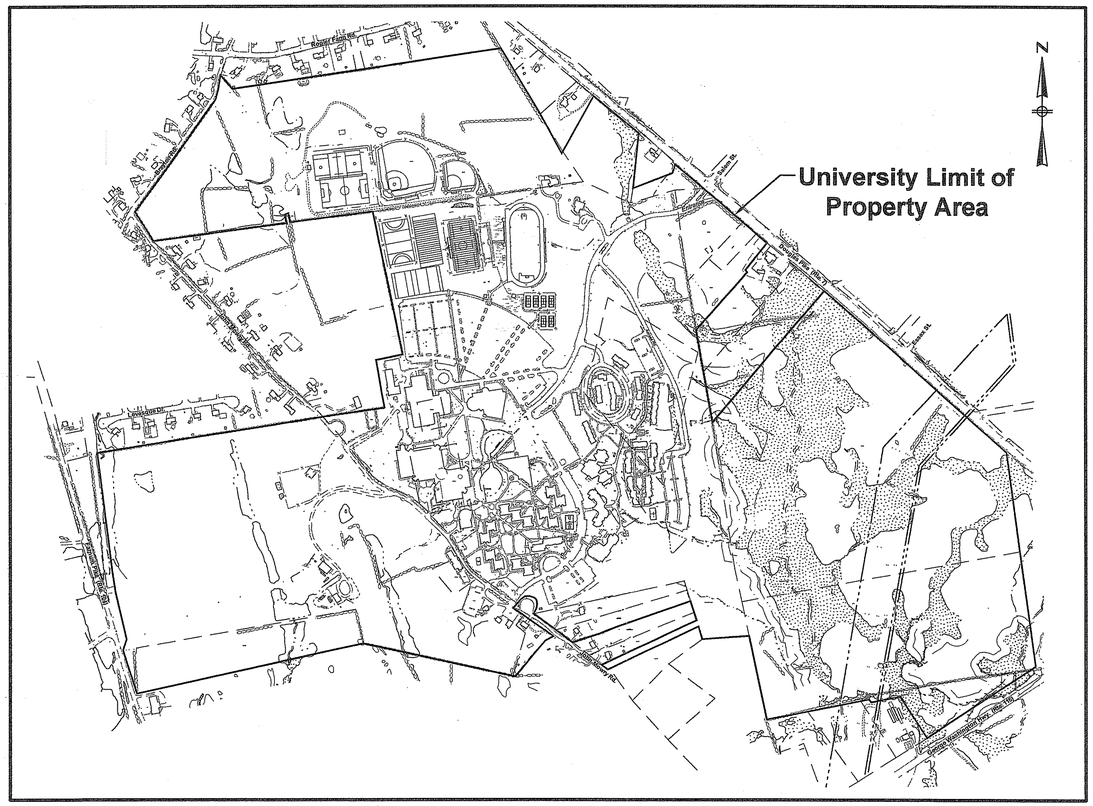
Bryant University

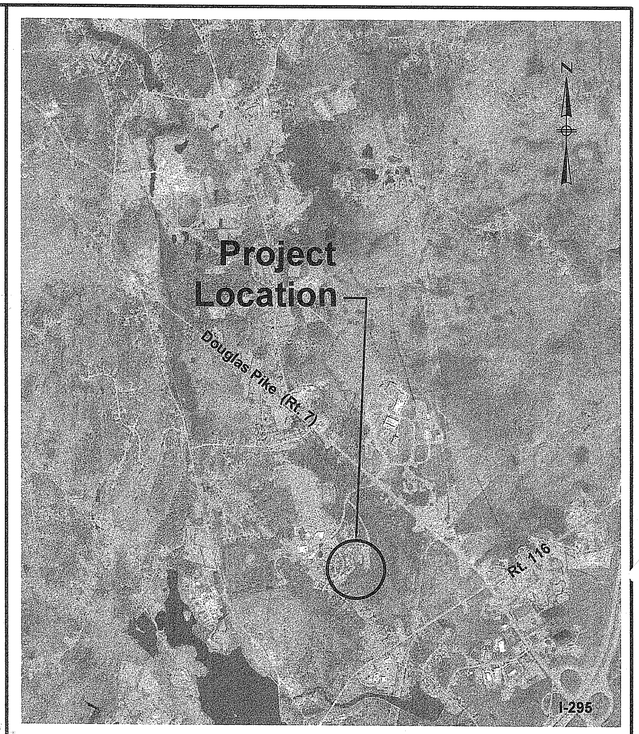
1150 Douglas Pike, Smithfield, RI 02917

Townhouse Apartments "O" & "P"

Request for Preliminary Determination



Layout Map
Scale: 1" = 500'



Locus Map
Not to Scale

Kindly be advised that this Permit is not equivalent to a verification of the type or extent of freshwater wetlands on site.

PLAN INDEX

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED DEC 1 2008 FILE # 08-0250
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL.
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

RECEIVED OCT 23 2008

PERMIT PRINTS

KEVIN M. AGUIAR
No. 6913
REGISTERED PROFESSIONAL ENGINEER (CIVIL)
10-21-08

Engineered by:

BETA Group, Inc.

Engineers • Scientists • Planners

6 Blackstone Valley Place, Lincoln, RI 02865
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August 2008
Rev. October 2008

N:\3600s\3627 Bryant - Parking Lot - Townhouses\AutoCAD Files\Submissions\2008-10-09 - Resubmittal of RIDEM Permit Application Plan\3627 Cover.dwg

Plot Date: Oct 21, 2008 3:07pm

CIVIL

LEGEND

GENERAL SYMBOLS

EXISTING	PROPOSED	
		CURB OR BERM (TYPE AS NOTED)
		EDGE OF PAVEMENT
90 / 89	90	CONTOUR
CB		CATCH BASIN (OR GUTTER INLET, LEACHING BASIN, DROP INLET, CATCH BASIN CURB INLET)
EHH	H	ELECTRIC HANDHOLE (NUMBER AS NOTED)
E	E	ELECTRIC MANHOLE
T	T	TELEPHONE MANHOLE
W	W	WATER MANHOLE
S	S	SEWER MANHOLE
D	D	DRAINAGE MANHOLE
GG		GAS GATE (AS NOTED)
WG		WATER GATE (AS NOTED)
CS		CURB STOP
HYD		HYDRANT
		STAND PIPE
		SWING CHECK VALVE
	GP	GRINDER PUMP
LP	LP	STREET LIGHT POLE
UP		UTILITY POLE
		SIGN
		FLARED END SECTION W/ RIP-RAP
D 12" RCP D	D 10'-12" RCP D	DRAIN LINE (SIZE AS NOTED)
	RD RD	ROOF DRAIN LINE
S 8" VCP	10'-8" PVC S	SEWER LINE (SIZE AS NOTED)
T T	T T	TELEPHONE LINE
Com	Com	COMMUNICATIONS LINE
E E	E E	ELECTRIC LINE
	Elv	ELECTRIC LOW VOLTAGE
	Ehv	ELECTRICT HIGH VOLTAGE
OHW		OVERHEAD WIRES
G 4" HP	G	GAS LINE (SIZE NOTED)
W 8" CI	W	WATER LINE (SIZE AS NOTED)
MB		MAIL BOX
		WOOD GUARD RAIL STEEL BEAM GUARD, WOOD OR STEEL POSTS (TYPE AS NOTED)
		STEEL GUARD RAIL, STEEL POSTS (TYPE NOTED)
		STONE WALL
		RETAINING WALL (TYPE NOTED)
BND	BND	HIGHWAY/PROPERTY BOUND (TYPE AS NOTED)
		CITY, TOWN OR COUNTY RIGHT-OF-WAY LINE
		PROPERTY LINE
Boundary Name		EASEMENT LINE (TYPE NOTED)
	2+00	CONSTRUCTION BASELINE
		WHEELCHAIR RAMP
24" PINE		TREE (SIZE AND TYPE AS NOTED)
x x x x	x x x x	HEDGE / SHRUBS
		FENCE (SIZE AND TYPE AS NOTED)
		HAY BALES
		WOODED AREA / LIMIT OF CLEARING
x 00.0	x 00.00	SPOT GRADE
		SAW CUT LINE
	TP-1	TEST PIT
		LEDGE
		BUILDING SETBACK
		BUILDING
	D # D	DRAIN LINE WITH HYDRAFLOW PIPE SECTION #

ABBREVIATIONS

GENERAL

ABAN.	ABANDON
ADJ.	ADJUST
APPROX.	APPROXIMATE
B	BASELINE
BM	BENCH MARK
BIT.	BITUMINOUS
B.B.	BITUMINOUS BERM
B.C.	BITUMINOUS CURB
BOS	BOTTOM OF SLOPE
BOW	BOTTOM OF WALL
BD OR BND	BOUND
BLDG.	BUILDING
CEM.	CEMENT
C	CENTER LINE
CLF	CHAIN LINK FENCE
CONC.	CONCRETE
C.C.	CONCRETE CURB
CONT.	CONTINUOUS
CONST.	CONSTRUCTION
CO.	COUNTY
D	DELTA ANGLE (CENTRAL ANGLE OF HORIZ. CURVE)
DHV	DESIGN HOURLY VOLUME
DWY.	DRIVEWAY
EB	EAST BOUND
E.P., E.O.P.	EDGE OF PAVEMENT
EL.	ELEVATION
E.T.W.	EDGE OF TRAVEL WAY
EXIST.	EXISTING
FLDSTN	FIELDSTONE
FDN.	FOUNDATION
GAR.	GARAGE
GRAN.	GRANITE
G.C.	GRANITE CURB
G.E.	GRANITE EDGING
GRAV.	GRAVEL
GD	GROUND
HOR.	HORIZONTAL
HMA	HOT MIX ASPHALT
HO	HOUSE
IP	IRON PIPE
JCT	JUNCTION
LT.	LEFT
L	LENGHT OF CURVE
LP	LOW POINT
MB	MAIL BOX
MAX.	MAXIMUM
MIN.	MINIMUM
NB	NORTH BOUND
N.T.S.	NOT TO SCALE
O.C.	ON CENTER
PVMT.	PAVEMENT
PEB	PERMANENT EASEMENT BOUNDARY
P.S.B.	PLANTABLE SOIL BORROW
PCC	POINT OF COMPOUND CURVATURE
PC	POINT OF CURVATURE
PRC	POINT OF REVERSE CURVATURE
PI	POINT OF INTERSECTION
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PGL	PROFILE GRADE LINE
PROJ.	PROJECT
P. OR PROP. LINE	PROPERTY LINE
PROP.	PROPOSED
R	RADIUS OF CURVATURE
R&D	REMOVE & DISPOSE
REM.	REMOVE
REMOD.	REMODEL
RET.	RETAINING
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
RT.	RIGHT
ROW	RIGHT-OF-WAY
RD.	ROAD
SHT.	SHEET
SHLD.	SHOULDER
SDWK.	SIDEWALK
SB	SOUTH BOUND OR STONE BOUND
S.H.L.	STATE HIGHWAY LAYOUT LINE
STA.	STATION
ST.	STOPPING SIGHT DISTANCE
SSD	STREET
TAN	TANGENT
T	TANGENT DISTANCE OF CURVE/TRUCK PERCENTAGE
TEB	TEMPORARY EASEMENT BOUNDARY
TEMP.	TEMPORARY
TOS	TOP OF SLOPE
TOW	TOP OF WALL
TP	TURNING POINT
TYP.	TYPICAL
VERT.	VARIABLE
VAR.	VERTICAL
VC	VERTICAL CURVE
VGC	VERTICAL GRANITE CURB
WB	WEST BOUND
WCR	WHEELCHAIR RAMP
WD	WOOD

UTILITIES

CB	CATCH BASIN
CBCI	CATCH BASIN WITH CURB INLET
CIP	CAST IRON PIPE
CL.	CLASS (PIPE, CONCRETE, EXCAVATION, ETC.)
COND.	CONDUIT
CAP	CORRUGATED ALUMINUM PIPE
CMP	CORRUGATED METAL PIPE
CPP	CORRUGATED PLASTIC PIPE
CSP	CORRUGATED STEEL PIPE
CULV.	CULVERT
CI	CURB INLET
CS	CURB STOP
DI	DUCTILE IRON PIPE
EL. (OR ELEV.)	ELEVATION
FM	FORCE MAIN
F&C	FRAME AND COVER
F&G	FRAME AND GRATE
GIP	GALVANIZED IRON PIPE
GG	GAS GATE
GP	GRINDER PUMP
GI	GUTTER INLET
HDW	HEADWALL
HYD.	HYDRANT
INV.	INVERT ELEVATION
LP	LIGHT POLE
LPS	LOW PRESSURE SERVICE CONNECTION
MH	MANHOLE
PVC	POLY-VINYL-CHLORIDE PIPE
PWW	PAVED WATER WAY
R&D	REMOVE & DISPOSE
RCP	REINFORCED CONCRETE PIPE (CLASS III UNLESS NOTED)
S	SANITARY SEWER OR SERVICE CONNECTION
SMH	SEWER MANHOLE
SD	SUBDRAIN
TSV&B	TAPPING SLEEVE, VALVE AND BOX
TS	TRAFFIC SIGNAL
TSC	TRAFFIC SIGNAL CONDUIT
UP	UTILITY POLE
VCP	VITRIFIED CLAY PIPE
WG	WATER GATE
WM	WATER METER / WATER MAIN

DETENTION/WATER QUALITY BASIN INSPECTION & MAINTENANCE PLAN

1. STORMWATER DETENTION AND/OR WATER QUALITY BASINS SHALL BE MAINTAINED BY THE CONTRACTOR UNTIL CONSTRUCTION IS COMPLETE AND THE SYSTEM HAS BEEN INSPECTED AND RECEIVED FINAL ACCEPTANCE BY THE OWNER.
2. SUBSEQUENT TO FINAL ACCEPTANCE BY THE OWNER, LONG-TERM INSPECTION AND MAINTENANCE OF THE STORMWATER DETENTION AND/OR WATER QUALITY BASINS SHALL BE THE RESPONSIBILITY OF THE OWNER, ITS HEIRS AND ASSIGNS.
3. PRINCIPAL DISCHARGE OUTLETS FROM ALL BASINS SHALL BE EQUIPPED WITH A TRASH RACK.
4. ACCESS TO THE BASINS FROM DRY LAND FOR INSPECTION AND MAINTENANCE ACTIVITIES SHALL BE MAINTAINED AT ALL TIMES.
5. AT A MINIMUM, DETENTION AND/OR WATER QUALITY BASINS SHALL BE INSPECTED ON AN ANNUAL BASIS, AND ACCUMULATED SEDIMENTS SHALL BE REMOVED FROM SAME AT A MINIMUM OF EVERY FIVE (5) YEARS, OR AFTER THE SEDIMENT STORAGE CAPACITY OF THE FOREBAY OR WATER QUALITY BASIN HAS BEEN FILLED. A PERMANENT SEDIMENT MARKER SHALL BE INSTALLED IN THE SEDIMENT FOREBAY OR WATER QUALITY BASIN TO INDICATE ACCUMULATED SEDIMENT DEPTHS AND WHEN CLEANING IS REQUIRED.
6. INSPECTIONS SHALL ASSESS THE CONDITION AND FUNCTION OF ALL OUTLET CONTROL DEVICES. ANY DEVICES BLOCKED OR FILLED WITH SEDIMENT OR OTHER MATERIALS SHALL BE THOROUGHLY CLEANED TO RESTORE PROPER FUNCTION.
7. IF STANDING WATER IS PRESENT IN ANY NON-RETENTION STORMWATER BASIN FOR A DURATION OF LONGER THAN SEVENTY-TWO (72) HOURS AFTER THE END OF THE STORM EVENT, THE BASIN OUTLETS SHALL BE IMMEDIATELY CLEANED OF OBSTRUCTIONS.
8. INSPECTIONS SHALL BE MADE BY AN APPROPRIATELY QUALIFIED ENTITY HAVING A COMPLETE UNDERSTANDING OF THE PROPER OPERATION OF THE SYSTEM, AS WELL AS KNOWLEDGE OF INDICATORS OF PROBLEMS WITH SAME.
9. ACCUMULATED SEDIMENTS SHALL BE REMOVED WHEN DRY AND ABLE TO BE READILY SEPARATED FROM THE FLOOR OF THE FACILITY, TO AVOID OR MINIMIZE DISTURBANCE TO SAME. AREAS DAMAGED OR DISTURBED BY THE SEDIMENT REMOVAL OPERATION SHALL BE TILLED AND/OR REVEGETATED AS APPROPRIATE.
10. REMOVED SEDIMENTS SHALL BE MANAGED AND DISPOSED OF IN ACCORDANCE WITH RIDEM REQUIREMENTS FOR STREET SAND.
11. FOR GRASSED STRUCTURES, THE GRASS IN THE FACILITY, ON THE SIDE SLOPES, AND WITHIN THE BUFFER AREAS SHALL BE MOWED TWICE DURING THE GROWING SEASON. GRASS CLIPPINGS AND TRASH GENERATED BY MOWING SHALL BE COLLECTED AND PROPERLY DISPOSED OF.

FRESHWATER WETLAND NOTES

1. THE HAYBALE LINE OR SILT FENCE LINE ILLUSTRATED ON THESE PLANS, TO BE STAKED IN THE FIELD PRIOR TO CONSTRUCTION, SHALL SERVE AS THE STRICT LIMITS OF DISTURBANCE FOR THE PROJECT WITHIN OR ADJACENT TO REGULATED FRESHWATER WETLAND AREAS. NO ALTERATIONS, INCLUDING VEGETATIVE CLEARING OR SURFACE DISTURBANCE, SHALL OCCUR BEYOND THIS HAYBALE/SILT FENCE LINE.
2. THE LIMITS OF CLEARING, GRADING, AND DISTURBANCE SHALL BE KEPT TO A MINIMUM WITHIN THE PROPOSED AREA OF CONSTRUCTION. ALL AREAS OUTSIDE OF THESE LIMITS, AS DEPICTED ON THE PROJECT SITE PLANS, SHALL BE TOTALLY UNDISTURBED, TO REMAIN IN A COMPLETELY NATURAL CONDITION.
3. STOCKPILES OF EARTH MATERIALS SHALL NOT BE LOCATED ADJACENT TO DRAINAGE STRUCTURES AND/OR WETLAND AREAS.
4. ALL DISTURBED AREAS WITHIN REGULATED FRESHWATER PERIMETER AND RIVERBANK WETLAND LIMITS SHALL BE PERMANENTLY STABILIZED WITH PLANTABLE SOIL AND SEED MIX PRIOR TO COMPLETION OF THE PROJECT.
5. ALL EXCESS SOIL, ROCKS, BOULDERS, AND OTHER REFUSE SHALL BE DISCARDED OFF-SITE IN AN APPROPRIATE UPLAND LOCATION, OUTSIDE OF ALL REGULATED FRESHWATER WETLAND AREAS.

GENERAL CIVIL NOTES

1. THE 2004 STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION AND ALL APPROVED REVISIONS IN THE COMPILATIONS OF APPROVED SPECIFICATIONS, THE RHODE ISLAND STANDARD DETAILS WITH REVISIONS 11/10/05. THE 2003 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE RIDOT TRAFFIC DESIGN MANUAL (OCTOBER 2004), THE AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z-60.1-1986) AND ALL AMENDMENTS WILL GOVERN.
2. EXISTING TOPOGRAPHICAL SURVEY INFORMATION WAS PROVIDED BY BRYANT UNIVERSITY . SUPPLEMENTAL SURVEY COMPLETED BY GILBERT AND MALONEY, PROVIDENCE RI, JUNE 2008.
3. THE LOCATION OF SUBSURFACE UTILITIES SHOWN IS APPROXIMATE AND NOT GUARANTEED TO BE COMPLETE OR ACCURATE. THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND ELEVATIONS OF EXISTING UTILITY LINES AND STRUCTURES PRIOR TO COMMENCEMENT OF WORK. THE CONTRACTOR MUST NOTIFY DIG SAFE PRIOR TO ANY EXCAVATION, DEMOLITION OR EXPLOSION WORK IN PUBLIC OR PRIVATE WAYS OR UTILITY COMPANY RIGHT OF WAY OR EASEMENT.
4. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR THE RESOLUTION OF THE CONFLICT.
5. THE CONTRACTOR SHALL ALTER THE MASONRY OF THE TOP SECTION OF ALL EXISTING DRAINAGE AND SANITARY STRUCTURES AS NECESSARY FOR THE CHANGES IN GRADE, AND RESET ALL WATER, AND DRAINAGE FRAMES, GRATES AND BOXES TO THE PROPOSED FINISH SURFACE GRADE. REQUIRED NEW MASONRY SHALL BE CLAY BRICK CONFORMING TO M4.05.2.
6. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE, CABLE TV, FIRE ALARM AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES. ALL UTILITY CASTING AND FIRE ALARM BOXES SHALL BE ADJUSTED TO FINISH GRADE BY THEIR RESPECTIVE OWNERS.
7. AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
8. THE TERM "PROPOSED" (PROP.) MEANS WORK TO BE CONSTRUCTED USING NEW MATERIALS OR, WHERE APPLICABLE, RE-USING EXISTING MATERIALS IDENTIFIED AS "REMOVE AND RESET" (R&R).
9. TRENCH DEWATERING IS ANTICIPATED FOR THIS WORK AND DISCHARGE OF FINES OR SEDIMENTS IS NOT PERMITTED. SEE SOIL EROSION SEDIMENTATION CONTROL NOTES.
10. WHERE EXISTING MATERIALS ARE ENCOUNTERED WHICH, IN THE OPINION OF THE OWNER/ENGINEER ARE UNSUITABLE FOR BEDDING, BACK FILLING OR OTHER INTENDED USE, SUCH MATERIALS SHALL BE REMOVED AS DIRECTED AND REPLACED WITH SUITABLE GRAVEL BORROW, CRUSHED STONE AND/OR SELECTED BORROW, AS DIRECTED BY THE OWNER/ENGINEER.
11. JOINTS BETWEEN NEW BITUMINOUS CONCRETE ROADWAY PAVEMENT AND SAWCUT EXISTING PAVEMENT SHALL BE SEALED WITH BITUMEN AND BACKSANDED.
12. CATCH BASIN AND MANHOLE FRAMES AND GRATES/COVERS SHALL CLEARLY ALIGN WITH THE OPENINGS IN THE PRECAST STRUCTURES AND THE GRADE OF THE ROADWAY.
13. ALL EXISTING DRAINAGE LINES TO BE REPLACED SHALL BE REMOVED AND DISPOSED, AS CALLED OUT ON THE DRAINAGE PLANS AND AS APPROVED BY THE ENGINEER.
14. WHERE DRAINAGE PIPES OR STRUCTURES ARE ABANDONED IN PLACE THE CONTRACTOR SHALL MAKE SURE THAT ALL EXISTING FITTINGS, FRAMES AND COVER ARE REMOVED. THE CONTRACTOR SHALL MAKE SURE THAT ALL ABANDONED STRUCTURES ARE BACKFILLED. INLETS AND OUTLETS OF STRUCTURES THAT ARE TO REMAIN SHALL BE PLUGGED.
15. IN NO CASE, EXCEPT MAXIMUM LENGTH HIGH SIDE TRANSITIONS, SHALL ANY TRANSITION SLOPE OF ANY WHEELCHAIR RAMP EXCEED 7.5%. PROPOSED WHEELCHAIR RAMP SLOPES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO POURING OF CONCRETE, AND ADJUSTED, IF NECESSARY, AT THE DIRECTION OF THE ENGINEER.
16. CONTRACTOR SHALL VERIFY EXISTING GRADE ELEVATIONS. IF ANY ADJUSTMENT IS REQUIRED DUE TO DIFFERENT EXISTING GRADES FOUND IN THE FIELD, THE CONTRACTOR SHALL NOTIFY AND OBTAIN THE APPROVAL OF THE ENGINEER PRIOR TO PERFORMING THE WORK.
17. EXCEPT WHERE NOTED BY PROPOSED CONTOUR LINES, ALL FINAL CONTOUR LINE ELEVATIONS SHALL BE THE SAME AS EXISTING CONTOUR LINE ELEVATIONS.

TREE PRESERVATION NOTES

1. TREES WITHIN THE LIMITS OF GRADING SHALL NOT BE REMOVED UNLESS APPROVED BY THE ENGINEER.
2. PRIOR TO CONSTRUCTION PROTECT TREES WITHIN THE LIMITS OF DISTURBANCE IN ACCORDANCE WITH DETAIL.
3. PRIOR TO CONSTRUCTION DETERMINE REQUIRED CLEARANCES AND PRUNE TREES.
4. BRANCHES OR LIMBS DAMAGED DURING CONSTRUCTION SHALL BE CUT BACK TO THE TRUNK OR A LATERAL BRANCH.
5. MAKE EVERY EFFORT TO MAINTAIN EXCAVATION ACTIVITIES OUTSIDE LIMITS OF THE TREE CANOPY.
6. ROOTS LARGER THAN 1.5" IN DIAMETER ENCOUNTERED IN EXCAVATIONS SHALL BE CUT OFF SQUARELY USING A SHARP ARBORIST SAW.
7. STRIP AND SEGREGATE TOPSOIL PRIOR TO EXCAVATING IN UNPAVED AREAS. FOLLOWING BACKFILL OPERATIONS PLACE TOPSOIL BACK IN THE APPROPRIATE PLACE WITHOUT COMPACTION AND VERTICALLY MULCH ROOT SYSTEM. NO AMENDMENTS SHALL BE ADDED.
8. IMMEDIATELY FOLLOWING BACKFILL OPERATIONS PROVIDE DEEP WATERING OF THE ROOT SYSTEM, APPLICATION OF FERTILIZER, AND VERTICAL MULCHING.
9. MAINTAIN STORAGE OF EQUIPMENT AND MATERIALS A DISTANCE ATLEAST TWO (2) TIMES THE DISTANCE OF THE RADIUS OF THE TREE CANOPY.

SOIL EROSION AND SEDIMENTATION CONTROL NOTES

1. ALL EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES WILL BE INSTALLED AND INSPECTED PRIOR TO THE START OF CONSTRUCTION. THE E&S CONTROLS SHALL BE CLEANED AND MAINTAINED THROUGHOUT THE DURATION OF CONSTRUCTION OPERATIONS AND UNTIL ALL DISTURBED AREAS ARE STABILIZED AFTER CONSTRUCTION IS COMPLETE. E&S CONTROLS SHALL BE INSPECTED AND CLEANED AFTER ALL STORM EVENTS AND UPON THE REQUEST OF THE OWNER OR ENGINEER. CONTRACTOR WILL MAINTAIN AN ADEQUATE SUPPLY OF HAY BALES AND SILT FENCE ON SITE TO BE INSTALLED IN AREAS WHERE EXISTING E&S CONTROLS HAVE FAILED OR AS DETERMINED NECESSARY BY THE ENGINEER. NO WORK OR STORAGE OF CONSTRUCTION EQUIPMENT WILL BE PERMITTED OUTSIDE THE LIMIT OF DISTURBANCE ADJACENT TO THE WETLAND. TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROLS (HAYBALES, SILT FENCE, ETC.) SHALL BE MAINTAINED UNTIL ALL EXPOSED SOILS ARE SATISFACTORILY STABILIZED.
2. ALL CATCH BASINS SHALL BE PROTECTED WITH STAKED HAYBALES (R.I. STD. 9.8.0) DURING CONSTRUCTION ACTIVITIES.
3. A CONSTRUCTION ENTRANCE CONSISTING OF A STONE STABILIZED PAD SHALL BE PROVIDED AND MAINTAINED BY THE CONTRACTOR TO PREVENT TRACKING OF OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS.
4. ALL REFERENCED SOIL EROSION AND SEDIMENTATION CONTROLS INCLUDING MATERIALS USED, APPLICATION RATES AND THE INSTALLATION PROCEDURES SHALL BE PERFORMED PER THE "RHODE ISLAND SOIL EROSION AND SEDIMENTATION CONTROL HANDBOOK", DATED 1989, WITH ALL SOIL CONSERVATION SERVICE, AND/OR THE RHODE ISLAND DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.

STORMWATER INFILTRATION SYSTEM INSPECTION & MAINTENANCE PLAN

1. THE STORMWATER INFILTRATION SYSTEM SHALL BE MAINTAINED BY THE CONTRACTOR UNTIL CONSTRUCTION IS COMPLETE AND THE SYSTEM HAS BEEN INSPECTED AND RECEIVED FINAL ACCEPTANCE BY THE OWNER.
2. SUBSEQUENT TO FINAL ACCEPTANCE BY THE OWNER, LONG-TERM INSPECTION AND MAINTENANCE OF THE STORMWATER INFILTRATION SYSTEM SHALL BE THE RESPONSIBILITY OF THE OWNER, ITS HEIRS AND ASSIGNS.
3. WITHIN THE FIRST SIX (6) MONTHS OF THE COMPLETION AND OPERATION OF THE INFILTRATION SYSTEM, INSPECTIONS OF SAME SHALL BE PERFORMED AFTER EVERY MAJOR (I.E. GREATER THAN ONE (1) INCH IN A 24-HOUR PERIOD) STORM. SPECIFICALLY, THE TIME FOR THE SYSTEM TO DRAIN COMPLETELY SHALL BE MEASURED.
4. IF STANDING WATER IS PRESENT IN THE SYSTEM FOR A DURATION OF LONGER THAN FORTY-EIGHT (48) HOURS AFTER THE END OF THE STORM EVENT, THE BOTTOM OF THE SYSTEM SHALL BE EXPOSED, AND THE STONE AGGREGATE AND FILTER FABRIC REPLACED WITH NEW CLEAN MATERIALS MEETING THE ORIGINAL DESIGN SPECIFICATIONS AND/OR REVEGETATE AND RETILL THE BOTTOM OF THE STRUCTURE.
5. ALL COMPONENTS OF THE INFILTRATION SYSTEM (INCLUDING BUT NOT LIMITED TO PRETREATMENT STRUCTURES, CATCH BASINS, FOREBAY, ETC.) SHALL BE INSPECTED ON AT LEAST A SEMI-ANNUAL BASIS BY THE OWNER OR A DULY-AUTHORIZED AGENT THEREOF; MORE FREQUENT INSPECTIONS MAY BE PERFORMED AS WARRANTED, DEPENDING ON FIELD OBSERVATIONS OF THE OPERATION OF THE SYSTEM.
6. INSPECTIONS SHALL BE MADE BY AN APPROPRIATELY QUALIFIED ENTITY HAVING A COMPLETE UNDERSTANDING OF THE PROPER OPERATION OF THE SYSTEM, AS WELL AS KNOWLEDGE OF INDICATORS OF PROBLEMS WITH SAME.
7. FOR SURFACE FACILITIES, ANY AND ALL NEARBY OR OVERHANGING VEGETATION SHALL BE ADEQUATELY PRUNED AND/OR TRIMMED BACK TO PREVENT OR MINIMIZE THE ACCUMULATION OF LEAVES OR VEGETATIVE MATTER ON OR WITHIN THE FACILITY. ANY SUCH VEGETATIVE MATTER PRESENT ON OR WITHIN THE FACILITY SHALL BE REMOVED AND PROPERLY DISPOSED OF AT EACH INSPECTION.
8. ACCUMULATED SEDIMENTS SHALL BE REMOVED WHEN DRY AND ABLE TO BE READILY SEPARATED FROM THE FLOOR OF THE FACILITY, TO AVOID OR MINIMIZE DISTURBANCE TO SAME. AREAS DAMAGED OR DISTURBED BY THE SEDIMENT REMOVAL OPERATION SHALL BE TILLED AND/OR REVEGETATED.
9. FOR GRASSED STRUCTURES, THE GRASS IN THE FACILITY, ON THE SIDE SLOPES, AND WITHIN THE BUFFER AREAS SHALL BE MOWED TWICE DURING THE GROWING SEASON. GRASS CLIPPINGS AND TRASH GENERATED BY MOWING SHALL BE COLLECTED AND PROPERLY DISPOSED OF.
10. INSPECT AND CLEAN PRETREATMENT DEVICES BI-ANNUALLY.
11. AFTER THE FIRST FEW MONTHS: INSPECT FACILITIES BI-ANNUALLY.
12. CLEAN AND REMOVE DEBRIS FROM SURFACE OF INFILTRATION FACILITY AND INLET AND OUTLET PIPES. TILL AND REVEGETATE SURFACE SOIL AND REPLACE UPPER LAYER OF STONE AND FILTER FABRIC AS NEEDED.
13. MOW AND REMOVE GRASS CLIPPINGS AND ACCUMULATED TRASH IN THE FACILITY, SIDE SLOPES AND BUFFER AREAS AT LEAST TWICE DURING THE GROWING SEASONS.

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10-21-08

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Client:
BRYANT UNIVERSITY 1863

Project
Townhouse Apartments "O" & "P"
Bryant University
Smithfield, Rhode Island

Title
Legend, General Notes and Abbreviations

Revisions

No.	Description	Date
1	RIDEM Comments	10/21/08

File: 3627 Legend.dwg
Drawn By: MJZ
Designed By: JH
Checked By: KMA
Job No: 3627 Date: 08/12/08
North Arrow
Scale: None

Kindly be advised that this is not equivalent to a verification of the type or extent of freshwater wetlands on site.

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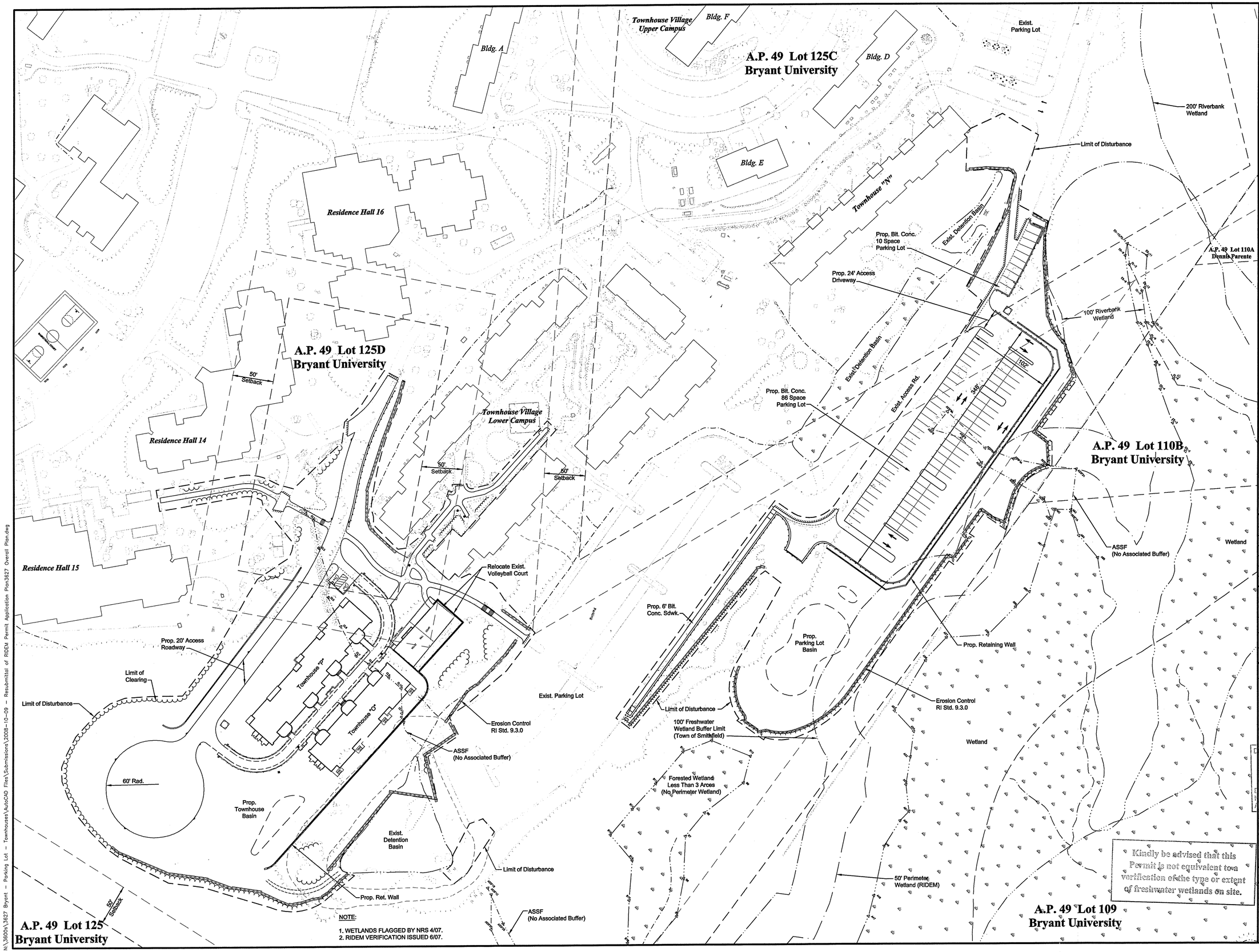
J. Joseph Casey

Permit Prints

Sheet No.:
C2
Plot Date: Oct 21, 2008 1:54pm

N:\3600s\3627 Bryant - Parking Lot - Townhouses\AutoCAD Files\Submissions\2008-10-09 - Resubmittal of RIDEM Permit Application Plan\3627 Legend.dwg



NOTE:

1. WETLANDS FLAGGED BY NRS 4/07.
2. RIDEM VERIFICATION ISSUED 6/07.

N:\3600s\3627 Bryant - Parking Lot - Townhouses\AutoCAD Files\Submissions\2008-10-09 - Resubmittal of RIDEM Permit Application Plan\3627 Overall Plan.dwg

Engineered by:

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Engineers · Scientists · Planners
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10.24.08

Subconsultant:

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Fax (401) 331-9270

Client:

BRYANT UNIVERSITY 1863

Project

Townhouse Apartments "O" & "P"
Bryant University
Smithfield, Rhode Island

Title

Overall Plan

Revisions

No.	Description	Date
1	RIDEM Comments	10/21/08

File: 3627 Overall Plan.dwg
Drawn By: MJZ
Designed By: JH
Checked By: KMA
Job No: 3627 **Date:** 08/12/08

North Arrow

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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 DEC 1 2008 FILE # 08-0350
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

Scale

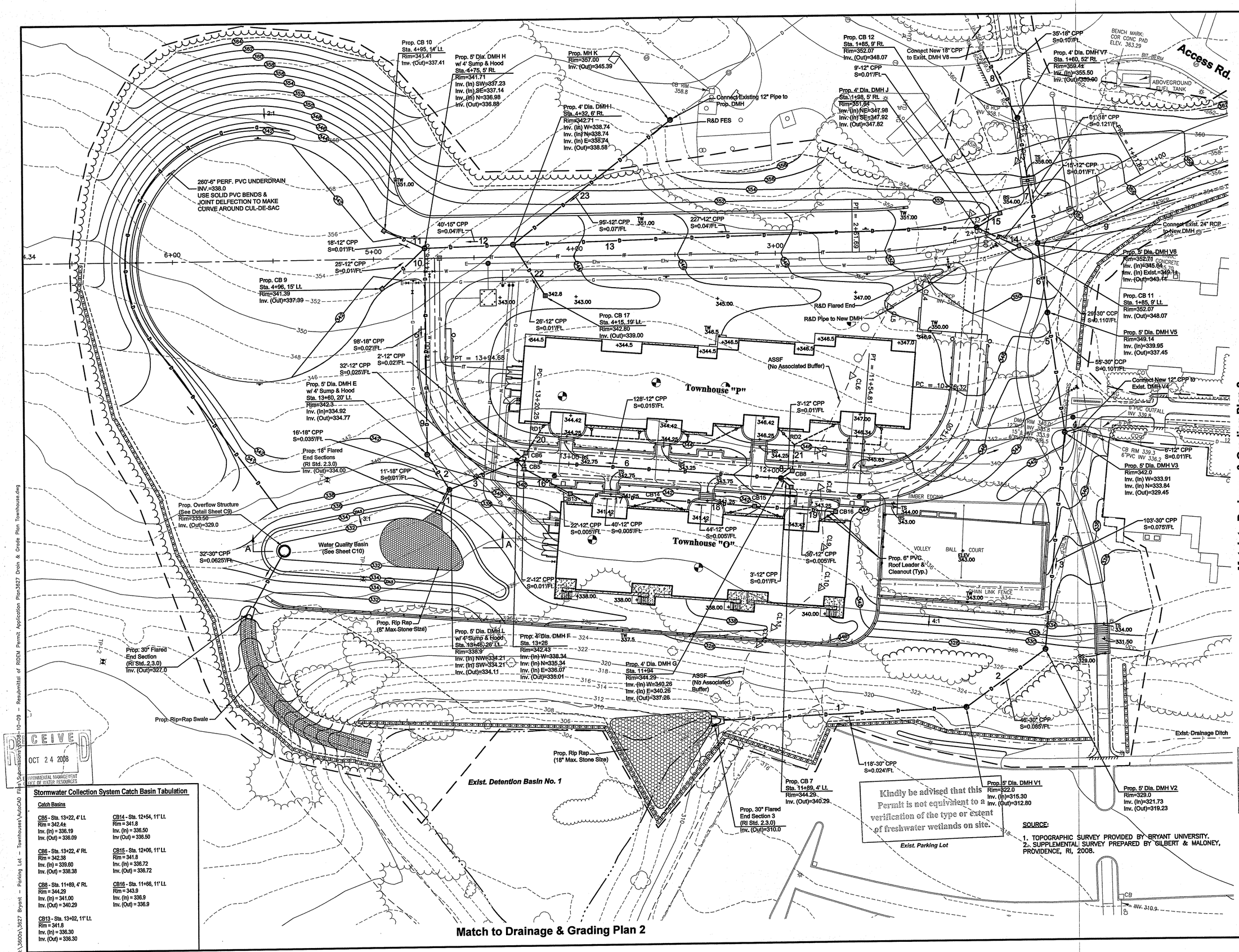
50 0 50 100
SCALE IN FEET: 1"=50'

Permit Prints

Sheet No.:

C3

Plot Date: Nov 24, 2008 8:55am



Stormwater Collection System Catch Basin Tabulation

Catch Basins

CB5 - Sta. 13+22, 4' Lt.
Rim = 342.4±
Inv. (In) = 336.19
Inv. (Out) = 336.09

CB6 - Sta. 13+22, 4' Rt.
Rim = 342.38
Inv. (In) = 339.60
Inv. (Out) = 338.38

CB8 - Sta. 11+89, 4' Rt.
Rim = 344.29
Inv. (In) = 341.00
Inv. (Out) = 340.29

CB13 - Sta. 13+02, 11' Lt.
Rim = 341.8
Inv. (In) = 336.30
Inv. (Out) = 336.30

CB14 - Sta. 12+54, 11' Lt.
Rim = 341.8
Inv. (In) = 336.50
Inv (Out) = 336.50

CB15 - Sta. 12+06, 11' Lt.
Rim = 341.8
Inv. (In) = 336.72
Inv. (Out) = 336.72

CB16 - Sta. 11+66, 11' Lt.
Rim = 343.9
Inv. (In) = 336.9
Inv. (Out) = 336.9

SOURCE:

1. TOPOGRAPHIC SURVEY PROVIDED BY BRYANT UNIVERSITY.
2. SUPPLEMENTAL SURVEY PREPARED BY GILBERT & MALONEY, PROVIDENCE, RI, 2008.

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Scale
W. Joseph Casey
20 0 20 40
SCALE IN FEET: 1"=20'

Permit Prints

Sheet No.:
C4
Plot Date: Oct 24, 2008 9:36am

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Client:
BRYANT UNIVERSITY 1863

Project
Townhouse Apartments "O" & "P"
Bryant University
Smithfield, Rhode Island

Title
Drainage & Grading Plan 1
Townhouses

Revisions

No.	Description	Date
1	RIDEM Comments	10/21/08

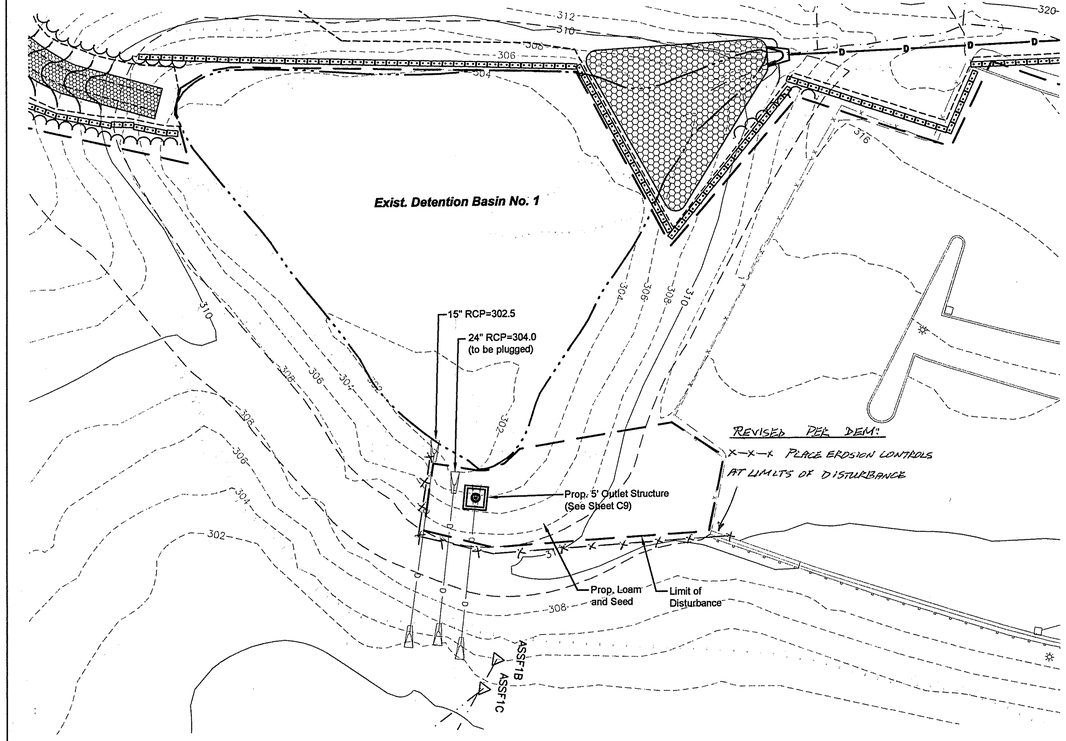
File: 3627 Drain & Grade Plan Townhouse.dwg
Drawn By: MJZ
Designed By: JH
Checked By: KMA
Job No: 3627 Date: 08/12/08

North Arrow

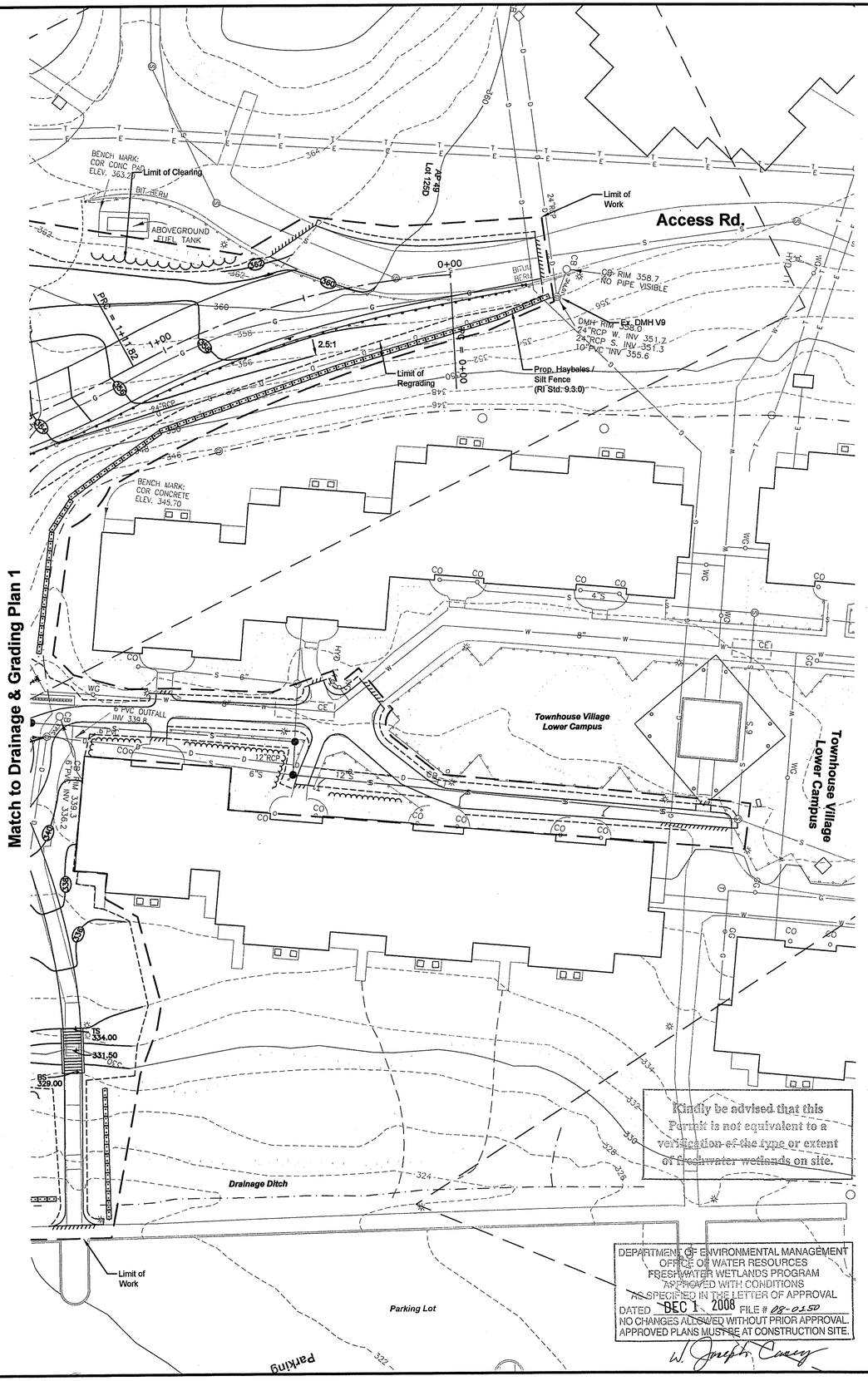
Match to Drainage & Grading Plan 2

N:\3600s\3627 Bryant – Parking Lot – Townhouses\AutoCAD Files\Submissions\2008-10-09 – Resubmittal of RIDEM Permit Application Plan\3627 Drain & Grade Plan Townhouse.dwg

Match to Bottom of Drainage & Grading Plan 1



Match to Drainage & Grading Plan 1



Kindly be advised that this Permit is not equivalent to a verification of the type or extent of freshwater wetlands on site.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
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Client:

BRYANT UNIVERSITY 1863

Project

Townhouse Apartments "O" & "P"

Bryant University
Smithfield, Rhode Island

Title

Drainage & Grading Plan 2 *Townhouses*

Revisions

No.	Description	Date
1	RIDEM Comments	10/21/08

File: 3627 Drain & Grade Plan Townhouse.dwg

Drawn By:	MJZ		
Designed By:	JH		
Checked By:	KMA		
Job No:	3627	**Date:**	08/12/08

North Arrow

Scale

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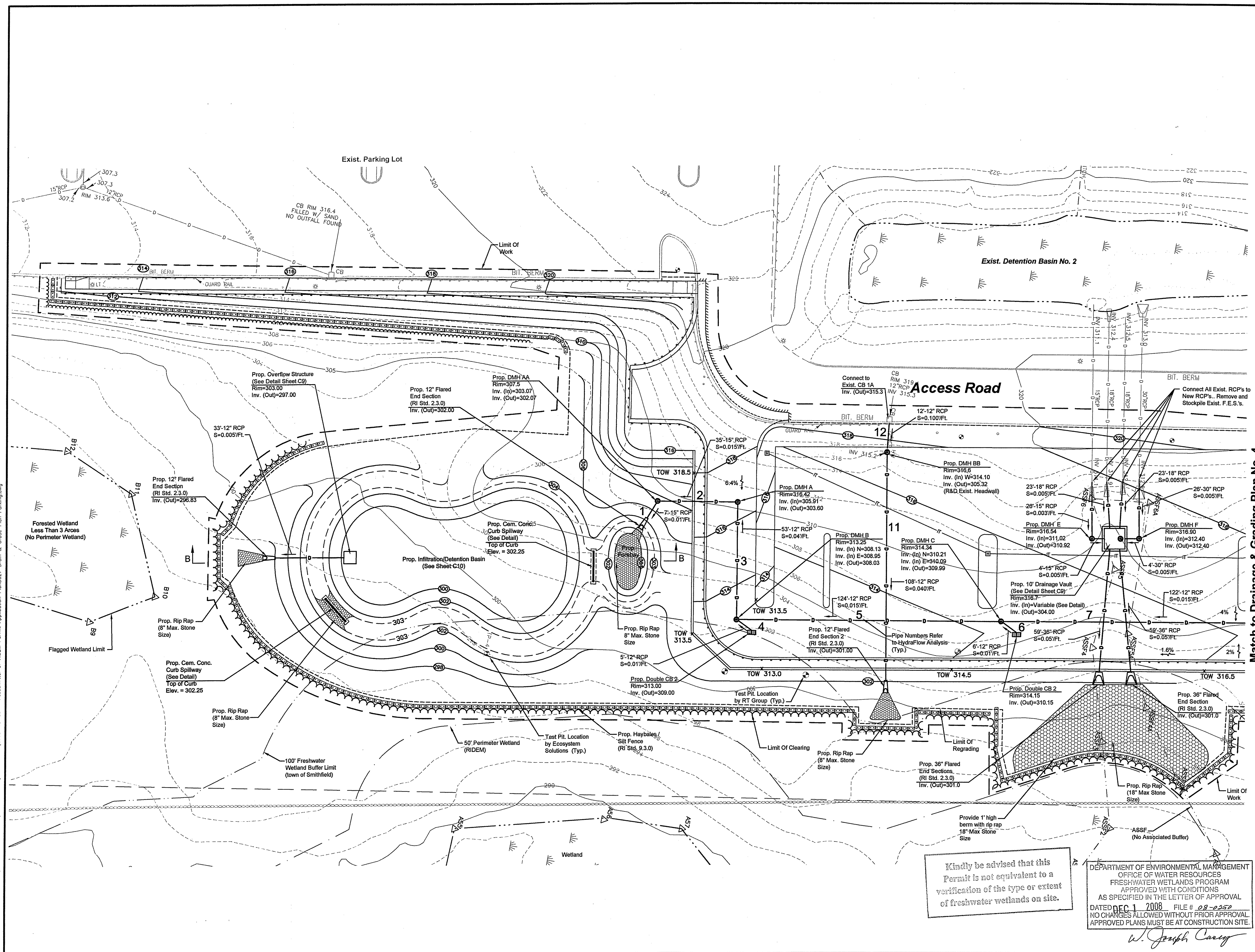
SCALE IN FEET: 1"=20'

Permit Prints

Sheet No.:

C5

Plot Date: Nov 24, 2008 8:57am



Exist. Parking Lot
CB RIM 316.4 FILLED W/ SAND NO OUTFALL FOUND
Limit Of Work
Exist. Detention Basin No. 2
Access Road
Connect to Exist. CB 1A Inv. (Out)=315.3
BIT. BERM
GUARD RAIL
Connect All Exist. RCP's to New RCP's.. Remove and Stockpile Exist. F.E.S.'s.
Prop. Overflow Structure (See Detail Sheet C9) Rim=303.00 Inv. (Out)=297.00
Prop. 12" Flared End Section (RI Std. 2.3.0) Inv. (Out)=302.00
Prop. DMH AA Rim=307.5 Inv. (In)=303.07 Inv. (Out)=302.07
33'-12" RCP S=0.005'/Ft.
Prop. 12" Flared End Section (RI Std. 2.3.0) Inv. (Out)=296.83
Forested Wetland Less Than 3 Arces (No Perimeter Wetland)
Flagged Wetland Limit
Prop. Rip Rap (8" Max. Stone Size)
Prop. Cem. Conc. Curb Spillway (See Detail) Top of Curb Elev. = 302.25
Prop. Infiltration/Detention Basin (See Sheet C10)
Prop. Forebay
Prop. Rip Rap 8" Max. Stone Size
35'-15" RCP S=0.015'/Ft.
7'-15" RCP S=0.01'/Ft.
TOW 318.5
TOW 313.5
TOW 313.0
TOW 314.5
TOW 316.5
Prop. DMH A Rim=316.42 Inv. (In)=305.91 Inv. (Out)=303.60
53'-12" RCP S=0.04'/Ft.
Prop. DMH B Rim=313.25 Inv. (In) N=308.13 Inv. (In) E=308.95 Inv. (Out)=308.03
Prop. DMH C Rim=314.34 Inv. (In) N=310.21 Inv. (In) E=310.09 Inv. (Out)=309.99
Prop. DMH BB Rim=316.6 Inv. (In) W=314.10 Inv. (Out)=305.32 (R&D Exist. Headwall)
12'-12" RCP S=0.100'/Ft.
108'-12" RCP S=0.040'/Ft.
124'-12" RCP S=0.015'/Ft.
5'-12" RCP S=0.01'/Ft.
Prop. Double CB 2 Rim=313.00 Inv. (Out)=309.00
Prop. 12" Flared End Section 2 (RI Std. 2.3.0) Inv. (Out)=301.00
Pipe Numbers Refer to HydraFlow Analysis (Typ.)
Test Pit Location by RT Group (Typ.)
6'-12" RCP S=0.01'/Ft.
Prop. Double CB 2 Rim=314.15 Inv. (Out)=310.15
23'-18" RCP S=0.005'/Ft.
26'-15" RCP S=0.003'/Ft.
Prop. DMH E Rim=316.54 Inv. (In)=311.02 Inv. (Out)=310.92
4'-15" RCP S=0.005'/Ft.
Prop. 10' Drainage Vault (See Detail Sheet C9) Rim=316.7 Inv. (In)=Variable (See Detail) Inv. (Out)=304.00
59'-36" RCP S=0.05'/Ft.
23'-18" RCP S=0.005'/Ft.
26'-30" RCP S=0.005'/Ft.
Prop. DMH F Rim=316.90 Inv. (In)=312.40 Inv. (Out)=312.40
4'-30" RCP S=0.005'/Ft.
122'-12" RCP S=0.015'/Ft.
59'-36" RCP S=0.05'/Ft.
Prop. 36" Flared End Section (RI Std. 2.3.0) Inv. (Out)=301.0
Prop. 36" Flared End Sections (RI Std. 2.3.0) Inv. (Out)=301.0
Prop. Rip Rap (18" Max Stone Size)
Limit Of Work
Limit Of Regrading
Limit Of Clearing
Prop. Rip Rap (8" Max. Stone Size)
Prop. Haybales / Silt Fence (RI Std. 9.3.0)
Test Pit. Location by Ecosystem Solutions (Typ.)
50' Perimeter Wetland (RIDEM)
100' Freshwater Wetland Buffer Limit (town of Smithfield)
Provide 1' high berm with rip rap 18" Max Stone Size
ASSF (No Associated Buffer)
Wetland
Match to Drainage & Grading Plan No. 4
Kindly be advised that this Permit is not equivalent to a verification of the type or extent of freshwater wetlands on site.
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
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N:\3600s\3627 Bryant - Townhouses\AutoCAD Files\Submissions\2008-10-09 - Resubmittal of RIDEM Permit Application Plan\3627 Drain & Grade Plan Parking.dwg

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Client:

BRYANT UNIVERSITY 1863

Project

Townhouse Apartments "O" & "P"

Bryant University
Smithfield, Rhode Island

Title

Drainage & Grading Plan No. 3
Parking Lot

Revisions

No.	Description	Date
1	RIDEM Comments	10/21/08

File: 3627 Drain & Grade Plan Parking.dwg

Drawn By:	MJZ
Designed By:	JH
Checked By:	KMA
Job No: 3627	Date: 08/12/08

North Arrow

NOV 24

Scale

20 0 20 40
SCALE IN FEET: 1"=20'

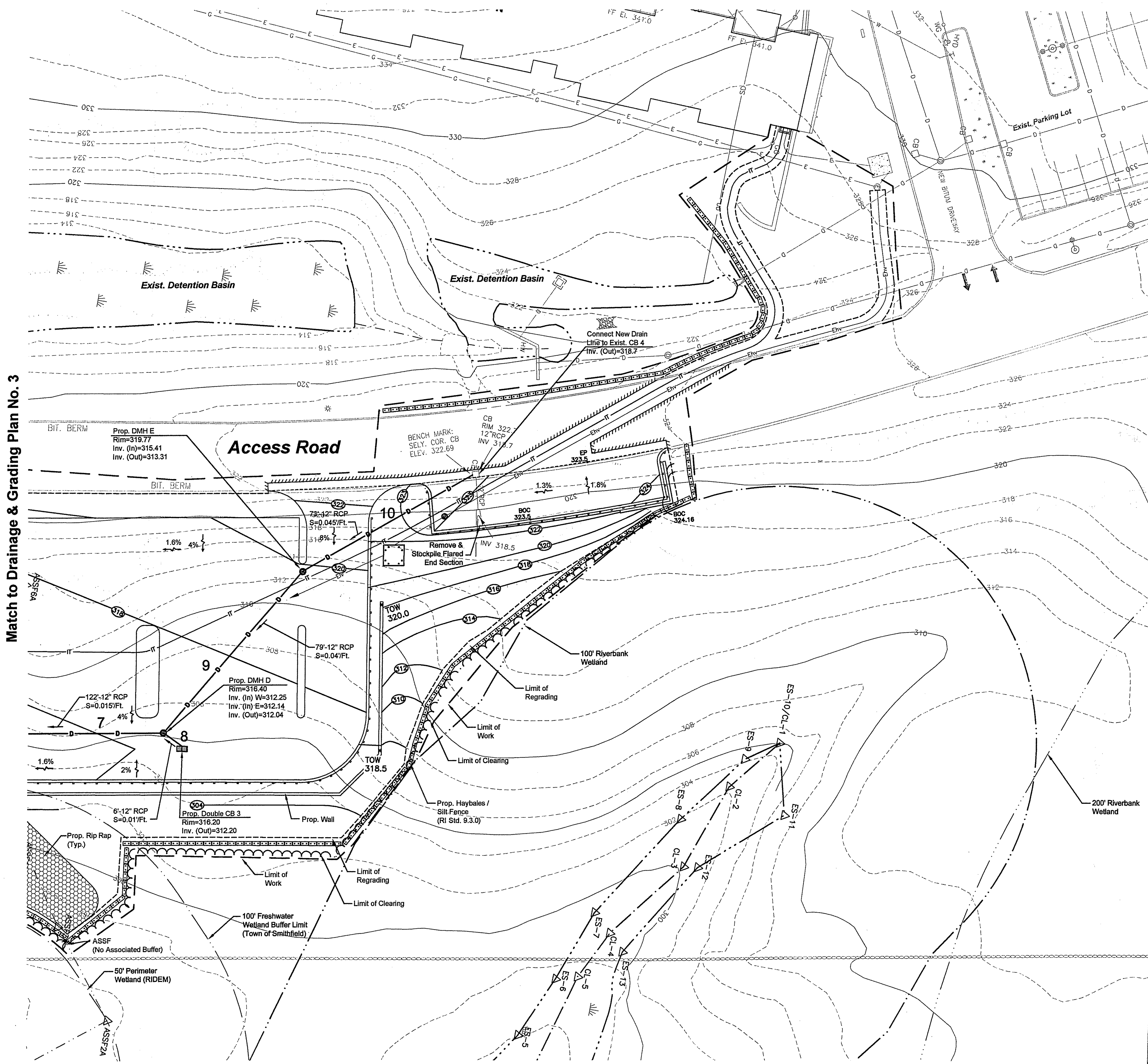
UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

Permit Prints

Sheet No.:

C6

Plot Date: Nov 24, 2008 9:52am



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OFFICE OF WATER RESOURCES
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Project

Townhouse Apartments "O" & "P"

Bryant University
Smithfield, Rhode Island

Title

Drainage & Grading Plan No. 4 *Parking Lot*

Revisions

No.	Description	Date
1	RIDEM Comments	10/21/08

File: 3627 Drain & Grade Plan Parking.dwg

Drawn By:	MJZ
Designed By:	JH
Checked By:	KMA
Job No: 3627	Date: 08/12/08

North Arrow

RECEIVED NOV 24

Scale

20 0 20 40
SCALE IN FEET: 1"=20'

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Sheet No.:

C7

Plot Date: Nov 24, 2008 10:10am

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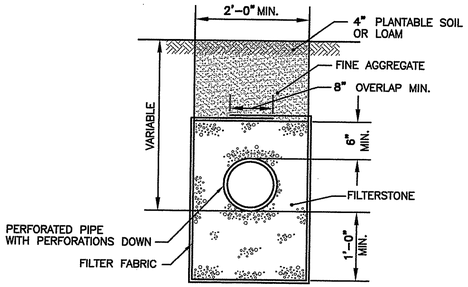
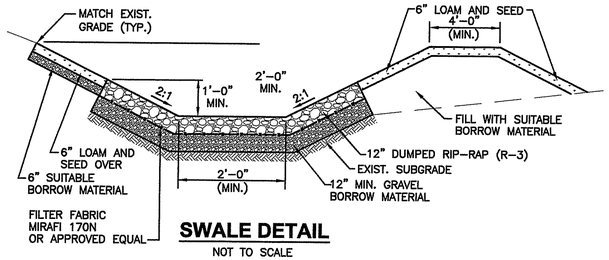


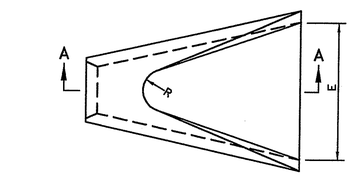
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 703 OF THE R.I. STANDARD SPECIFICATIONS.
2. WIDTH (W) OF TRENCH = INSIDE DIAMETER OF PIPE + 1'-0" OR 2'-0" WHICHEVER IS GREATER.
3. MINIMUM PIPE DIAMETER 8".
4. DISTANCE DIMENSIONS ARE GIVEN TO THE OUTSIDE DIAMETER OF PIPE.

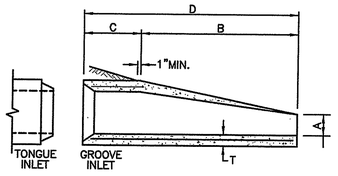
TYPICAL UNDERDRAIN
NOT TO SCALE

R.I. STANDARD 1.1.0

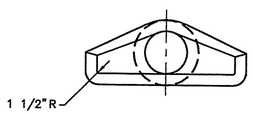


SWALE DETAIL
NOT TO SCALE





SECTION A–A



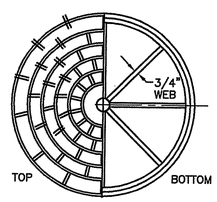
END ELEVATION

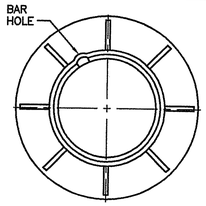
DIMENSIONS								REINFORCEMENT
DIA.	A	B	C	D	E	R	T	ONE LAYER REINFORCEMENT IN CENTER OF WALL MIN. AREA OF EACH WAY (SQ. IN./FT.)
1'-0"	4"	2'-0"	4'-0 7/8"	6'-0 7/8"	2'-0"	9"	2"	0.048
1'-3"	6"	2'-3"	3'-10"	6'-1"	2'-6"	11"	2 1/4"	0.054
1'-6"	9"	2'-3"	3'-10"	6'-1"	3'-0"	12"	2 1/2"	0.060
2'-0"	9 1/2"	3'-7 1/2"	2'-6"	6'-1 1/2"	4'-0"	1'-2"	3"	0.072
2'-6"	1'-0"	4'-6"	1'-7 3/4"	6'-1 3/4"	5'-0"	1'-3"	3 1/2"	0.084
3'-0"	1'-3"	5'-3"	2'-10 3/4"	8'-1 3/4"	6'-0"	1'-8"	4"	0.096
3'-6"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	1'-10"	4 1/2"	0.108
4'-0"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	1'-10"	5"	0.120
4'-6"	2'-3"	5'-5"	2'-11"	8'-4"	7'-6"	2'-0"	5 1/2"	0.132
5'-0"	2'-6"	5'-0"	3'-3"	8'-3"	8'-0"	2'-0"	6"	0.144

NOTE:
SHALL BE IN ACCORDANCE WITH SECTION 701 OF THE R.I. STANDARD SPECIFICATIONS.

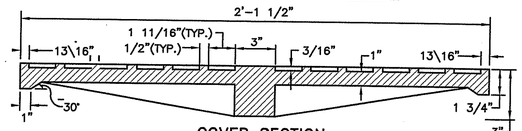
PRECAST CONCRETE FLARED END SECTION
NOT TO SCALE

R.I. STANDARD 2.3.0

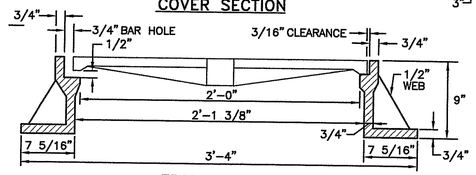




COVER FRAME



COVER SECTION

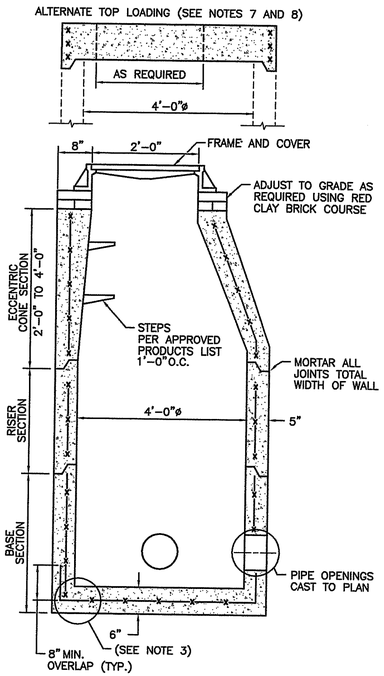


FRAME SECTION

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

HEAVY–DUTY ROUND FRAME AND COVER
NOT TO SCALE

R.I. STANDARD 6.2.1



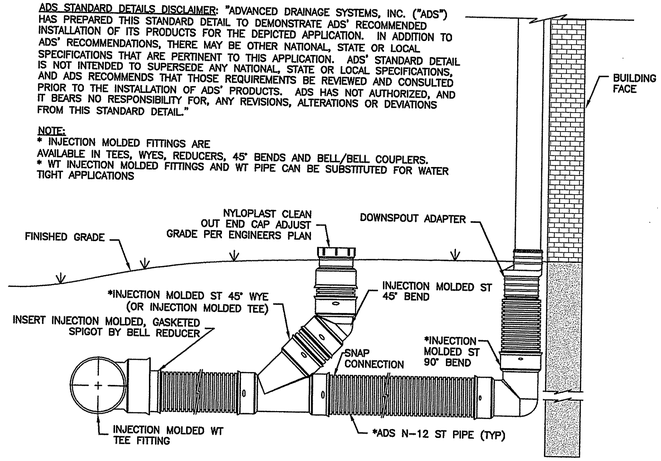
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. CIRCUMFERENTIAL STEEL REINFORCEMENT REQUIRED = 0.12 SQ. IN. / LIN. FT. MINIMUM.
3. STEEL REINFORCEMENT FOR BASE SECTION BOTTOM SHALL BE A MINIMUM OF 0.12 SQ. IN/LIN. FT. (BOTH WAYS).
4. ONE POUR MONOLITHIC BASE SECTION.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

PRECAST 4'–0" ROUND MANHOLE
NOT TO SCALE

R.I. STANDARD 4.2.0

ADS STANDARD DETAILS DISCLAIMER: "ADVANCED DRAINAGE SYSTEMS, INC. ("ADS") HAS PREPARED THIS STANDARD DETAIL TO DEMONSTRATE ADS' RECOMMENDED INSTALLATION OF ITS PRODUCTS FOR THE DEPICTED APPLICATION. IN ADDITION TO ADS' RECOMMENDATIONS, THERE MAY BE OTHER NATIONAL, STATE OR LOCAL SPECIFICATIONS THAT ARE PERTINENT TO THIS APPLICATION. ADS' STANDARD DETAIL IS NOT INTENDED TO SUPERSEDE ANY NATIONAL, STATE OR LOCAL SPECIFICATIONS, AND ADS RECOMMENDS THAT THOSE REQUIREMENTS BE REVIEWED AND CONSULTED PRIOR TO THE INSTALLATION OF ADS' PRODUCTS. ADS HAS NOT AUTHORIZED, AND IT BEARS NO RESPONSIBILITY FOR, ANY REVISIONS, ALTERATIONS OR DEVIATIONS FROM THIS STANDARD DETAIL."

NOTE:
* INJECTION MOLDED FITTINGS ARE AVAILABLE IN TEES, WYES, REDUCERS, 45° BENDS AND BELL/BELL COUPLERS.
* WT INJECTION MOLDED FITTINGS AND WT PIPE CAN BE SUBSTITUTED FOR WATER TIGHT APPLICATIONS



ROOF DRAIN DETAIL WITH CLEANOUT
Not to Scale

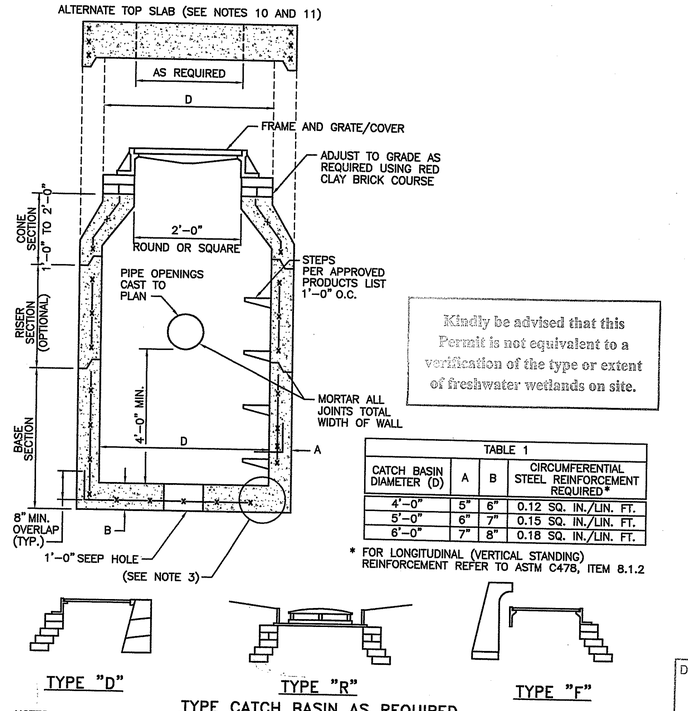


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TABLE 1			
CATCH BASIN DIAMETER (D)	A	B	CIRCUMFERENTIAL STEEL REINFORCEMENT REQUIRED *
4'–0"	5"	6"	0.12 SQ. IN./LIN. FT.
5'–0"	6"	7"	0.15 SQ. IN./LIN. FT.
6'–0"	7"	8"	0.18 SQ. IN./LIN. FT.

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

TYPE CATCH BASIN AS REQUIRED

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

PRECAST 4'–0", 5'–0", OR 6'–0" ROUND CATCH BASIN
NOT TO SCALE

R.I. STANDARD 4.4.0

Engineered by:
BETA Group, Inc.
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email: BETA@BETA-inc.com

P.E. Stamp:

KEVIN M. AGUIAR No. 6913 REGISTERED PROFESSIONAL ENGINEER (CIVIL)
10.21.08

Subconsultant:

Edward Rowse ARCHITECTS
115 Cedar Street, Providence, RI 02903-1082
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Client:

BRYANT UNIVERSITY 1863

Project

Townhouse Apartments "O" & "P"
Bryant University
Smithfield, Rhode Island

Title

Details No. 1

Revisions

No.	Description	Date
1	RIDEM Comments	10/21/08

File: 3627 Details.dwg
Drawn By: MJZ
Designed By: JH
Checked By: KMA
Job No: 3627 Date: 08/12/08

North Arrow

RECEIVED OCT 23 2008 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 DEC 1 2008 FILE # 08-2350
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
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Scale
As Shown

Permit Prints

Sheet No.:
C8
Plot Date: Oct 21, 2008 1:59pm

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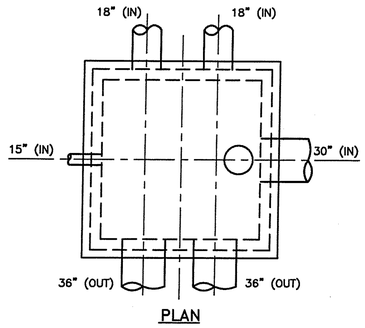

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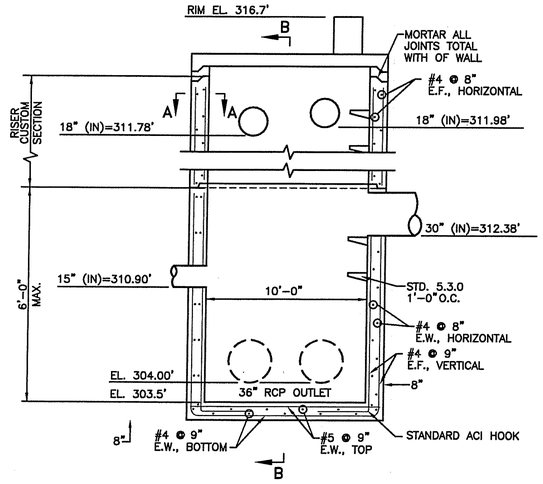
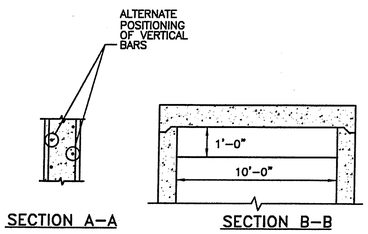


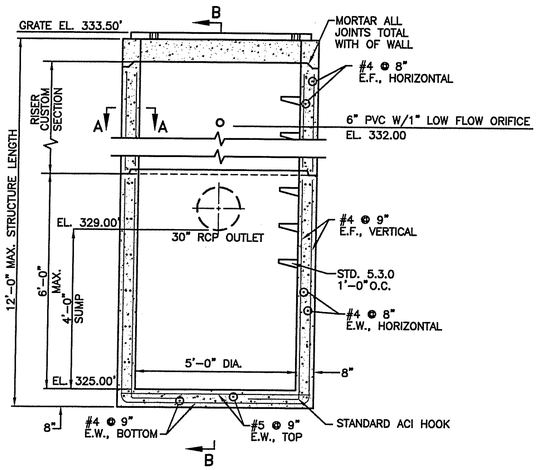


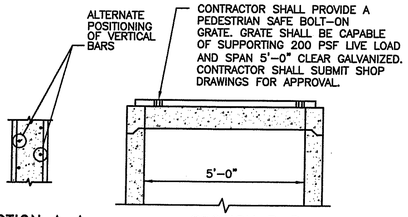
SECTION A–A SECTION B–B

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. ANY NECESSARY ADJUSTMENTS DURING CONSTRUCTION WILL BE DONE BY SAW-CUTTING AND/OR CORING ONLY. NO JACKHAMMERS, HAMMERS AND CHISELS OR PNUEMATIC TOOLS WILL BE ALLOWED.
3. THE CENTERLINE OF THE OPENING MUST BE WITHIN 2'-0" FROM THE STEPS.
4. TOP SLAB, RISER AND BASE SECTIONS HAVE BEEN REINFORCED TO MEET OR EXCEED H-25 OR HS-25 LOADINGS WITH EARTH PRESSURES INCLUDED. THIS IMPLIES THAT THE TOP SLAB, RISER AND BASE SECTIONS ARE DESIGNED FOR AXLE LOAD OF NO GREATER THAN 20 TONS
5. THERE IS TO BE 2" MINIMUM COVER ON ALL REBAR.
6. ALL REBARS ARE TO HAVE MINIMUM 2" CLEARANCE FROM OPENING.
7. STEPS SHALL CONFORM TO STD. 5.3.0 AND SHALL BE INSTALLED AT THE CASTING PLANT.
8. THE SPLICE LENGTHS ON TIES ARE TO BE A MINIMUM OF 1'-7".
9. WHERE THE CLEARANCE FROM THE TOP OF THE PIPE TO THE RIM IS "B" OR LESS, PLUGS SHALL BE USED IN CONJUNCTION WITH SLOTTED HOLES. NO SLOTTED HOLE WILL BE PERMITTED WHERE THE CLEARANCE IS GREATER THAN 8". IN CASES WHERE SLOTTED HOLES ARE NOT USED AND THE WALL OPENING COMES WITHIN 1'-3" OF THE RIM, AN ADDITIONAL #6 BAR SHALL BE USED ABOVE THE OPENING THE WIDTH "C" OF THE WALL.

PRECAST 10'-0" DRAIN VAULT FOR PARKING LOT

NOT TO SCALE





SECTION A–A SECTION B–B

NOTES:
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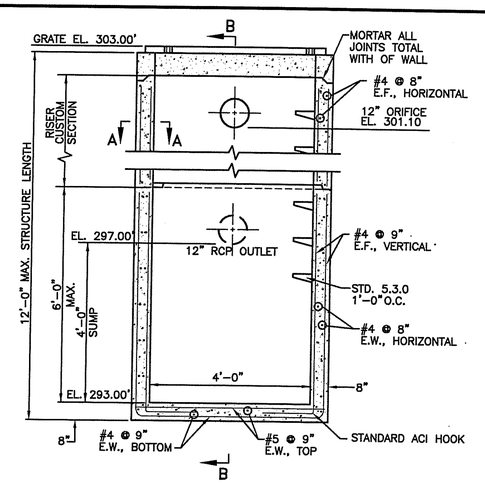
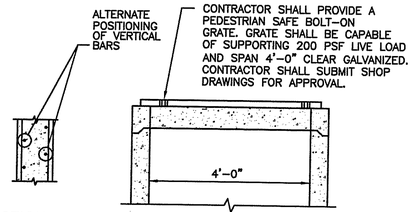
3. THE CENTERLINE OF THE OPENING MUST BE WITHIN 2'-0" FROM THE STEPS.
4. TOP SLAB, RISER AND BASE SECTIONS HAVE BEEN REINFORCED TO MEET OR EXCEED H-25 OR HS-25 LOADINGS WITH EARTH PRESSURES INCLUDED. THIS IMPLIES THAT THE TOP SLAB, RISER AND BASE SECTIONS ARE DESIGNED FOR AXLE LOAD OF NO GREATER THAN 20 TONS
5. THERE IS TO BE 2" MINIMUM COVER ON ALL REBAR.
6. ALL REBARS ARE TO HAVE MINIMUM 2" CLEARANCE FROM OPENING.
7. STEPS SHALL CONFORM TO STD. 5.3.0 AND SHALL BE INSTALLED AT THE CASTING PLANT.
8. THE SPLICE LENGTHS ON TIES ARE TO BE A MINIMUM OF 1'-7".
9. WHERE THE CLEARANCE FROM THE TOP OF THE PIPE TO THE RIM IS "B" OR LESS, PLUGS SHALL BE USED IN CONJUNCTION WITH SLOTTED HOLES. NO SLOTTED HOLE WILL BE PERMITTED WHERE THE CLEARANCE IS GREATER THAN 8". IN CASES WHERE SLOTTED HOLES ARE NOT USED AND THE WALL OPENING COMES WITHIN 1'-3" OF THE RIM, AN ADDITIONAL #6 BAR SHALL BE USED ABOVE THE OPENING THE WIDTH "C" OF THE WALL.

PRECAST 5'-0" ROUND OUTLET STRUCTURE FOR BASIN #1 (TOWNHOUSES)

NOT TO SCALE





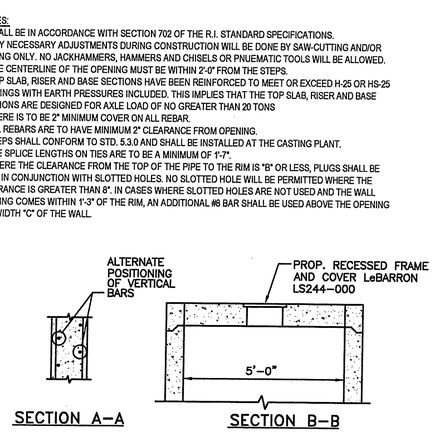
SECTION A–A SECTION B–B

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. ANY NECESSARY ADJUSTMENTS DURING CONSTRUCTION WILL BE DONE BY SAW-CUTTING AND/OR CORING ONLY. NO JACKHAMMERS, HAMMERS AND CHISELS OR PNUEMATIC TOOLS WILL BE ALLOWED.
3. THE CENTERLINE OF THE OPENING MUST BE WITHIN 2'-0" FROM THE STEPS.
4. TOP SLAB, RISER AND BASE SECTIONS HAVE BEEN REINFORCED TO MEET OR EXCEED H-25 OR HS-25 LOADINGS WITH EARTH PRESSURES INCLUDED. THIS IMPLIES THAT THE TOP SLAB, RISER AND BASE SECTIONS ARE DESIGNED FOR AXLE LOAD OF NO GREATER THAN 20 TONS
5. THERE IS TO BE 2" MINIMUM COVER ON ALL REBAR.
6. ALL REBARS ARE TO HAVE MINIMUM 2" CLEARANCE FROM OPENING.
7. STEPS SHALL CONFORM TO STD. 5.3.0 AND SHALL BE INSTALLED AT THE CASTING PLANT.
8. THE SPLICE LENGTHS ON TIES ARE TO BE A MINIMUM OF 1'-7".
9. WHERE THE CLEARANCE FROM THE TOP OF THE PIPE TO THE RIM IS "B" OR LESS, PLUGS SHALL BE USED IN CONJUNCTION WITH SLOTTED HOLES. NO SLOTTED HOLE WILL BE PERMITTED WHERE THE CLEARANCE IS GREATER THAN 8". IN CASES WHERE SLOTTED HOLES ARE NOT USED AND THE WALL OPENING COMES WITHIN 1'-3" OF THE RIM, AN ADDITIONAL #6 BAR SHALL BE USED ABOVE THE OPENING THE WIDTH "C" OF THE WALL.

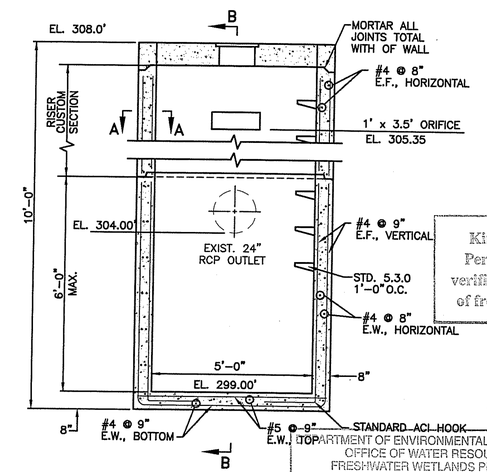
PRECAST 4'-0" SQUARE OUTLET STRUCTURE FOR BASIN #2 (PARKING LOT)

NOT TO SCALE

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. ANY NECESSARY ADJUSTMENTS DURING CONSTRUCTION WILL BE DONE BY SAW-CUTTING AND/OR CORING ONLY. NO JACKHAMMERS, HAMMERS AND CHISELS OR PNUEMATIC TOOLS WILL BE ALLOWED.
3. THE CENTERLINE OF THE OPENING MUST BE WITHIN 2'-0" FROM THE STEPS.
4. TOP SLAB, RISER AND BASE SECTIONS HAVE BEEN REINFORCED TO MEET OR EXCEED H-25 OR HS-25 LOADINGS WITH EARTH PRESSURES INCLUDED. THIS IMPLIES THAT THE TOP SLAB, RISER AND BASE SECTIONS ARE DESIGNED FOR AXLE LOAD OF NO GREATER THAN 20 TONS
5. THERE IS TO BE 2" MINIMUM COVER ON ALL REBAR.
6. ALL REBARS ARE TO HAVE MINIMUM 2" CLEARANCE FROM OPENING.
7. STEPS SHALL CONFORM TO STD. 5.3.0 AND SHALL BE INSTALLED AT THE CASTING PLANT.
8. THE SPLICE LENGTHS ON TIES ARE TO BE A MINIMUM OF 1'-7".
9. WHERE THE CLEARANCE FROM THE TOP OF THE PIPE TO THE RIM IS "B" OR LESS, PLUGS SHALL BE USED IN CONJUNCTION WITH SLOTTED HOLES. NO SLOTTED HOLE WILL BE PERMITTED WHERE THE CLEARANCE IS GREATER THAN 8". IN CASES WHERE SLOTTED HOLES ARE NOT USED AND THE WALL OPENING COMES WITHIN 1'-3" OF THE RIM, AN ADDITIONAL #6 BAR SHALL BE USED ABOVE THE OPENING THE WIDTH "C" OF THE WALL.



SECTION A–A SECTION B–B



PRECAST 5'-0" SQUARE OUTLET STRUCTURE FOR EXISTING BASIN #1

NOT TO SCALE

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NOV 24 2008
DEPT OF ENVIRONMENTAL MANAGEMENT

Kindly be advised that this Permit is not equivalent to a verification of the type or extent of freshwater wetlands on site.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
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10·24·08

Subconsultant:
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Client:
BRYANT UNIVERSITY 1863

Project
Townhouse Apartments "O" & "P"
Bryant University
Smithfield, Rhode Island

Title
Details No. 2

Revisions

No.	Description	Date
1	RIDEM Comments	10/21/08

File: 3627 Details.dwg
Drawn By: MJZ
Designed By: JH
Checked By: KMA
Job No: 3627 Date: 08/12/08

North Arrow

Scale
As Shown

Permit Prints

Sheet No.:
C9
Plot Date: Nov 24, 2008 9:53am

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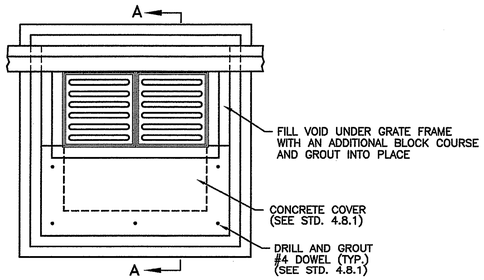
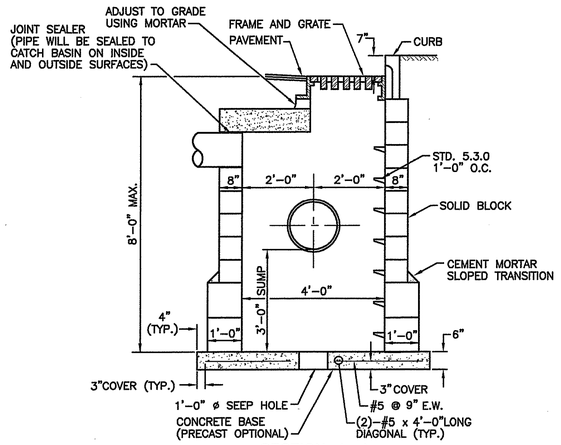
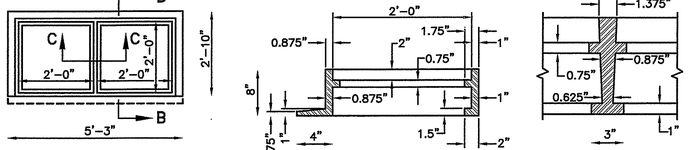


PLAN



SECTION A–A



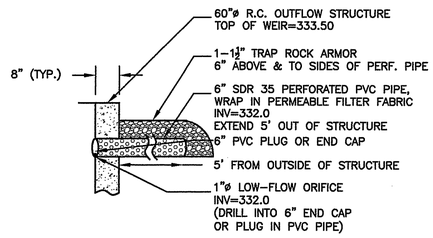
FRAME DETAILS SECTION B–B SECTION C–C

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. 1/2" CEMENT MORTAR COAT REQUIRED ON ALL INSIDE AND OUTSIDE SURFACES.
3. 8" HIGH FRAME MAY BE SUBSTITUTED WITH A 4" HIGH FRAME AS NEEDED. SHOP DRAWINGS ARE REQUIRED.
4. ADJUST DOWEL LOCATION BASED ON PIPE CONFIGURATION, IF REQUIRED.
5. PIPE COVER FOR THIS DETAIL SHALL BE 1'–6" TO 3'–0".
6. USE 8" WALLS UP TO 6'–0" DEPTH, USE 1'–0" WALLS UP TO 8'–0" DEPTH.
7. TWO SINGLE FRAMES WITH THREE FLANGES AND TWIN GRATES MAY BE SUBSTITUTED FOR THE DOUBLE FRAME WITH TWIN GRATES.

SOLID BLOCK SHALLOW DOUBLE GRATE CATCH BASIN GRATE PARALLEL TO CURB

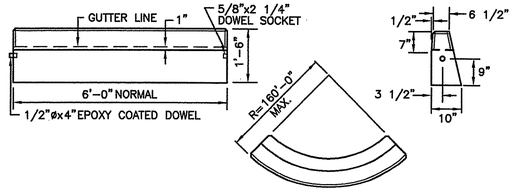
NOT TO SCALE

R.I. STANDARD 3.5.2



WQB 1 LOW-FLOW ORIFICE

NOT TO SCALE



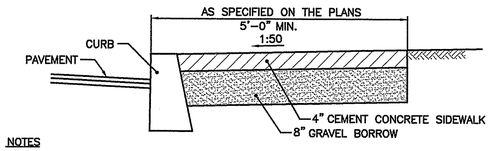
CIRCULAR CURB

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. MINIMUM LENGTH OF STRAIGHT OR CIRCULAR FILLER PIECES TO BE 3'–0".
3. EXPOSED SURFACES TO HAVE A SPONGE FLOAT FINISH.
4. CIRCULAR CURB IS REQUIRED ON CURVES WITH RADII OF 160'–0" OR LESS. STRAIGHT CURB TO BE USED ON CURVES OF MORE THAN 160'–0" RADIUS.
5. EXPOSED EDGES TO HAVE A 3/4" CHAMFER.

PRECAST CONCRETE CURB

NOT TO SCALE

R.I. STANDARD 7.1.0

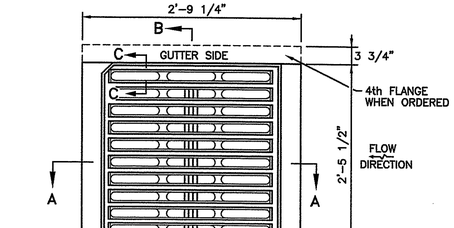


NOTES
1. SHALL BE IN ACCORDANCE WITH SECTION 905 OF THE R.I. STANDARD SPECIFICATIONS.
2. FOR CURB SETTING DETAIL REFERENCE STD. 7.6.0.

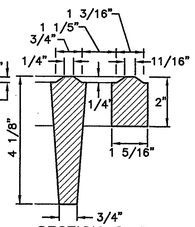
CEMENT CONCRETE SIDEWALK

NOT TO SCALE

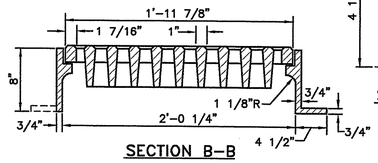
R.I. STANDARD 43.1.0



SECTION A–A



SECTION C–C



SECTION B–B

SQUARE FRAME AND GRATE (BICYCLE SAFE)

NOT TO SCALE

R.I. STANDARD 6.3.2

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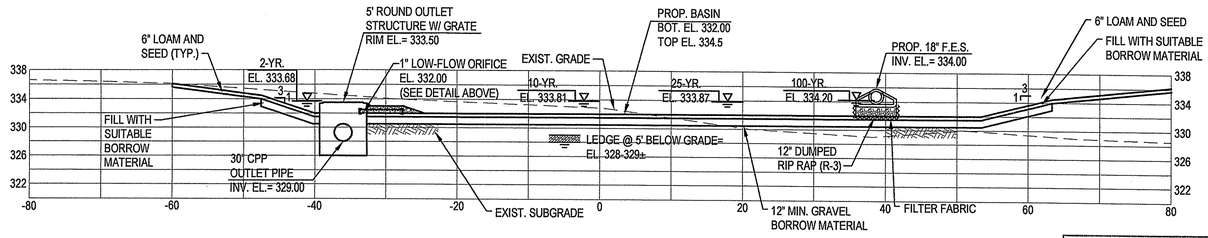

SECTION A-A: TOWNHOUSE WATER QUALITY BASIN

NOT TO SCALE

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
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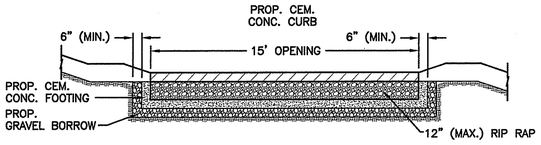
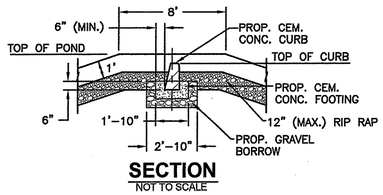


CEMENT CONCRETE CURB SPILLWAY

NOT TO SCALE



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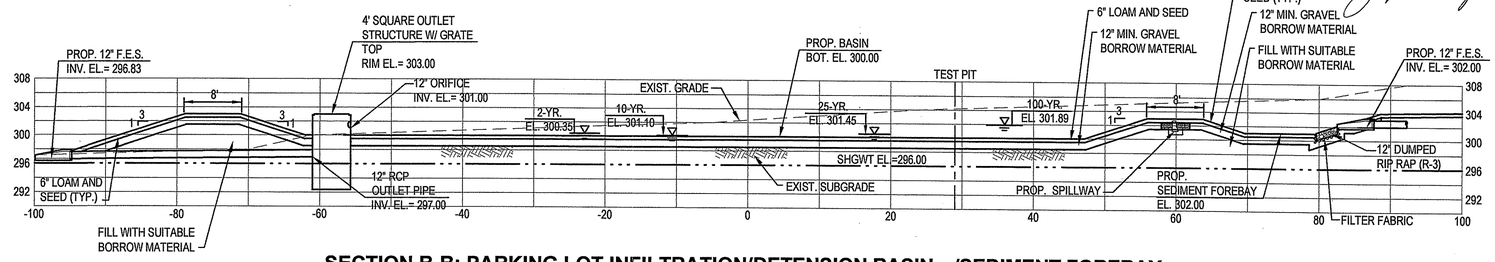
NOT TO SCALE



SECTION B-B: PARKING LOT INFILTRATION/DETENSION BASIN w/SEDIMENT FOREBAY

SCALE: 1"=10'

N:\3600s\3627 Bryant – Parking Lot – Townhouses\AutoCAD Files\Submissions\2008-10-09 – Resubmittal of RIDEM Permit Application Plan\3627 Details.dwg

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10-21-08

Subconsultant:
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ARCHITECTS
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Fax (401) 331-9270

Client:
BRYANT UNIVERSITY 1863

Project

Townhouse Apartments "O" & "P"

Bryant University
Smithfield, Rhode Island

Title

Details No. 3

Revisions

No.	Description	Date
1	RIDEM Comments	10/21/08

File: 3627 Details.dwg
Drawn By: MJZ
Designed By: JH
Checked By: KMA
Job No: 3627 **Date:** 08/12/08

North Arrow

RECEIVED OCT 23 2008 RIDEM/OWR/FRESHWATER WETLANDS PROGRAM

Scale

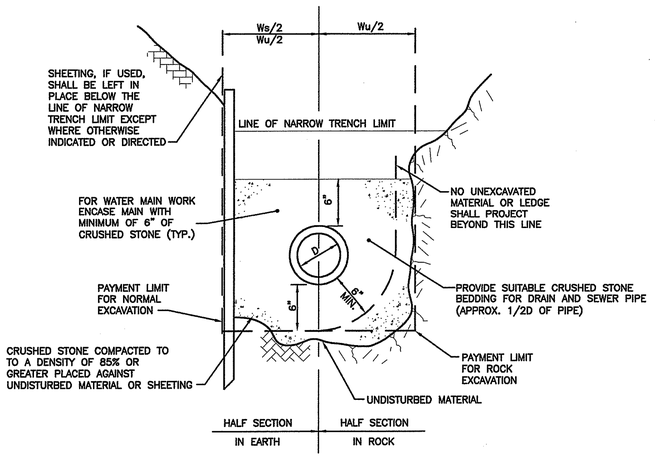
As Shown

Permit Prints

Sheet No.:

C10

Plot Date: Oct 21, 2008 4:04pm



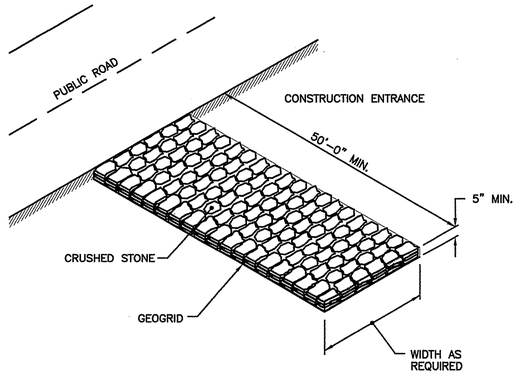
FOR SHEETED TRENCH Wa = 4/3D + 32" OR 50" WHICHEVER IS GREATER.
FOR UNSHEATHED TRENCH Wu = 4/3D + 18" OR 36" WHICHEVER IS GREATER.

SEWER, DRAIN AND WATER TRENCH DETAIL
NOT TO SCALE

NOTES:

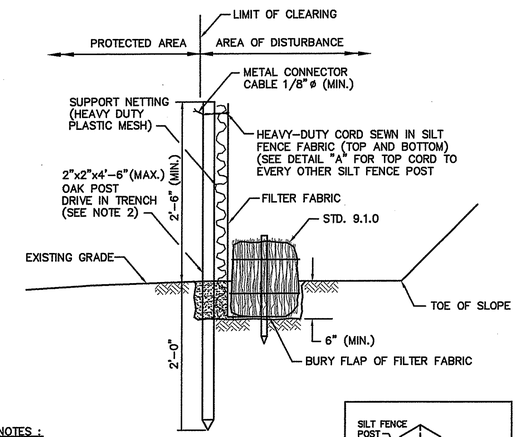
* SELECTED EXCAVATED MATERIAL WITH NO STONE LARGER THAN 2" FOR CAST IRON, DUCTILE IRON, AND CONCRETE PIPES.

1. TRENCHES MAY BE EXCAVATED WIDER THAN TRENCH WIDTH Ws ABOVE THE "LINE OR NARROW TRENCH LIMIT."
2. BELOW THE "LINE OF NARROW TRENCH LIMIT" THE TRENCH SHALL NOT BE EXCAVATED BEYOND THE TRENCH WIDTH Ws.
3. SHEETING, IF USED, IN ALL CASES SHALL BE LEFT IN PLACE BELOW A LINE 1'-0" ABOVE THE TOP OF THE PIPE, UNLESS OTHERWISE INDICATED OR DIRECTED.
4. "COVER" AT ANY POINT SHALL BE DEFINED AS THE VERTICAL DISTANCE FROM THE UPPER MOST POINT OF THE PIPE TO A LINE WHICH CONNECTS THE SURFACE OF UNDISTURBED GROUND AT EITHER SIDE OF THE TRENCH AT THAT POINT.
5. WHERE FUTURE EXTENSION OF A CAPPED PIPE, OR CAPPED BRANCH WILL REQUIRE ROCK EXCAVATION, TRENCH EXCAVATION IN ROCK SHALL BE EXTENDED FOR A DISTANCE OF 3'-0" BEYOND THE PLUG.
6. UNSUITABLE EXCAVATED MATERIAL SHALL BE REPLACED WITH GRAVEL BORROW (RIDOT M1.02) OR CRUSHED STONE (RIDOT M.01.04)

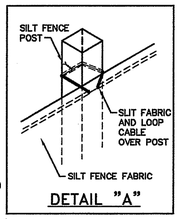


NOTE:
SHALL BE IN ACCORDANCE WITH SECTION 211 OF THE R.I. STANDARD SPECIFICATIONS.

CONSTRUCTION ACCESS
NOT TO SCALE
R.I. STANDARD 9.9.0

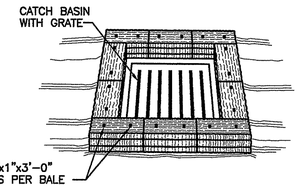


NOTES :
1. SHALL BE IN ACCORDANCE WITH SECTION 206 OF THE R.I. STANDARD SPECIFICATIONS.
2. STD. 9.1.0 IS INSTALLED "TIGHT" AGAINST SILT FENCE. THOROUGHLY COMPACT EXCAVATED SOILS BACK INTO TRENCH AFTER INSTALLATION OF EROSION CONTROL DEVICE. SILT FENCE FABRIC SHALL NOT BE SLIT. STD. 9.1.0 POST SHALL BE DRIVEN THROUGH SILT FENCE FABRIC. 2"x2"x4'-6"(MAX.) OAK POST FOR SILT FENCE SHALL BE LOCATED 8'-0"(MAX.) O.C. IN WETLAND AREAS AND 4'-0" (MAX.) O.C. IN WETLAND RAVINE, GULLY OR DROP-OFF AREAS AS SHOWN ON PLANS.
3. 1"x1"x4'-6"(MIN.) POSTS PERMITTED FOR PRE-FABRICATED SILT FENCE.
4. SILT FENCE AND BALED HAY SHALL BE INSTALLED BEFORE ANY GRUBBING OR EARTH EXCAVATION TAKES PLACE.



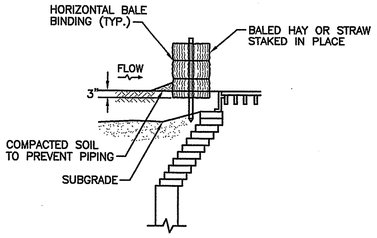
DETAIL "A"

BALED HAY EROSION CHECK AND SILT FENCE COMBINED
NOT TO SCALE
R.I. STANDARD 9.3.0



NOTES:

1. SHALL BE IN ACCORDANCE WITH SECTION 209 OF THE R.I. STANDARD SPECIFICATIONS.
2. THIS INLET PROTECTION CAN ALSO BE USED WHEN CONSTRUCTION SEQUENCING REQUIRES A CATCH BASIN TO BE EXPOSED TO SEDIMENT FROM THE SUBGRADE. THIS WILL BE ACHIEVED BY INSTALLING THE BALED HAY AS SHOWN ON THIS DETAIL INTO THE SUBGRADE.
3. THE PERIMETER CONFIGURATION OF THE BALED HAY WILL VARY DEPENDING ON THE PARTICULAR TYPE OF CATCH BASIN INLET BEING CONSTRUCTED. THE ENGINEER WILL PROVIDE SPECIFIC DIRECTION IN SUCH CASES.



BALED HAY CATCH BASIN INLET PROTECTION
NOT TO SCALE
R.I. STANDARD 9.8.0

Kindly be advised that this Permit is not equivalent to a verification of the type or extent of freshwater wetlands on site.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED DEC 1 2008 FILE # 08-0250
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL.
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.
W. Joseph Casey

Engineered by:
BETA Group, Inc.
Engineers · Scientists · Planners
6 Blackstone Valley Place
Lincoln, RI 02865
401.333.2382
email: BETA@BETA-inc.com

P.E. Stamp:
KEVIN M. AGUIAR
No. 6913
REGISTERED PROFESSIONAL ENGINEER (CIVIL)
10-21-08

Subconsultant:
Edward Rowse ARCHITECTS
115 Cedar Street (401) 331-9200
Providence, RI 02903-1082 Fax (401) 331-9270

Client:
BRYANT UNIVERSITY 1863

Project

Townhouse Apartments "O" & "P"
Bryant University
Smithfield, Rhode Island

Title

Details No. 4

Revisions

No.	Description	Date
1	RIDEM Comments	10/21/08

File: 3627 Details.dwg
Drawn By: MJZ
Designed By: JH
Checked By: KMA
Job No: 3627 **Date:** 08/12/08

North Arrow

RECEIVED OCT 23 2008 ENVIRONMENTAL MANAGEMENT STATE OF RHODE ISLAND

Scale

As Shown

Permit Prints

Sheet No.:

C11

Plot Date: Oct 21, 2008 2:00pm

N:\3600s\3627 Bryant - Parking Lot - Townhouses\AutoCAD Files\Submissions\2008-10-09 - Resubmittal of RIDEM Permit Application Plan\3627 Details.dwg