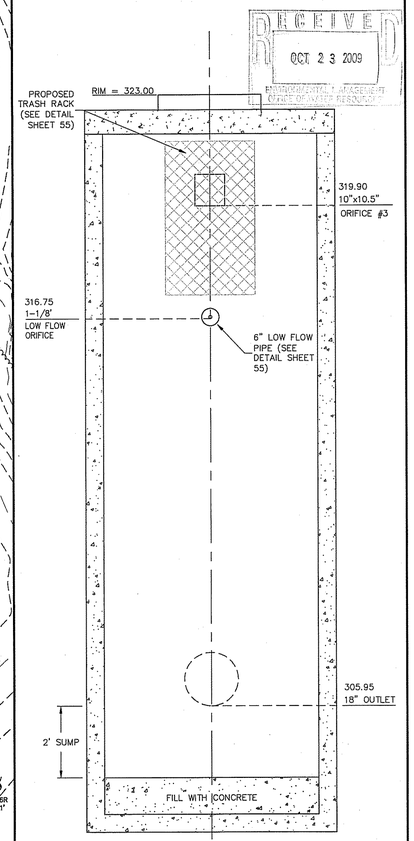
SCALE: HORIZONTAL 1"=20', VERTICAL 1"=4'



POND "I" PLAN VIEW

SEE SHEET 30
SCALE: 1"=20'

NOTE:
THIS REGULATORY SUBMISSION SET SHALL NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED 'ISSUED FOR CONSTRUCTION' AND SIGNED AND DATED BY A DIPRETE ENGINEERING REPRESENTATIVE



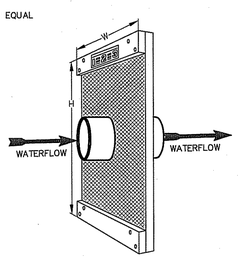
POND I PRIMARY OUTLET CONTROL STRUCTURE SECTION

SCALE: 1"=2'

INSTALLATION NOTES:
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.

LOCATION	WIDTH	HEIGHT	QUANTITY
POND I – PRIMARY	6.0'	6.0'	3
POND I – SECONDARY	6.0'	6.0'	2

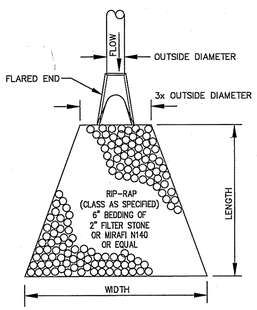
NOTE:
AGRI DRAIN CORP. OR EQUAL



ANTI–SEEP COLLAR

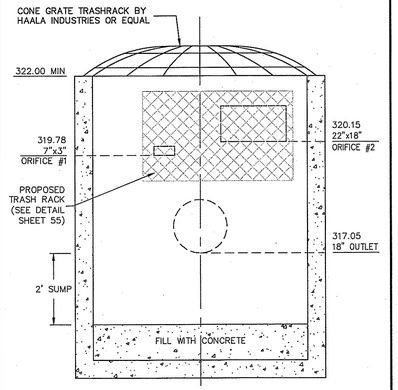
NOT TO SCALE

FLARE END	LENGTH	WIDTH	CLASS
FES–1I	30'	18'	R–3
FES–2I	17'	12'	R–2
FES–3I (SEE SHEET 28)	23'	14'	R–3



RIP–RAP APRON DETAIL

NOT TO SCALE



POND I SECONDARY OUTLET CONTROL STRUCTURE SECTION

SCALE: 1"=2'

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT. 29 2009 FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT JOB SITE

Charles A. Horbert

RIDEM Submission

Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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
6	8-24-09	RIDEM Permit Modification Resubmission	B.C.G.
5	8-24-09	RIDEM Permit Modification Resubmission	B.C.G.
4	03-24-09	RIDEM Response to Comments	B.C.G.
3	03-24-09	RIDEM Response to Comments	B.C.G.
2	03-24-09	RIDEM Response to Comments	B.C.G.
1	8-17-07	Utility Submission	B.C.G.
0	05-18-07	RIDEM Submission	B.C.G.

POND I

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 122, 50, 67, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 *DWN. BY: J.P.C.*

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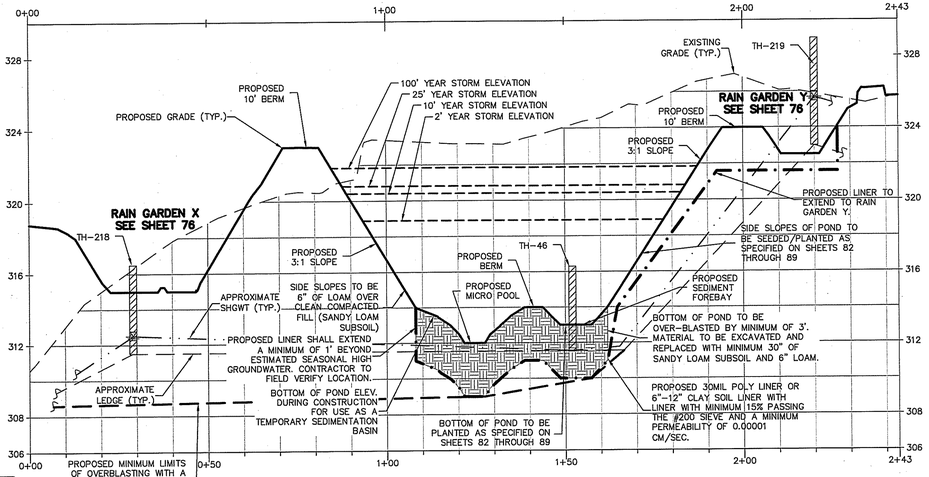
LEONARD R. BRADLEY, JR.
No. 6670
REGISTERED PROFESSIONAL ENGINEER
CIVIL

Sheet
69
of 89

\\Desktorage\deamann\Vault Working\06 | 7-004-2\60 | Preliminary Plotting\06 | 7-004-2 Pond Detail Sheets.dwg, 9/8/2009 2:47:05 PM, Bnang, DWF6 ePlot.pc3



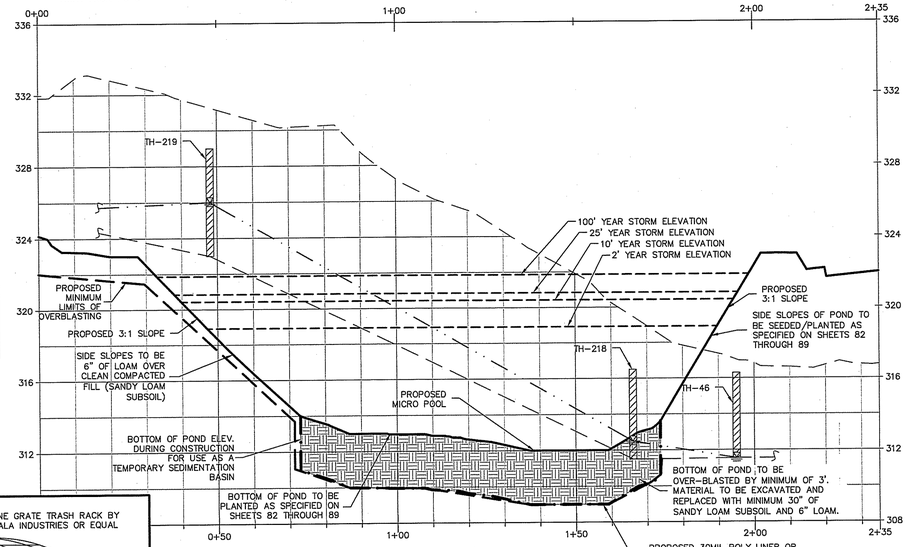
Pond J Section A-A

DESCRIPTION	POND J
TOP OF POND ELEVATION	323.00
BOTTOM OF POND	313.00
BOTTOM OF MICRO POOL	312.00
100 YEAR STORM ELEVATION	321.87
25 YEAR STORM ELEVATION	320.84
10 YEAR STORM ELEVATION	320.45
2 YEAR STORM ELEVATION	318.97
AVERAGE POND WIDTH	105'±
AVERAGE POND LENGTH	190'±
PROPOSED SHGWT ELEVATION*	<309.5-310.5
PROPOSED LEDGE ELEVATION**	<309.5

*PROPOSED SHGWT ASSUMED TO BE BOTTOM OF LINER (30" BELOW BOTTOM OF POND AND MICRO POOLS)
**PROPOSED LEDGE ASSUMED TO BE A MINIMUM OF 30" BELOW MICRO POOL ELEVATION. PROPOSED LEDGE SHALL SLOPE AWAY FROM THE BASIN AT A MINIMUM OF 0.5% SLOPE.

TEST HOLE	GROUND ELEVATION	SHGWT ELEVATION	LEDGE ELEVATION
TH-46	316.3±	NOT ENCOUNTERED	311.6±
TH-47	331.6±	NOT ENCOUNTERED	325.4±
TH-218	316.5±	312.5±	311.5±
TH-219	331.0±	328.0±	325.0±

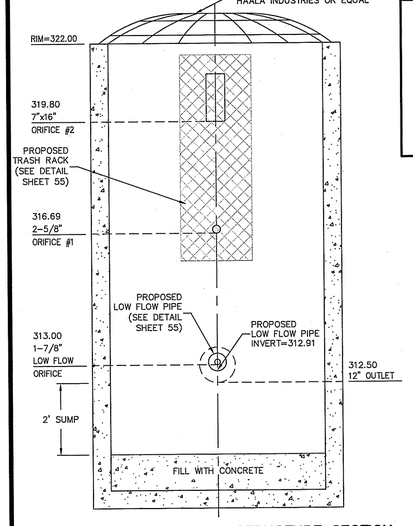
NOTES:
1. FINAL BASIN GRADING, FINAL BASIN FEATURES, FINAL SEEDING, AND FINAL PLANTING SHALL BE COMPLETED AFTER THE TRIBUTARY AREA TO THE BASIN HAS REACHED A MINIMUM 80% STABILIZATION AND IS NO LONER REQUIRED TO BE USED AS A CONSTRUCTION SEDIMENTATION BASIN.
2. LOAM TO MEET RIDOT STANDARD M.18.01



Pond J Section B-B

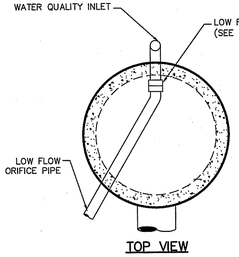
POND J CROSS SECTIONS (FOR TYPICAL POND CROSS SECTION SEE SHEET 56)

SCALE: HORIZONTAL 1"=20', VERTICAL 1"=4'

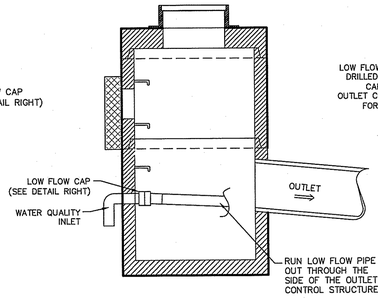


POND J OUTLET CONTROL STRUCTURE SECTION

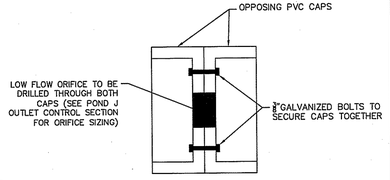
SCALE: 1"=2'



TOP VIEW



SECTION VIEW

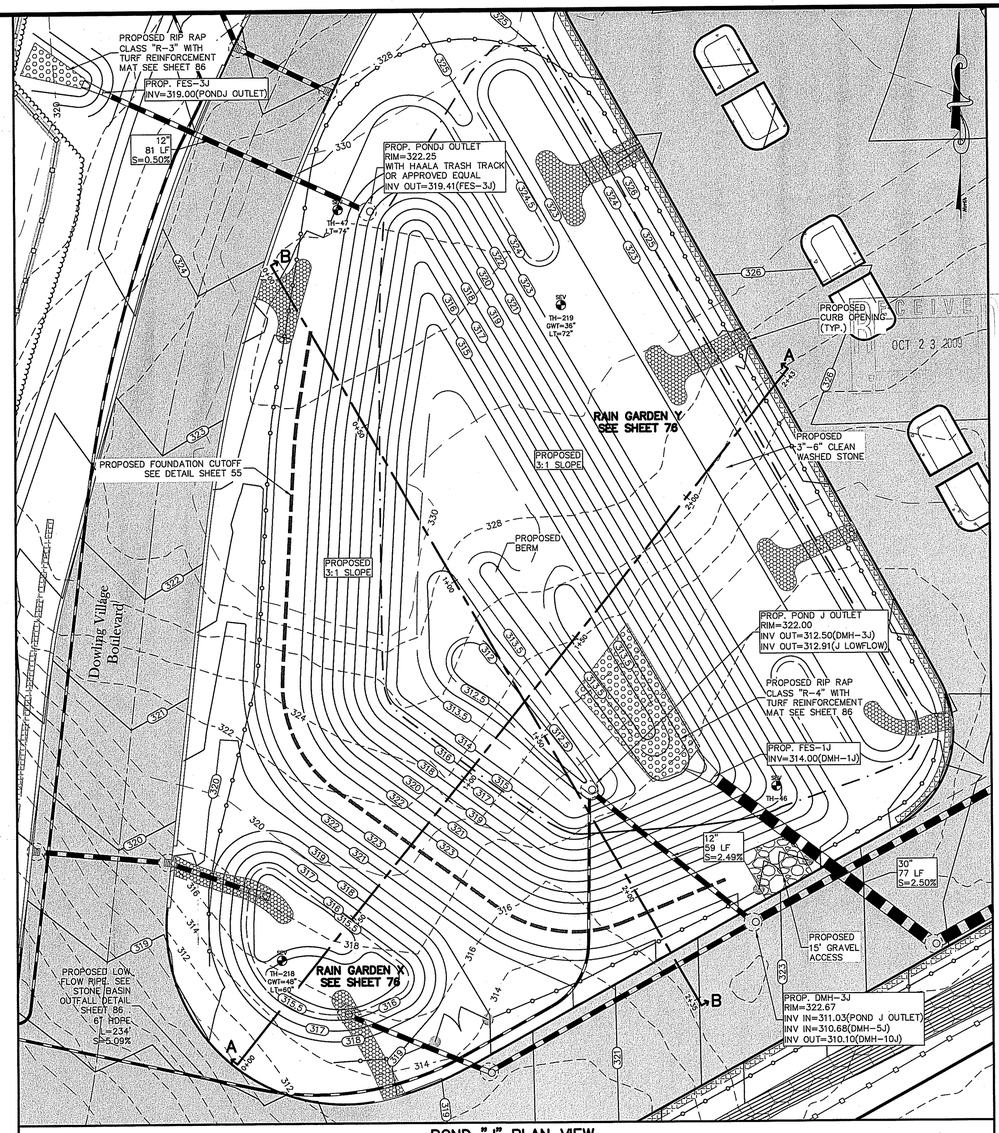


LOW FLOW CAP DETAIL

NOTE:
1. SEE 4' OR 6' DIA. OUTLET STRUCTURE DETAIL ON SHEET 55 FOR ADDITIONAL OUTLET STRUCTURE DETAILS.
2. SEE LOW FLOW ORIFICE DETAIL ON SHEET 55 FOR ADDITIONAL LOW FLOW ORIFICE DETAILS.
3. SEE POND J OUTLET CONTROL STRUCTURE SECTION DETAIL FOR SPECIFIC POND J ORIFICE SIZES AND ELEVATIONS.
4. PVC PIPE SHALL NOT BE CEMENTED TOGETHER TO PROVIDE EASY MAINTENANCE OF LOW FLOW ORIFICE.

POND J LOW FLOW OUTLET VARIATION

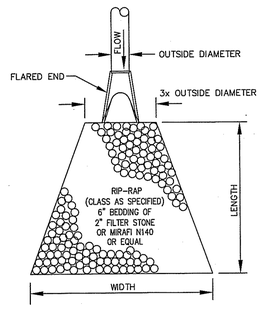
NOT TO SCALE



POND "J" PLAN VIEW

SEE SHEET 27
SCALE 1"=20'

FLARE END	LENGTH	WIDTH	CLASS
FES-1J	37'	24'	R-4
FES-3J	17'	10'	R-3



POND J RIP RAP APRON DETAIL

NOT TO SCALE

NOTE:
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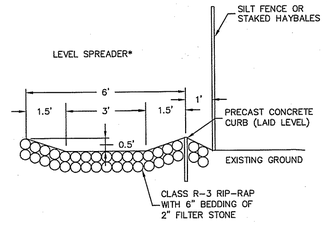

NOTES:
1. LENGTHS AS SPECIFIED ON SITE PLANS
2. TO BE INSTALLED ON HEADWALL OF SEE GRADING UTILITY SHEET 28

STATE OF RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT OFFICE OF WATER RESOURCES WETLANDS PROGRAM APPROVED WITH CONDITIONS AS SPECIFIED IN LETTER OF APPROVAL DATED OCT 29 2009 FILE # 07-0236 NO CHANGES OR DEVIATIONS FROM APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Charles A. Horbert

LEVEL SPREADER

NOT TO SCALE

RIDEM Submission

POND J

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 45, 111, 112, 131 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 28, 150, 151, 152, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

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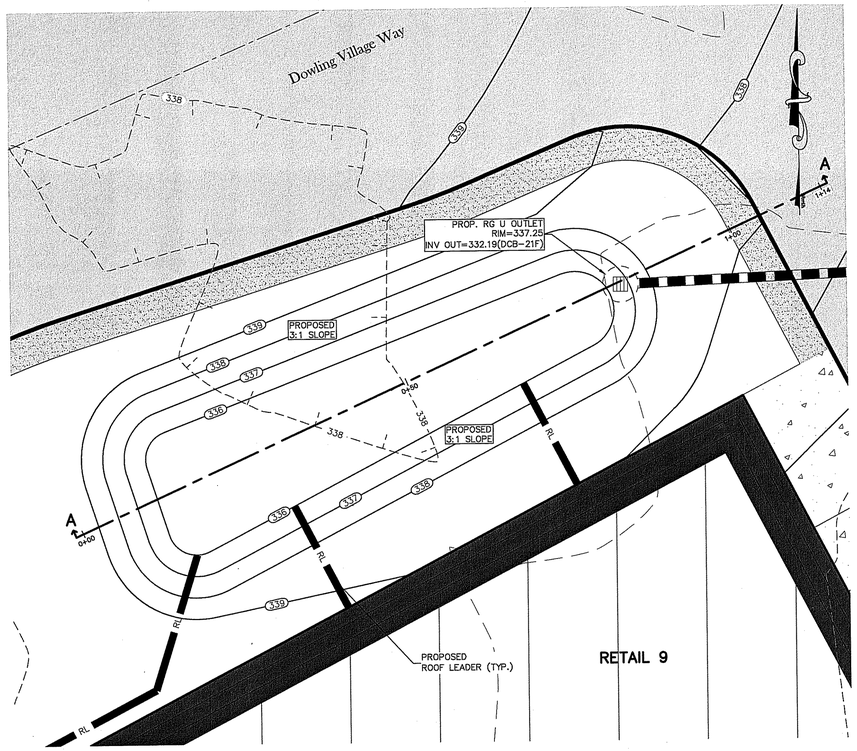
BY	DATE	DESCRIPTION
0	5-3-07	RIDEM Submission
1	8-3-07	RIDEM Resubmission
2	10-30-07	RIDEM Resubmission
3	1-3-08	RIDEM Resubmission
4	5-7-08	RIDEM Resubmission
5	6-24-08	RIDEM Resubmission
6	9-30-08	RIDEM Resubmission
7	2-5-09	RIDEM Resubmission
8	10-23-09	RIDEM Resubmission

Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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

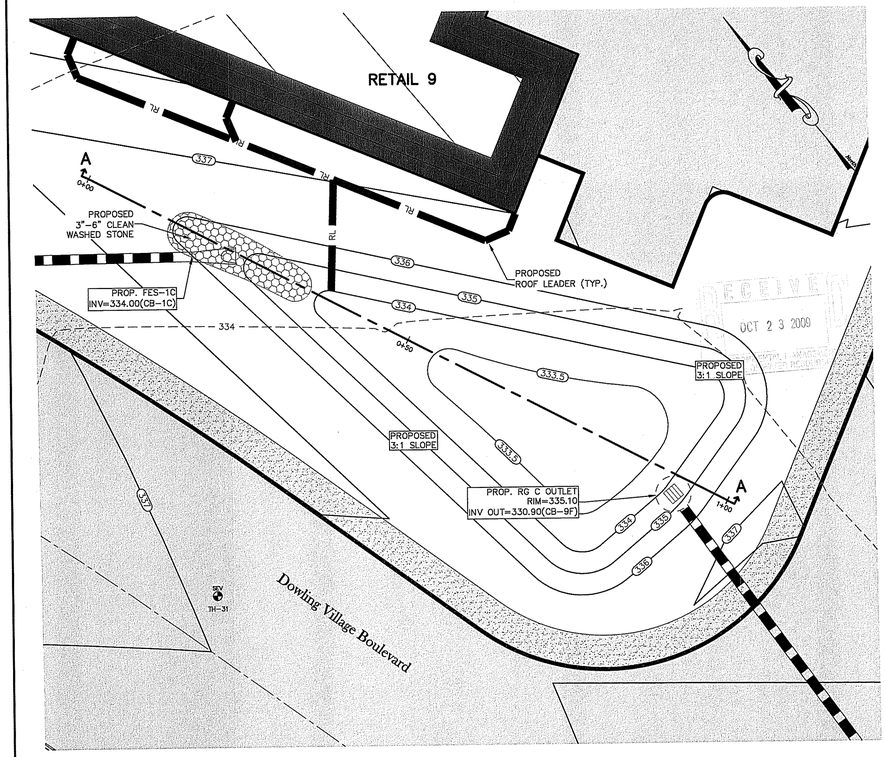
LEONARD R. BRADLEY, JR. No. 6570 REGISTERED PROFESSIONAL ENGINEER CIVIL

Sheet
70
of 89



RAIN GARDEN "U" PLAN VIEW

SEE SHEET 19
SCALE: 1"=10'



RAIN GARDEN "C" PLAN VIEW

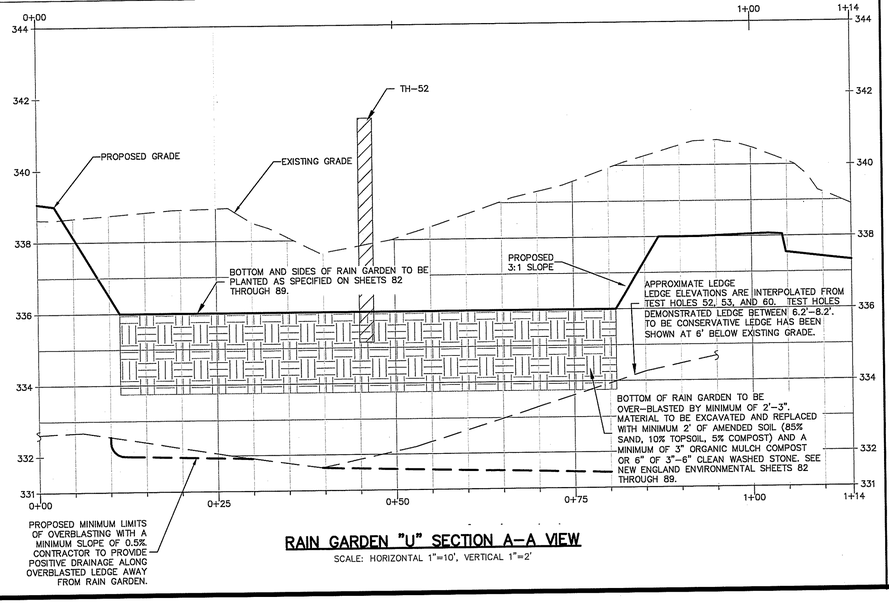
SEE SHEET 21
SCALE: 1"=10'

DESCRIPTION	RG U
TOP OF RG ELEVATION	338.00
BOTTOM OF RAIN GARDEN	336.00
100 YEAR STORM ELEVATION	337.49
25 YEAR STORM ELEVATION	337.45
10 YEAR STORM ELEVATION	337.42
2 YEAR STORM ELEVATION	337.30
AVERAGE RAIN GARDEN WIDTH	25'±
AVERAGE RAIN GARDEN LENGTH	80'±
PROPOSED SHGWT ELEVATION*	333.0
PROPOSED LEDGE ELEVATION**	332.0

TEST HOLE	GROUND ELEVATION	SHGWT ELEVATION	LEDGE ELEVATION	DISTANCE & DIRECTION FROM RG
TH-52	341.4±	NOT ENCOUNTERED	335.2±	99'± SOUTH-EAST
TH-53	341.4±	NOT ENCOUNTERED	333.2±	30'± SOUTH
TH-60	347.1±	NOT ENCOUNTERED	340.5±	195'± NORTH

*SHGWT WAS NOT ENCOUNTERED IN EXISTING CONDITIONS. TO BE CONSERVATIVE IF SHGWT EXISTS IT IS ASSUMED TO BE 1' ABOVE PROPOSED LEDGE.
**PROPOSED LEDGE WILL BE 4' BELOW PROPOSED GRADE TO PROVIDE SEPARATION.

NOTES:
1. FINAL RAIN GARDEN GRADING, FINAL BASIN FEATURES, FINAL SEEDING, AND FINAL PLANTING SHALL BE COMPLETED AFTER THE TRIBUTARY AREA TO THE BASIN HAS REACHED A MINIMUM 80% STABILIZATION.
2. RAIN GARDEN TO BE PLANTED ACCORDING TO NEW ENGLAND ENVIRONMENTAL DETAILS AND SPECIFICATIONS. SEE SHEETS 82 THROUGH 89.
3. FOR RAIN GARDEN CONSTRUCTION DETAILS SHEETS 82 THROUGH 89.
4. LOAM TO MEET RIDOT STANDARD M.18.01



RAIN GARDEN "U" SECTION A-A VIEW

SCALE: HORIZONTAL 1"=10', VERTICAL 1"=2'

DESCRIPTION	RG U
TOP OF RG ELEVATION	336.00
BOTTOM OF RAIN GARDEN	334.00
BOTTOM OF MICRO POOL	333.50
100 YEAR STORM ELEVATION	335.33
25 YEAR STORM ELEVATION	335.29
10 YEAR STORM ELEVATION	335.26
2 YEAR STORM ELEVATION	335.15
AVERAGE RAIN GARDEN WIDTH	25'±
AVERAGE RAIN GARDEN LENGTH	85'±
PROPOSED SHGWT ELEVATION*	<324.0±
PROPOSED LEDGE ELEVATION*	<324.0±

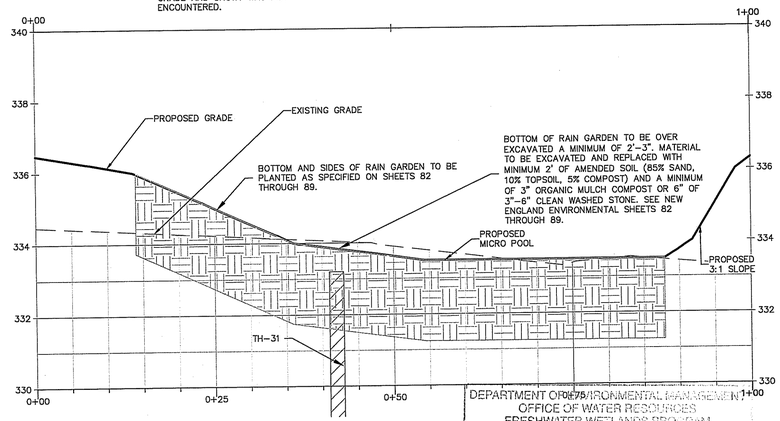
NOTE: LEDGE IS LOCATED OUTSIDE OF PROFILE LIMITS. LEDGE IS APPROXIMATELY 11' BELOW THE BOTTOM OF THE RAIN GARDEN.

*PROPOSED SHGWT AND LEDGE ELEVATIONS ARE THE SAME AS EXISTING CONDITIONS. LEDGE AND SHGWT ELEVATIONS ARE INTERPOLATED FROM TH-31. LEDGE WAS 10' BELOW EXISTING GRADE AND SHGWT WAS NOT ENCOUNTERED.

TEST HOLE	GROUND ELEVATION	SHGWT ELEVATION	LEDGE ELEVATION	DISTANCE & DIRECTION FROM RG
TH-31	333.2±	NOT ENCOUNTERED	322.2±	43'± WEST
TH-32	333.7±	NOT ENCOUNTERED	323.7±	135'± SOUTH-WEST
TH-33	336.9±	NOT ENCOUNTERED	329.7±	155'± SOUTH-EAST
TH-52	341.4±	NOT ENCOUNTERED	335.2±	100'± NORTH-EAST

NOTES:
1. FINAL RAIN GARDEN GRADING, FINAL BASIN FEATURES, FINAL SEEDING, AND FINAL PLANTING SHALL BE COMPLETED AFTER THE TRIBUTARY AREA TO THE BASIN HAS REACHED A MINIMUM 80% STABILIZATION.
2. RAIN GARDEN TO BE PLANTED ACCORDING TO NEW ENGLAND ENVIRONMENTAL DETAILS AND SPECIFICATIONS. SEE SHEETS 82 THROUGH 89.
3. FOR RAIN GARDEN CONSTRUCTION DETAILS SHEETS 82 THROUGH 89.
4. LOAM TO MEET RIDOT STANDARD M.18.01

NOTE:
THIS REGULATORY SUBMISSION SET SHALL NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED 'ISSUED FOR CONSTRUCTION' AND SIGNED AND DATED BY A DIPRETE ENGINEERING REPRESENTATIVE



RAIN GARDEN "C" SECTION A-A VIEW

SCALE: HORIZONTAL 1"=10', VERTICAL 1"=2'

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 2 9 2009 FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
AS APPROVED PLANS MUST BE AT CONSTRUCTION SITE

LEONARD R. BRADLEY, JR.
No. 6670
REGISTERED PROFESSIONAL ENGINEER
STATE OF RHODE ISLAND

RIDEM Submission

RAIN GARDEN C-U

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.
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NO.	DATE	DESCRIPTION	BY
6	9-24-09	RIDEM Permit Application Resubmission	B.C.G.
5	8-24-09	RIDEM 1st Round Peer Review Comments	B.C.G.
4	7-23-09	RIDEM 1 Response to Comments	B.C.G.
3	5-22-09	Sewer Response to Comments	B.C.G.
2	4-23-09	RIDEM Response to Comments	B.C.G.
1	3-17-07	Utility Submission	J.P.C.
0	05-25-07	RIDEM Submission	J.P.C.

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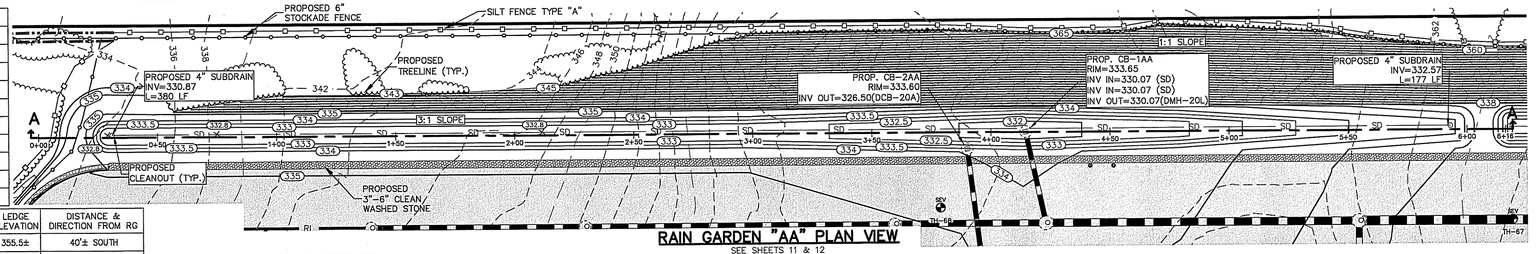
Cranston, Rhode Island 02920
Tel: (401) 943-1000 Fax: (401) 464-6006

Sheet
71
of 89

\\Destorage\deanam\Vault Working\06 17-004-2\601 PreliminaryPlotting\06 17-004-2 Pond Detail Sheets.dwg, 9/8/2009 3:04:25 PM, Bruno, DWF6 ePlot.pc3

DESCRIPTION	RG AA
TOP OF RG ELEVATION	334.50
BOTTOM OF RAIN GARDEN	332.00
100 YEAR STORM ELEVATION	333.99
25 YEAR STORM ELEVATION	333.90
10 YEAR STORM ELEVATION	333.86
2 YEAR STORM ELEVATION	333.73
AVERAGE RAIN GARDEN WIDTH	12'±
AVERAGE RAIN GARDEN LENGTH	570'±
PROPOSED SHGWT ELEVATION*	329.75
PROPOSED LEDGE ELEVATION**	329.75

TEST HOLE	GROUND ELEVATION	SHGWT ELEVATION	LEDGE ELEVATION	DISTANCE & DIRECTION FROM RG
TH-67	357.7±	NOT ENCOUNTERED	355.5±	40'± SOUTH
TH-68	367.4±	NOT ENCOUNTERED	366.2±	33'± SOUTH
TH-69	350.9±	NOT ENCOUNTERED	344.8±	76'± SOUTH

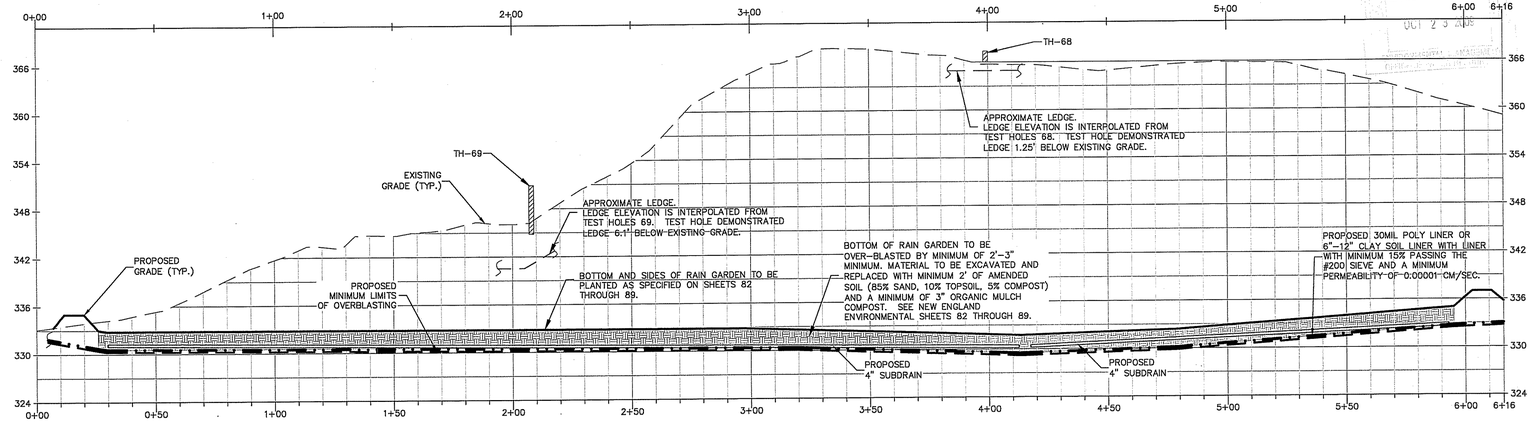


RAIN GARDEN "AA" PLAN VIEW

SEE SHEETS 11 & 12
SCALE: 1"=30'

*PROPOSED SHGWT WILL BE LOWERED DUE TO PROPOSED SUBDRAIN AND LINER.
**PROPOSED LEDGE WILL BE BOTTOM OF RAIN GARDEN FILTER MEDIA.

NOTES:
1. FINAL RAIN GARDEN GRADING, FINAL BASIN FEATURES, FINAL SEEDING, AND FINAL PLANTING SHALL BE COMPLETED AFTER THE TRIBUTARY AREA TO THE BASIN HAS REACHED A MINIMUM 80% STABILIZATION.
2. RAIN GARDEN TO BE PLANTED ACCORDING TO NEW ENGLAND ENVIRONMENTAL DETAILS AND SPECIFICATIONS. SEE SHEETS 82 THROUGH 89.
3. FOR RAIN GARDEN CONSTRUCTION DETAILS SHEETS 82 THROUGH 89.
4. LOAM TO MEET RIDOT STANDARD M.18.01

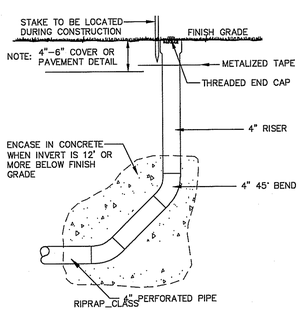


RAIN GARDEN "AA" SECTION A-A VIEW

SCALE: HORIZONTAL 1"=30', VERTICAL 1"=9'

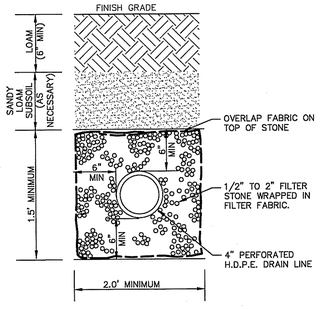
SUBDRAIN: CONSTRUCTION, MAINTENANCE, & INSPECTION NOTES

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 (SEE DETAIL SHEET 56). THE TRENCH SHALL BE A MINIMUM OF 36" 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 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 72 HOURS AFTER A STORM EVENT, SYSTEM FAILURE HAS OCCURRED AND WILL REQUIRE FLUSHING MAINTENANCE, REPAIR OR REPLACEMENT OF SUBDRAIN BY THE RESPONSIBLE PARTY.



4" SUBDRAIN CLEANOUT (DIRECT DISCHARGE)

NOT TO SCALE



POND SUBDRAIN TRENCH (TYPICAL)

NOT TO SCALE

DESCRIPTION	RG K
TOP OF RG ELEVATION	336.50
BOTTOM OF RAIN GARDEN	334.50
100 YEAR STORM ELEVATION	336.06
25 YEAR STORM ELEVATION	335.98
10 YEAR STORM ELEVATION	335.92
2 YEAR STORM ELEVATION	335.77
AVERAGE RAIN GARDEN WIDTH	12'±
AVERAGE RAIN GARDEN LENGTH	500'±
PROPOSED SHGWT ELEVATION*	322.25
PROPOSED LEDGE ELEVATION**	332.25

TEST HOLE	GROUND ELEVATION	SHGWT ELEVATION	LEDGE ELEVATION	DISTANCE & DIRECTION FROM RG
TH-67	357.7±	NOT ENCOUNTERED	355.5±	40'± SOUTH
TH-115	323.3±	317.3±	315.3±	50'± SOUTH
TH-116	317.3±	313.3±	313.3±	76'± EAST

*PROPOSED SHGWT WILL BE LOWERED DUE TO PROPOSED SUBDRAIN AND LINER.
**PROPOSED LEDGE WILL BE BOTTOM OF RAIN GARDEN FILTER MEDIA.

NOTES:
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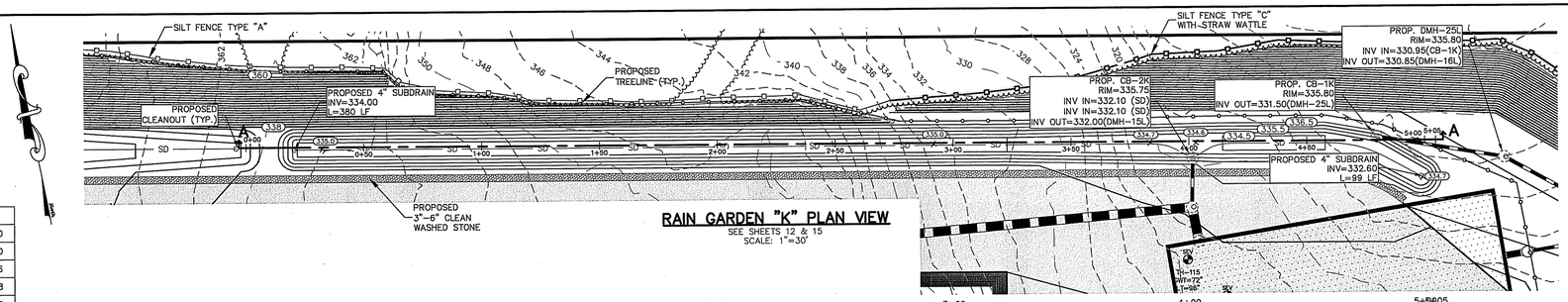
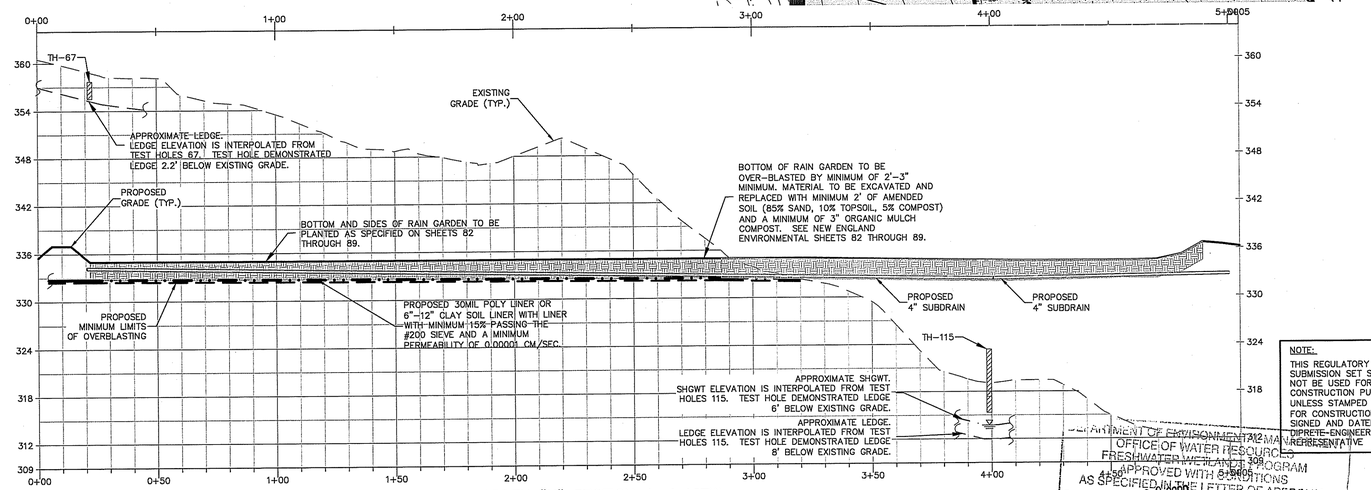
3. FOR RAIN GARDEN CONSTRUCTION DETAILS SHEETS 82 THROUGH 89.
4. LOAM TO MEET RIDOT STANDARD M.18.01



RAIN GARDEN "K" PLAN VIEW

SEE SHEETS 12 & 15
SCALE: 1"=30'



RAIN GARDEN "K" SECTION A-A VIEW

SCALE: HORIZONTAL 1"=30', VERTICAL 1"=9'

NOTE:
THIS REGULATORY SUBMISSION SET SHALL NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED 'ISSUED FOR CONSTRUCTION' AND SIGNED AND DATED BY A DIPRETE-ENGINEERING REPRESENTATIVE

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 2 9 2009 FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED AND MUST BE POSTED AT CONSTRUCTION SITE
Charles A. Horbert

RIDEM Submission

Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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
6	5-21-09	RIDEM Permit Modification Resubmission	B.G.G.
5	5-4-09	RIDEM Permit Modification	B.G.G.
4	2-26-09	RIDEM Response to Comments	B.G.G.
3	2-24-09	RIDEM Response to Comments	B.G.G.
2	8-15-07	RIDEM Response to Comments	B.G.G.
1	5-31-07	Utility Submission	B.G.G.

RECEIVED
OCT 2 5 2009
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

RAIN GARDEN K-AA

Dowling Village - Phases II, III & IV
AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76 AP 21 LOTS 25, 26, 29, 30, 32, 33, 37, 38, 39, 40, 41 AND A PORTION OF LOT 36
NORTH SMITHFIELD, RHODE ISLAND

DWN. BY: J.P.C.
DATE: MAY, 2007
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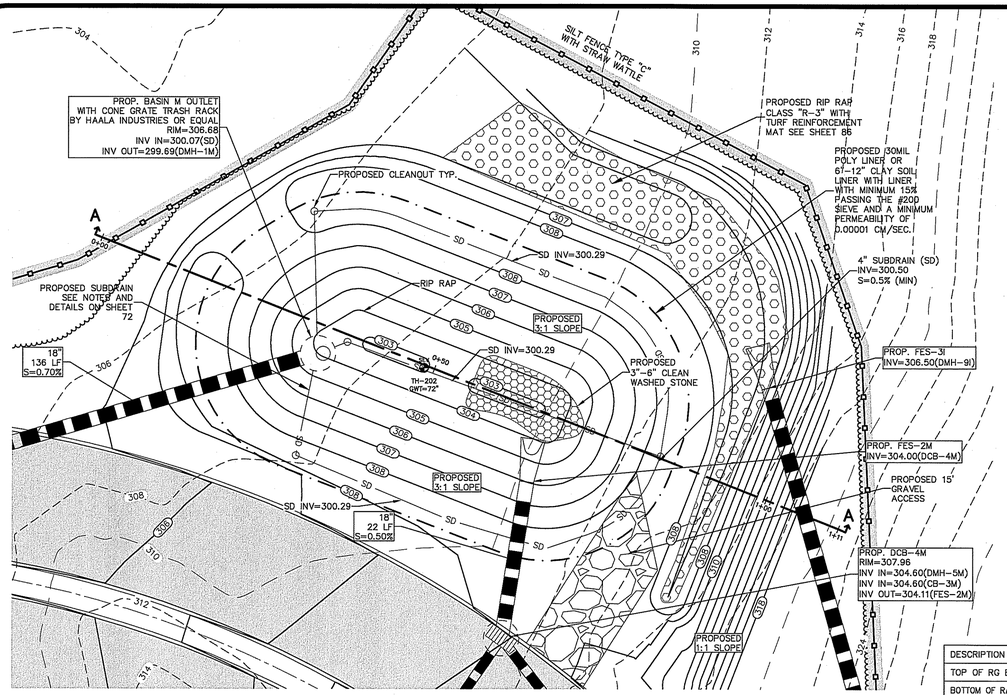
LEONARD R. BRADLEY JR.
No. 6610
REGISTERED PROFESSIONAL ENGINEER
CIVIL

Sheet
72
of 89

\\Deastorage\deamain\Vault Working\06\17-004-2\601 Preliminary\Plotting\06 17-004-2 Pond Detail Sheets.dwg, 9/9/2009 3:06:11 PM, Bnang, DWF6 ePlot.pc3



RAIN GARDEN "M" PLAN VIEW

SEE SHEET 31
SCALE: 1"=10'

DESCRIPTION	RG M
TOP OF RG ELEVATION	308.00
BOTTOM OF RAIN GARDEN	304.00
BOTTOM OF MICRO POOL	303.00
100 YEAR STORM ELEVATION	307.00
25 YEAR STORM ELEVATION	306.92
10 YEAR STORM ELEVATION	306.86
2 YEAR STORM ELEVATION	306.63
AVERAGE RAIN GARDEN WIDTH	8'±
AVERAGE RAIN GARDEN LENGTH	36'±
PROPOSED SHGWT ELEVATION*	300.8±
PROPOSED LEDGE ELEVATION**	N/A

*PROPOSED SHGWT ASSUMED TO BE BOTTOM OF LINER (27" BELOW BOTTOM OF RAIN GARDEN)
**LEDGE WAS NOT ENCOUNTERED.

TEST HOLE	GROUND ELEVATION	SHGWT ELEVATION	LEDGE ELEVATION
TH-202	308.4±	302.4±	NOT ENCOUNTERED

NOTES:
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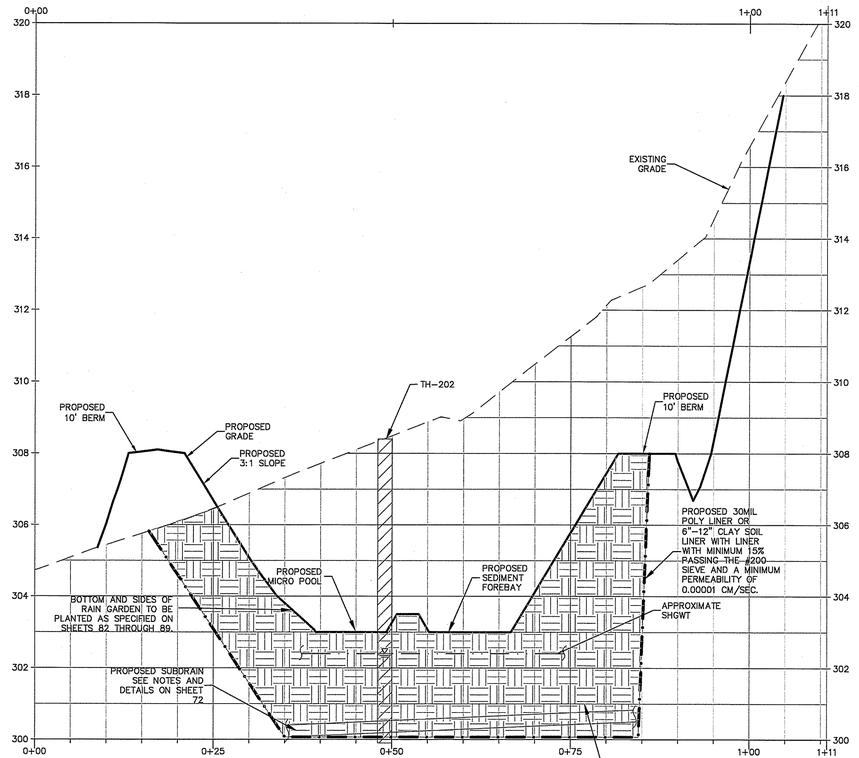
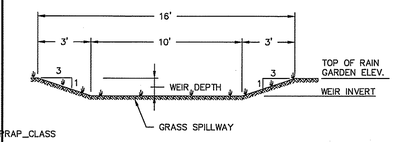
4. LOAM TO MEET RIDOT STANDARD M.18.01



RAIN GARDEN "M" SECTION A-A VIEW

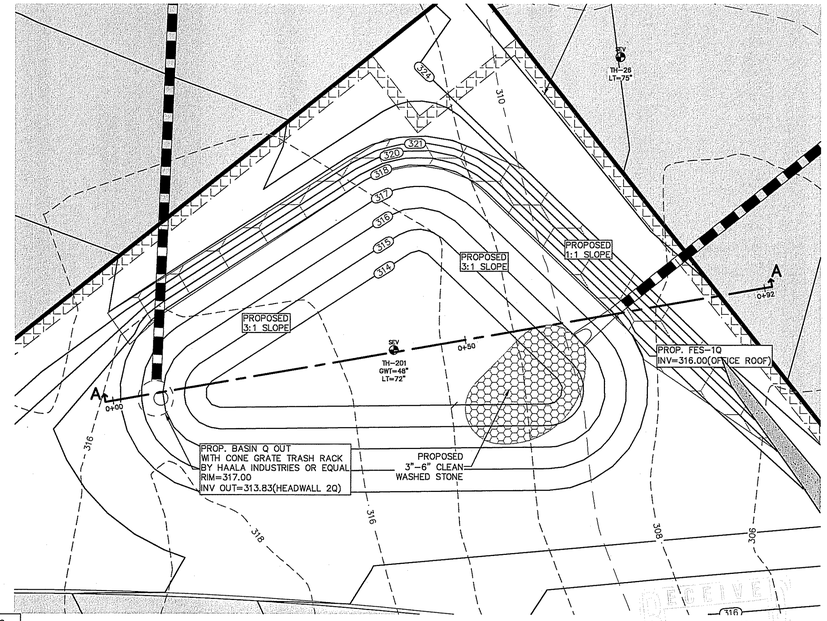
SCALE: HORIZONTAL 1"=10', VERTICAL 1"=2'

LOCATION	TOP OF RG ELEV.	WEIR INVERT	WEIR DEPTH
RAIN GARDEN M	308.00	307.00	1'



GRASS SPILLWAY DETAIL

NOT TO SCALE



RAIN GARDEN "Q" PLAN VIEW

SEE SHEET 20
SCALE: 1"=10'

DESCRIPTION	RG Q
TOP OF RG ELEVATION	318.00
BOTTOM OF RAIN GARDEN	314.00
100 YEAR STORM ELEVATION	317.23
25 YEAR STORM ELEVATION	317.19
10 YEAR STORM ELEVATION	317.13
2 YEAR STORM ELEVATION	317.01
AVERAGE RAIN GARDEN WIDTH	15'±
AVERAGE RAIN GARDEN LENGTH	49'±
PROPOSED SHGWT ELEVATION*	311.0±
PROPOSED LEDGE ELEVATION*	309.0±

*PROPOSED SHGWT AND LEDGE ARE THE SAME AS EXISTING CONDITIONS.

TEST HOLE	GROUND ELEVATION	SHGWT ELEVATION	LEDGE ELEVATION
TH-26	309.0±	NOT ENCOUNTERED	302.8±
TH-64	312.7±	305.6±	303.6±
TH-201	315.0±	311.0±	309.0±

NOTES:
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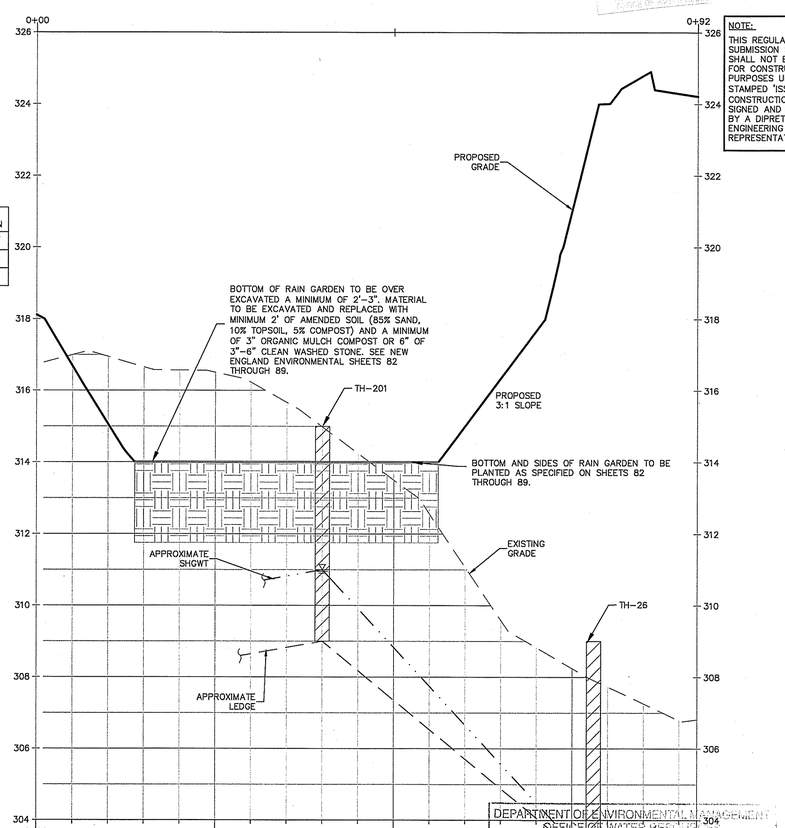

RAIN GARDEN "Q" SECTION A-A VIEW

SCALE: HORIZONTAL 1"=10', VERTICAL 1"=2'

NOTE:
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5	7-28-09	RIDEM Permit Modifications	B.C.G.
4	05-26-09	RIDEM Response to Comments	B.C.G.
3	12-23-08	Sewer Response to Comments	B.C.G.
2	10-15-07	Utility Submission	B.C.G.
1	09-19-07	RIDEM Submission	D.P.C.

RIDEM Submission

RAIN GARDEN M-Q

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 67, 70, 72 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

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Tel: (401) 943-1000 Fax: (401) 464-6006

LEONARD R. BRADLEY, JR.
No. 6670
REGISTERED PROFESSIONAL ENGINEER
CIVIL

RECEIVED
OCT 23 2009
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
BUREAU OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 29 2009 FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Charles A. Horbert

Sheet
73
of 89

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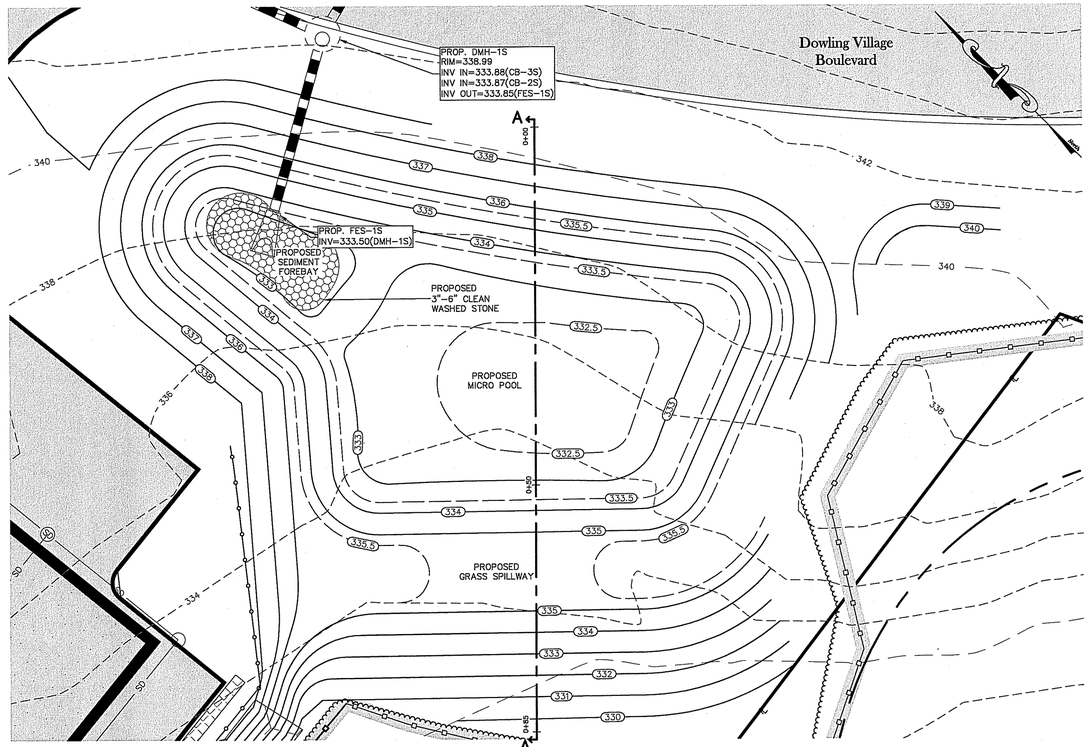

RAIN GARDEN "S" PLAN VIEW

SEE SHEET 17
SCALE: 1"=10'

TEST HOLE	GROUND ELEVATION	SHGWT ELEVATION	LEDGE ELEVATION	DISTANCE & DIRECTION FROM RG
TH-56	347.8±	NOT ENCOUNTERED	340.2±	42'± EAST
TH-111	333.4±	331.4±	329.4±	73'± WEST

*SHGWT WAS NOT ENCOUNTERED IN EXISTING CONDITIONS. TO BE CONSERVATIVE IF SHGWT EXISTS IT IS ASSUMED TO BE 1' ABOVE PROPOSED LEDGE.
**PROPOSED LEDGE WILL BE 4' BELOW PROPOSED GRADE TO PROVIDE SEPARATION.

DESCRIPTION	RG K
TOP OF RG ELEVATION	335.50
BOTTOM OF RAIN GARDEN	333.50
BOTTOM OF MICRO POOL	332.50
100 YEAR STORM ELEVATION	335.18
25 YEAR STORM ELEVATION	335.09
10 YEAR STORM ELEVATION	335.05
2 YEAR STORM ELEVATION	334.63
AVERAGE RAIN GARDEN WIDTH	40'±
AVERAGE RAIN GARDEN LENGTH	85'±
PROPOSED SHGWT ELEVATION*	330.5±
PROPOSED LEDGE ELEVATION**	329.5±

NOTES:
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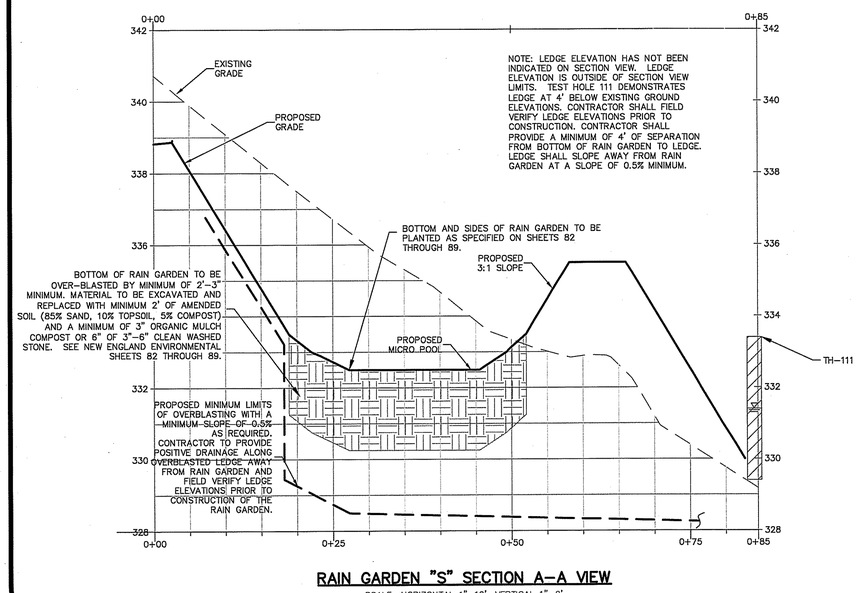
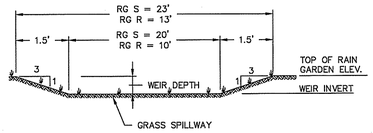


RAIN GARDEN "S" SECTION A-A VIEW

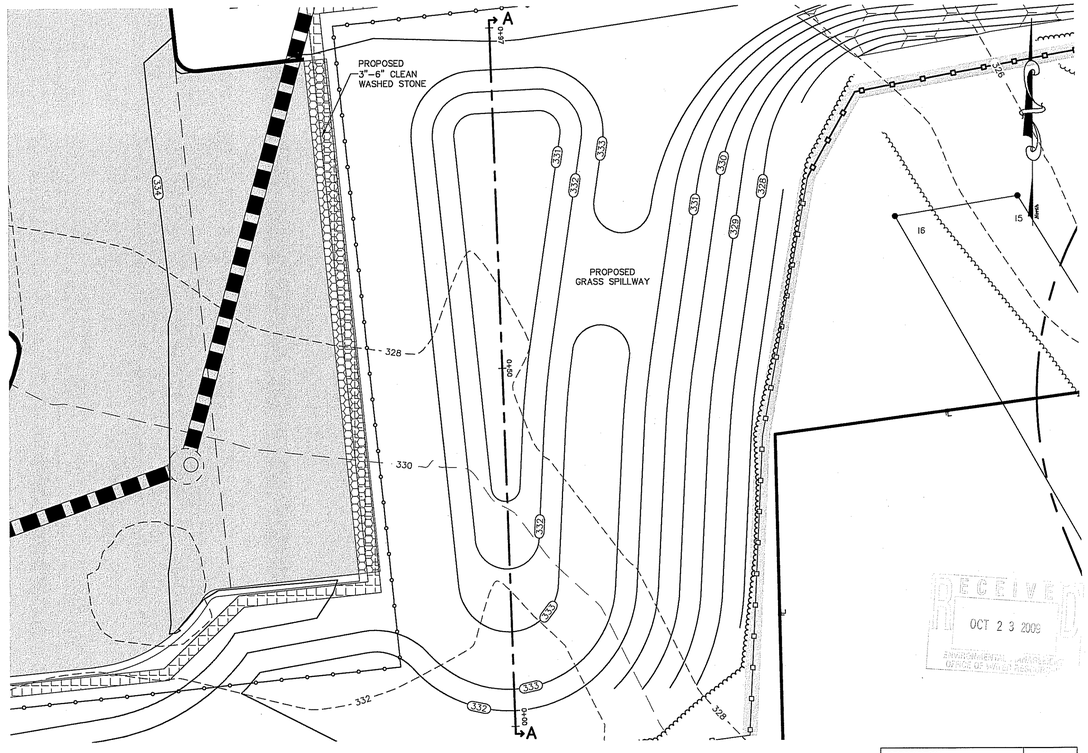
SCALE: HORIZONTAL 1"=10', VERTICAL 1"=2'

LOCATION	TOP OF RG ELEV.	WEIR INVERT	WEIR DEPTH
RAIN GARDEN S	335.50	335.00	0.5'
RAIN GARDEN R	333.00	332.50	0.5'



GRASS SPILLWAY DETAIL

NOT TO SCALE



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3. FOR RAIN GARDEN CONSTRUCTION DETAILS SHEETS 82 THROUGH 89.
4. LOAM TO MEET RIDOT STANDARD M.18.01

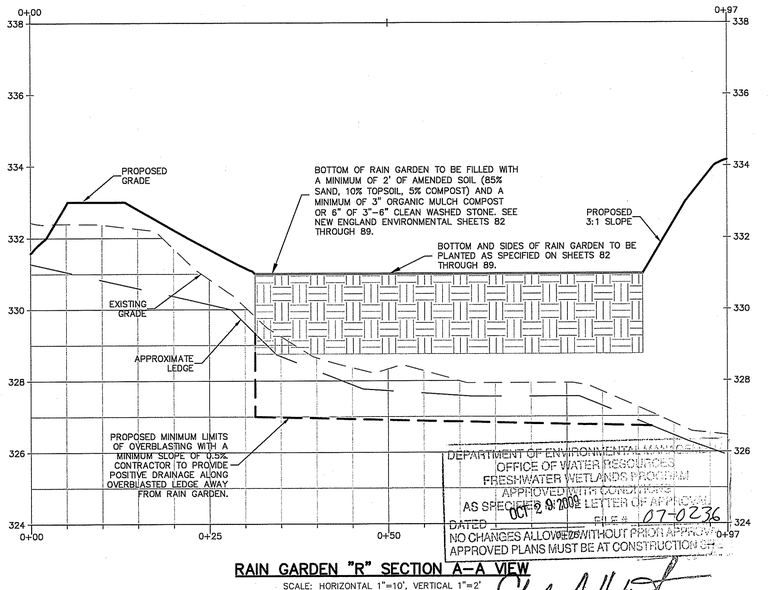
RAIN GARDEN "R" PLAN VIEW

SEE SHEET 16
SCALE: 1"=10'

NOTE: LEDGE ELEVATIONS SHOWN ARE BASED ON EXISTING TOPOGRAPHY. IN THE AREA OF RAIN GARDEN R, MULTIPLE ROCK OUTCROPS EXIST. RAIN GARDEN R IS PROPOSED ENTIRELY IN FILL. TEST HOLE 112 INDICATES SHGWT AT 327.9 AND LEDGE AT 326.9 WELL BELOW THE PROPOSED BOTTOM OF THE RAIN GARDEN AND THE RAIN GARDEN FILTER MEDIA.

*SHGWT WAS NOT ENCOUNTERED IN EXISTING CONDITIONS. TO BE CONSERVATIVE IF SHGWT EXISTS IT IS ASSUMED TO BE 1' ABOVE PROPOSED LEDGE.
**PROPOSED LEDGE WILL BE 4' BELOW PROPOSED GRADE TO PROVIDE SEPARATION.

DESCRIPTION	RG R
TOP OF RG ELEVATION	333.00
BOTTOM OF RAIN GARDEN	331.00
100 YEAR STORM ELEVATION	332.63
25 YEAR STORM ELEVATION	332.56
10 YEAR STORM ELEVATION	332.52
2 YEAR STORM ELEVATION	332.02
SEASONAL HIGH GWT ELEVATION	SEE NOTE
LEDGE ELEVATION	SEE NOTE
AVERAGE RAIN GARDEN WIDTH	20'±
AVERAGE RAIN GARDEN LENGTH	80'±
PROPOSED SHGWT ELEVATION*	328.0±
PROPOSED LEDGE ELEVATION**	327.0±



RAIN GARDEN "R" SECTION A-A VIEW

SCALE: HORIZONTAL 1"=10', VERTICAL 1"=2'

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ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
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Charles A. Horbert

LEONARD R. BRADLEY JR.
No. 6670
REGISTERED PROFESSIONAL ENGINEER
CIVIL

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3	04-24-09	RIDEM Response to Comments	B.G.B.
2	03-30-09	RIDEM Response to Comments	B.G.B.
1	8-31-07	100% Submission	B.G.B.
0	05-24-07	RIDEM Submission	J.P.C.

RIDEM Submission

RAIN GARDEN R-S

Dowling Village - Phases II, III & IV
AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

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Sheet
74
of 89

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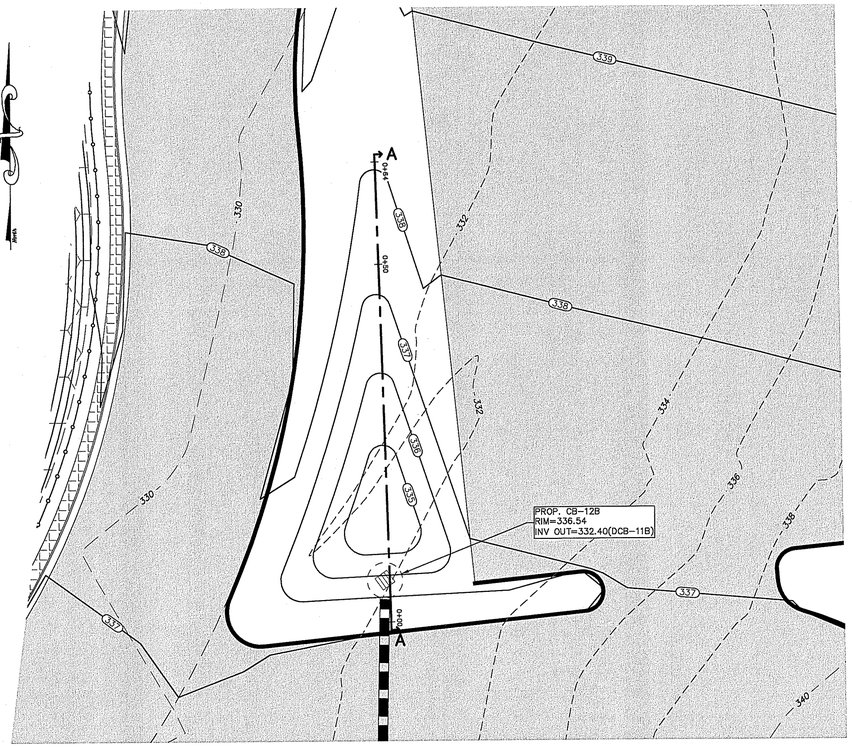
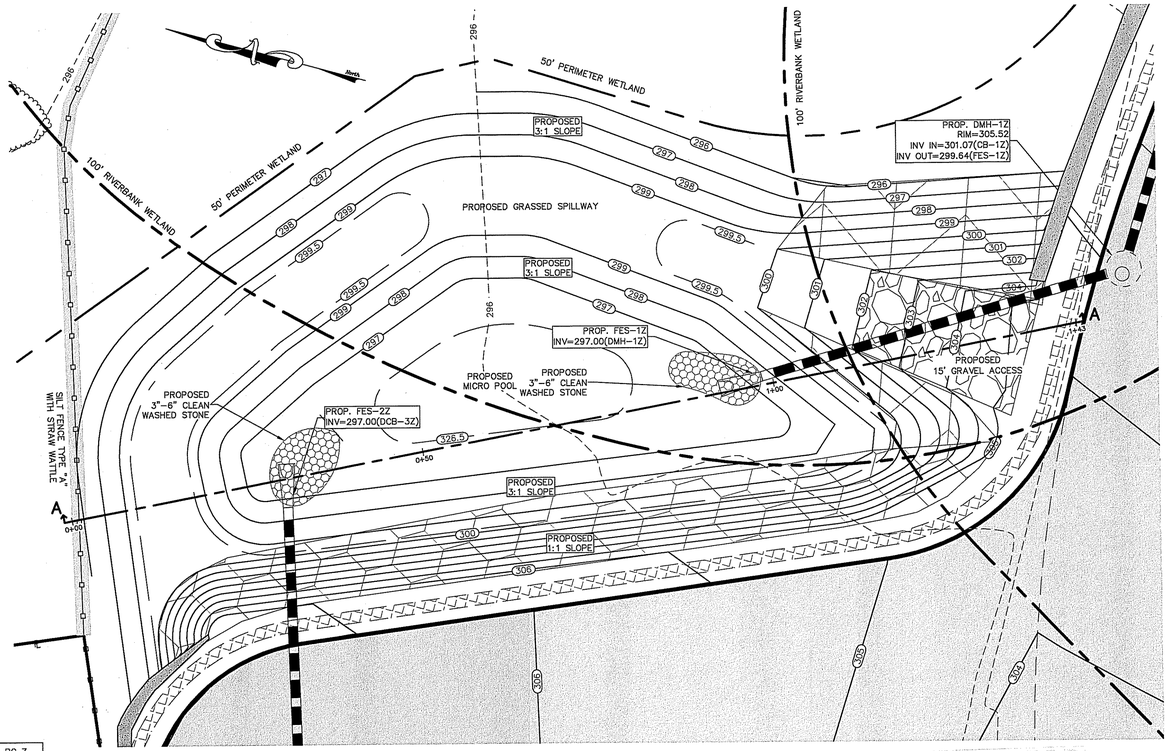


POND "T" PLAN VIEW

SEE SHEET 14
SCALE: 1"=10'

DESCRIPTION	RG K
TOP OF RG ELEVATION	337.00
BOTTOM OF RAIN GARDEN	335.00
100 YEAR STORM ELEVATION	336.66
25 YEAR STORM ELEVATION	336.64
10 YEAR STORM ELEVATION	336.62
2 YEAR STORM ELEVATION	336.57
AVERAGE RAIN GARDEN WIDTH	25'±
AVERAGE RAIN GARDEN LENGTH	42'±
PROPOSED SHGWT ELEVATION*	<332.0±
PROPOSED LEDGE ELEVATION*	<332.0±

*RAIN GARDEN T IS TO BE CONSTRUCTED ENTIRELY IN FILL. NO PART OF THE RAIN GARDEN FILTER MEDIA IS BELOW EXISTING GRADE. PROPOSED SHGWT AND LEDGE ELEVATION WILL BE LOWER THAN 332.0. ELEVATION 332.0 IS THE APPROXIMATE EXISTING GRADE ELEVATION



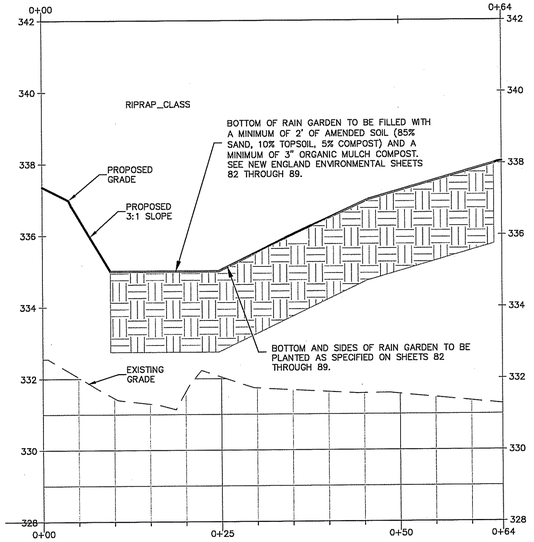
RAIN GARDEN "Z" PLAN VIEW

SEE SHEET 26
SCALE: 1"=10'

DESCRIPTION	RG Z
TOP OF RG ELEVATION	299.50
BOTTOM OF RAIN GARDEN	297.00
BOTTOM OF MICRO POOL	296.50
100 YEAR STORM ELEVATION	299.42
25 YEAR STORM ELEVATION	299.38
10 YEAR STORM ELEVATION	299.32
2 YEAR STORM ELEVATION	299.21
AVERAGE RAIN GARDEN WIDTH	40'±
AVERAGE RAIN GARDEN LENGTH	90'±
PROPOSED SHGWT ELEVATION*	<294.0±
PROPOSED LEDGE ELEVATION*	<294.0±

*RAIN GARDEN Z IS TO BE CONSTRUCTED PARTIALLY IN FILL SHGWT HAS BEEN ESTIMATED AT THE ELEVATION OF WETLANDS.

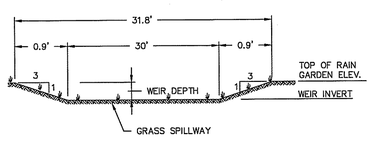
NOTES:
1. FINAL RAIN GARDEN GRADING, FINAL BASIN FEATURES, FINAL SEEDING, AND FINAL PLANTING SHALL BE COMPLETED AFTER THE TRIBUTARY AREA TO THE BASIN HAS REACHED A MINIMUM 80% STABILIZATION.
2. RAIN GARDEN TO BE PLANTED ACCORDING TO NEW ENGLAND ENVIRONMENTAL DETAILS AND SPECIFICATIONS. SEE SHEETS 82 THROUGH 89.
3. FOR RAIN GARDEN CONSTRUCTION DETAILS SHEETS 82 THROUGH 89.
4. LOAM TO MEET RIDOT STANDARD M.18.01



RAIN GARDEN "T" SECTION A-A VIEW

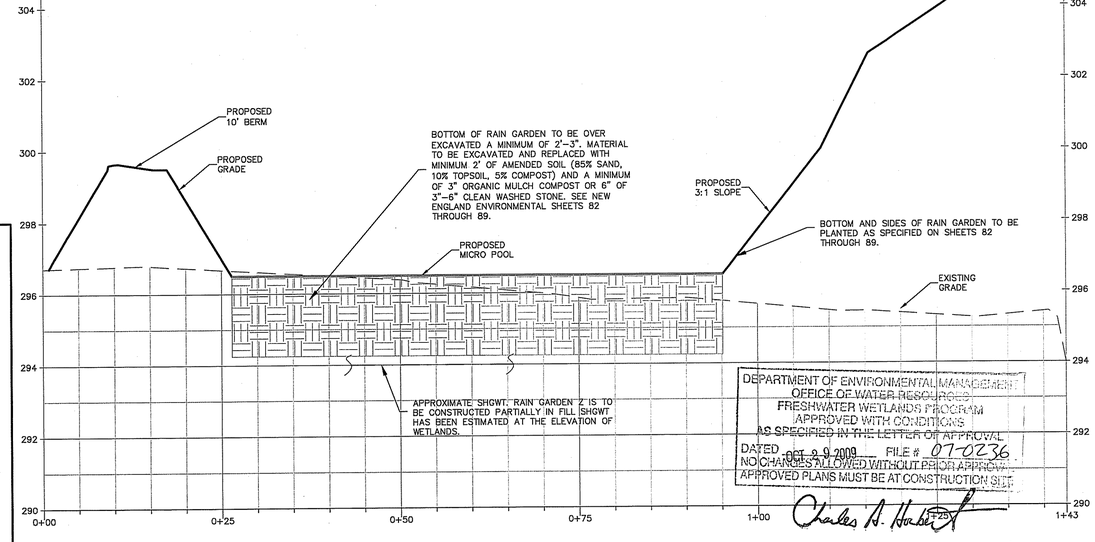
SCALE: HORIZONTAL 1"=10', VERTICAL 1"=2'

LOCATION	TOP OF RG ELEV.	WEIR INVERT	WEIR DEPTH
RAIN GARDEN Z	299.50	299.20	0.3'



GRASS SPILLWAY DETAIL

NOT TO SCALE



RAIN GARDEN "Z" SECTION A-A VIEW

SCALE: HORIZONTAL 1"=20', VERTICAL 1"=4'

RECEIVED
OCT 23 2009
STORMWATER MANAGEMENT

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED Oct 29 2009 FILE # 0702-36
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Charles A. Horbert

NOTE:
THIS REGULATORY SUBMISSION SET SHALL NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED 'ISSUED FOR CONSTRUCTION' AND SIGNED AND DATED BY A DIPRETE ENGINEERING REPRESENTATIVE

Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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
1	8-5-07	RIDEM Submission	J.P.C.
2	12-28-07	RIDEM Resubmission	J.P.C.
3	2-22-08	RIDEM Response to Comments	B.G.G.
4	5-15-08	RIDEM Permit Modification	B.G.G.
5	7-21-08	RIDEM Response to Comments	B.G.G.
6	9-04-09	RIDEM Permit Modification Resubmission	B.G.G.

RIDEM Submission

RAIN GARDEN T-Z

Dowling Village - Phases II, III & IV

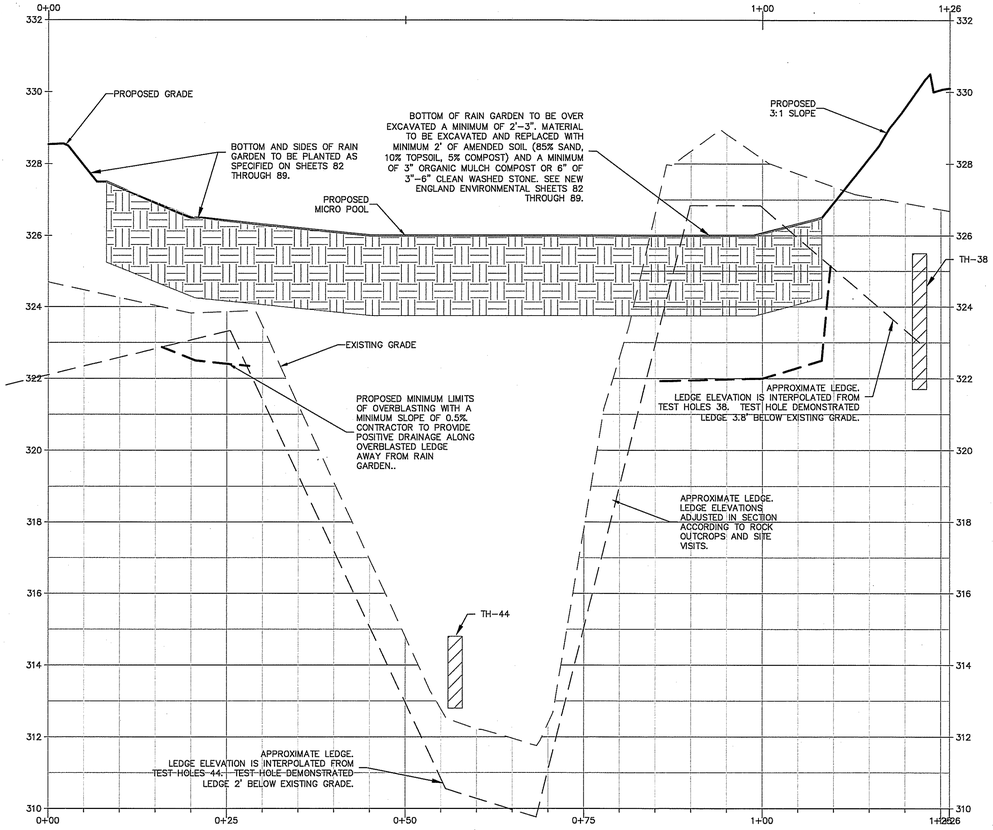
AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 105 & 107 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DWN. BY: J.P.C.
DATE: MAY, 2007
DEA Job No. 0617-004-2 Copyright© 2009 by DiPrete Engineering Associates, Inc.

LEONARD R. BRADLEY
No. 6670
REGISTERED PROFESSIONAL ENGINEER
STATE OF RHODE ISLAND

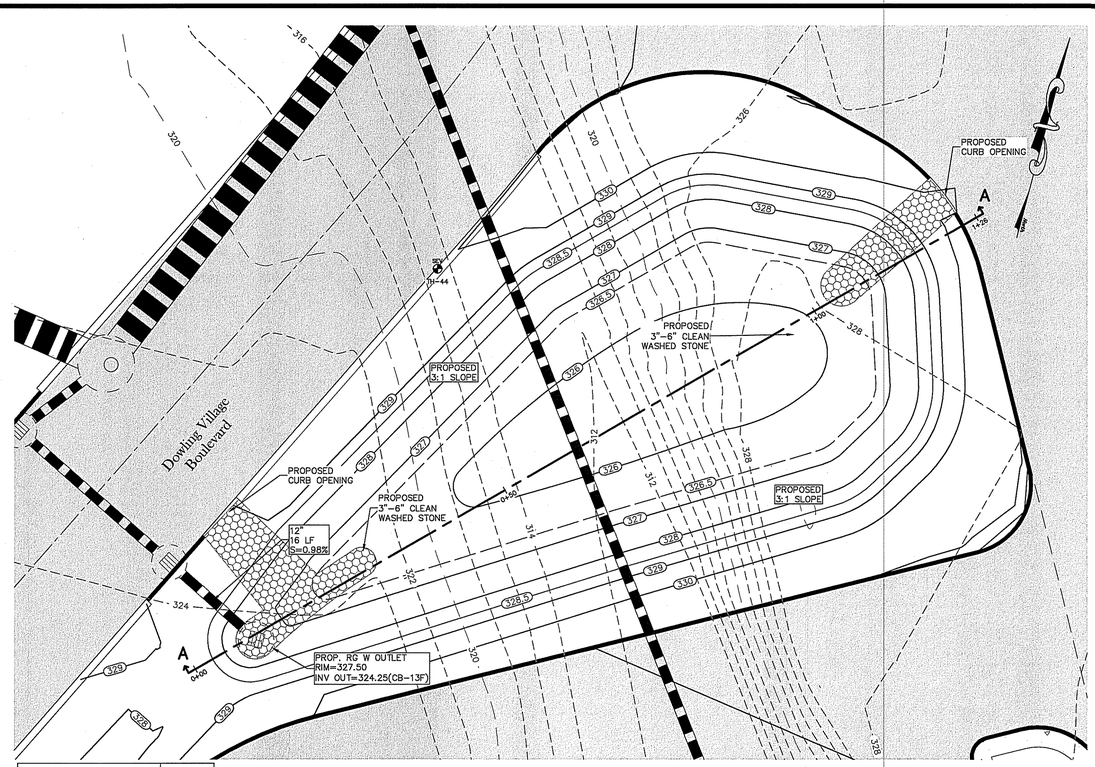
Sheet
75
of 89

\\Destorage\deamain\Vault Working\06 17-004-2\60 | Preliminary\Plotting\06 17-004-2 Pond Detail Sheets.dwg, 9/8/2009 3:11:38 PM, Brandy, DWF6 ePlot.pc3



RAIN GARDEN "W" SECTION A-A VIEW

SCALE: HORIZONTAL 1"=10', VERTICAL 1"=2'



RAIN GARDEN "W" PLAN VIEW

SEE SHEET 24
SCALE: 1"=10'

DESCRIPTION	RG W
TOP OF RG ELEVATION	328.50
BOTTOM OF RAIN GARDEN	326.50
BOTTOM OF MICRO POOL	326.00
100 YEAR STORM ELEVATION	327.59
25 YEAR STORM ELEVATION	327.52
10 YEAR STORM ELEVATION	327.37
2 YEAR STORM ELEVATION	326.94
AVERAGE RAIN GARDEN WIDTH	42'±
AVERAGE RAIN GARDEN LENGTH	120'±
PROPOSED SHGWT ELEVATION*	323.0±
PROPOSED LEDGE ELEVATION**	322.0±

TEST HOLE	GROUND ELEVATION	SHGWT ELEVATION	LEDGE ELEVATION	DISTANCE & DIRECTION FROM RG
TH-38	325.5±	NOT ENCOUNTERED	321.7±	17'± EAST
TH-44	314.8±	NOT ENCOUNTERED	312.8±	40'± WEST
TH-51	326.9±	NOT ENCOUNTERED	318.5±	81'± SOUTH-WEST

*SHGWT WAS NOT ENCOUNTERED IN EXISTING CONDITIONS. TO BE CONSERVATIVE IF SHGWT EXISTS IT IS ASSUMED TO BE 1' ABOVE PROPOSED LEDGE.
**PROPOSED LEDGE WILL BE 4' BELOW PROPOSED GRADE TO PROVIDE SEPARATION.

NOTE: LEDGE ELEVATIONS ADJUSTED IN SECTION ACCORDING TO ROCK OUTCROPS AND SITE VISITS.

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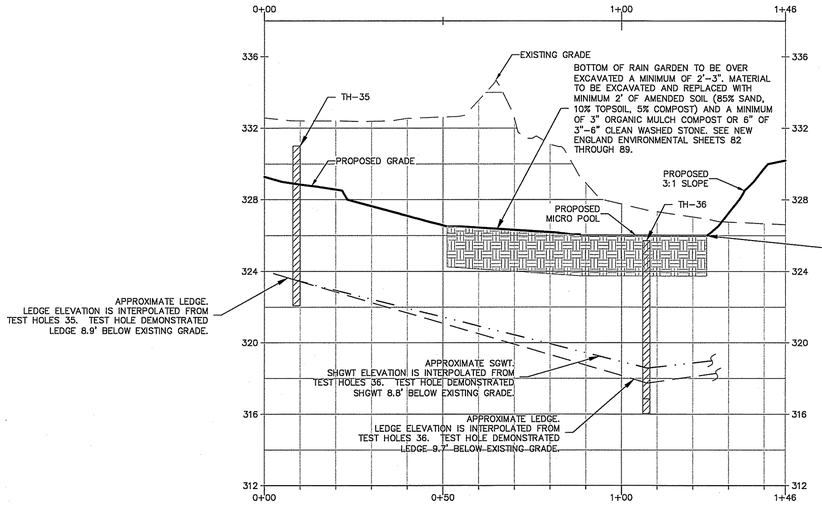
OCT 23 2009
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES

NOTES:
1. FINAL RAIN GARDEN GRADING, FINAL BASIN FEATURES, FINAL SEEDING, AND FINAL PLANTING SHALL BE COMPLETED AFTER THE TRIBUTARY AREA TO THE BASIN HAS REACHED A MINIMUM 80% STABILIZATION.
2. RAIN GARDEN TO BE PLANTED ACCORDING TO NEW ENGLAND ENVIRONMENTAL DETAILS AND SPECIFICATIONS. SEE SHEETS 82 THROUGH 89.
3. FOR RAIN GARDEN CONSTRUCTION DETAILS SHEETS 82 THROUGH 89.
4. LOAM TO MEET RIDOT STANDARD M.18.01



RAIN GARDEN "V" SECTION A-A VIEW

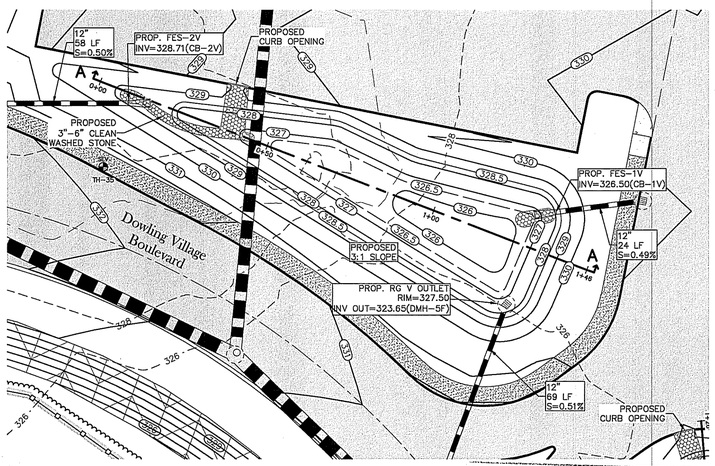
SCALE: HORIZONTAL 1"=20', VERTICAL 1"=4'

NOTES:
1. FINAL RAIN GARDEN GRADING, FINAL BASIN FEATURES, FINAL SEEDING, AND FINAL PLANTING SHALL BE COMPLETED AFTER THE TRIBUTARY AREA TO THE BASIN HAS REACHED A MINIMUM 80% STABILIZATION.
2. RAIN GARDEN TO BE PLANTED ACCORDING TO NEW ENGLAND ENVIRONMENTAL DETAILS AND SPECIFICATIONS. SEE SHEETS 82 THROUGH 89.
3. FOR RAIN GARDEN CONSTRUCTION DETAILS SHEETS 82 THROUGH 89.
4. LOAM TO MEET RIDOT STANDARD M.18.01

DESCRIPTION	RG V
TOP OF RG ELEVATION	328.50
BOTTOM OF RAIN GARDEN	326.50
BOTTOM OF MICRO POOL	326.00
100 YEAR STORM ELEVATION	327.71
25 YEAR STORM ELEVATION	327.65
10 YEAR STORM ELEVATION	327.59
2 YEAR STORM ELEVATION	327.48
AVERAGE RAIN GARDEN WIDTH	30'±
AVERAGE RAIN GARDEN LENGTH	132'±
PROPOSED SHGWT ELEVATION*	318.6±
PROPOSED LEDGE ELEVATION*	317.7±-323.5±

*PROPOSED SHGWT AND LEDGE ELEVATIONS ARE THE SAME AS EXISTING CONDITIONS. BASED ON INTERPOLATION OF TEST HOLE 35 AND TEST HOLE 36.

TEST HOLE	GROUND ELEVATION	SHGWT ELEVATION	LEDGE ELEVATION	DISTANCE & DIRECTION FROM RG
TH-35	331.0±	NOT ENCOUNTERED	320.8±	20'± WEST
TH-36	325.7±	316.9±	316.0±	125'± EAST
TH-38	325.5±	NOT ENCOUNTERED	321.7±	110'± SOUTH



RAIN GARDEN "V" PLAN VIEW

SEE SHEET 24
SCALE: 1"=20'

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 29 2009
FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

NOTE:
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LEONARD R. BRADLEY, JR.
No. 6670
REGISTERED PROFESSIONAL ENGINEER
STATE OF RHODE ISLAND

RIDEM Submission

RAIN GARDEN V-W

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 DWN. BY: J.P.C.

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DEA Job No. 0617-004-2

NO	DATE	DESCRIPTION	BY
5	9-04-09	RI-DEM Permit Deficiency Resubmission	S.C.G.
4	5-7-09	RI-DEM Permit Deficiency	S.C.G.
3	03-26-08	Sewer Response to Comments	S.C.G.
2	03-03-08	Sewer Response to Comments	S.C.G.
1	03-30-07	RI-DEM Submission	J.P.C.

Applicant:
Bucci Development, Inc.
48 Hewett Street
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Tel: (401) 737-4111

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Sheet
76
of 89

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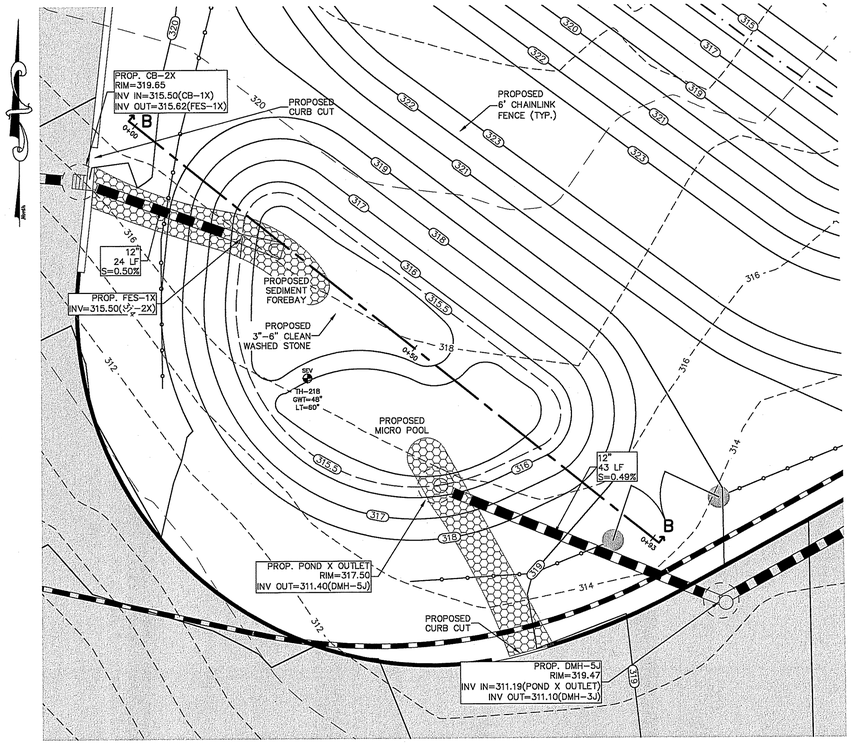
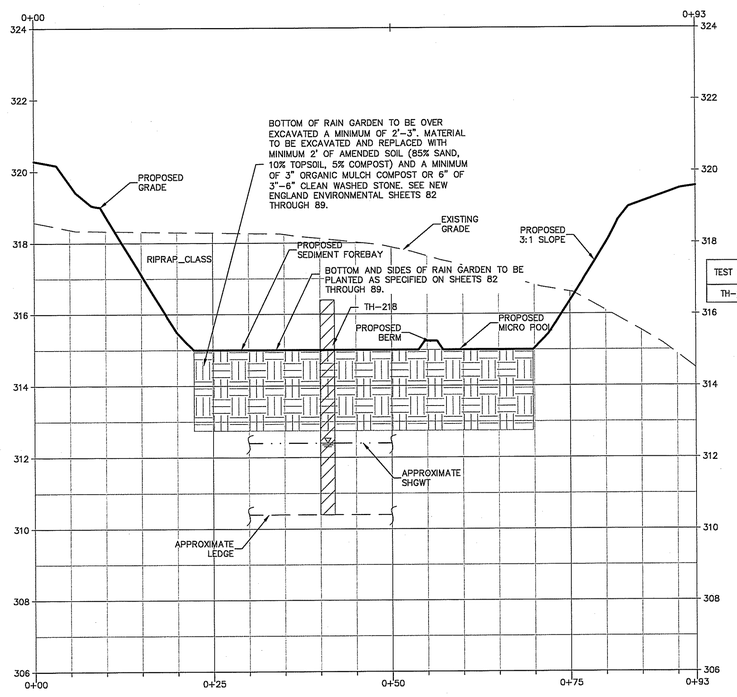


RAIN GARDEN "X" PLAN VIEW

SEE SHEET 27
SCALE: 1"=10'



RAIN GARDEN "X" SECTION A-A VIEW

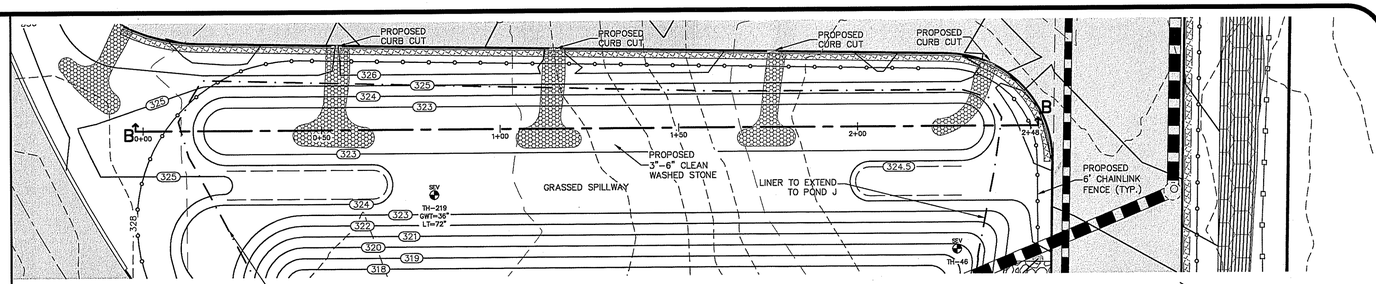
SCALE: HORIZONTAL 1"=10', VERTICAL 1"=2'

DESCRIPTION	RG X
TOP OF RG ELEVATION	318.00
BOTTOM OF RAIN GARDEN	315.50
BOTTOM OF MICRO POOL	315.00
100 YEAR STORM ELEVATION	317.68
25 YEAR STORM ELEVATION	317.58
10 YEAR STORM ELEVATION	317.52
2 YEAR STORM ELEVATION	316.81
AVERAGE RAIN GARDEN WIDTH	45'±
AVERAGE RAIN GARDEN LENGTH	70'±
PROPOSED SHGWT ELEVATION*	312.4±
PROPOSED LEDGE ELEVATION*	311.4±

*PROPOSED SHGWT AND LEDGE ELEVATIONS ARE THE SAME AS EXISTING CONDITIONS.

TEST HOLE	GROUND ELEVATION	SHGWT ELEVATION	LEDGE ELEVATION
TH-218	316.4±	312.4±	311.4±

NOTES:
1. FINAL RAIN GARDEN GRADING, FINAL BASIN FEATURES, FINAL SEEDING, AND FINAL PLANTING SHALL BE COMPLETED AFTER THE TRIBUTARY AREA TO THE BASIN HAS REACHED A MINIMUM 80% STABILIZATION.
2. RAIN GARDEN TO BE PLANTED ACCORDING TO NEW ENGLAND ENVIRONMENTAL DETAILS AND SPECIFICATIONS. SEE SHEETS 82 THROUGH 89.
3. FOR RAIN GARDEN CONSTRUCTION DETAILS SHEETS 82 THROUGH 89.
4. LOAM TO MEET RIDOT STANDARD M.18.01



RAIN GARDEN "Y" PLAN VIEW

SEE SHEET 27
SCALE: 1"=20'

DESCRIPTION	RG Y
TOP OF RG ELEVATION	324.50
BOTTOM OF RAIN GARDEN	322.50
100 YEAR STORM ELEVATION	324.09
25 YEAR STORM ELEVATION	324.07
10 YEAR STORM ELEVATION	324.04
2 YEAR STORM ELEVATION	323.66
AVERAGE RAIN GARDEN WIDTH	20'±
AVERAGE RAIN GARDEN LENGTH	225'±
PROPOSED SHGWT ELEVATION*	<320.25
PROPOSED LEDGE ELEVATION**	<320.25

*PROPOSED SHGWT ASSUMED TO BE BOTTOM OF LINER (27" BELOW BOTTOM RAIN GARDEN).
**PROPOSED LEDGE ASSUMED TO BE A MINIMUM OF 27" BELOW MICRO POOL ELEVATION. PROPOSED LEDGE SHALL SLOPE AWAY FROM THE BASIN AT A MINIMUM OF 0.5% SLOPE.

TEST HOLE	GROUND ELEVATION	SHGWT ELEVATION	LEDGE ELEVATION	DISTANCE & DIRECTION FROM RG
TH-46	316.3±	NOT ENCOUNTERED	311.6±	24'± WEST
TH-47	331.6±	NOT ENCOUNTERED	325.4±	54'± WEST
TH-49	329.3±	NOT ENCOUNTERED	319.5±	55'± NORTH-EAST
TH-102	331.0±	328.0±	325.0±	48'± EAST
TH-219	324.2±	319.2±	319.2±	20'± WEST

NOTES:
1. FINAL RAIN GARDEN GRADING, FINAL BASIN FEATURES, FINAL SEEDING, AND FINAL PLANTING SHALL BE COMPLETED AFTER THE TRIBUTARY AREA TO THE BASIN HAS REACHED A MINIMUM 80% STABILIZATION.
2. RAIN GARDEN TO BE PLANTED ACCORDING TO NEW ENGLAND ENVIRONMENTAL DETAILS AND SPECIFICATIONS. SEE SHEETS 82 THROUGH 89.
3. FOR RAIN GARDEN CONSTRUCTION DETAILS SHEETS 82 THROUGH 89.
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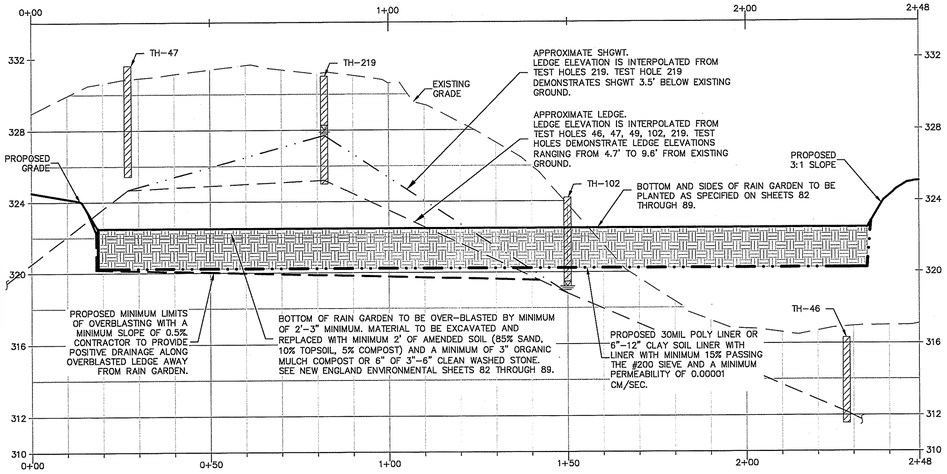
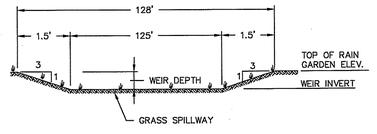


RAIN GARDEN "Y" SECTION A-A VIEW

SCALE: HORIZONTAL 1"=20', VERTICAL 1"=4'

LOCATION	TOP OF RG ELEV.	WEIR INVERT	WEIR DEPTH
RAIN GARDEN Y	324.50	324.00	0.5'



GRASS SPILLWAY DETAIL

NOT TO SCALE

RECEIVED
OCT 23 2009
ENVIRONMENTAL MANAGEMENT

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
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Charles A. Horbert

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Tel: (401) 943-1000 Fax: (401) 464-6006

NO.	DATE	DESCRIPTION	BY
6	8-24-09	RIDEM Permit Modification Submission	B.G.B.
5	7-24-09	RIDEM Permit Resubmission	B.G.B.
4	6-26-08	RIDEM Response to Comments	B.G.B.
3	5-29-08	Sewer Response to Comments	B.G.B.
2	3-11-07	Utility Submission	B.G.B.
1	12-14-07	RIDEM Submission	J.P.C.

RIDEM Submission

RAIN GARDEN X-Y

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 28, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

DATE: MAY, 2007 *DWN. BY: J.P.C.*

DEA Job No. 0617-004-2

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LEONARD P. BRADLEY, JR.
No. 6670
REGISTERED PROFESSIONAL ENGINEER
STATE OF RHODE ISLAND

Sheet
77
of 89

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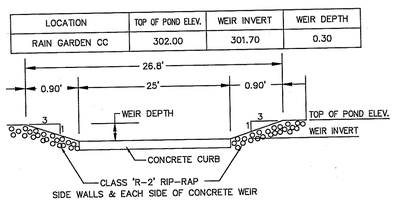
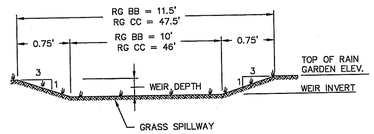
LOCATION	TOP OF POND ELEV.	WEIR INVERT	WEIR DEPTH
RAIN GARDEN CC	302.00	301.70	0.30



OVERFLOW WEIR DETAIL

NOT TO SCALE

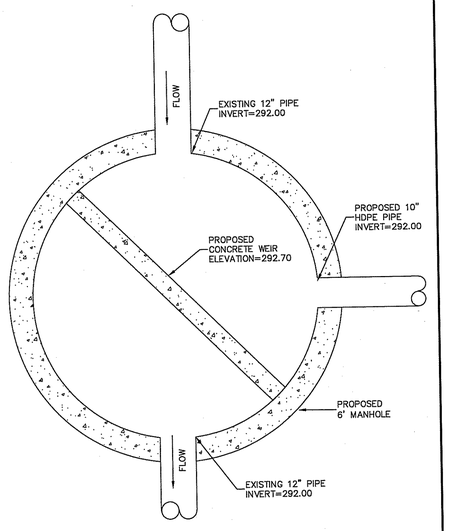
LOCATION	TOP OF RG ELEV.	WEIR INVERT	WEIR DEPTH
RAIN GARDEN BB	293.00	292.75	0.25'
RAIN GARDEN CC	302.00	301.75	0.25'



GRASS SPILLWAY DETAIL

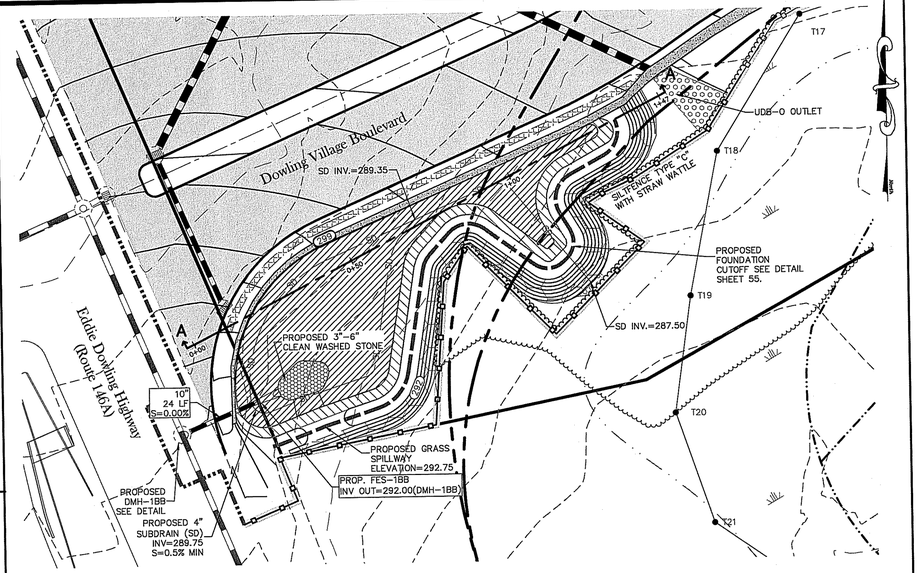
NOT TO SCALE

NOTE:
CONTRACTOR TO VERIFY INVERT OF EXISTING PIPE BEFORE INSTALLATION OF PROPOSED MANHOLE. MANHOLE TO BE INSTALLED AT INVERT 292.00 ON EXISTING LINE.



RAIN GARDEN BB BYPASS STRUCTURE

PROPOSED DMH-1BB
SCALE: 1"=2'



RAIN GARDEN "BB" PLAN VIEW

SEE SHEET 19
SCALE: 1"=20'

NOTES:
1. FINAL RAIN GARDEN GRADING, FINAL BASIN FEATURES, FINAL SEEDING, AND FINAL PLANTING SHALL BE COMPLETED AFTER THE TRIBUTARY AREA TO THE BASIN HAS REACHED A MINIMUM 80% STABILIZATION.
2. RAIN GARDEN TO BE PLANTED ACCORDING TO NEW ENGLAND ENVIRONMENTAL DETAILS AND SPECIFICATIONS. SEE SHEETS 82 THROUGH 89.
3. FOR RAIN GARDEN CONSTRUCTION DETAILS SHEETS 82 THROUGH 89.
4. LOAM TO MEET RIDOT STANDARD M.18.01

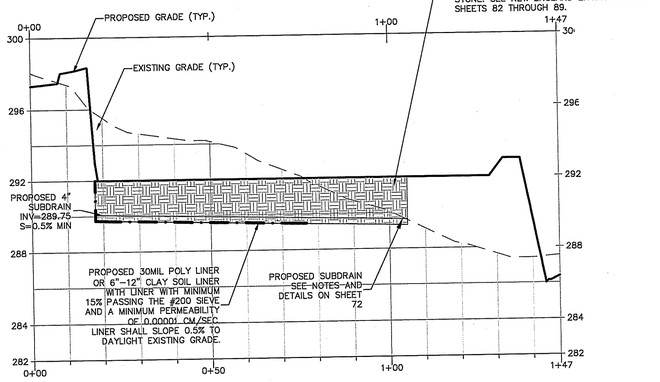
DESCRIPTION	RG BB
TOP OF RG ELEVATION	293.00
BOTTOM OF RAIN GARDEN	292.00
2-100 YEAR STORM ELEVATION*	292.75
AVERAGE RAIN GARDEN WIDTH	30'±
AVERAGE RAIN GARDEN LENGTH	69'±
PROPOSED SHGWT ELEVATION**	289.75
PROPOSED LEDGE ELEVATION***	<289.75

*RAIN GARDEN HAS BEEN DESIGNED TO FLOOD TO A MAXIMUM OF 292.75. FOR ANY STORMEVENT. HIGH FLOW WILL BYPASS THE RAIN GARDEN.

**PROPOSED SHGWT ASSUMED TO BE BOTTOM OF LINER (27" BELOW BOTTOM OF POND AND MICRO POOLS).
***PROPOSED LEDGE, IF ENCOUNTERED, ASSUMED TO BE A MINIMUM OF 27" BELOW BOTTOM OF RAIN GARDEN PROPOSED LEDGE SHALL SLOPE AWAY FROM THE RAIN GARDEN AT A MINIMUM OF 0.5% SLOPE.

PLANT LIST: RAIN GARDEN "BB"

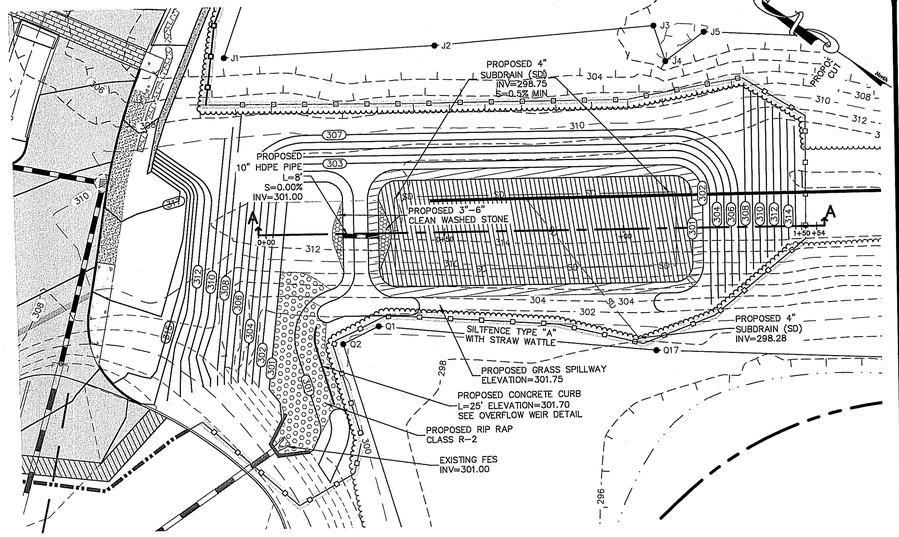
	COMMON NAME	SCIENTIFIC NAME	QUANTITY	SIZE	SPACING	GROUPING
RAIN GARDEN BOTTOM - 2,350 S.F.						
	Soft Rush	Juncus effusus	250	2"plugs/bare root	1' o.c.	groups of 25
	Red-osier Dogwood	Cornus sericea	47	3'-4' HGT	5' o.c.	groups of 5
	Inkberry	Ilex glabra	47	3'-4' HGT	5' o.c.	groups of 5
RAIN GARDEN LOWER SIDE SLOPE AREA - 550 S.F.						
	Stella d'Oro Daylily	Hemerocallis Stella d'Oro	220	1 QUART	18" o.c.	groups of 25
	Black-eyed Susan	Rudbeckia Goldsturm	220	1 QUART	18" o.c.	groups of 25



Rain Garden BB Section A-A

RAIN GARDEN "BB" SECTION A-A VIEW

SCALE: HORIZONTAL 1"=20', VERTICAL 1"=4'



RAIN GARDEN "CC" PLAN VIEW

SEE SHEET 21
SCALE: 1"=10'

NOTES:
1. FINAL RAIN GARDEN GRADING, FINAL BASIN FEATURES, FINAL SEEDING, AND FINAL PLANTING SHALL BE COMPLETED AFTER THE TRIBUTARY AREA TO THE BASIN HAS REACHED A MINIMUM 80% STABILIZATION.
2. RAIN GARDEN TO BE PLANTED ACCORDING TO NEW ENGLAND ENVIRONMENTAL DETAILS AND SPECIFICATIONS. SEE SHEETS 82 THROUGH 89.
3. FOR RAIN GARDEN CONSTRUCTION DETAILS SHEETS 82 THROUGH 89.
4. LOAM TO MEET RIDOT STANDARD M.18.01

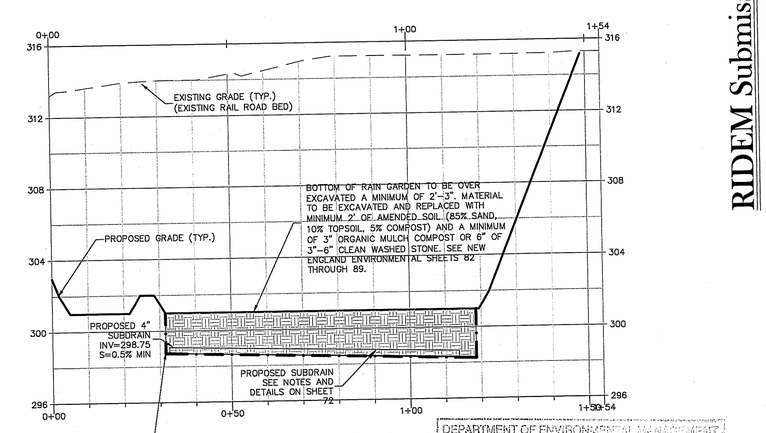
DESCRIPTION	RG CC
TOP OF RG ELEVATION	302.00
BOTTOM OF RAIN GARDEN	301.00
2-100 YEAR STORM ELEVATION*	301.75
AVERAGE RAIN GARDEN WIDTH	10'±
AVERAGE RAIN GARDEN LENGTH	88'±
SEASONAL HIGH GROUNDWATER**	300.00
PROPOSED SHGWT ELEVATION***	298.75
PROPOSED LEDGE ELEVATION****	<298.75

*RAIN GARDEN HAS BEEN DESIGNED TO FLOOD TO A MAXIMUM OF 301.75. FOR ANY STORMEVENT. HIGH FLOW WILL BYPASS THE RAIN GARDEN.
**SEASONAL HIGH GROUNDWATER IS ASSUMED TO BE THE ELEVATION OF THE Q-SERIES WETLAND

***PROPOSED SHGWT ASSUMED TO BE BOTTOM OF LINER (27" BELOW BOTTOM OF POND AND MICRO POOLS).
****PROPOSED LEDGE, IF ENCOUNTERED, ASSUMED TO BE A MINIMUM OF 27" BELOW BOTTOM OF RAIN GARDEN PROPOSED LEDGE SHALL SLOPE AWAY FROM THE RAIN GARDEN AT A MINIMUM OF 0.5% SLOPE.

PLANT LIST: RAIN GARDEN "CC"

	COMMON NAME	SCIENTIFIC NAME	QUANTITY	SIZE	SPACING	GROUPING
RAIN GARDEN BOTTOM - 2,525 S.F.						
	Soft Rush	Juncus effusus	250	2"plugs/bare root	1' o.c.	groups of 25
	Sweet Pepperbush	Clethra alnifolia	51	3'-4' HGT	5' o.c.	groups of 5
	Bayberry	Myrica pensylvanica	51	3'-4' HGT	5' o.c.	groups of 5
RAIN GARDEN LOWER SIDE SLOPE AREA - 700 S.F.						
	Stella d'Oro Daylily	Hemerocallis Stella d'Oro	280	1 QUART	18" o.c.	groups of 25
	Black-eyed Susan	Rudbeckia Goldsturm	280	1 QUART	18" o.c.	groups of 25



Rain Garden CC Section A-A

RAIN GARDEN "CC" SECTION A-A VIEW

SCALE: HORIZONTAL 1"=20', VERTICAL 1"=4'

RECEIVED
OCT 23 2009
RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 29 2009 FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Charles A. Horbert

Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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	10-30-09	RIDEM Permit Modification Resubmission	B.G.
6	8-24-09	RIDEM Permit Modification Resubmission	B.G.
5	7-24-09	RIDEM Permit Modification Resubmission	B.G.
4	6-25-09	RIDEM Permit Modification Comments	B.G.
3	05-26-09	Sewer Associates to Comments	B.G.
2	04-30-09	Public Submission to Comments	B.G.
1	03-16-07	RIDEM Submission	B.G.

RIDEM Submission

RAIN GARDEN BB-CC

Dowling Village - Phases II, III & IV
AP 13 LOTS 44, 53, 111, 112, 142 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, 30, 31, 32, 50, 61, 70 & 71 AND A PORTION OF LOT 58
NORTH SMITHFIELD, RHODE ISLAND

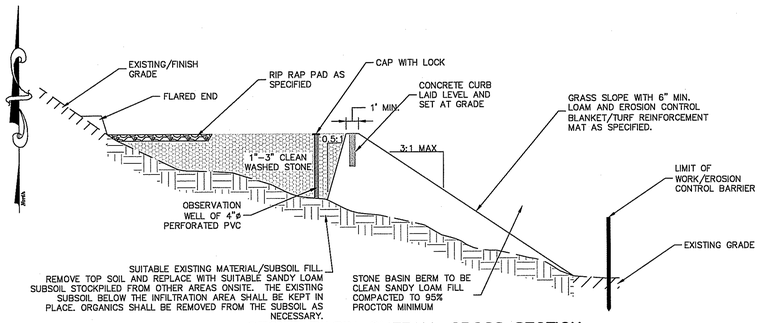
DATE: MAY, 2007 DWN. BY: J.P.C.

BEA Job No. 0617-004-2 Copyright© 2009 by DiPrete Engineering Associates, Inc.

LEONARD R. BRADLEY, JR.
No. 9670
REGISTERED PROFESSIONAL ENGINEER
CIVIL

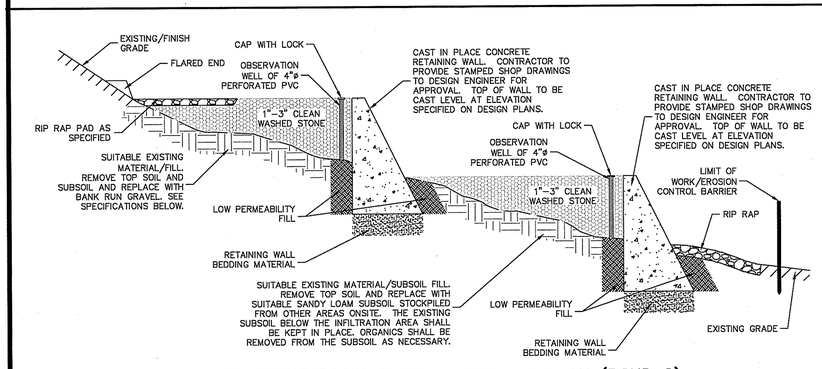
Sheet
78
of 89

\\Deasstorage\deamain\Vault Working\0617-004-2\601 Preliminary\Plotting\0617-004-2 Pond Detail Sheets.dwg, 10/23/2009 3:36:29 PM, Sheryl, DWF6 ePlot.pc3



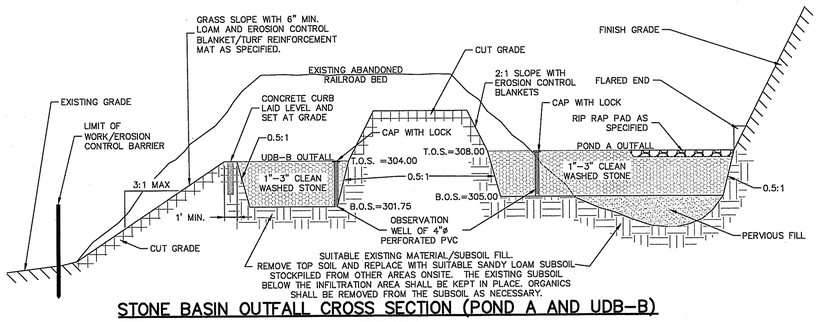
STONE BASIN OUTFALL CROSS SECTION

NOT TO SCALE



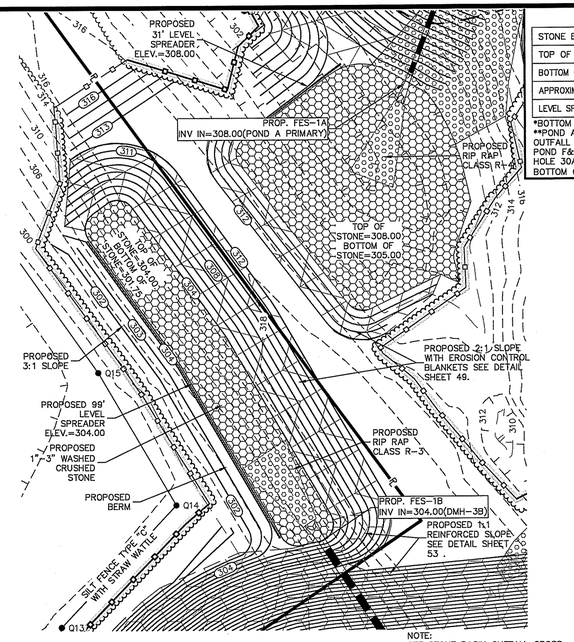
TIERED STONE BASIN OUTFALL CROSS SECTION (POND G)

NOT TO SCALE



STONE BASIN OUTFALL CROSS SECTION (POND A AND UDB-B)

NOT TO SCALE

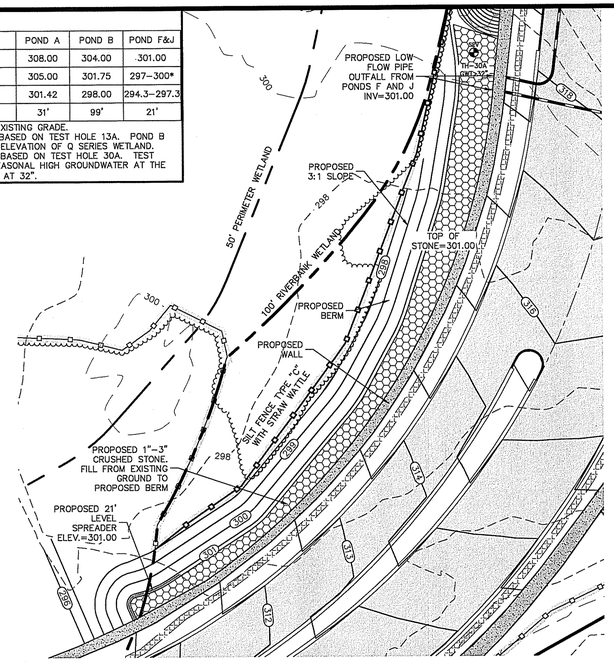


POND A AND UDB-B OUTFALL

SCALE: 1"=20'

STONE BASIN OUTFALL	POND A	POND B	POND F&J
TOP OF STONE ELEVATION	308.00	304.00	301.00
BOTTOM OF STONE ELEVATION	305.00	301.75	297-300*
APPROXIMATE SHGWT**	301.42	298.00	294.3-297.3
LEVEL SPREADER LENGTH	31'	99'	21'

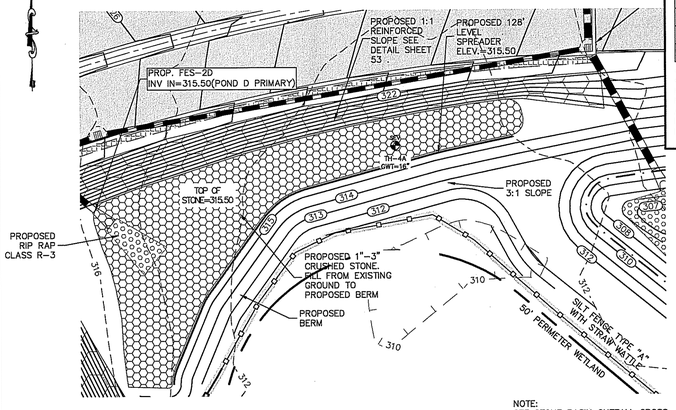
*BOTTOM OF STONE IS AT EXISTING GRADE.
**POND A OUTFALL SHGWT BASED ON TEST HOLE 13A. POND B OUTFALL SHGWT BASED ON ELEVATION OF Q SERIES WETLAND. POND F&J OUTFALL SHGWT BASED ON TEST HOLE 30A. TEST HOLE 30A OBSERVED NO SEASONAL HIGH GROUNDWATER AT THE BOTTOM OF THE TEST HOLE AT 32".



POND F AND POND J OUTFALL

SCALE: 1"=20'

NOTE:
SEE STONE BASIN OUTFALL CROSS SECTION DETAIL

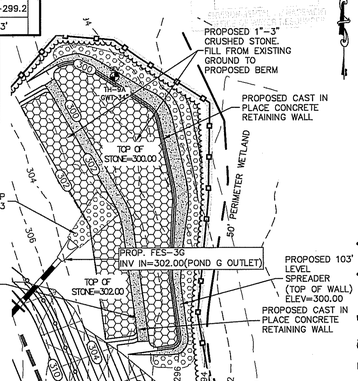


POND D OUTFALL

SCALE: 1"=20'

STONE BASIN OUTFALL	POND D	POND G(A)	POND G(B)
TOP OF STONE ELEVATION	315.50	302.00	300.00
BOTTOM OF STONE ELEVATION*	312.5-315.5	300-302	296-300
APPROXIMATE SHGWT**	309.4	292.6-299.2	292.6-299.2
LEVEL SPREADER LENGTH	128'	71'	103'

*BOTTOM OF STONE IS AT EXISTING GRADE.
**POND D OUTFALL SHGWT BASED ON TEST HOLE 4A. POND G OUTFALLS BASED ON TEST HOLE 9A. TEST HOLE 9A OBSERVED NO SEASONAL HIGH GROUNDWATER AT THE BOTTOM OF THE TEST HOLE AT 34". SHGWT FOR POND G OUTFALL ESTIMATED BASED ON CONSTANT DEPTH OF GREATER THAN 34" TO THE SHGWT.



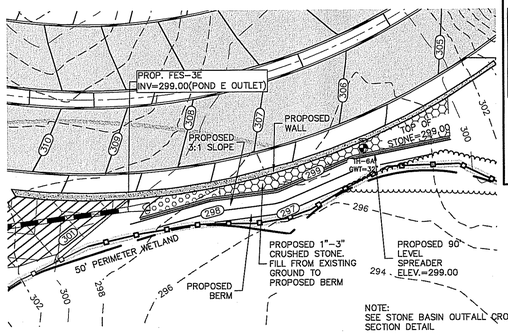
NOTE:
SEE TIERED STONE BASIN OUTFALL CROSS SECTION (POND G) DETAIL

POND G OUTFALL

SCALE: 1"=20'

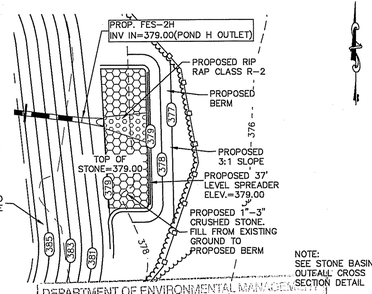
STONE BASIN OUTFALL	POND E	POND H
TOP OF STONE ELEVATION	299.90	379.00
BOTTOM OF STONE ELEVATION*	298.00	378.00
APPROXIMATE SHGWT**	294.3	375.0
LEVEL SPREADER LENGTH	90'	37'

*BOTTOM OF STONE IS AT EXISTING GRADE.
**POND E OUTFALL SHGWT BASED ON TEST HOLE 6A. POND H OUTFALLS BASED ON TEST HOLE 10A. TEST HOLE 10A OBSERVED NO SEASONAL HIGH GROUNDWATER AT THE BOTTOM OF THE TEST HOLE AT 36". SHGWT ELEVATION 375.0 ASSUMED BASED ON CONSTANT DEPTH OF 36" TO SHGWT IN THE POND H AREA.



POND E OUTFALL

SCALE: 1"=20'



POND H OUTFALL

SCALE: 1"=20'

RECEIVED
OCT 2 3 2009
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
WATER ENVIRONMENTAL PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN MY LETTER OF APPROVAL
NOV 2 9 2009
07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION

Charles A. Horbert

Applicant:
Bucci Development, Inc.
48 Hewett Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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	10-22-09	RIDEM Permit Modification Resubmission	B.G.G.
6	9-24-09	RIDEM Permit Modification	B.G.G.
5	8-24-09	RIDEM Permit Modification	B.G.G.
4	6-29-09	RIDEM Response to Comments	B.G.G.
3	5-29-09	RIDEM Response to Comments	B.G.G.
2	2-19-09	RIDEM Response to Comments	B.G.G.
1	01-29-07	Utility Submission	J.M.S.
0	8-7-07	RIDEM Submission	B.K.

RIDEM Submission

STONE BASIN OUTFALLS

Dowling Village - Phases II, III & IV

AP 13 LOTS 44, 53, 111, 112, 123 & 143 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 25, 26, 29, NOW KNOWN AS LOTS 1-3 & A PORTION OF LOT 38
NORTH SMITHFIELD, RHODE ISLAND

DWN. BY: J.P.C.

DATE: MAY, 2007

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LEONARD R. BRADLEY, JR.
No. 6570
REGISTERED PROFESSIONAL ENGINEER
CIVIL

Sheet
79
of 89

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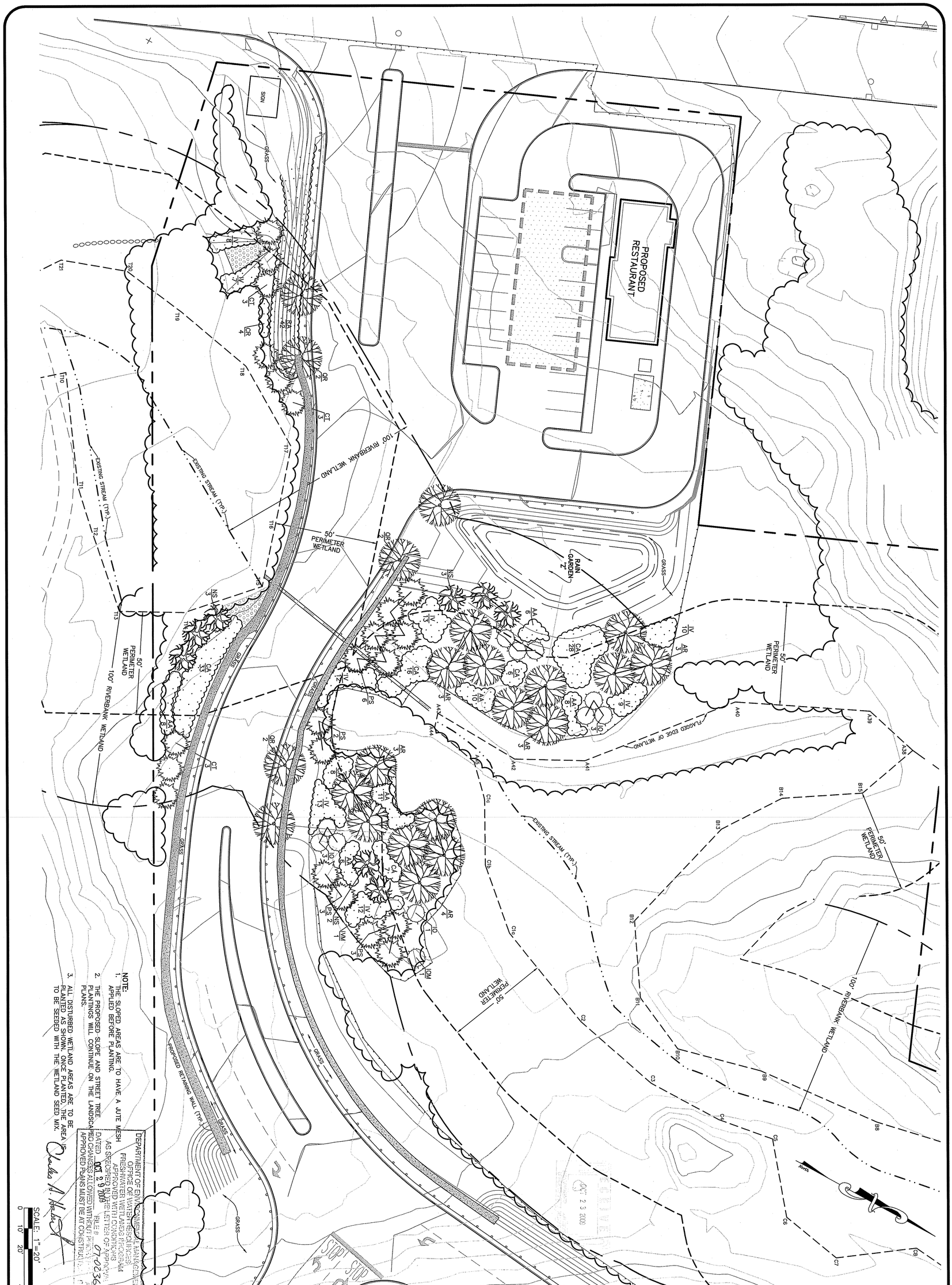

NOTE:
1. THE SLOPED AREAS ARE TO HAVE A JUTE MESH APPLIED BEFORE PLANTING.
2. THE PROPOSED SLOPE AND STREET TREE PLANTINGS WILL CONTINUE ON THE LANDSCAPE PLANS.
3. ALL DISTURBED WETLAND AREAS ARE TO BE PLANTED AS SHOWN, ONCE PLANTED, THE AREA IS TO BE SEEDED WITH THE WETLAND SEED MIX.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
AS SPECIFIED BY RULE 5.01 OF THE FRESHWATER WETLANDS REGULATIONS
DATED OCT 2 9 2008
PROJECT CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

OCT 2 3 2008

RECEIVED

RIDEM Submission

Sheet 80 of 89

THIS STAMP IS TO CERTIFY THE LOCATION, SELECTION, AND SIZE OF PLANT MATERIALS ONLY.

WETLAND PLANTING PLAN

Dowling Village - Phases II, III, & IV

AP 13 LOTS 44, 53, & 123 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 30, 31, 32, 61 & 71
NORTH SMITHFIELD, RHODE ISLAND

DATE: APRIL, 2008 DWN. BY: B.C.G

NO	DATE	DESCRIPTION	BY
3	9-4-09	REVISE PLANTINGS	B.C.G.
2	4-2-09	REVISE PLANTINGS ADD RAIN GARDEN	J.R.L.
1	5-20-08	Town Submission	J.R.L.
0	5-24-07	RIDEM Submission	J.R.L.

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:
Bucci Development, Inc.
57 Foster Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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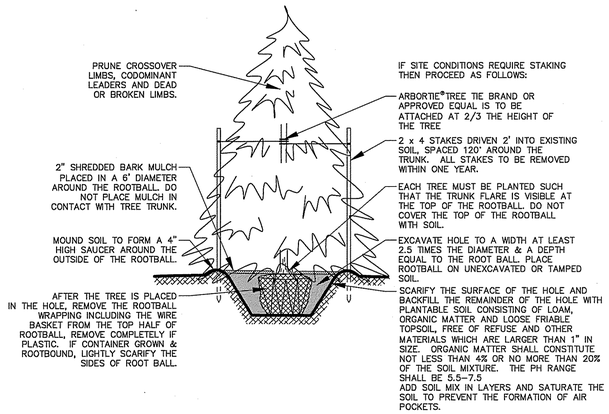
PLANT SCHEDULE

KEY	BOTANICAL NAME	COMMON NAME	SIZE	QUANTITY	NOTES
AR	ACER RUBRUM	RED SWAMP MAPLE	1–1.5"	18	B&B, SIZE IN TRUNK CALIPER
AA	ARONIA ARBUTIFOLIA 'BRILLIANTISSIMA'	RED CHOKEBERRY	1 GALLON	52	
CT	CHAMAECYPARIS THYOIDES	ATLANTIC WHITE CEDAR	4–5'	9	B&B, SIZE IN HEIGHT
CA	CLETHRA ALNIFOLIA	SUMMERSWEET CLETHRA	1 GALLON	98	
CR	CORNUS RACEMOSA	GRAY DOGWOOD	1 GALLON	4	
IO	ILEX OPACA (FEMALE)	FEMALE AMERICAN HOLLY	3–4'	16	B&B, SIZE IN HEIGHT
IOM	ILEX OPACA (MALE)	MALE AMERICAN HOLLY	3–4'	1	B&B, SIZE IN HEIGHT
IV	ILEX VERTICILLATA (FEMALE)	FEMALE WINTERBERRY	1 GALLON	47	
IVM	ILEX VERTICILLATA (MALE)	MALE WINTERBERRY	1 GALLON	2	
NS	NYSSA SYLVATICA	TUPELO – SOUR GUM	1–1.5"	8	B&B, SIZE IN TRUNK CALIPER
PS	PINUS STROBUS	WHITE PINE	3–4'	13	B&B, SIZE IN HEIGHT
QR	QUERCUS RUBRA	RED OAK	2–2.5"	4	B&B, SIZE IN TRUNK CALIPER
RA	RHUS AROMATICA 'GRO–LOW'	GRO LOW FRAGRANT SUMAC	1 GALLON	42	



EVERGREEN TREE PLANTING DETAIL ©2006
NOT TO SCALE

PLANTING:

PROVIDE QUALITY PLANTS IN THE GENUS, SPECIES AND VARIETY INDICATED IN THE PLANT SCHEDULE, COMPLYING WITH APPLICABLE REQUIREMENTS OF "ANSI Z60.1 AMERICAN STANDARD FOR NURSERY STOCK."

PROVIDE PLANTS IN THE SIZE AND NUMBER INDICATED IN THE PLANT SCHEDULE. PLANTS SHALL BE GROWN IN NURSERIES LOCATED IN THE NORTHEASTERN U.S.

DELIVER FRESH DUG TREES WHICH ARE BALLED AND BURLAPPED, AND SHRUBS WHICH ARE BALLED AND BURLAPPED OR IN NURSERY CONTAINERS. ALL PLANTS ARE TO BE HEALTHY, VIGOROUS AND FREE OF INSECTS AND DISEASE.

PLANTS ARE TO BE INSTALLED AS SPECIFIED IN THE PLANTING DETAILS WITH ADEQUATE WATER PROVIDED DURING PLANTING TO ALLOW COMPACTION OF THE PLANTING SOIL TO PREVENT ANY AIR POCKETS OR SETTLEMENT AFTER PLANTING.

ALL PLANTING BEDS ARE TO BE COVERED WITH 2" SHREDDED PINE BARK MULCH.

TREE STAKING IS AT THE DISCRETION OF THE CONTRACTOR. TREES ARE TO REMAIN PLUMB AND SHALL BE ADJUSTED OR STAKED AS NEEDED. IF STAKED, ALL STAKES, GUY WIRES AND OTHER HARDWARE ARE TO BE MAINTAINED AND REMOVED WHEN NO LONGER NEEDED.

RECOMMENDED PLANTING DATES ARE MARCH 15 TO JUNE 15 AND SEPTEMBER 15 TO NOVEMBER 15.

NO PLANT SUBSTITUTIONS SHALL BE ALLOWED WITHOUT DIRECT APPROVAL FROM THE LANDSCAPE ARCHITECT.

IF NECESSARY, THE SIZE AND SPECIES OF THE PLANTS MAY BE ADJUSTED BY THE LANDSCAPE ARCHITECT OR HIS REPRESENTATIVE BASED ON AVAILABILITY.

PLANTING BED PREPARATION:

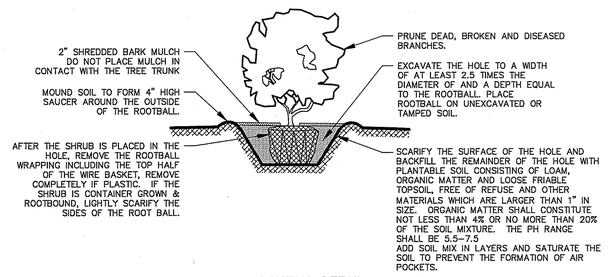
ALL PLANTING BEDS ARE TO BE EXCAVATED TO A DEPTH OF 8" BELOW FINISHED GRADE.

THE BOTTOM OF THE PLANTING BEDS ARE TO BE SCARIFIED TO ENCOURAGE DRAINAGE AND PREVENT COMPACTION.

ALL PLANTING BEDS ARE TO BE BACKFILLED WITH 8" OF LOOSE, FRIABLE, ORGANIC LOAM OR COMPOST.

MAINTENANCE & WARRANTY:

1. THE CONTRACTOR SHALL WARRANTY ALL PLANTS FOR A PERIOD OF ONE YEAR AFTER THE DATE OF SUBSTANTIAL COMPLETION AGAINST DEFECTS INCLUDING DEATH AND UNSATISFACTORY GROWTH.
2. AFTER PLANTING IS COMPLETED, THE OWNER SHALL BE RESPONSIBLE TO PROVIDE ADEQUATE WATER TO ENSURE HEALTHY AND VIGOROUS GROWTH.
3. ANY PLANT WHICH IS NOT HEALTHY AND GROWING VIGOROUSLY AFTER ONE YEAR SHALL BE REPLACED BY THE CONTRACTOR IN CONFORMANCE WITH THE PLANTING SPECIFICATIONS.
4. IF NECESSARY, THE CONTRACTOR SHALL OVERSEED OR SOD ANY AREAS WHICH ARE NOT SUBSTANTIALLY COVERED BY ADEQUATE GRASS GROWTH FOR ONE YEAR AFTER THE INITIAL SEED APPLICATION.



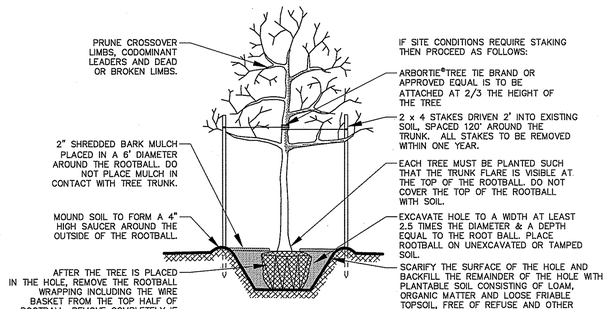
SHRUB PLANTING DETAIL ©2006
NOT TO SCALE

WETLAND SEED MIX NOTES:

THE DISTURBED WETLAND AREAS ARE TO BE PLANTED WITH THE NEW ENGLAND WETMIX (WETLAND SEED MIX) OR APPROVED EQUAL AS FOLLOWS:

% BY WEIGHT	BOTANICAL NAME	COMMON NAME
1%	ALISMA PLANTAGO–AQUATICA	MUD PLANTAIN
.5%	ASCLEPIAS INCARNATA	SWAMP MILKWEED
1%	ASTER NOV–BELGII	NEW YORK ASTER
2%	BIDENS CERNUA	NODDING BUR MARIGOLD
2%	CAREX COMOSA	BRISTLY / COSMOS SEDGE
2%	CAREX CRINITA	FRINGED SEDGE (NODDING)
5%	CAREX LUPULINA	HOP SEDGE
11%	CAREX LURIDA	LURID SEDGE (SHALLOW)
10%	CAREX SCOPARIA	BLUNT BROOM SEDGE
.32%	CAREX VULPINOIDEA	FOX SEDGE
1.5%	EUPATORIUM MACULATUM	SPOTTED JOE PYE WEED
1.5%	EUPATORIUM PERFOLIATUM	BONESET
2%	GLYCERIA CANADENSIS	RATTLESNAKE GRASS
4%	GLYCERIA STRIATA	FOWL MANNAGRASS
2%	JUNCUS EFFUSUS	SOFT RUSH
1%	MIMULUS RINGENS	SQUARE STEMMED MONKEY FLOWER
7%	ONOCLEA SENSIBILIS	SENSITIVE FERN
5%	SCIRPUS ATROVIRENS	GREEN BULRUSH
2.5%	SCIRPUS CYPERINUS	WOOL GRASS
1%	SCIRPUS VALIDUS	SOFT STEM BULRUSH
6%	VERBENA HASTATA	BLUE VERVAIN

MIX IS TO BE APPLIED AT A RATE OF 18 LBS. PER ACRE SQ. FT. MIX IS AVAILABLE AT NEW ENGLAND WETLAND PLANTS, INC., 820 WEST STREET, AMHERST, MA 01002. 413–548–8000.



TREE PLANTING DETAIL ©2006
NOT TO SCALE

ROAD SHOULDER AND NON–WETLAND LOAMING & SEEDING/SODDING NOTES:

1. AREAS ON THE PLAN WHICH ARE LABELED AS "GRASS ARE TO BE SEEDED, AREAS LABELED AS SOD ARE TO HAVE SOD APPLIED.
2. AFTER ROUGH GRADING IS COMPLETED, ALL DISTURBED AREAS WHICH ARE LABELED AS "GRASS" OR "SOD" ARE TO BE BROUGHT TO AN ELEVATION OF 6" BELOW THE PROPOSED FINISHED GRADE. THE SUBGRADE IS TO BE SCARIFIED TO A DEPTH OF 12" WITH THE TEETH OF A BACKHOE TO RESULT IN AN UNCOMPACTED SUBSOIL. THEN 6" OF GOOD QUALITY TOPSOIL IS TO BE APPLIED AND RAKED TO FINISHED GRADE.
3. THE TOPSOIL IS TO BE GOOD QUALITY LOAM, FERTILE AND FREE OF WEEDS, STICKS AND STONES OVER 3/4" IN SIZE AND OTHERWISE COMPLYING WITH SECTION M.18.01 OF THE RI DOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.
4. PRIOR TO SEEDING OR SODDING, FERTILIZE WITH 10–10–10 OR EQUIVALENT ANALYSIS. AT LEAST 40% OF THE FERTILIZER NITROGEN SHALL BE IN SLOW RELEASE FORM. INCORPORATE THE FERTILIZER INTO THE TOP 1–2" OF THE PLANTING SOIL. APPLY AT A RATE OF 8 LBS. PER 1000 SQUARE FEET.
5. LIME IS TO BE APPLIED AT A RATE OF ONE TON PER ACRE AND UNIFORMLY INCORPORATED INTO THE TOP 1–2" OF TOPSOIL.

SODDING

6. SOD SHALL BE LIVE, FRESH, AND OF SUITABLE CHARACTER FOR THE PURPOSE INTENDED AND FOR THE SOIL ON WHICH IT WILL BE PLACED. SODS SHALL BE AT LEAST 2–SQUARE FEET IN AREA AND SHALL BE THICK ENOUGH TO CONTAIN ALL NATURAL ROOTS WITHOUT MUTILATION. IN NO CASE WILL SODS BE PERMITTED TO BE UNDER ¾ " THICK OR OVER 1" THICK, UNLESS EXPRESS WRITTEN PERMISSION OF THE LANDSCAPE ARCHITECT IS PROVIDED. SOD STORED LONGER THAN 36 HOURS WILL NOT BE ALLOWED UNDER ANY CIRCUMSTANCES.
7. RECOMMENDED SODDING DATES ARE APRIL 1 TO JUNE 30 AND AUGUST 15 TO NOVEMBER 15.
8. SOD INSTALLATION: THE SOD BED SHALL BE MOIST AND BE WATERED CONTINUOUSLY DURING THE SODDING OPERATION. SOD SHALL BE LAID IN THE LONGEST DIMENSION PARALLEL TO THE CONTOURS. THE FIRST ROW OF SOD SHALL BE LAID A STRAIGHT LINE WITH THE SUBSEQUENT ROWS PLACED PARALLEL TO AND TIGHTLY AGAINST EACH OTHER. LATERAL/VERTICAL JOINTS SHALL BE STAGGERED BY A MINIMUM OF 12" TO PROMOTE UNIFORM GROWTH AND STRENGTH. SOD SHALL NOT BE STRETCHED OR OVERLAPPED AND ALL JOINTS SHALL BE BUTTED TIGHT.
9. AFTER THE SOD IS PLACED, IT SHALL BE PRESSED FIRMLY INTO CONTACT WITH THE SOD BED BY TAMPING OR HAND ROLLING. THIS PROCEDURE SHALL NOT DEFORM THE SOD. THE CONTRACTOR SHALL CUT THE SOD TO LINE AS INDICATED ON THE PLAN OR AS DIRECTED BY THE LANDSCAPE ARCHITECT.

SEEDING

10. AFTER THE SEED BED IS PREPARED SEED IS TO BE BROADCAST EVENLY OVER THE SURFACE AND WORKED INTO THE TOP 1" OF SOIL. SEED SHALL BE APPROVED URI #2 (AVAILABLE FROM ALLEN'S SEED STORE, SOUTH COUNTY TRAIL, EXETER, RI) OR APPROVED EQUAL; APPLY AT A RATE OF 4–5 LBS. PER 1000 SQUARE FEET.
11. RECOMMENDED SEEDING DATES ARE MARCH 15 TO JUNE 15 AND SEPTEMBER 15 TO NOVEMBER 15.
12. RATHER THAN SEEDING AS DESCRIBED ABOVE, THE CONTRACTOR MAY HYDROSEED USING AN EQUIVALENT SEED MIX.

RECEIVED
OCT. 2 3 2009
FRESHWATER WETLANDS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 2 9 2009 FILE # 07-0236
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Charles A. Horbert

Applicant:
Bucci Development, Inc.
57 Foster Street
Warwick, Rhode Island 02889
Tel: (401) 737-4111

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
3	9-4-09	REVISE PLANTINGS	B.C.G.
2	4-2-09	REVISE PLANT SCHEDULE	J.R.L.
1	2-20-09	PER DEP/RIDEM	J.R.L.
0	2-5-09	PER DEP/RIDEM	B.C.G.

RIDEM Submission

WETLAND PLANTING DETAILS

Dowling Village - Phases II, III, & IV

AP 13 LOTS 44, 53, & 123 AND A PORTION OF LOTS 18, 20, 21 & 76
AP 21 LOTS 30, 31, 32, 61 & 71
NORTH SMITHFIELD, RHODE ISLAND

DATE: APRIL, 2008 DWN. BY: J.R.L.

DEA Job No. 0617–004–2 Copyright© 2007 by DiPrete Engineering Associates, Inc.

REGISTERED LANDSCAPE ARCHITECT JOHN C. CARTER NO. 208

THIS STAMP IS TO CERTIFY THE LOCATION, SELECTION, AND INSTALLATION OF THE PLANT MATERIALS ONLY.

Sheet
81
of 89

RAIN GARDEN "AA" (SEE DETAIL 1/NEE-8)

RAIN GARDEN "K" (SEE DETAIL 2/NEE-8)

BASIN "A" (SEE DETAIL 1/NEE-2)

BOOTH POND

BASIN "H" (SEE DETAIL 2/NEE-4)

RAIN GARDEN "T" (SEE DETAIL 3/NEE-6)

RAIN GARDEN "Q" (SEE DETAIL 1/NEE-3)

BASIN "D" (SEE DETAIL 2/NEE-2)

RAIN GAREDEN "M" (SEE DETAIL 2/NEE-7)

RAIN GARDEN "R" (SEE DETAIL 2/NEE-6)

RAIN GARDEN "S" (SEE DETAIL 2/NEE-6)

BASIN "E" (SEE DETAIL 1/NEE-3)

RAIN GARDEN "U" (SEE DETAIL 1/NEE-4)

BASIN "I" (SEE DETAIL 1/NEE-7)

RAIN GARDEN "C" (SEE DETAIL 1/NEE-4)

RAIN GARDEN "V" (SEE DETAIL 1/NEE-5)

BASIN "G" (SEE DETAIL 2/NEE-3)

RAIN GARDEN "W" (SEE DETAIL 2/NEE-3)

BASIN "F" (SEE DETAIL 1/NEE-5)

RAIN GARDEN "Y" AND "X" & BASIN "J" (SEE DETAIL 1/NEE-6)

RAIN GARDEN "Z" (SEE DETAIL 2/NEE-3)

OCT 2 3 2009

LEGEND

- STORMWATER BASIN PLANTING PLANS (SEE SHEETS NEE- 2, 3, 4, 5, 6, 7 & 8)
- EROSION CONTROL BARRIER (SEE ENGINEERING PLANS)
- WETLAND AREA
- WETLAND LINE
- 50' WETLAND BUFFER LINE
- 100' BUFFER
- 150' BUFFER

0 75 150 300 450 FEET

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS SECTION
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER DATED
DATED Oct 2 2009 FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Charles A. Horbert

1 / NEE-1 OVERALL SITE PLAN
SCALE: 1"=150'-0"

Prepared by:
NEW ENGLAND ENVIRONMENTAL, INC.
ENVIRONMENTAL CONSULTING SERVICES
9 RESEARCH DRIVE
AMHERST, MA 01002
TEL: (413) 256 0202
FAX: (413) 256 1092
WWW.NEEINC.COM

Prepared for:
Bucci Development, Inc.
48 Hewett Street
Warwick, RI 02889
(401) 737-4111

Base Plan Information Prepared by:
DiPrete Engineering Associates, Inc.
ENGINEERING, SURVEYING AND PLANNING CONSULTANTS
TWO STAFFORD COURT
CRANSTON, RI 02920
(401) 943-1000 FAX: (401) 464-6006

STORMWATER MANAGMENT / WATER QUALITY AND EROSION CONTROL OVERALL SITE PLAN

DOWLING VILLAGE - PHASES II-IV

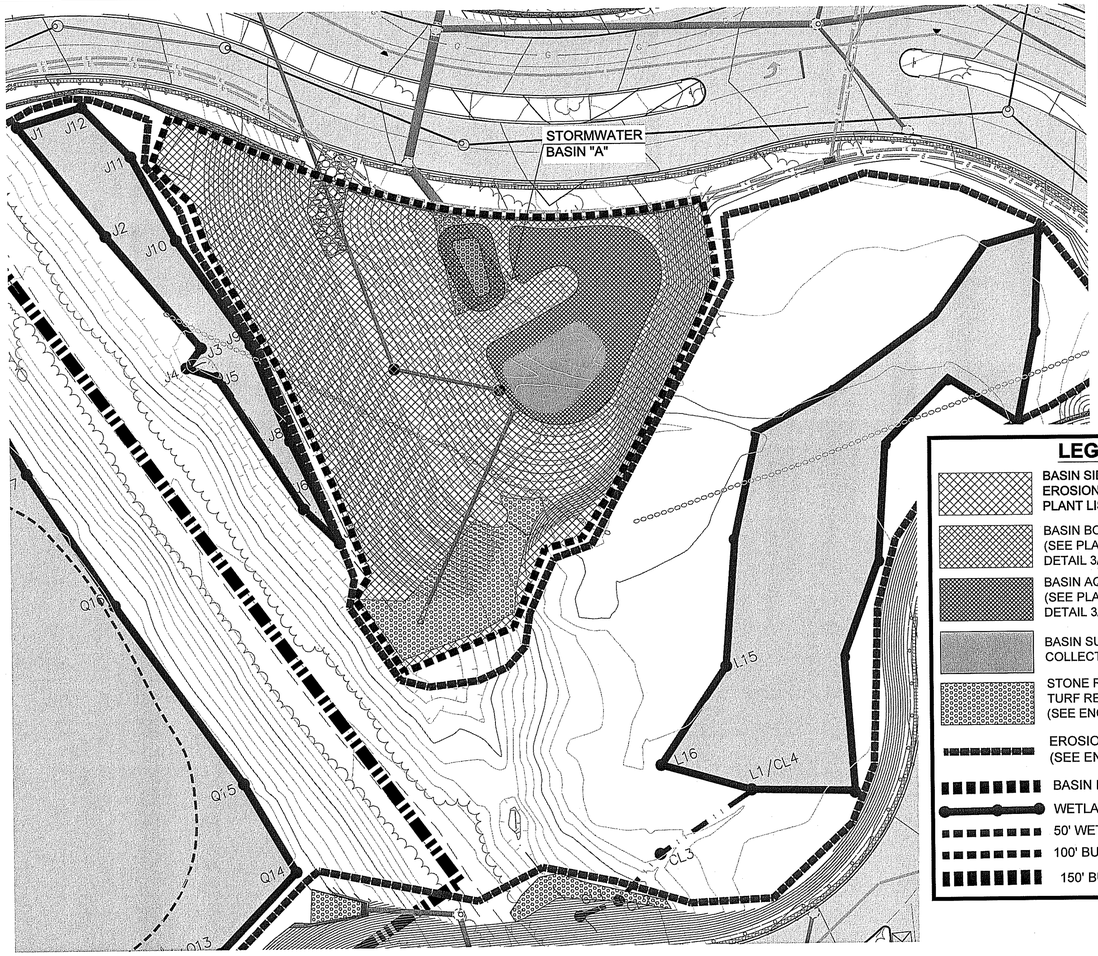
ASSESSORS PLAT 21 - LOTS 25, 26, 50, 58 (PORTION)
NORTH SMITHFIELD, RHODE ISLAND

Date:	4-25-07
Scale:	AS SHOWN
Drawn by:	AJB
Checked by:	MJM
NEE File #	09-3372
RI #	07-0236

REVISIONS	DATE:	BY:
REVISION #1 per RIDEM Comments	11-9-07	AJB
REVISION #2	4-23-09	AJB
REVISION #3	9-01-09	BCG
REVISION #4	10-20-09	BCG

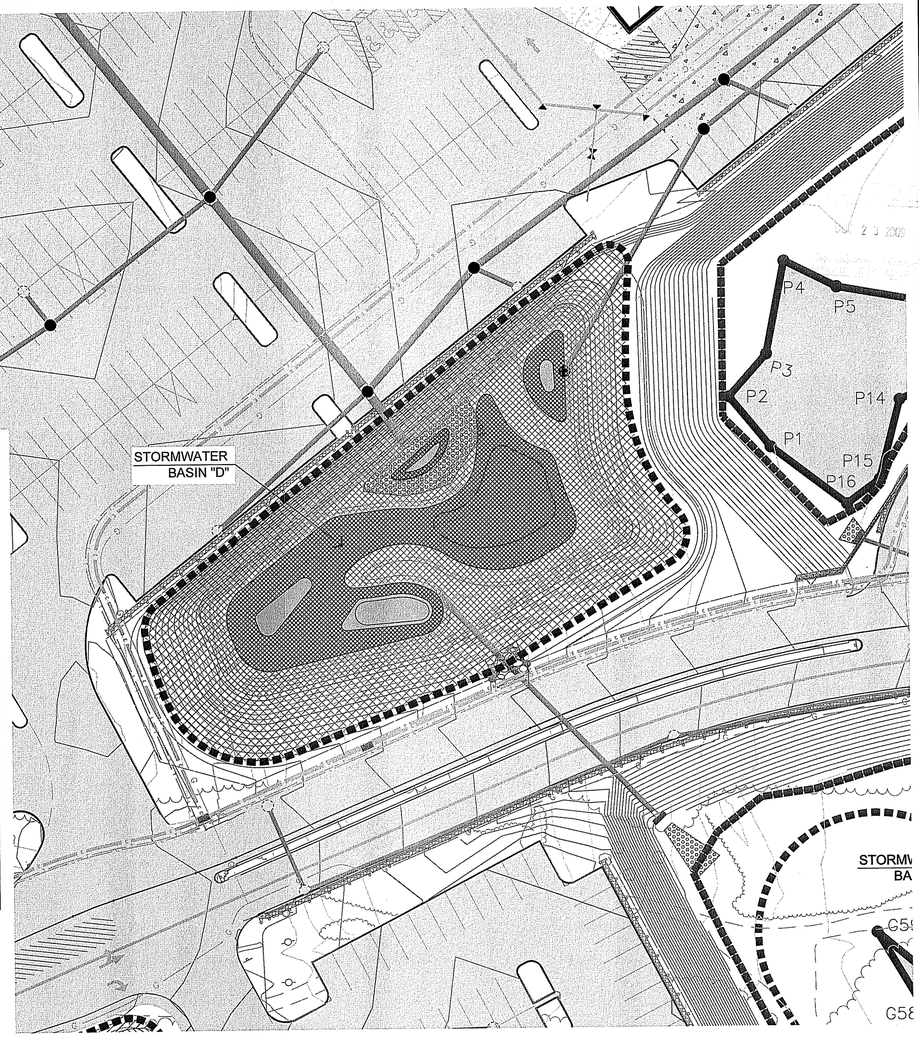
NEE-3
82 of
89

CERTIFIED PROFESSIONAL IN STORMWATER QUALITY
CPSWQ
Michael J. Marcus
No. 0048



LEGEND

- BASIN SIDE SLOPE PLANTING AND EROSION CONTROL BLANKET (SEE PLANT LIST AND ENGINEERING PLANS)
- BASIN BOTTOM PLANTING (SEE PLANT LIST AND DETAIL 3/NEE-7)
- BASIN AQUATIC PLANTING (SEE PLANT LIST AND DETAIL 3/NEE-7)
- BASIN SUMP AREA FOR SEDIMENT COLLECTION
- STONE RIP-RAP COVERED WITH TURF REINFORCEMENT MAT (SEE ENGINEERING PLANS)
- EROSION CONTROL BARRIER (SEE ENGINEERING PLANS)
- BASIN PLANTING LIMITS
- WETLAND LINE
- 50' WETLAND BUFFER LINE
- 100' BUFFER
- 150' BUFFER



PLANT LIST: BASIN "A"

	COMMON NAME	SCIENTIFIC NAME	QUANTITY	SIZE	SPACING	GROUPING
	BASIN AQUATICS AREA (MICRO-POOLS) 3,200 S.F.					
	Blue Flag Iris	Iris versicolor	250	2"plugs/bare root	1' o.c.	groups of 25
	Duck Potato	Sagittaria latifolia	250	2"plugs/bare root	1' o.c.	groups of 25
	Pickerelweed	Pontederia cordata	250	2"plugs/bare root	1' o.c.	groups of 25
	Burreed	Sparganium americanum	250	2"plugs/bare root	1' o.c.	groups of 25
	Soft-stem Bulrush	Scirpus validus	250	2"plugs/bare root	1' o.c.	groups of 25
	N.E. Wet Mix		2 lbs. (throughout)			
	BASIN BOTTOM AREA - 2,300 S.F.					
	Blue Flag Iris	Iris versicolor	160	2"plugs/bare root	1' o.c.	groups of 25
	Soft Rush	Juncus effusus	160	2"plugs/bare root	1' o.c.	groups of 25
	Woolgrass	Scirpus cyperinus	160	2"plugs/bare root	1' o.c.	groups of 25
	Lurid Sedge	Carex lurida	160	2"plugs/bare root	1' o.c.	groups of 25
	N.E. Moist Mix		4 lbs. (throughout)			
	BASIN SIDE SLOPES - 18,500 S.F.					
	N.E. Conservation / Wildife Seed Mix		10 lbs. (thoughout)			

1 / NEE-2 BASIN "A" PLANTING PLAN AND PLANT LIST
SCALE: 1"=30'-0"

0 15 30 60 90 FEET

PLANT LIST: BASIN "D"

	COMMON NAME	SCIENTIFIC NAME	QUANTITY	SIZE	SPACING	GROUPING
	BASIN AQUATICS AREA (MICRO-POOLS) 6,250 S.F.					
	Blue Flag Iris	Iris versicolor	380	2"plugs/bare root	1' o.c.	groups of 25
	Duck Potato	Sagittaria latifolia	380	2"plugs/bare root	1' o.c.	groups of 25
	Pickerelweed	Pontederia cordata	380	2"plugs/bare root	1' o.c.	groups of 25
	Burreed	Sparganium americanum	380	2"plugs/bare root	1' o.c.	groups of 25
	Soft-stem Bulrush	Scirpus validus	380	2"plugs/bare root	1' o.c.	groups of 25
	N.E. Wet Mix		4 lbs. (throughout)			
	BASIN BOTTOM AREA - 7,600 S.F.					
	Blue Flag Iris	Iris versicolor	420	2"plugs/bare root	1' o.c.	groups of 25
	Soft Rush	Juncus effusus	375	2"plugs/bare root	1' o.c.	groups of 25
	Woolgrass	Scirpus cyperinus	375	2"plugs/bare root	1' o.c.	groups of 25
	Lurid Sedge	Carex lurida	375	2"plugs/bare root	1' o.c.	groups of 25
	N.E. Moist Mix		5 lbs. (throughout)			
	BASIN SIDE SLOPES - 10,100 S.F.					
	N.E. Conservation / Wildife Seed Mix		6 lbs. (thoughout)			

2 / NEE-2 BASIN "D" PLANTING PLAN AND PLANT LIST
SCALE: 1"=30'-0"

0 15 30 60 90 FEET

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
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STORMWATER MANAGEMENT / WATER QUALITY PLANS

DOWLING VILLAGE - PHASES II-IV

ASSESSORS PLAT 21 - LOTS 25, 26, 50, 58 (PORTION)
NORTH SMITHFIELD, RHODE ISLAND

Date:	4-25-07
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NEE-3
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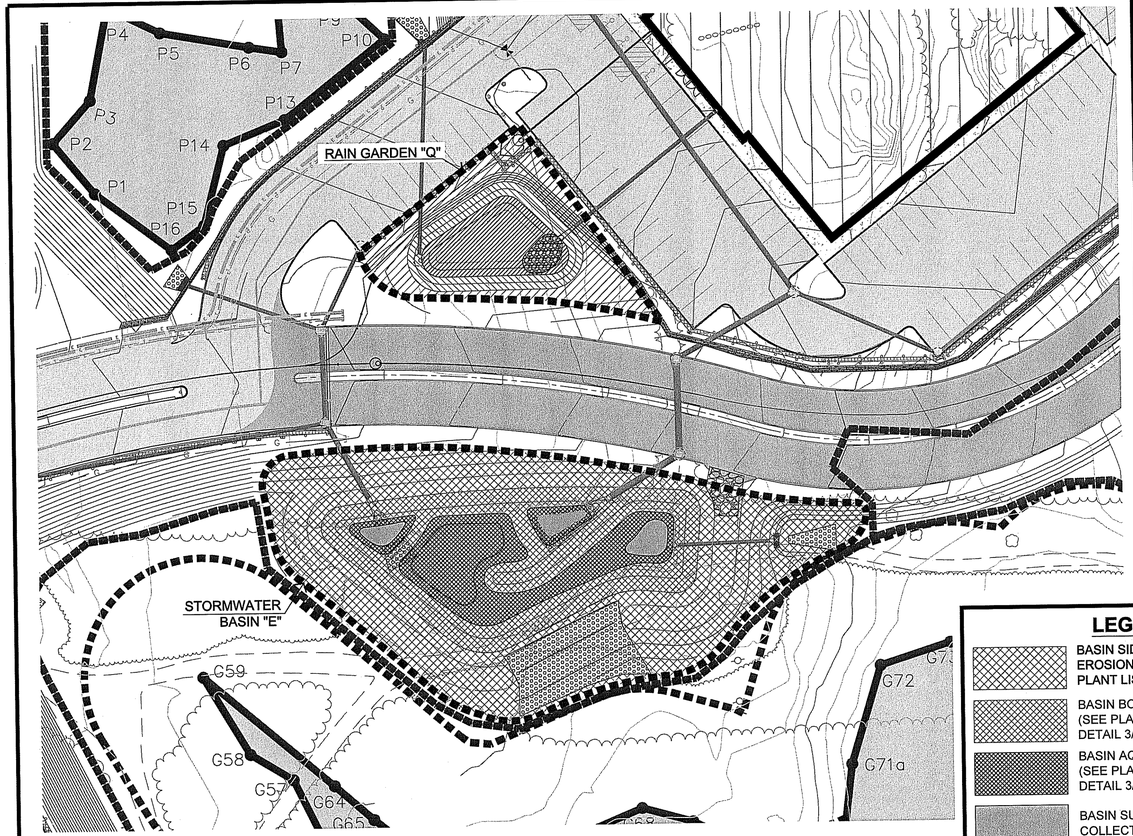
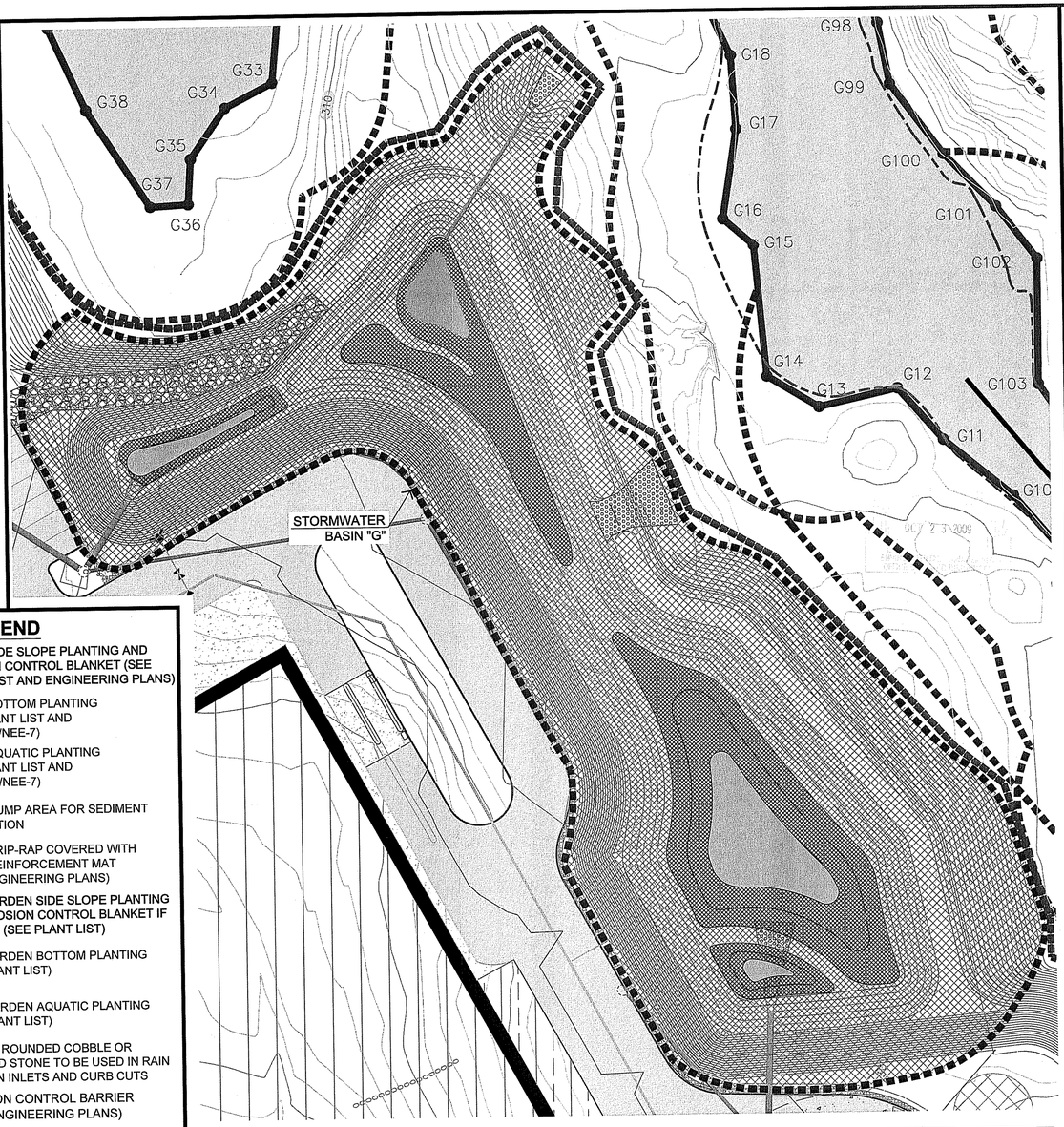
89

CERTIFIED PROFESSIONAL IN STORM WATER QUALITY
CPSWQ
Michael J. Manning
No. 0248





LEGEND

- BASIN SIDE SLOPE PLANTING AND EROSION CONTROL BLANKET (SEE PLANT LIST AND ENGINEERING PLANS)
- BASIN BOTTOM PLANTING (SEE PLANT LIST AND DETAIL 3/NEE-7)
- BASIN AQUATIC PLANTING (SEE PLANT LIST AND DETAIL 3/NEE-7)
- BASIN SUMP AREA FOR SEDIMENT COLLECTION
- STONE RIP-RAP COVERED WITH TURF REINFORCEMENT MAT (SEE ENGINEERING PLANS)
- RAIN GARDEN SIDE SLOPE PLANTING AND EROSION CONTROL BLANKET IF NEEDED (SEE PLANT LIST)
- RAIN GARDEN BOTTOM PLANTING (SEE PLANT LIST)
- RAIN GARDEN AQUATIC PLANTING (SEE PLANT LIST)
- 3" TO 6" ROUNDED COBBLE OR WASHED STONE TO BE USED IN RAIN GARDEN INLETS AND CURB CUTS
- EROSION CONTROL BARRIER (SEE ENGINEERING PLANS)
- BASIN PLANTING LIMITS
- WETLAND LINE
- 50' WETLAND BUFFER LINE
- 100' BUFFER

PLANT LIST: RAIN GARDEN "Q"

	COMMON NAME	SCIENTIFIC NAME	QUANTITY	SIZE	SPACING	GROUPING
	RAIN GARDEN BOTTOM - 1,300 S.F.					
	Soft Rush	Juncus effusus	500	2"plugs/bare root	1' o.c.	groups of 25
	Red-osier Dogwood	Cornus sericea	26	3'-4' HGT	5' o.c.	groups of 10
	Inkberry	Ilex glabra	26	3'-4' HGT	5' o.c.	groups of 10
	RAIN GARDEN LOWER SIDE SLOPE AREA - 1,000 S.F.					
	Stella d'Oro Daylily	Hemerocallis Stella d'Oro	500	2"plugs/bare root	18" o.c.	groups of 25
	Black-eyed Susan	Rudbeckia Goldsturm	500	2"plugs/bare root	18" o.c.	groups of 25
	RAIN GARDEN SIDE SLOPES - 2,600 S.F.					
	Turf Grass/Sod		throughout			

PLANT LIST: BASIN "E"

	COMMON NAME	SCIENTIFIC NAME	QUANTITY	SIZE	SPACING	GROUPING
	BASIN AQUATICS AREA (MICRO-POOLS) 2,750 S.F.					
	Blue Flag Iris	Iris versicolor	200	2"plugs/bare root	1' o.c.	groups of 25
	Duck Potato	Sagittaria latifolia	250	2"plugs/bare root	1' o.c.	groups of 25
	Pickerelweed	Pontederia cordata	250	2"plugs/bare root	1' o.c.	groups of 25
	Burreed	Sparganium americanum	200	2"plugs/bare root	1' o.c.	groups of 25
	Soft-stem Bulrush	Scirpus validus	250	2"plugs/bare root	1' o.c.	groups of 25
	N.E. Wet Mix		2 lbs. (throughout)			
	BASIN BOTTOM AREA - 4,500 S.F.					
	Blue Flag Iris	Iris versicolor	325	2"plugs/bare root	1' o.c.	groups of 25
	Soft Rush	Juncus effusus	325	2"plugs/bare root	1' o.c.	groups of 25
	Woolgrass	Scirpus cyperinus	325	2"plugs/bare root	1' o.c.	groups of 25
	Lurid Sedge	Carex lurida	325	2"plugs/bare root	1' o.c.	groups of 25
	N.E. Moist Mix		3 lbs. (throughout)			
	BASIN SIDE SLOPES - 12,000 S.F.					
	N.E. Conservation / Wildife Seed Mix		6 lbs. (thoughout)			

1 NEE-3 RAIN GARDEN "Q" AND BASIN "E" PLANTING PLAN AND PLANT LIST
SCALE: 1"=30'-0"

0 15 30 60 90 FEET

PLANT LIST: BASIN "G"

	COMMON NAME	SCIENTIFIC NAME	QUANTITY	SIZE	SPACING	GROUPING
	BASIN AQUATICS AREA (MICRO-POOLS) 10,675 S.F.					
	Blue Flag Iris	Iris versicolor	800	2"plugs/bare root	1' o.c.	groups of 25
	Duck Potato	Sagittaria latifolia	800	2"plugs/bare root	1' o.c.	groups of 25
	Pickerelweed	Pontederia cordata	800	2"plugs/bare root	1' o.c.	groups of 25
	Burreed	Sparganium americanum	800	2"plugs/bare root	1' o.c.	groups of 25
	Soft-stem Bulrush	Scirpus validus	800	2"plugs/bare root	1' o.c.	groups of 25
	N.E. Wet Mix		6 lbs. (throughout)			
	BASIN BOTTOM AREA - 18,300 S.F.					
	Blue Flag Iris	Iris versicolor	875	2"plugs/bare root	1' o.c.	groups of 25
	Soft Rush	Juncus effusus	875	2"plugs/bare root	1' o.c.	groups of 25
	Woolgrass	Scirpus cyperinus	875	2"plugs/bare root	1' o.c.	groups of 25
	Lurid Sedge	Carex lurida	875	2"plugs/bare root	1' o.c.	groups of 25
	N.E. Moist Mix		9 lbs. (throughout)			
	BASIN SIDE SLOPES - 41,150 S.F.					
	N.E. Conservation / Wildife Seed Mix		21 lbs. (thoughout)			

2 NEE-3 BASIN "G" PLANTING PLAN AND PLANT LIST
SCALE: 1"=30'-0"

0 15 30 60 90 FEET

STATE OF RHODE ISLAND
OFFICE OF ENVIRONMENTAL RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED CONDITIONALLY
AS SPECIFIED IN THE LETTER OF
DATED 10/2/09 FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
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Charles A. Horbert

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STORMWATER MANAGMENT / WATER QUALITY PLANS

DOWLING VILLAGE - PHASES II-IV
ASSESSORS PLAT 21 - LOTS 25, 26, 50, 58 (PORTION)
NORTH SMITHFIELD, RHODE ISLAND

Date:	4-25-07
Scale:	AS SHOWN
Drawn by:	AJB
Checked by:	MJM
NEE File #	07-2999
RI #	07-0236

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REVISION #3	9-01-09	BCG
REVISION #4	10-20-09	BCG

NEE-3
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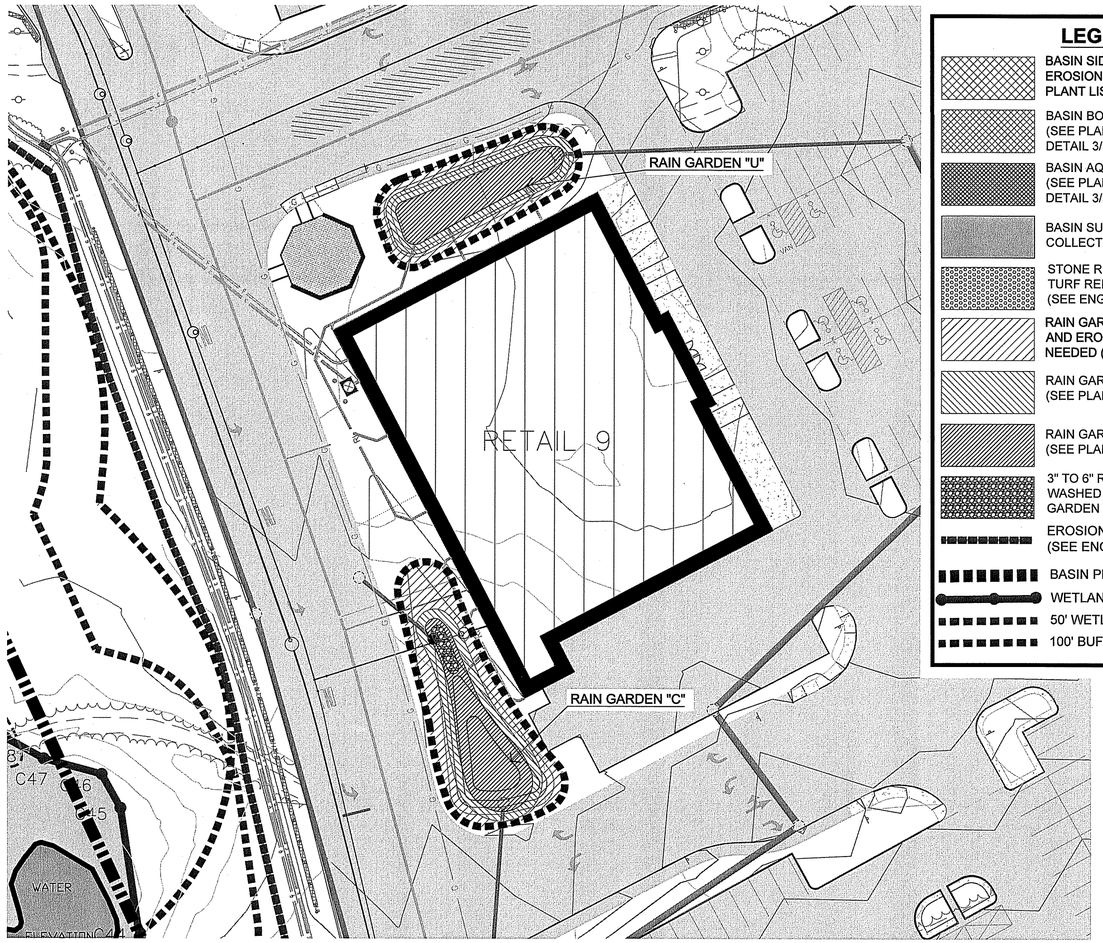
89

CPSWQ Richard J. Marcus No. 0268 CERTIFIED PROFESSIONAL IN STORMWATER QUALITY



LEGEND

- BASIN SIDE SLOPE PLANTING AND EROSION CONTROL BLANKET (SEE PLANT LIST AND ENGINEERING PLANS)
- BASIN BOTTOM PLANTING (SEE PLANT LIST AND DETAIL 3/NEE-7)
- BASIN AQUATIC PLANTING (SEE PLANT LIST AND DETAIL 3/NEE-7)
- BASIN SUMP AREA FOR SEDIMENT COLLECTION
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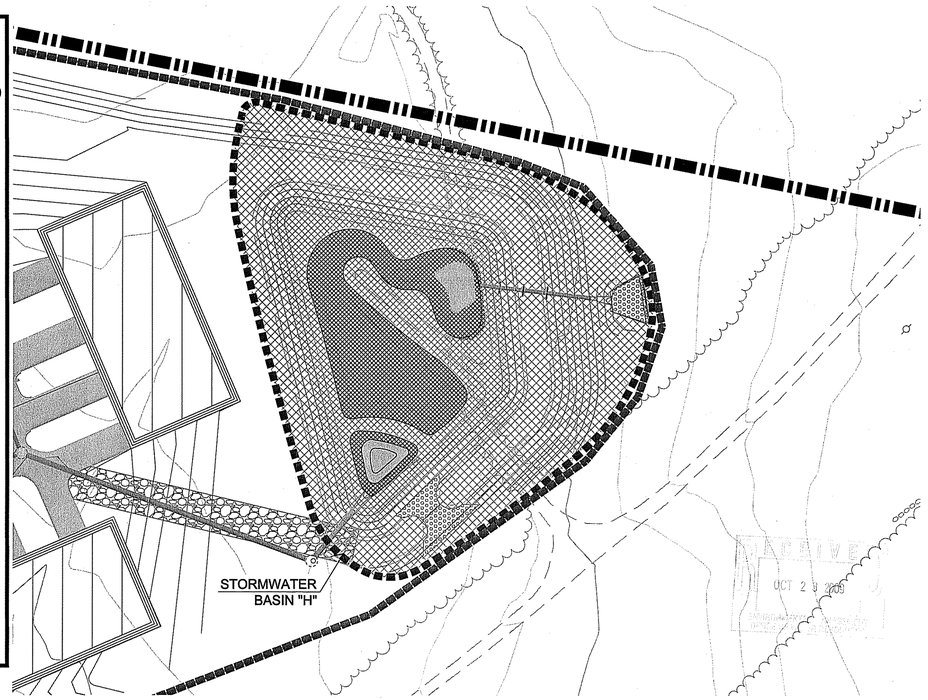
- EROSION CONTROL BARRIER (SEE ENGINEERING PLANS)
- BASIN PLANTING LIMITS
- WETLAND LINE
- 50' WETLAND BUFFER LINE
- 100' BUFFER

PLANT LIST: RAIN GARDEN "U"						
	COMMON NAME	SCIENTIFIC NAME	QUANTITY	SIZE	SPACING	GROUPING
RAIN GARDEN BOTTOM - 1,250S.F.						
	Soft Rush	Juncus effusus	500	2"plugs/bare root	1' o.c.	groups of 25
	Red-osier Dogwood	Cornus sericea	25	3'-4' HGT	5' o.c.	groups of 5
	Inkberry	Ilex glabra	25	3'-4' HGT	5' o.c.	groups of 5
RAIN GARDEN LOWER SIDE SLOPE AREA - 750 S.F.						
	Stella d'Oro Daylily	Hemerocallis Stella d'Oro	250	1 QUART	18" o.c.	groups of 25
	Black-eyed Susan	Rudbeckia Goldsturm	250	1 QUART	18" o.c.	groups of 25
RAIN GARDEN SIDE SLOPES - 950 S.F.						
	Turf Grass/Sod		throughout			

PLANT LIST: RAIN GARDEN "C"						
	COMMON NAME	SCIENTIFIC NAME	QUANTITY	SIZE	SPACING	GROUPING
RAIN GARDEN BOTTOM - 1,100 S.F.						
	Soft Rush	Juncus effusus	500	2"plugs/bare root	1' o.c.	groups of 25
	Sweet Pepperbush	Clethra alnifolia	22	3'-4' HGT	5' o.c.	groups of 5
	Bayberry	Myrica pensylvanica	22	3'-4' HGT	5' o.c.	groups of 5
RAIN GARDEN LOWER SIDE SLOPE AREA - 850 S.F.						
	Stella d'Oro Daylily	Hemerocallis Stella d'Oro	280	1 QUART	18" o.c.	groups of 25
	Black-eyed Susan	Rudbeckia Goldsturm	280	1 QUART	18" o.c.	groups of 25
RAIN GARDEN SIDE SLOPES - 1,680 S.F.						
	Turf Grass/Sod		throughout			

1 NEE-4 RIAN GARDEN "C" AND "U" PLANTING PLAN AND PLANT LIST
SCALE: 1"=30'-0"

0 15 30 60 90 FEET



PLANT LIST: BASIN "H"						
	COMMON NAME	SCIENTIFIC NAME	QUANTITY	SIZE	SPACING	GROUPING
BASIN AQUATICS AREA (MICRO-POOLS) 4,050 S.F.						
	Blue Flag Iris	Iris versicolor	300	2"plugs/bare root	1' o.c.	groups of 25
	Duck Potato	Sagittaria latifolia	300	2"plugs/bare root	1' o.c.	groups of 25
	Pickerelweed	Pontederia cordata	300	2"plugs/bare root	1' o.c.	groups of 25
	Burreed	Sparganium americanum	300	2"plugs/bare root	1' o.c.	groups of 25
	Soft-stem Bulrush	Scirpus validus	300	2"plugs/bare root	1' o.c.	groups of 25
	N.E. Wet Mix		3 lbs. (throughout)			
BASIN BOTTOM AREA -4,800 S.F.						
	Blue Flag Iris	Iris versicolor	350	2"plugs/bare root	1' o.c.	groups of 25
	Soft Rush	Juncus effusus	350	2"plugs/bare root	1' o.c.	groups of 25
	Woolgrass	Scirpus cyperinus	350	2"plugs/bare root	1' o.c.	groups of 25
	Lurid Sedge	Carex lurida	350	2"plugs/bare root	1' o.c.	groups of 25
	N.E. Moist Mix		3 lbs. (throughout)			
BASIN SIDE SLOPES - 14,000 S.F.						
	N.E. Conservation / Wildife Seed Mix		7 lbs. (throughout)			

2 NEE-4 BASIN "H" PLANTING PLAN AND PLANT LIST
SCALE: 1"=30'-0"

0 15 30 60 90 FEET

NEW ENGLAND CONSERVATION/WILDLIFE SEED MIX	
SPECIES	PERCENT
Big Bluestem (Andropogon gerardii)	20
Little Bluestem (Schizachyrium scoparium)	20
Switchgrass (Panicum virgatum)	20
Fox Sedge (Carex vulpinoidea)	10
Silky Wild Rye (Elymus villosus)	8
Common Milkweed (Asclepias syriaca)	5
Deertongue (Panicum clandestinum)	5
Pennsylvania Smartweed (Polygonum pensylvanicum)	5
Partridge Pea (Chamaecrista fasciculata)	4
Silky Smooth Aster (Aster laevis)	1.5
Nodding Bur-Marigold (Bidens cernua)	1
Flat-top Aster (Aster umbellatus)	0.5
TOTAL	100

NEW ENGLAND WETMIX	
SPECIES	PERCENT
Fox Sedge (Carex vulpinoidea)	40
Hop Sedge (Carex lupulina)	6
Water Plantain (Alisma plantago-aquatica)	5
Nodding Bur Marigold (Bidens cernua)	5
Lurid Sedge (Carex lurida)	5
Soft Rush (Juncus effusus)	5
Grass-leaved Goldenrod (Solidago graminifolia)	5
Bearded Sedge (Carex comosa)	4
Fringed Sedge (Carex crinita)	4
Boneset (Eupatorium perfoliatum)	4
Flat-top Aster (Aster umbellatus)	3
Hard-stem Bulrush (Scirpus acutus)	3
Green Bulrush (Scirpus atrovirens)	3
Woolgrass (Scirpus cyperinus)	3
Spotted Joe Pye weed (Eupatorium maculatum)	2
Blue Vervain (Verbena hastata)	2
Ditch Stonecrop (Penthorum sedoides)	1
TOTAL	100

NEW ENGLAND MOIST MIX	
SPECIES	PERCENT
Upland Bentgrass (Agrostis perennans)	32
Creeping Bentgrass (Agrostis stolonifera)	16
Big Bluestem (Andropogon gerardii)	15
Fox Sedge (Carex vulpinoidea)	10
Canada Wild Rye (Elymus canadensis)	7.5
Virginia Wild Rye (Elymus virginicus)	7
Creeping Red Fescue (Festuca rubra)	5.5
Soft Rush (Juncus effusus)	2
Switchgrass (Panicum virgatum)	1
Little Bluestem (Schizachyrium scoparium)	1
Green Bulrush (Scirpus atrovirens)	1
Fringed Sedge (Carex crinita)	1
Spotted Joe Pye weed (Eupatorium maculatum)	0.5
Blue Vervain (Verbena hastata)	0.5
AS SPECIFIED IN THE LETTER OF APPROVAL	100

RECEIVED
OCT 2 9 2009
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
DATED OCT 2 9 2009 FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Charles A. Horbert

Prepared by:
NEW ENGLAND ENVIRONMENTAL, INC.
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STORMWATER MANAGEMENT / WATER QUALITY PLANS & SEED MIX

DOWLING VILLAGE - PHASES II-IV

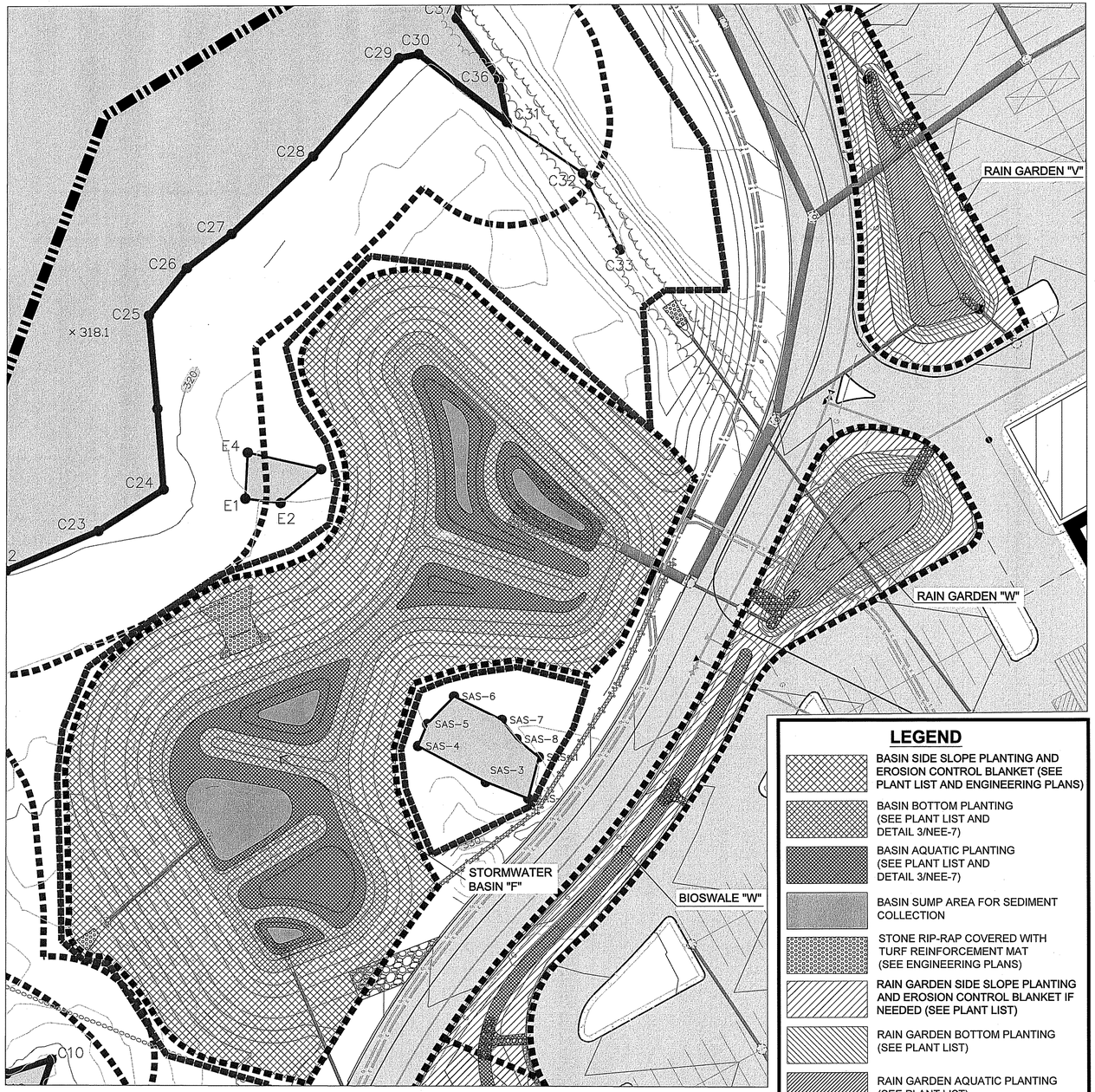
ASSESSORS PLAT 21 - LOTS 25, 26, 50, 58 (PORTION)
NORTH SMITHFIELD, RHODE ISLAND

Date:	4-25-07
Scale:	AS SHOWN
Drawn by:	AJB
Checked by:	MJM
NEE File #	07-2999
RI #	07-0236

REVISIONS	DATE:	BY:
REVISION #1 per RIDEM Comments	11-9-07	AJB
REVISION #2	4-23-09	AJB
REVISION #3	9-01-09	BCG
REVISION #4	10-20-09	BCG

NEE-4
85 of
89

CERTIFIED PROFESSIONAL IN STORM WATER QUALITY
CPSWQ
Michael J. Marcus
No. 0048



LEGEND

- BASIN SIDE SLOPE PLANTING AND EROSION CONTROL BLANKET (SEE PLANT LIST AND ENGINEERING PLANS)
- BASIN BOTTOM PLANTING (SEE PLANT LIST AND DETAIL 3/NEE-7)
- BASIN AQUATIC PLANTING (SEE PLANT LIST AND DETAIL 3/NEE-7)
- BASIN SUMP AREA FOR SEDIMENT COLLECTION
- STONE RIP-RAP COVERED WITH TURF REINFORCEMENT MAT (SEE ENGINEERING PLANS)
- RAIN GARDEN SIDE SLOPE PLANTING AND EROSION CONTROL BLANKET IF NEEDED (SEE PLANT LIST)
- RAIN GARDEN BOTTOM PLANTING (SEE PLANT LIST)
- RAIN GARDEN AQUATIC PLANTING (SEE PLANT LIST)
- 3" TO 6" ROUNDED COBBLE OR WASHED STONE TO BE USED IN RAIN GARDEN INLETS AND CURB CUTS
- EROSION CONTROL BARRIER (SEE ENGINEERING PLANS)
- BASIN PLANTING LIMITS
- WETLAND LINE
- 50' WETLAND BUFFER LINE
- 100' BUFFER
- TURF REINFORCEMENT MAT BELOW GRADE IN GRASSED BIOSWALES TO BE COVERED IN SOD FOR IMMEDIATE STABILITY (SEE PLANT LIST)

PLANT LIST: BASIN "F"

COMMON NAME	SCIENTIFIC NAME	QUANTITY	SIZE	SPACING	GROUPING
BASIN AQUATICS AREA (MICRO-POOLS) 9,700 S.F.					
Blue Flag Iris	Iris versicolor	750	2"plugs/bare root	1' o.c.	groups of 25
Duck Potato	Sagittaria latifolia	750	2"plugs/bare root	1' o.c.	groups of 25
Pickerelweed	Pontederia cordata	750	2"plugs/bare root	1' o.c.	groups of 25
Burreed	Sparganium americanum	750	2"plugs/bare root	1' o.c.	groups of 25
Soft-stem Bulrush	Scirpus validus	750	2"plugs/bare root	1' o.c.	groups of 25
N.E. Wet Mix		5 lbs. (throughout)			
BASIN BOTTOM AREA -13,300 S.F.					
Blue Flag Iris	Iris versicolor	1000	2"plugs/bare root	1' o.c.	groups of 25
Soft Rush	Juncus effusus	1000	2"plugs/bare root	1' o.c.	groups of 25
Woolgrass	Scirpus cyperinus	1000	2"plugs/bare root	1' o.c.	groups of 25
Lurid Sedge	Carex lurida	1000	2"plugs/bare root	1' o.c.	groups of 25
N.E. Moist Mix		7 lbs. (throughout)			
BASIN SIDE SLOPES - 33,000 S.F.					
N.E. Conservation / Wildife Seed Mix		17 lbs. (thoughout)			

1 NEE-5 BASIN "F", RAIN GARDEN "W" & "V", AND BIO-SWALE PLANTING PLAN AND PLANT LIST
SCALE: 1"=30'-0"

0 15 30 60 90 FEET

PLANT LIST: RAIN GARDEN "V"

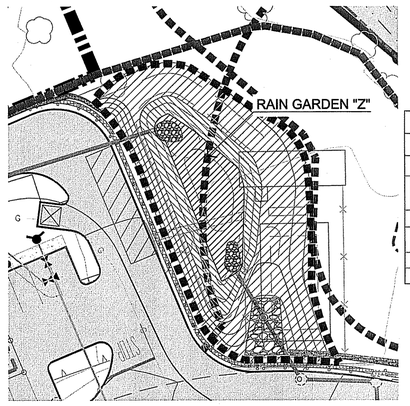
COMMON NAME	SCIENTIFIC NAME	QUANTITY	SIZE	SPACING	GROUPING
RAIN GARDEN BOTTOM - 2,375 S.F.					
Soft Rush	Juncus effusus	500	2"plugs/bare root	1' o.c.	groups of 25
Red-osier Dogwood	Cornus sericea	48	3'-4' HGT	5' o.c.	groups of 5
Inkberry	Ilex glabra	48	3'-4' HGT	5' o.c.	groups of 5
RAIN GARDEN LOWER SIDE SLOPE AREA - 1,600 S.F.					
Stella d'Oro Daylily	Hemerocallis Stella d'Oro	510	1 QUART	18" o.c.	groups of 25
Black-eyed Susan	Rudbeckia Goldsturm	510	1 QUART	18" o.c.	groups of 25
RAIN GARDEN SIDE SLOPES - 4,175 S.F.					
Turf Grass/Sod		throughout			

PLANT LIST: RAIN GARDEN "W"

COMMON NAME	SCIENTIFIC NAME	QUANTITY	SIZE	SPACING	GROUPING
RAIN GARDEN BOTTOM - 2,025 S.F.					
Soft Rush	Juncus effusus	500	2"plugs/bare root	1' o.c.	groups of 25
Sweet Pepperbush	Clethra alnifolia	41	3'-4' HGT	5' o.c.	groups of 5
Bayberry	Myrica pensylvanica	41	3'-4' HGT	5' o.c.	groups of 5
RAIN GARDEN LOWER SIDE SLOPE AREA - 2,100 S.F.					
Stella d'Oro Daylily	Hemerocallis Stella d'Oro	700	1 QUART	18" o.c.	groups of 25
Black-eyed Susan	Rudbeckia Goldsturm	700	1 QUART	18" o.c.	groups of 25
RAIN GARDEN SIDE SLOPES - 5,000 S.F.					
Turf Grass/Sod		throughout			

PLANT LIST: BIO-SWALE

COMMON NAME	SCIENTIFIC NAME	QUANTITY	SIZE	SPACING	GROUPING
BIO-SWALE - 2,350 S.F.					
Turf Grass/Sod		throughout			



PLANT LIST: RAIN GARDEN "Z"

COMMON NAME	SCIENTIFIC NAME	QUANTITY	SIZE	SPACING	GROUPING
RAIN GARDEN BOTTOM - 1,100 S.F.					
Soft Rush	Juncus effusus	200	2"plugs/bare root	1' o.c.	groups of 25
Red-osier Dogwood	Cornus sericea	22	3'-4' HGT	5' o.c.	groups of 5
Inkberry	Ilex glabra	22	3'-4' HGT	5' o.c.	groups of 5
RAIN GARDEN LOWER SIDE SLOPE AREA - 1,400 S.F.					
Stella d'Oro Daylily	Hemerocallis Stella d'Oro	450	1 QUART	18" o.c.	groups of 25
Black-eyed Susan	Rudbeckia Goldsturm	450	1 QUART	18" o.c.	groups of 25
RAIN GARDEN SIDE SLOPES - 4,600 S.F.					
Turf Grass/Sod		throughout			

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Charles A. Horbert

2 NEE-5 RAIN GARDEN "Z" PLANTING PLAN AND PLANT LIST
SCALE: 1"=30'-0"

0 15 30 60 90 FEET

OCT 2 3 2009

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STORMWATER MANAGEMENT / WATER QUALITY PLANS

DOWLING VILLAGE - PHASES II-IV

ASSESSORS PLAT 21 - LOTS 25, 26, 50, 58 (PORTION)
NORTH SMITHFIELD, RHODE ISLAND

Date:	4-25-07
Scale:	AS SHOWN
Drawn by:	AJB
Checked by:	MJM
NEE File #	07-2999
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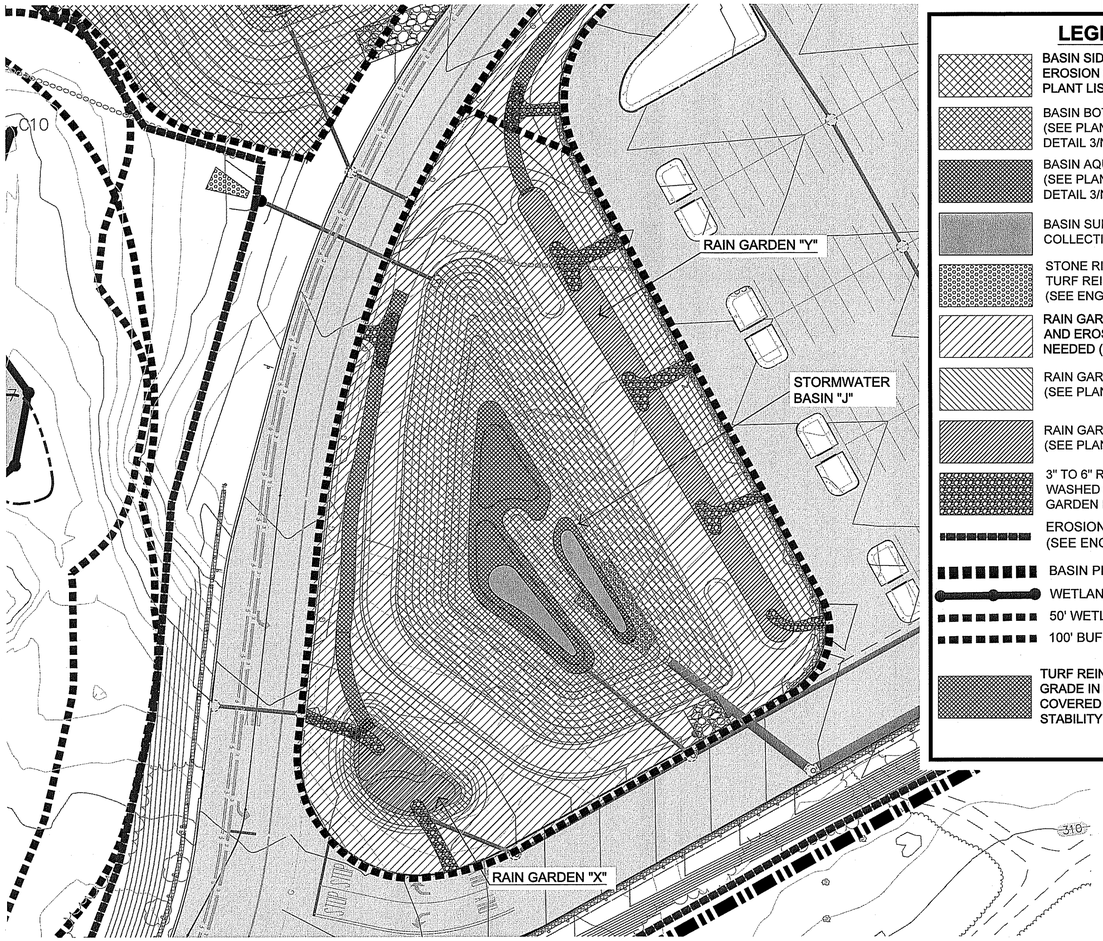
REVISION #2	4-23-09	AJB
REVISION #3	9-01-09	BCG
REVISION #4	10-20-09	BCG

NEE-5
86 of
89

CPSWQ Michael J. Marcus No. 0248 STORMWATER QUALITY



LEGEND

- BASIN SIDE SLOPE PLANTING AND EROSION CONTROL BLANKET (SEE PLANT LIST AND ENGINEERING PLANS)
- BASIN BOTTOM PLANTING (SEE PLANT LIST AND DETAIL 3/NEE-7)
- BASIN AQUATIC PLANTING (SEE PLANT LIST AND DETAIL 3/NEE-7)
- BASIN SUMP AREA FOR SEDIMENT COLLECTION
- STONE RIP-RAP COVERED WITH TURF REINFORCEMENT MAT (SEE ENGINEERING PLANS)
- RAIN GARDEN SIDE SLOPE PLANTING AND EROSION CONTROL BLANKET IF NEEDED (SEE PLANT LIST)
- RAIN GARDEN BOTTOM PLANTING (SEE PLANT LIST)
- RAIN GARDEN AQUATIC PLANTING (SEE PLANT LIST)
- 3" TO 6" ROUNDED COBBLE OR WASHED STONE TO BE USED IN RAIN GARDEN INLETS AND CURB CUTS
- EROSION CONTROL BARRIER (SEE ENGINEERING PLANS)
- BASIN PLANTING LIMITS
- WETLAND LINE
- 50' WETLAND BUFFER LINE
- 100' BUFFER
- TURF REINFORCEMENT MAT BELOW GRADE IN GRASSED BIOSWALES TO BE COVERED IN SOD FOR IMMEDIATE STABILITY (SEE PLANT LIST)

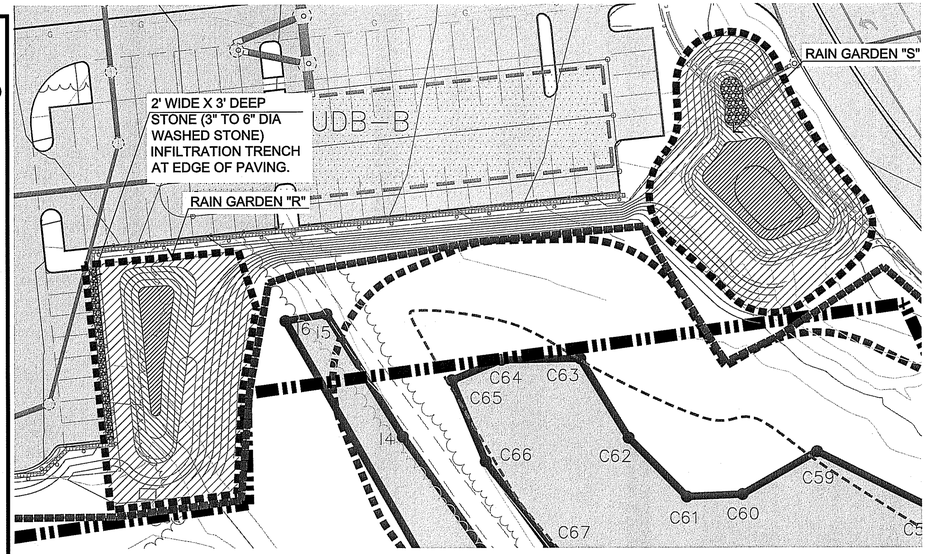
PLANT LIST: BASIN "J"					
COMMON NAME	SCIENTIFIC NAME	QUANTITY	SIZE	SPACING	GROUPING
BASIN AQUATICS AREA (MICRO-POOLS) 2,575 S.F.					
Blue Flag Iris	Iris versicolor	200	2"plugs/bare root	1' o.c.	groups of 25
Duck Potato	Sagittaria latifolia	200	2"plugs/bare root	1' o.c.	groups of 25
Pickerelweed	Pontederia cordata	200	2"plugs/bare root	1' o.c.	groups of 25
Burreed	Sparganium americanum	200	2"plugs/bare root	1' o.c.	groups of 25
Soft-stem Bulrush	Scirpus validus	200	2"plugs/bare root	1' o.c.	groups of 25
N.E. Wet Mix		2 lbs. (throughout)			
BASIN BOTTOM AREA - 4,750 S.F.					
Blue Flag Iris	Iris versicolor	450	2"plugs/bare root	1' o.c.	groups of 25
Soft Rush	Juncus effusus	400	2"plugs/bare root	1' o.c.	groups of 25
Woolgrass	Scirpus cyperinus	400	2"plugs/bare root	1' o.c.	groups of 25
Lurid Sedge	Carex lurida	400	2"plugs/bare root	1' o.c.	groups of 25
N.E. Moist Mix		3 lbs. (throughout)			
BASIN SIDE SLOPES - 9,000 S.F.					
N.E. Conservation / Wildlife Seed Mix		5 lbs. (thoughout)			

PLANT LIST: RAIN GARDEN "Y"					
COMMON NAME	SCIENTIFIC NAME	QUANTITY	SIZE	SPACING	GROUPING
RAIN GARDEN BOTTOM - 2,850 S.F.					
Soft Rush	Juncus effusus	250	2"plugs/bare root	1' o.c.	groups of 25
Red-osier Dogwood	Cornus sericea	16	3'-4' HGT	5' o.c.	groups of 5
Inkberry	Ilex glabra	16	3'-4' HGT	5' o.c.	groups of 5
Stella d'Oro Daylily	Hemerocallis Stella d'Oro	700	1 QUART	18" o.c.	groups of 25
Black-eyed Susan	Rudbeckia Goldsturm	700	1 QUART	18" o.c.	groups of 25
RAIN GARDEN SIDE SLOPES - 18,500 S.F.					
Turf Grass/Sod		throughout			

PLANT LIST: RAIN GARDEN "X"					
COMMON NAME	SCIENTIFIC NAME	QUANTITY	SIZE	SPACING	GROUPING
RAIN GARDEN BOTTOM - 1,100 S.F.					
Soft Rush	Juncus effusus	500	2"plugs/bare root	1' o.c.	groups of 25
Red-osier Dogwood	Cornus sericea	22	3'-4' HGT	5' o.c.	groups of 5
Bayberry	Myrica pensylvanica	22	3'-4' HGT	5' o.c.	groups of 5
RAIN GARDEN LOWER SIDE SLOPE AREA - 625 S.F.					
Stella d'Oro Daylily	Hemerocallis Stella d'Oro	85	1 QUART	18" o.c.	groups of 25
Black-eyed Susan	Rudbeckia Goldsturm	85	1 QUART	18" o.c.	groups of 25

1 NEE-6 RAIN GARDEN "Y" & "X" AND BASIN "J" PLANTING PLAN AND PLANT LIST
SCALE: 1"=30'-0"

0 15 30 60 90 FEET

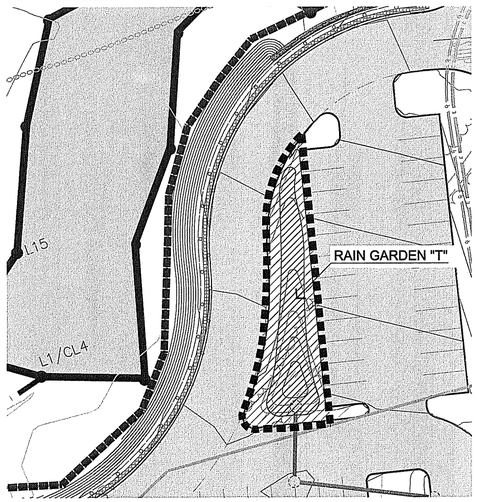


PLANT LIST: RAIN GARDEN "R"					
COMMON NAME	SCIENTIFIC NAME	QUANTITY	SIZE	SPACING	GROUPING
RAIN GARDEN BOTTOM - 500 S.F.					
Soft Rush	Juncus effusus	200	2"plugs/bare root	1' o.c.	groups of 25
Red-osier Dogwood	Cornus sericea	10	3'-4' HGT	5' o.c.	groups of 5
Inkberry	Ilex glabra	10	3'-4' HGT	5' o.c.	groups of 5
RAIN GARDEN LOWER SIDE SLOPE AREA - 1,500 S.F.					
Stella d'Oro Daylily	Hemerocallis Stella d'Oro	375	1 QUART	18" o.c.	groups of 25
Black-eyed Susan	Rudbeckia Goldsturm	375	1 QUART	18" o.c.	groups of 25
RAIN GARDEN SIDE SLOPES - 4,175 S.F.					
Turf Grass/Sod		throughout			

PLANT LIST: RAIN GARDEN "S"					
COMMON NAME	SCIENTIFIC NAME	QUANTITY	SIZE	SPACING	GROUPING
RAIN GARDEN BOTTOM - 1,250 S.F.					
Soft Rush	Juncus effusus	250	2"plugs/bare root	1' o.c.	groups of 25
Red-osier Dogwood	Cornus sericea	25	3'-4' HGT	5' o.c.	groups of 5
Bayberry	Myrica pensylvanica	25	3'-4' HGT	5' o.c.	groups of 5
RAIN GARDEN LOWER SIDE SLOPE AREA - 875 S.F.					
Stella d'Oro Daylily	Hemerocallis Stella d'Oro	200	1 QUART	18" o.c.	groups of 25
Black-eyed Susan	Rudbeckia Goldsturm	200	1 QUART	18" o.c.	groups of 25
RAIN GARDEN SIDE SLOPES - 4,700 S.F.					
Turf Grass/Sod		throughout			

2 NEE-6 RAIN GARDEN "R" & "S" PLANTING PLAN AND PLANT LIST
SCALE: 1"=30'-0"

0 15 30 60 90 FEET



PLANT LIST: RAIN GARDEN "T"					
COMMON NAME	SCIENTIFIC NAME	QUANTITY	SIZE	SPACING	GROUPING
RAIN GARDEN BOTTOM - 1,000 S.F.					
Red-osier Dogwood	Cornus sericea	21	3'-4' HGT	5' o.c.	groups of 5
Bayberry	Myrica pensylvanica	21	3'-4' HGT	5' o.c.	groups of 5
Stella d'Oro Daylily	Hemerocallis Stella d'Oro	200	1 QUART	18" o.c.	groups of 25
Black-eyed Susan	Rudbeckia Goldsturm	200	1 QUART	18" o.c.	groups of 25
RAIN GARDEN SIDE SLOPES - 1,450 S.F.					
Turf Grass/Sod		throughout			

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Charles A. Horbert

3 NEE-6 RAIN GARDEN "T" PLANTING PLAN AND PLANT LIST
SCALE: 1"=30'-0"

0 15 30 60 90 FEET

OCT 2 3 2009

Prepared by:
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DOWLING VILLAGE - PHASES II-IV

ASSESSORS PLAT 21 - LOTS 25, 26, 50, 58 (PORTION)
NORTH SMITHFIELD, RHODE ISLAND

Date:	4-25-07
Scale:	AS SHOWN
Drawn by:	AJB
Checked by:	MJM
NEE File #	07-2999
RI #	07-0236

REVISIONS	DATE:	BY:
REVISION #1 per RIDEM Comments	11-9-07	AJB
REVISION #2	4-23-09	AJB
REVISION #3	9-01-09	BCG
REVISION #4	10-20-09	BCG

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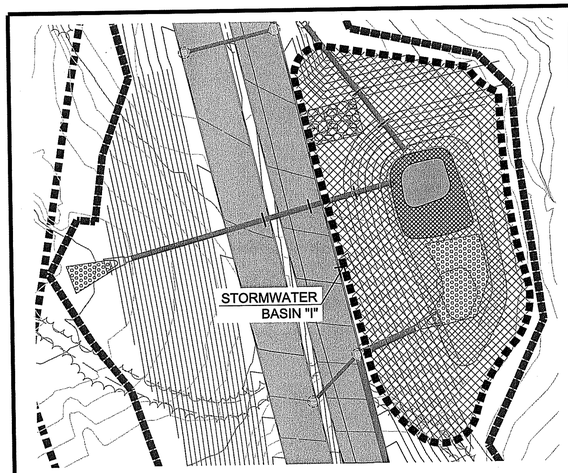
87 of 89

CERTIFIED PROFESSIONAL CPSWQ Michael J. Marcus No. 0248 IN STORM WATER QUALITY

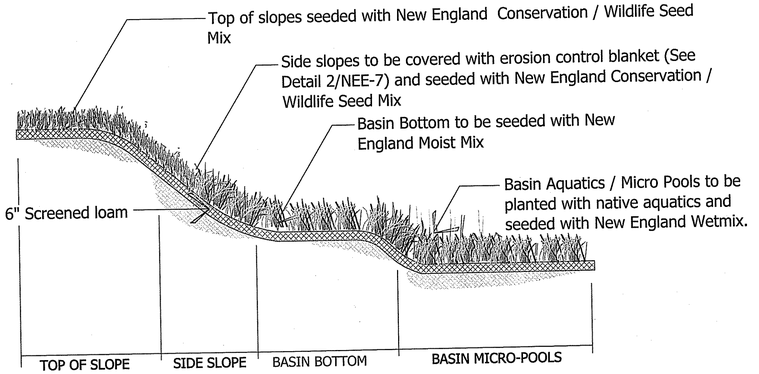


1 NEE-7 POND "I" PLANTING PLAN AND PLANT LIST
SCALE: 1"=30'-0"

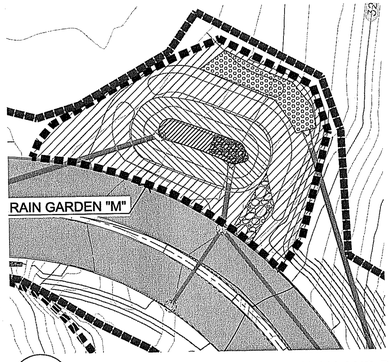
PLANT LIST: BASIN "I"					
COMMON NAME	SCIENTIFIC NAME	QUANTITY	SIZE	SPACING	GROUPING
BASIN AQUATICS AREA (MICRO-POOLS) 675 S.F.					
Blue Flag Iris	Iris versicolor	50	2"plugs/bare root	1' o.c.	groups of 25
Duck Potato	Sagittaria latifolia	50	2"plugs/bare root	1' o.c.	groups of 25
Pickerelweed	Pontederia cordata	50	2"plugs/bare root	1' o.c.	groups of 25
Burreed	Sparganium americanum	50	2"plugs/bare root	1' o.c.	groups of 25
Soft-stem Bulrush	Scirpus validus	50	2"plugs/bare root	1' o.c.	groups of 25
N.E. Wet Mix		1 lbs. (throughout)			
BASIN BOTTOM AREA -1,600 S.F.					
Blue Flag Iris	Iris versicolor	100	2"plugs/bare root	1' o.c.	groups of 25
Soft Rush	Juncus effusus	100	2"plugs/bare root	1' o.c.	groups of 25
Woolgrass	Scirpus cyperinus	100	2"plugs/bare root	1' o.c.	groups of 25
Lurid Sedge	Carex lurida	100	2"plugs/bare root	1' o.c.	groups of 25
N.E. Moist Mix		1 lbs. (throughout)			
BASIN SIDE SLOPES - 7,600 S.F.					
N.E. Conservation / Wildife Seed Mix		4 lbs. (throughout)			

LEGEND

- BASIN SIDE SLOPE PLANTING AND EROSION CONTROL BLANKET (SEE PLANT LIST AND ENGINEERING PLANS)
- BASIN BOTTOM PLANTING (SEE PLANT LIST AND DETAIL 3/NEE-7)
- BASIN AQUATIC PLANTING (SEE PLANT LIST AND DETAIL 3/NEE-7)
- BASIN SUMP AREA FOR SEDIMENT COLLECTION
- STONE RIP-RAP COVERED WITH TURF REINFORCEMENT MAT (SEE ENGINEERING PLANS)
- RAIN GARDEN SIDE SLOPE PLANTING AND EROSION CONTROL BLANKET IF NEEDED (SEE PLANT LIST)
- RAIN GARDEN BOTTOM PLANTING (SEE PLANT LIST)
- RAIN GARDEN AQUATIC PLANTING (SEE PLANT LIST)
- EROSION CONTROL BARRIER (SEE ENGINEERING PLANS)
- BASIN PLANTING LIMITS
- WETLAND LINE
- 50' WETLAND BUFFER LINE
- 100' BUFFER



3 NEE-7 TYPICAL - BASIN SIDE SLOPE CROSS SECTION
SCALE: N.T.S.

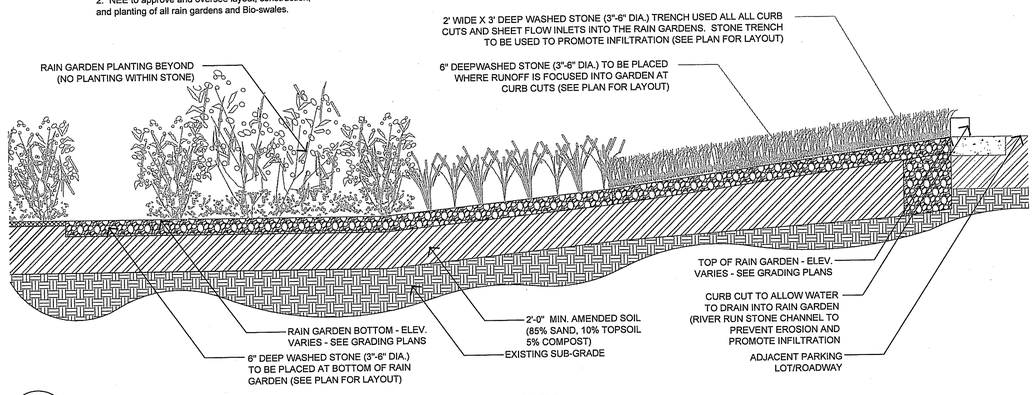


PLANT LIST: RAIN GARDEN "M"						
COMMON NAME	SCIENTIFIC NAME	QUANTITY	SIZE	SPACING	GROUPING
RAIN GARDEN BOTTOM - 250 S.F.					
Soft Rush	Juncus effusus	150	2"plugs/bare root	1' o.c.	groups of 25
Red-osier Dogwood	Cornus sericea	10	3'-4' HGT	5' o.c.	groups of 5
Inkberry	Ilex glabra	10	3'-4' HGT	5' o.c.	groups of 5
RAIN GARDEN LOWER SIDE SLOPE AREA - 1,275 S.F.					
Stella d'Oro Daylily	Hemerocallis Stella d'Oro	890	1 QUART	18" o.c.	groups of 25
Black-eyed Susan	Rudbeckia Goldsturm	890	1 QUART	18" o.c.	groups of 25
RAIN GARDEN SIDE SLOPES - 4,000 S.F.					
N.E. Conservation / Wildife Seed Mix		2 lbs. (throughout)			

2 NEE-7 RAIN GARDEN "M" PLANTING PLAN AND PLANT LIST
SCALE: 1"=30'-0"

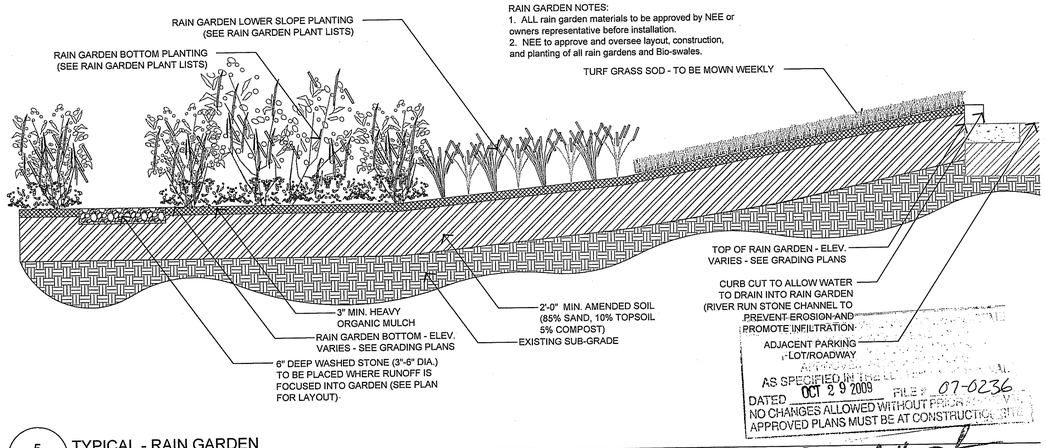
0 15 30 60 90 FEET

RAIN GARDEN NOTES:
1. ALL rain garden materials to be approved by NEE or owners representative before installation.
2. NEE to approve and oversee layout, construction, and planting of all rain gardens and Bio-swales.



4 NEE-7 TYPICAL - RAIN GARDEN WITH STONE CHANNEL AT CURB CUTS
SCALE: 1"=3'-0"

RAIN GARDEN NOTES:
1. ALL rain garden materials to be approved by NEE or owners representative before installation.
2. NEE to approve and oversee layout, construction, and planting of all rain gardens and Bio-swales.



5 NEE-7 TYPICAL - RAIN GARDEN
SCALE: 1"=3'-0"

RECEIVED OCT 2 3 2009 SW/WETLANDS

AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 2 9 2009 FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR WRITTEN APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Charles A. Horbert

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Base Plan Information Prepared by:
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ENGINEERING, SURVEYING AND PLANNING CONSULTANTS
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STORMWATER MANAGMENT / WATER QUALITY PLANS AND RAIN GARDEN DETAILS

DOWLING VILLAGE - PHASES II-IV

ASSESSORS PLAT 21 - LOTS 25, 26, 50, 58 (PORTION)
NORTH SMITHFIELD, RHODE ISLAND

Date:	5-11-07
Scale:	AS SHOWN
Drawn by:	AJB
Checked by:	MJM
NEE File #	07-2999
RI #	07-0236

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REVISION #2	4-23-09	AJB
REVISION #3	9-01-09	BCG
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NEE-7
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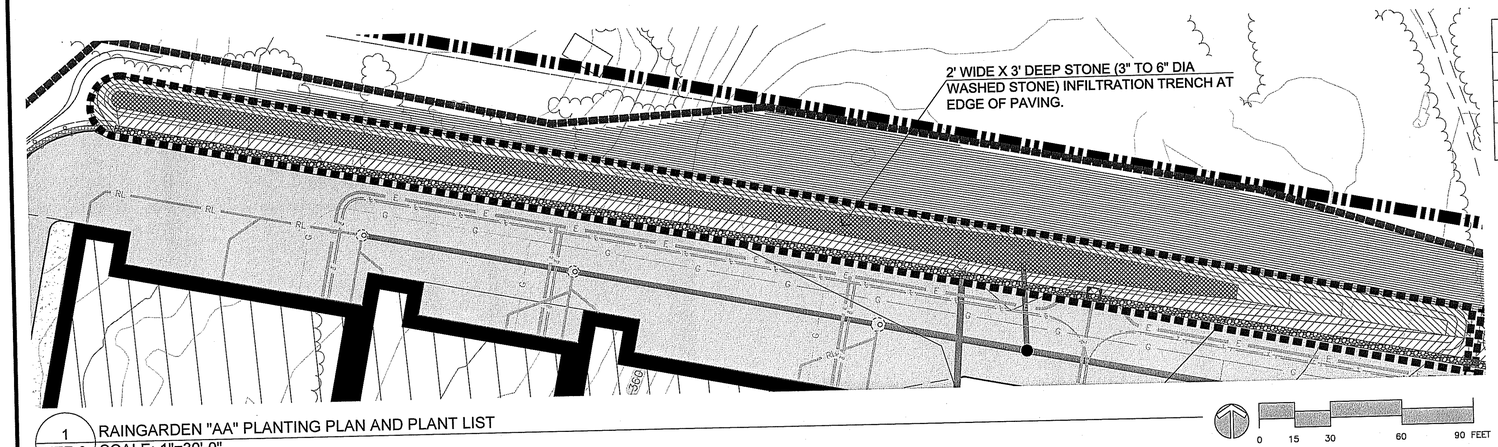
CERTIFIED PROFESSIONAL CPSWQ Michael J. Marcus No. 0048 IN STORM WATER QUALITY

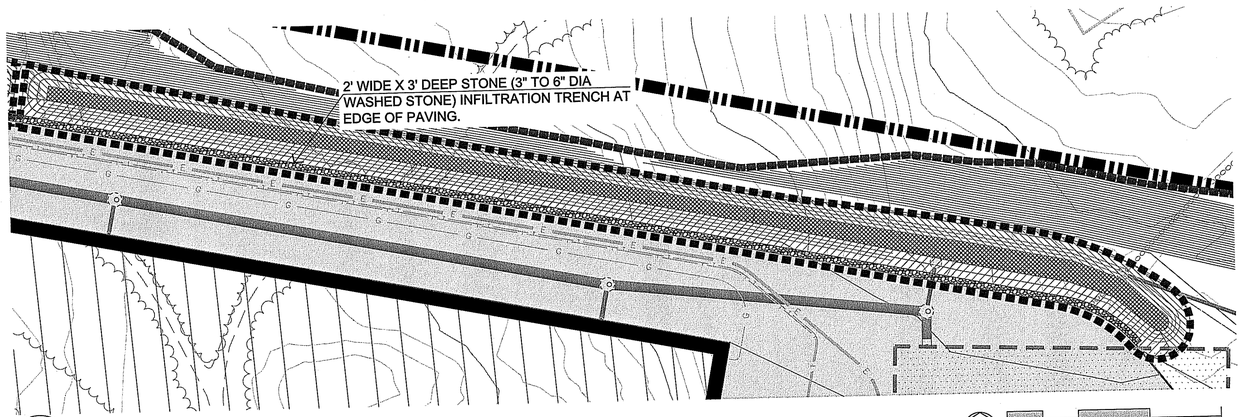


1 NEE-8 RAINGARDEN "AA" PLANTING PLAN AND PLANT LIST
SCALE: 1"=30'-0"

PLANT LIST: RAIN GARDEN "AA"				
SYM	COMMON NAME	SPACING	AREA	QUANTITY
	New England Conservation / Wildlife Seed Mix	Northern Side Slopes to Basin Bottom	4,000 S.F.	3 LBS
	New England Moist Mix	Rain Garden Bottom	4,100 S.F.	3 LBS
	Turf Grass/Sod OR New England Conservation / Wildlife Seed Mix with Erosion Control Blanket	Southern Side Slopes to Basin Bottom	4,000 S.F.	4,000 S.F. OR 4 LBS

LEGEND

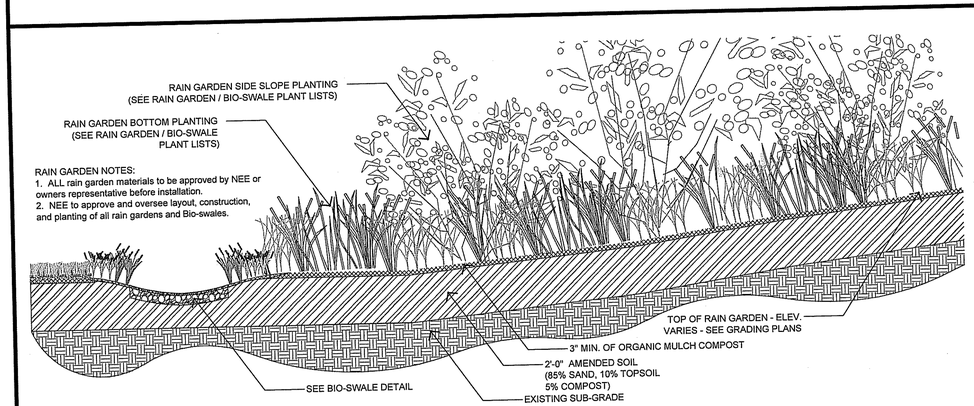
- RAIN GARDEN SIDE SLOPE TO BE COVERED IN SOD FOR IMMEDIATE STABILITY (SEE PLANT LIST)
- RAIN GARDEN SIDE SLOPE SEEDING (SEE PLANT LIST)
- RAIN GARDEN BOTTOM SEEDING (SEE PLANT LIST)
- 3" TO 6" WASHED STONE TO BE USED AS AN INFILTRATION TRENCH AT GARDEN INLETS AND CURB CUTS
- EROSION CONTROL BARRIER (SEE ENGINEERING PLANS)
- BASIN PLANTING LIMITS
- WETLAND LINE
- 50' WETLAND BUFFER LINE
- 100' BUFFER
- 150' BUFFER



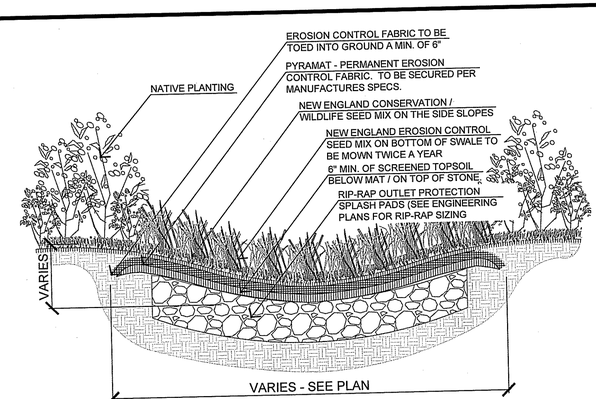
2 NEE-8 RAINGARDEN "K" PLANTING PLAN AND PLANT LIST
SCALE: 1"=30'-0"

PLANT LIST: RAIN GARDEN "K"				
SYM	COMMON NAME	SPACING	AREA	QUANTITY
	New England Conservation / Wildlife Seed Mix	Northern Side Slopes to Basin Bottom	3,650 S.F.	3 LBS
	New England Moist Mix	Rain Garden Bottom	3,300 S.F.	3 LBS
	Turf Grass/Sod OR New England Conservation / Wildlife Seed Mix with Erosion Control Blanket	Southern Side Slopes to Basin Bottom	3,800 S.F.	3,800 S.F. OR 4 LBS

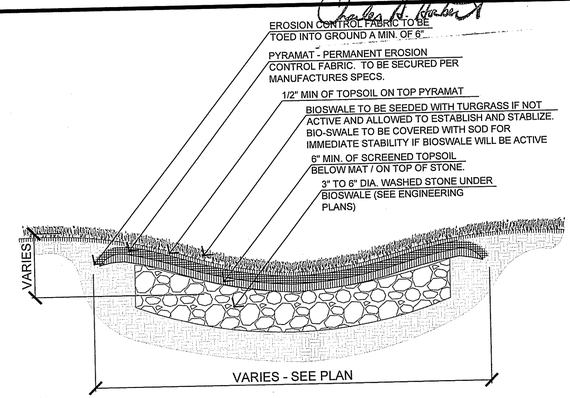
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 29 2009 FILE # 07-0236
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL.
APPROVED PLANS MUST BE AT CONSTRUCTION SITE



3 NEE-8 TYPICAL RAIN GARDEN WITH BIOSWALE
SCALE: 1"=3'-0"



4 NEE-8 TYPICAL OUTLET SPLASH PAD (RIP RAP WITH TURF REINFORCEMENT)
SCALE: NTS



5 NEE-8 TYPICAL - BIO-SWALE
SCALE: NTS

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CERTIFIED PROFESSIONAL CPSWQ Michael J. Merolla No. 0248 STORMWATER QUALITY