SITE PLANS FOR A PROPOSED MAJOR SUBDIVISION:

HIGHLAND ESTATES

AP 52 LOTS 10, 307, 308, 309, 310, 315 & 316

CUMBERLAND, RHODE ISLAND

ZONING DISTRICTS: A-2 & R-1

SUBMITTED TO:

- RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT FRESHWATER WETLANDS PROGRAM - PERMIT MODIFICATION APPLICATION (SEPTEMBER 2017)
- RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT FRESHWATER WETLANDS PROGRAM - PERMIT EXTENSION APPLICATION (JUNE 2017) 11

APPROVED BY:

- TOWN OF CUMBERLAND PLANNING BOARD - PRELIMINARY PLAN AND MODIFIED MASTER PLAN APPROVAL (JUNE 29, 2011)
- TOWN OF CUMBERLAND PLANNING BOARD - MASTER PLAN (MAY 15, 2006), EXTENDED UNTIL APRIL 29, 2010
- TOWN OF CUMBERLAND PLANNING BOARD - MODIFIED PRELIMINARY PLAN (MARCH 1, 2017) 11
- RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT FRESHWATER WETLANDS PROGRAM - PERMIT TO ALTER WETLANDS (NOVEMBER 24, 2008), PERMIT RENEWAL (FEBRUARY 7, 2017)
- TOWN OF CUMBERLAND SEWER DEPARTMENT
- TOWN OF CUMBERLAND WATER DEPARTMENT
- CUMBERLAND HILL FIRE DEPARTMENT

See also Wetland Restoration Planting Plan 9/8/16

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 30 2017 FILE # 07-0029
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Charles A. Horbert

PROJECT TEAM

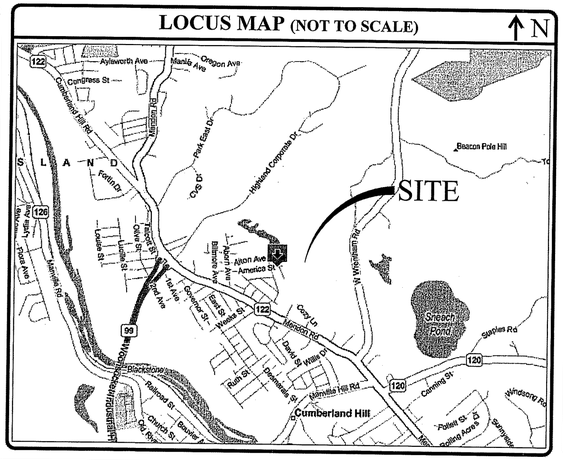
OWNER/ CO-APPLICANT: SEMINOLE DEVELOPMENT, LLC
MR. PAUL VANASSE, OWNER
1849 OLD LOUISQUISSET PIKE
LINCOLN, RI 02865
PHONE: 401-265-6144

CIVIL ENGINEER: JOE CASALI ENGINEERING, INC.
300 POST ROAD
WARWICK, RI 02888
PHONE: 401-944-1300
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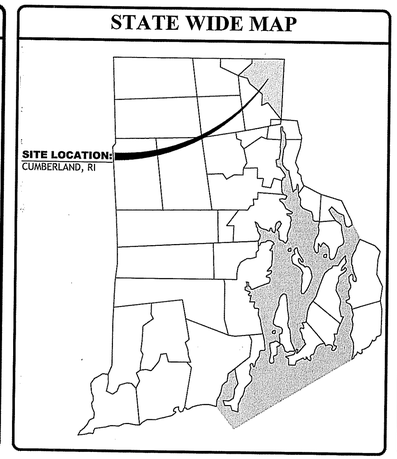
SURVEYOR: INTERNATIONAL MAPPING & SURVEY CORP.
19 INDUSTRIAL DRIVE
SMITHFIELD, RI 02917
PHONE: 401-232-2620

WETLANDS BIOLOGIST: NATURAL RESOURCE SERVICES, INC.
PO BOX 311
HARRISVILLE, RI 02830
PHONE: 401-568-7390

LOCUS MAP (NOT TO SCALE)



STATE WIDE MAP



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RECEIVED SEP 12 2017

JCE
JOE CASALI ENGINEERING, INC.
CIVIL · SITE DEVELOPMENT · TRANSPORTATION
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JOSEPH A. CASALI
No. 7250
REGISTERED PROFESSIONAL ENGINEER
CIVIL
9.8.17

HIGHLAND ESTATES
CUMBERLAND, RHODE ISLAND
AP 52 LOTS 10, 307, 308, 309, 310, 315 & 316
MAJOR LAND DEVELOPMENT

REVISIONS:		
NO.	DATE.	DESCRIPTION
2	8-2007	RIDEM COMMENTS
3	2-2008	RIDEM COMMENTS
4	5-2008	RIDEM COMMENTS
5	12-2009	WATER&SEWER SUB.
6	2-2010	WATER RESUB.
7	5-2011	PRELIM. PLAN SUB.
8	6-2011	PRELIM. PLAN APPROVAL
9	7-2011	FINAL PLAN
10	01-2016	MODIFIED PRELIM.
11	08-2017	RIDEM PERMIT MOD.

DESIGNED BY:	GC & ACK
DRAWN BY:	WMLJR
CHECKED BY:	JAC
DATE:	JANUARY 07
PROJECT NO:	05-77a

PRELIMINARY, NOT FOR CONSTRUCTION

COVER SHEET

SHEET 1 OF 16

Q:\05-77 Regional Finance\05-77a-Highland Estates\Plan Set\HIGHLAND ESTATES [RIDEM PERMIT MODIFICATION].dwg Sep. 08., 2017 9:38am

GENERAL NOTES:

1. CLASS I PROPERTY LINE AND CLASS III TOPOGRAPHIC SURVEY COMPLETED BY INTERNATIONAL MAPPING & SURVEY, CORP., 19 INDUSTRIAL DRIVE, SMITHFIELD RI.
2. THE LOCATION AND DEPTH OF EXISTING UTILITIES ARE APPROXIMATE AND HAVE BEEN PLOTTED FROM THE LATEST AVAILABLE INFORMATION. THE UTILITY LOCATIONS ARE APPROXIMATE AND MAY NOT BE ALL INCLUSIVE. THE CONTRACTOR SHALL CHECK AND VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES, BOTH OVERHEAD AND UNDERGROUND, AND "DIG-SAFE" MUST BE NOTIFIED PRIOR TO COMMENCING ANY CONSTRUCTION OPERATIONS. RESTORATION AND REPAIR OF DAMAGE TO EXISTING UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR WITH NO ADDITIONAL COST THE OWNER. NO EXCAVATION SHALL COMMENCE UNTIL ALL INVOLVED UTILITY COMPANIES AND/OR TOWN WHOSE FACILITIES MIGHT BE AFFECTED BY ANY WORK TO BE PERFORMED BY THE CONTRACTOR ARE NOTIFIED AT LEAST 72 HOURS IN ADVANCE.
3. THE MOST WESTERLY AND SOUTHERLY PORTIONS OF THE PARCEL ARE LOCATED WITHIN FEMA FLOOD ZONE "A" (AREAS OF 100 YEAR FLOOD) BASE FLOOD ELEVATIONS AND FLOOD FACTORS NOT DETERMINED. REFERENCE FEMA MAP COMMUNITY-PANEL #440016 0003B. REVISED 2-16-90
4. WETLAND RESOURCES DELINEATED BY NATIONAL RESOURCE SERVICES, INC. AND VERIFIED UNDER APPLICATION NO. 04-0510, EXPIRATION 7-13-2009.
5. CONTRACTOR SHALL COORDINATE A PRE-CONSTRUCTION MEETING WITH ENGINEER OF RECORD AT 300 POST ROAD, WARWICK, RI, PRIOR TO COMMENCEMENT OF CONSTRUCTION.

SITE NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND LEGALLY DISPOSING (R&D) OF ALL MATERIALS INDICATED ON THE PLANS.
2. STOCKPILES OF EARTH MATERIALS SHALL NOT BE LOCATED ADJACENT TO DRAINAGE STRUCTURES.
3. ALL DISTURBED AREAS OUTSIDE OF THE PAVED AREAS WILL RECEIVE A MINIMUM OF 6" OF LOAM AND SEED.
4. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN SURVEY LAYOUT SERVICES FOR THE WORK AND SHALL SUBMIT "AS-BUILT" DRAWINGS OF ALL WORK, WHICH SHALL BE STAMPED AND CERTIFIED BY A RHODE ISLAND REGISTERED PROFESSIONAL LAND SURVEYOR OR A RHODE ISLAND REGISTERED PROFESSIONAL ENGINEER.
5. ANY ITEM OF WORK NOT SPECIFICALLY INDICATED ON THE PLANS BUT REQUIRED FOR THE COMPLETE CONSTRUCTION OF THE PROJECT WILL BE CONSIDERED INCIDENTAL TO THE CONTRACT AND INCLUDED IN THE CONTRACT BID PRICE. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL EXISTING SITE CONDITIONS.
6. WHERE NECESSARY TO REMOVE CURBS, CATCH BASINS OR DRAINS TO COMPLETE WORK, THE CONTRACTOR SHALL REPLACE SUCH ITEMS TO THE SATISFACTION OF THE TOWN OF CUMBERLAND AT NO ADDITIONAL COST TO THE OWNER.
7. ANY EXISTING PIPE OR UTILITY DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED IMMEDIATELY BY THE CONTRACTOR AT NO COST TO THE OWNER OR TOWN.
8. THE CONTRACTOR SHALL RESTORE TO ITS ORIGINAL CONDITION OR REPLACE TREES, SHRUBS, FENCES, SIGNS, GUARDRAILS, DRIVEWAYS, SIDEWALKS AND ANY OTHER OBJECT AFFECTED BY THIS OPERATION.
9. THE TOPS OF ALL VALVE BOXES AND CURB BOXES SHALL BE FLUSH WITH GROUND OR PAVEMENT SURFACE LEVEL AND PLUMB, UNLESS OTHERWISE DIRECTED.
10. ROADWAYS SHALL BE LEFT PASSABLE AT ALL TIMES. CLOSURE OF ROADWAY IS NOT PERMITTED.
11. THE CONTRACTOR SHALL PROVIDE ACCESS TO ALL DRIVEWAYS AT COMPLETION OF EACH DAYS WORK.
12. WATER SERVICE SHALL BE MAINTAINED AT ALL TIMES.
13. ALL LEDGE TO BE REMOVED BY MECHANICAL MEANS. CONTRACTOR SHALL OBTAIN NECESSARY PERMITTING IF BLASTING IS REQUIRED.
14. ALL CONSTRUCTION WORK SHALL BE PERFORMED IN THE DRY. THE CONTRACTOR SHALL PROVIDE, OPERATE AND MAINTAIN ALL PUMPS, DRAINS, WET POINTS, SCREENS, OR OTHER FACILITIES NECESSARY TO CONTROL, COLLECT AND DISPOSE OF ALL SURFACE AND SUBSURFACE WATER ENCOUNTERED IN THE PERFORMANCE OF THE WORK.
15. REFER TO ARCHITECTURAL PLANS FOR ACTUAL SIZE OF DWELLING UNITS.
16. REFER TO PLUMBING PLANS FOR CONTINUATION OF ALL UTILITIES WITHIN 5' FEET OF THE BUILDING.
17. ALL SITE WORK, INCLUDING BUT NOT LIMITED TO, BITUMINOUS PAVEMENT, ROADWAY CONSTRUCTION, AGGREGATE MATERIALS, DRAINAGE STRUCTURES, CURBING, SIDEWALK, LANDSCAPING, SAW CUTTING, ETC. SHALL CONFORM TO THE RHODE ISLAND DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADWAY AND BRIDGE CONSTRUCTION, 2004 EDITION (WITH LATEST ADDENDA), THE RIDOT STANDARD DETAILS, 1998 EDITION (WITH LATEST ADDENDA) AND THE TOWN OF CUMBERLAND'S LAND DEVELOPMENT AND SUBDIVISION REGULATIONS DATED APRIL, 2005.

LAYOUT NOTE:

THE LAYOUT SHOWN REPRESENTS A GRAPHICAL DESIGN, AND PRIOR TO THE CONSTRUCTION, THE CONTRACTOR SHALL ENGAGE A PROFESSIONAL LAND SURVEYOR (PLS) REGISTERED IN THE STATE OF RHODE ISLAND TO SET AND VERIFY ALL LINES AND GRADES. ALL EXISTING UTILITY LOCATIONS AND ELEVATIONS ARE TO BE CONFIRMED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. ANY ITEMS FOUND WHICH DO NOT MATCH THE PLANS MUST BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO CONSTRUCTION FOR REVIEW. NO WORK SHALL PROCEED UNTIL AUTHORIZED BY THE ENGINEER.

MAINTENANCE AND PROTECTION OF TRAFFIC NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MAINTENANCE AND PROTECTION OF PEDESTRIAN AND VEHICULAR TRAFFIC INCLUDING POLICE PROTECTION. ALL TEMPORARY AND VEHICULAR SIGNS, BARRICADES AND LANE CLOSURES SHALL BE IN CONFORMANCE WITH THE LATEST REVISIONS OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.)
2. TEMPORARY CONSTRUCTION SIGNS AND ALL APPLICABLE TRAFFIC CONTROL DIVIDES SHALL BE IN PLACE PRIOR TO THE START OF WORK IN ANY AREA OPEN TO TRAFFIC.
3. THE PRIVATE VEHICLES OF CONSTRUCTION WORKERS SHALL NOT BE PARKED IN THE STATE OR TOWN RIGHT-OF-WAY.
4. ALL MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL SETUPS, SIGNS CHANNELING DEVICES, ETC, SHALL BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
5. SIGN MOUNTINGS SHALL BE IN ACCORDANCE WITH THE RIDOT SPECIFICATIONS FOR TEMPORARY CONSTRUCTION SIGNS.

DRAINAGE SYSTEM MAINTENANCE SCHEDULE:

UPON PROJECT COMPLETION, THE PROPERTY OWNER SHALL ADHERE TO THE FOLLOWING MAINTENANCE PLAN AND SCHEDULE:

1. **CATCH BASINS, MANHOLES AND DRAIN LINES**: AN INSPECTION MUST OCCUR ON AN ANNUAL BASIS BY QUALIFIED PERSONAL TO ENSURE PROPER OPERATION. THE INSPECTION SHOULD, AS A MINIMUM, CONCENTRATE ON THE FOLLOWING:
   - * DAMAGE TO GRATE/ COVERS
   - * EVIDENCE OF STANDING WATER
   - * DEBRIS REMOVAL
   - * STRUCTURAL ALIGNMENT/ INTEGRITY

   ANY DEFICIENCY NOTED DURING THE INSPECTION WILL BE IMMEDIATELY REPAIRED OR REPLACED.
2. **SEDIMENT REMOVAL:** ALL REMOVED SEDIMENT IS TO BE TESTED TO DETERMINE POLLUTANT CONTENT. THE SEDIMENT IS TO BE PROPERLY DISPOSED IN UPLAND AREAS BASED UPON THE TEST RESULTS AND LOCAL, STATE, AND FEDERAL REGULATIONS
   - * SEDIMENT SHALL BE REMOVED FROM THE CATCH BASINS ON AN ANNUAL BASIS.
   - * THE SEDIMENT STORAGE VOLUME IN BASIN-A IS FROM 308.0 TO 308.5. THE SEDIMENT SHALL BE CLEANED OUT TO ELEVATION 308.0 WHEN THE SEDIMENT REACHES ELEVATION 308.5.
   - * THE SEDIMENT STORAGE VOLUME IN BASIN-B IS FROM 312.0 TO 313.0. THE SEDIMENT SHALL BE CLEANED OUT TO ELEVATION 312.0 WHEN THE SEDIMENT REACHES ELEVATION 313.0.

DRAINAGE SYSTEM NOTES:

1. ALL RIM ELEVATIONS SHOWN ARE APPROXIMATE AND ARE TO BE SET FLUSH WITH FINAL GRADES.
2. THE DESIGN ENGINEER MUST SUBMIT AN AS-BUILT PLAN AND A CERTIFICATION TO THE CITY ENGINEER THAT THE CONSTRUCTION IS IN COMPLIANCE WITH THE DESIGN PLANS FOR ALL ELEMENTS OF THE STORM OR DRAINAGE SYSTEM PRIOR TO THE ISSUANCE OF THE CERTIFICATE OF OCCUPANCY.

PROPOSED ROADWAY PAVEMENT STRUCTURE (PAVEMENT TYPE A):

2" BITUMINOUS CONCRETE SURFACE COURSE CLASS TYPE I-1
2" BITUMINOUS CONCRETE BINDER COURSE
12" GRAVEL BORROW SUBBASE COURSE

PROPOSED DRIVEWAY PAVEMENT STRUCTURE (PAVEMENT TYPE B):

2" BITUMINOUS CONCRETE SURFACE COURSE CLASS TYPE I-1
10" GRAVEL BORROW SUBBASE COURSE

ASPHALT EMULSION TACK COAT TO BE PLACED ON ALL BITUMINOUS COURSES PRIOR TO PAVING IN ACCORDANCE WITH SITE NOTE NO. 17.

SOIL EROSION AND SEDIMENTATION CONTROL NOTES

1. THE HAYBALE AND SILT FENCE LINE ILLUSTRATED ON THESE PLANS SHALL SERVE AS THE STRICT LIMIT OF DISTURBANCE FOR THE PROJECT WITHIN OR ADJACENT TO REGULATED FRESHWATER WETLAND AREAS.
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 PLAN SHALL BE TOTALLY UNDISTURBED, TO REMAIN IN NATURAL CONDITION.
3. ALL CATCH BASINS AND CULVERTS SHALL BE PROTECTED WITH STAKED HAYBALES (R.I. STD. 9.8.0) DURING CONSTRUCTION ACTIVITIES. ALL PROPOSED STORM WATER DISCHARGE AREAS SHALL BE LINED WITH A RIPRAP SPLASH PAD AND PROTECTED WITH STAKED HAYBALE OUTLET PROTECTION (R.I. STD. 9.1.0), OR SILT FENCE (R.I. STD. 9.2.0) STAKED HAYBALE OUTLET PROTECTION (R.I. STD. 9.1.0) SHALL ALSO BE INSTALLED AT ALL EXISTING STORMWATER DISCHARGE LOCATIONS WHERE DISTRIBUTING PIPES, CATCH BASINS, AND MANHOLES ARE TO BE CLEANED AND FLUSHED.
4. ALL DISTURBED SLOPES EITHER NEWLY CREATED OR CURRENTLY EXPOSED SHALL BE SEEDED, PROTECTED AND MAINTAINED BY THE CONTRACTOR. THE CONTRACTOR SHALL REGULARLY CHECK ALL SEEDED AREAS TO ENSURE THAT A GOOD STAND IS MAINTAINED.
5. ALL HAYBALES, TEMPORARY TREATMENT (HAY, STRAW, ETC.) AND TEMPORARY EROSION PROTECTION SHALL BE MAINTAINED BY THE CONTRACTOR THROUGHOUT CONSTRUCTION AND SHALL REMAIN IN PLACE UNTIL AN ACCEPTABLE STAND OF GRASS OR APPROVED GROUND COVER IS ESTABLISHED.
6. STOCKPILES OF TOPSOIL SHALL NOT BE LOCATED NEAR WATERWAYS. THEY SHALL HAVE SIDE SLOPES OF NO GREATER THAN 2:1 AND SHALL BE TEMPORARILY SEEDED AND/OR STABILIZED PER CONTRACT SPECIFICATIONS.
7. THE HAYBALES SHALL BE CHECKED BY THE CONTRACTOR ON A WEEKLY BASIS AND AFTER EACH STORM FOR UNDERMINING OR DETERIORATION. THE CONTRACTOR SHALL REPAIR OR REPLACE ANY HAYBALES AS NEEDED. THE CONTRACTOR SHALL CLEAN THE ACCUMULATED SEDIMENT IF HALF OF THE ORIGINAL HEIGHT OF THE HAY-BALES BECOMES FILLED WITH SEDIMENTS.
8. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN ALL SOIL EROSION AND SEDIMENT CONTROLS ON THE PROJECT SITE FOR THE ENTIRE DURATION OF THE CONSTRUCTION PERIOD. THE CONTRACTOR SHALL FOLLOW THE DIRECTION OF THE RESIDENT ENGINEER WITH REGARD TO INSTALLATION, MAINTENANCE, AND REPAIR OF ALL SOIL EROSION AND SEDIMENTATION CONTROLS ON THE PROJECT SITE. TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROLS (HAYBALES, SILT FENCE, ETC.) SHALL BE MAINTAINED UNTIL ALL EXPOSED SOILS ARE SATISFACTORILY STABILIZED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING AND/OR RESEEDING ALL AREAS THAT DO NOT DEVELOP WITHIN ONE YEAR FROM THE COMPLETION OF CONSTRUCTION.
9. ALL REFERENCED SOIL EROSION AND SEDIMENTATION CONTROLS INCLUDING MATERIALS USED, APPLICATION RATES AND THE INSTALLATION PROCEDURES SHALL BE PERFORMED PER THE "RHODE ISLAND EROSION AND SEDIMENTATION HANDBOOK", DATED 1993.

BMP MAINTENANCE SCHEDULE

1. ALL MAINTENANCE (INCLUDING CLEANING) REQUIRED DURING THE CONSTRUCTION PHASE OF THE PROJECT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
2. MEASURES NEEDED TO ENSURE THE PROPER OPERATION OF THE STORMWATER DRAINAGE SYSTEMS AND WATER QUALITY CONTROL SYSTEMS TO INCLUDE INSPECTION, CLEANING AND REPAIRS TO ALL PIPES, INTAKE AND DISCHARGE STRUCTURES (INCLUDING RIP-RAP SPLASH PADS), CATCH BASIN SUMPS, AND MANHOLES.
3. INSPECTION OF ALL SLOPES, BERMS, AND OTHER CONTROL STRUCTURES (INCLUDING ROADWAY SIDE SLOPES, FOR STRUCTURAL INTEGRITY, STABILITY AND EVIDENCE OF SOIL EROSION, SHALL INCLUDE MAINTENANCE OF THESE STRUCTURES IF NECESSARY. INSPECTIONS SHALL BE PERFORMED FOLLOWING ALL RAIN EVENTS OF ½ INCH RAINFALL OR MORE IN A 24-HOUR PERIOD, OR BIMONTHLY IF NO RAINFALL EVENT OCCURS.
4. UPON COMPLETION OF PROJECT CONSTRUCTION, AND PRIOR TO VACATING THE SITE, THE CONTRACTOR SHALL CONDUCT A FINAL INSPECTION, REPAIR ANY VEGETATIVE SOIL EROSION AND SEDIMENTATION CONTROL MEASURES, (SEEDING, PLANTING, ETC.) WHERE REQUIRED, AND REPAIR (OR REMOVE WHERE APPROPRIATE) ANY TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROL DEVICES. AFTER PERMANENT SOIL STABILIZATION ON THE ENTIRE SITE HAS OCCURRED, ALL TEMPORARY CONTROL MEASURES MUST BE REMOVED.
5. AFTER THE COMPLETION OF PROJECT CONSTRUCTION AND THE FINAL STABILIZATION OF THE ENTIRE SITE, THE INSPECTION AND MAINTENANCE OF ALL STORMWATER FACILITIES MUST BE PERFORMED.
6. REPLANTING, REGRADING, OR OTHER REPAIRS NEEDED AS A RESULT OF SOIL EROSION AND SEDIMENTATION PROCESSES SHALL BE DONE PROMPTLY TO ENSURE PROPER FUNCTIONING OF THE ENTIRE SYSTEM.
7. ANY TRASH, DEBRIS, ETC. SHOULD BE REMOVED FROM ANY WETLAND AREAS, SWALE, AND PIPE OUTLETS.
8. SWALES AND DETENTION AREAS SHALL BE INSPECTED AFTER MAJOR STORM EVENTS OR ON AN ANNUAL BASIS. REPAIRS SHALL BE PERFORMED IMMEDIATELY AS CONDITIONS WARRANT. BARE SPOTS AND ERODED AREAS SHALL BE RESEEDED IMMEDIATELY FOLLOWING OBSERVATIONS. ALL LITTER AND TRASH SHALL BE REMOVED DURING INSPECTIONS.

EXTENDED DETENTION BASIN NOTES:

1. GRASSES MUST BE PLANTED AROUND AND WITHIN THE BASIN IMMEDIATELY FOLLOWING CONSTRUCTION TO STABILIZE THE SLOPES AND PREVENT EROSION. TREES AND SHRUBS SHALL NOT BE ON THE IMPOUNDING EMBANKMENTS TO PREVENT POSSIBLE FAILURE OF THE STRUCTURE. IT IS SUGGESTED THE DEVELOPER USE STORM WATER BASIN PLANTS AND LANDSCAPING GUIDE: A SIMPLE GUIDE FOR DESIGNERS AND COMMUNITIES (LMP, 1991) TO ASSIST THE SELECTION OF APPROPRIATE VEGETATION.
2. SIDE-SLOPES, EMBANKMENTS AND THE UPPER STAGE OF THE BASIN SHOULD BE MOWED AT LEAST ONCE DURING THE GROWING SEASON PREFERABLE AFTER AUGUST 15TH, TO PREVENT UNWANTED WOODY GROWTH. MOWINGS CAN BE MORE FREQUENT IN RESIDENTIAL AREAS IF A MORE GROOMED APPEARANCE IS DESIRED HOWEVER GROOMED AREAS (SHORT GRASS) WILL ATTRACT CANADIAN GEESE. LONGER MORE NATURAL GRASS WILL BENEFIT OTHER SPECIES OF WILDLIFE. ALL TRASH AND LITTER SHALL BE REMOVED FROM THE BASIN DURING MOWING OPERATIONS.
3. SEDIMENTS SHALL BE REMOVED FROM THE BASIN DURING THE FIRST YEAR OF OPERATION AND EVERY 10 YEARS THEREAFTER. MORE FREQUENT REMOVALS MAY BE NECESSARY IF THE SEDIMENT STORAGE CAPACITY OF THE FOREBAY OR POND IS EXCEEDED OR WHEN THE SEDIMENT DEPTH REACHES 6 INCHES, WHICHEVER COMES FIRST.
4. THE DETENTION BASIN(S) OUTLET AND OUTFLOW CHANNEL SHALL BE INSPECTED AT LEAST TWICE PER YEAR. INSPECTIONS SHALL BE ACCOMPLISHED SEVERAL TIMES DURING THE FIRST SIX MONTHS OF OPERATIONS, ESPECIALLY AFTER RAINFALL EVENTS, TO CHECK FOR CLOGGING OR TOO RAPID RELEASE RESULTING IN EROSION.
5. IF STANDING WATER IS FOUND IN EITHER BASIN MORE THAN (3) DAYS AFTER A RAINFALL EVENT, THE BASIN(S) SHALL BE DETERMINED TO HAVE FAILED AND THE OWNER SHALL BE RESPONSIBLE TO HAVE THE BASIN(S) CHECKED BY A PROFESSIONAL REGISTERED ENGINEER AND REPAIRED OR REPLACED IMMEDIATELY.
6. THE GRASSED AREAS SHALL BE INSPECTED AT LEAST TWICE PER YEAR TO CHECK FOR EROSION PROBLEMS. PROBLEM AREAS SHALL BE RE-SEEDED IMMEDIATELY TO STABILIZE EXPOSED SOIL, THEREBY PREVENTING EROSION AND POTENTIAL CLOGGING OF OUTFLOW DEVICES.
7. AN AREA SHALL BE SET ASIDE IN THE DEVELOPMENT SITE IN AN UPLAND LOCATION OUTSIDE OF JURISDICTIONAL WETLANDS FOR THE PURPOSE OF SEDIMENT DISPOSAL, IF AN OFF SITE DISPOSAL AREA IS NOT FEASIBLE.
8. MOWING SHALL OCCUR WHEN VEGETATION REACHES A HEIGHT BETWEEN 18 AND 24 INCHES. MOWING SHALL UTILIZE A ROTARY MOWER SET AT A HEIGHT OF 8 INCHES.

LONG TERM MAINTENANCE RESPONSIBILITY:

WHEN ALL CONSTRUCTION IS COMPLETE, THE SITE HAS BEEN STABILIZED TO PREVENT EROSION AND SEDIMENTATION BY A WELL ESTABLISHED VEGETATIVE COVER AND THE DRAINAGE IMPROVEMENTS HAVE BEEN INSPECTED AND ACCEPTED BY THE TOWN OF CUMBERLAND, THE PARTY RESPONSIBLE FOR LONG TERM MAINTENANCE, INSPECTION AND REPAIRS TO ALL DRAINAGE FACILITIES AND DETENTION PONDS SHOWN ON THESE PLANS, SHALL BE THE TOWN OF CUMBERLAND.

CUL-DE-SAC LANDSCAPE MAINTENANCE NOTES:

1. THE CUL-DE-SAC SHALL HAVE A RAISED CURB LANDSCAPED AREA PLANTED WITH LAWN GRASS AND OR LOW GROWING SHRUBS.
2. THE GRASS SHALL BE MOWED ONCE A WEEK DURING THE GROWING SEASON AS NEEDED. SHRUBS SHALL BE KEPT TRIMMED TO A HEIGHT OF 3 FEET.

DEWATERING

THE FOLLOWING ARE THE REQUIREMENTS FOR DESIGNING, FURNISHING, INSTALLING, MAINTAINING, OPERATING AND REMOVAL OF TEMPORARY DEWATERING SYSTEMS REQUIRED TO MANAGE GROUNDWATER DURING EXCAVATION ACTIVITIES.

1.01 DEFINITIONS
- A. DEWATERING: LOWERING THE ZONE OF SATURATION AND INTERCEPTING GROUNDWATER SEEPAGE WHICH WOULD OTHERWISE EMERGE FROM THE SLOPES OR BOTTOM OF THE EXCAVATIONS. THE PURPOSES OF DEWATERING ARE TO INCREASE THE STABILITY OF EXCAVATED SLOPES; PREVENT LOSS OF MATERIAL FROM BENEATH THE SLOPES OR BOTTOM OF THE EXCAVATION; IMPROVE THE EXCAVATING AND HAULING CHARACTERISTICS OF ON SITE SOIL; PREVENT RUPTURE OR HEAVING OF THE BOTTOM OF AN EXCAVATION; AND DISPOSE OF PUMPED WATER.

1.02 DESIGN REQUIREMENTS
- A. THE CONTRACTOR IS RESPONSIBLE FOR THE ADEQUACY OF THE DEWATERING AND SEDIMENT REMOVAL SYSTEM.
- B. DESIGN DEWATERING AND SEDIMENT REMOVAL SYSTEMS TO:

1. EFFECTIVELY REDUCE THE HYDROSTATIC PRESSURE AND LOWER THE GROUNDWATER LEVELS TO A MINIMUM OF 2 FEET BELOW EXCAVATION IN SOIL;
2. DEVELOP A SUBSTANTIALLY DRY AND STABLE SUBGRADE FOR THE PROTECTION OF SUBSEQUENT OPERATIONS;
3. RESULT IN NO DAMAGE TO ADJACENT BUILDINGS, STRUCTURES, UTILITIES AND OTHER WORK, INCLUDED IN THIS CONTRACT.
4. DEPRESSURIZE STRATIFIED LAYERS OF SAND THAT MAY BE CONFINED BY SILT LAYERS SO THAT A STABLE EXCAVATION BOTTOM IS MAINTAINED.
5. ROUTE DISCHARGE FROM DEWATERING SYSTEM THROUGH A SEDIMENT REMOVAL SYSTEM SUCH THAT SEDIMENTS ARE NOT DISCHARGED TO OPEN WATERS OR WETLAND SYSTEMS. SEDIMENT REMOVAL SYSTEM SHALL BE SIZED BASED ON ANTICIPATED DISCHARGE FROM DEWATERING SYSTEM AND ADEQUATE DETENTION TIME FOR SEDIMENT REMOVAL.
6. PROTECT SEDIMENT REMOVAL SYSTEM DISCHARGE AREA FROM SCOURING.
- C. DEWATERING METHODS MAY INCLUDE SUMP PUMPING, SINGLE OR MULTIPLE STAGE WELL POINT OR JET EDUCTOR WELL POINT SYSTEMS, DEEP WELLS, OR COMBINATIONS THEREOF.
- D. LOCATE DEWATERING FACILITIES WHERE THEY WILL NOT INTERFERE WITH EXISTING UTILITIES, FACILITIES AND/OR CONSTRUCTION WORK TO BE DONE UNDER THIS CONTRACT.
- E. SEDIMENT REMOVAL SYSTEM METHODS MAY INCLUDE FILTRATION SYSTEMS, SETTLING BASINS, SEDIMENTATION TANKS OR OTHER APPROVED METHOD.
- F. CONTRACTOR IS RESPONSIBLE TO OBTAIN ALL NECESSARY PERMITS FROM STATE AND LOCAL AUTHORITIES REGARDING THE OPERATION AND DISCHARGE OF THE DEWATERING AND SEDIMENT REMOVAL SYSTEM, AND TO CONDUCT ALL NECESSARY SAMPLING AND TESTING THAT MAY BE REQUIRED BY THOSE AUTHORITIES.

1.03 SUBMITTALS
- A. SHOP DRAWINGS
  1. THE FOLLOWING PRIOR TO DEWATERING SYSTEM AND SEDIMENT REMOVAL SYSTEM INSTALLATION:
- A. PROPOSED SYSTEM COMPONENTS.
- B. OPERATIONAL PLAN TO INCLUDE LOCATIONS AND DEPTH OF COMPONENTS.
- C. METHOD OF DISPOSAL OF PUMPED WATER, INCLUDING METHOD OF INSURING PROPER SEDIMENT REMOVAL SHOULD UPSET IN DEWATERING SYSTEM OCCUR.
  - D. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER AND THE RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT DIVISION OF FRESHWATER WETLANDS.
- B. QUALITY ASSURANCE/CONTROL SUBMITTALS
  1. IN ACCORDANCE WITH SECTION 01300 SUBMIT THE FOLLOWING:
- A. DEWATERING SYSTEMS TO BE DESIGNED UNDER THE DIRECT SUPERVISION OF A PROFESSIONAL CIVIL ENGINEER REGISTERED IN THE STATE WHICH THE WORK IS TO BE DONE.

1.04 PROJECT/SITE CONDITIONS
- A. ENVIRONMENTAL REQUIREMENTS
  1. DISPOSE OF ALL PUMPED WATER IN ACCORDANCE WITH RIDEM RULES AND REGULATIONS GOVERNING THE ADMINISTRATION AND ENFORCEMENT OF THE FRESHWATER WETLANDS ACT AND ALL REQUIREMENTS OF RIDEM PERMIT NO. 05-0535.
- B. EXISTING CONDITIONS
  1. GROUNDWATER ELEVATIONS HAVE BEEN INTERPRETED FROM SOIL EVALUATIONS AND ARE NOTED IN THE TEST PIT LOGS.
  2. GROUNDWATER SURFACE IS SUBJECT TO FLUCTUATIONS DURING PERIODS OF HEAVY PRECIPITATION.

PART 2 PRODUCTS
NOT USED

PART 3 EXECUTION
3.01 SITE PREPARATION AND INSTALLATION
- A. SURFACE DRAINAGE
  1. CONSTRUCT DIKES, DITCHES, PIPE LINES, SUMPS OR OTHER MEANS TO INTERCEPT AND DIVERT PRECIPITATION AND SURFACE WATER AWAY FROM EXCAVATIONS.
- B. DRAINAGE OF EXCAVATED AREAS
  1. CONSTRUCT DIKES, DITCHES, PIPE LINES, SUMPS OR OTHER MEANS TO COLLECT SURFACE AND SEEPAGE WATER WHICH MAY ENTER THE EXCAVATION.
  2. DISCHARGE WATER THROUGH DEWATERING BASINS OR METHOD APPROVED BY ENGINEER.
  3. AT NO TIME SHALL DISCHARGE WATERS BE DIRECTLY DISCHARGES TO REGULATED WETLANDS OR SURFACE WATERS.

3.02 MONITORING
- A. OBSERVE AND RECORD DAILY THE ELEVATION OF THE GROUNDWATER DURING THE LENGTH OF THE DEWATERING OPERATION AND PROVIDE DATA TO ENGINEER ON DAILY BASIS.

3.03 OPERATION
- A. OPERATE DEWATERING SYSTEMS TO LOWER THE GROUNDWATER LEVEL IN EXCAVATIONS ALLOWING ALL SUBSEQUENT WORK TO BE DONE ON A STABLE DRY SUBGRADE.
- B. MODIFY DEWATERING PROCEDURES WHICH CAUSE, OR THREATEN TO CAUSE, DAMAGE TO NEW OR EXISTING FACILITIES, TO PREVENT FURTHER DAMAGE. MODIFICATIONS MADE AT NO ADDITIONAL EXPENSE TO THE OWNER.
- C. MAINTAIN THE WATER LEVEL A MINIMUM OF TWO (2) FEET BELOW SUBGRADE OR AT LOWER ELEVATION TO ELIMINATE HYDROSTATIC PRESSURE ON STRUCTURES.
- D. PREVENT DISTURBANCE OF FOUNDATION SOILS AND LOSS OF GROUND AS WATER IS REMOVED.
- E. NOTIFY THE ENGINEER OF DISTURBANCE TO THE FOUNDATION SOILS CAUSED BY AN INTERRUPTION OR INADEQUACY OF THE DEWATERING SYSTEM.
- F. MAINTAIN ON SITE, AUXILIARY EQUIPMENT TO OPERATE THE DEWATERING SYSTEM CONTINUOUSLY WHILE EXCAVATIONS ARE OPENED BELOW ELEVATION OF FINAL GRADE.

3.04 DISPOSAL OF WATER
- A. DISCHARGE WATER IN A MANNER THAT WILL NOT CAUSE EROSION, FLOODING, DAMAGE TO EXISTING FACILITIES, COMPLETED WORK OR ADJACENT PROPERTY, IMPROVED OR OTHERWISE.

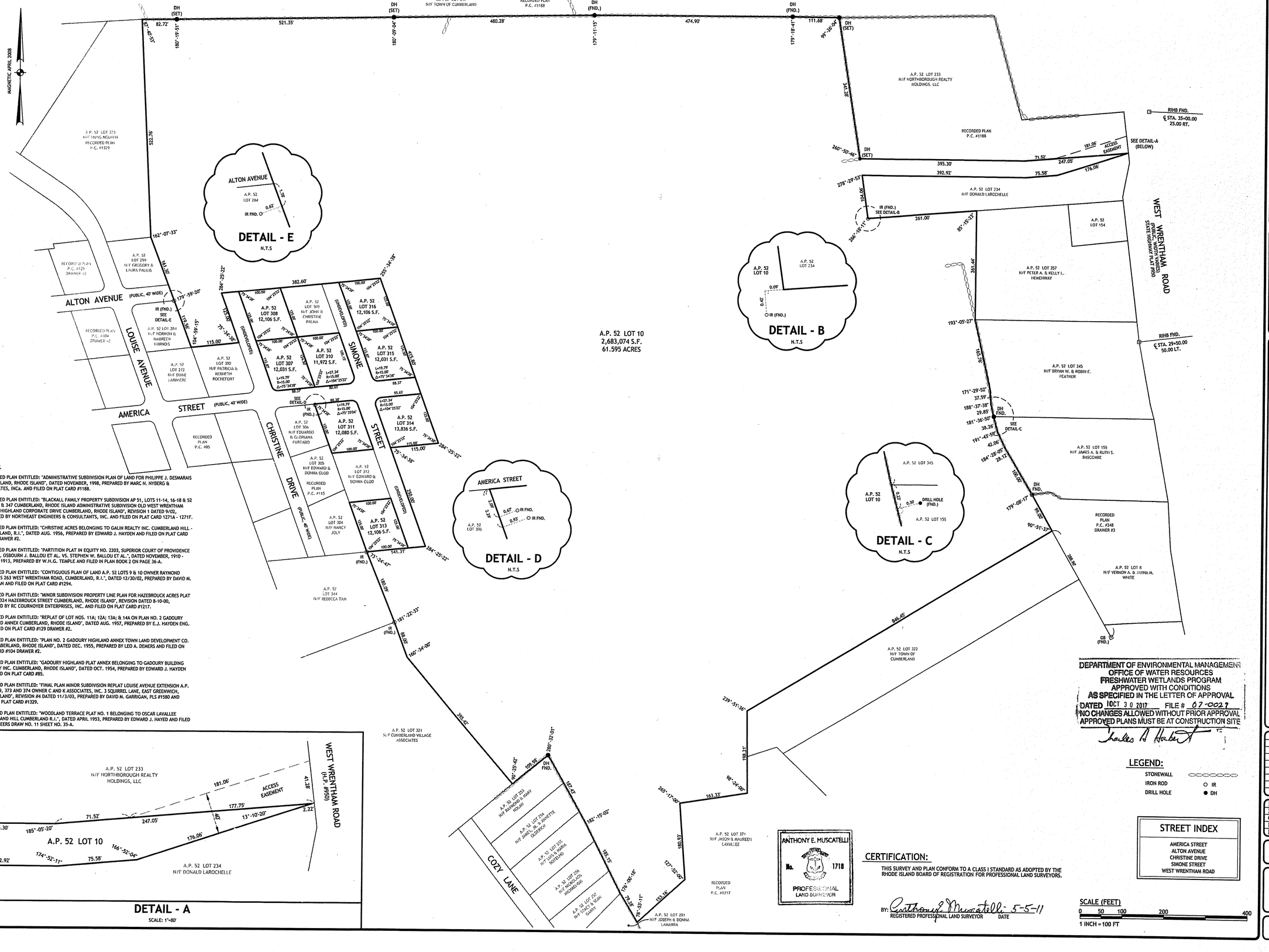
3.05 REMOVAL
- A. REMOVE ALL MATERIAL AND EQUIPMENT FROM THE SITE UPON COMPLETION OF DEWATERING OPERATIONS.
- B. SEAL ALL DEWATERING WELLS UPON COMPLETION OF THE DEWATERING BY PRESSURE INJECTING A GROUT CAPABLE OF SEALING THE WELLS AND PREVENTING LEAKAGE.

MISCELLANEOUS UTILITY NOTES:

1. PRIOR TO CONSTRUCTION, ALL POTENTIAL UTILITY/DRAINAGE CONFLICTS MUST BE IDENTIFIED BY THE CONTRACTOR. ANY MODIFICATIONS TO THE PROPOSED UTILITIES TO AVOID CONFLICTS MUST BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION. NO EXTRA PAYMENT TO THE CONTRACTOR DUE TO RELOCATIONS WILL BE AUTHORIZED.
2. THE UTILITY PLAN DOES NOT DEPICT THE NECESSARY ELECTRICAL CONDUIT/WIRING TO SERVICE ANY PROPOSED LIGHTING, WHICH WILL BE PERFORMED BY THE CONTRACTOR FOR NO ADDITIONAL COST.
3. OVERHEAD ELECTRIC AND TELEPHONE SERVICES ARE TO BE REMOVED BY THE APPROPRIATE UTILITY COMPANY AND COORDINATED BY THE CONTRACTOR.
4. THE CONTRACTOR SHALL AT ALL TIMES PROVIDE A SUFFICIENT NUMBER OF WORKMEN AND GUARDS AS MAY BE NECESSARY TO PROPERLY SAFEGUARD THE PUBLIC FROM THERE OPERATIONS.
5. THE CONTRACTOR SHALL TAKE PRECAUTIONS AGAINST DAMAGING OF PAVING, SIDEWALKS, UTILITIES, OR PRIVATE PROPERTIES AND SHALL PROMPTLY REPAIR AT HIS OWN EXPENSE ANY DAMAGE TO SUCH PAVING, SIDEWALKS, UTILITIES, OR PRIVATE PROPERTIES TO THE SATISFACTION OF THE OWNER OR TOWN.
6. EXISTING UTILITY FRAMES AND COVERS FOR SANITARY SEWER, WATER, GAS, STORM DRAINAGE AND OTHER UTILITIES SHALL BE ADJUSTED TO GRADE AS REQUIRED IN NEW PAVING AND PAVEMENT OVERLAY AREAS.

WATER NOTES:

1. ALL INSTALLATIONS, JOINTS, CONSTRUCTION METHODS AND MATERIALS SHALL BE ACCORDING TO THE CUMBERLAND WATER DISTRICT REQUIREMENTS, AWWA STANDARDS AND GOVERNMENTAL REQUIREMENTS.
2. WATER PIPES SHALL TYPICALLY BE LOCATED AT LEAST TEN (10) FEET HORIZONTALLY FROM SEWER PIPES, AND AT A MINIMUM DEPTH OF COVER EQUAL TO 5'. WHERE A NEW WATER PIPE IS LESS THAN 18 INCHES CLEAR DISTANCE ABOVE A SEWER OR WHERE A WATER PIPE PASSES BENEATH A SEWER, ENCASE THE SEWER IN 6" OF CONCRETE FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE CROSSING WATER PIPE.
3. ALL SYSTEM COMPONENTS AND CONSTRUCTION METHODS; SUCH AS PIPE, THRUST BLOCKS, FITTINGS, CASTINGS, ETC. SHALL BE SUBMITTED TO CUMBERLAND WATER FOR APPROVAL PRIOR TO PURCHASE AND INSTALLATION. THIS SUBMISSION SHALL INCLUDE MANUFACTURER'S LITERATURE, SHOP DRAWINGS, PROPOSED CONSTRUCTION METHODS, ETC.
4. WATER LINE TRENCH TO BE AWWA TYPE 5 A METALIZED DETECTABLE IDENTIFICATION TAPE 2" IN WIDTH, BLUE IN COLOR AND PRINTED WITH "CAUTION WATERLINE BURIED BELOW" SHALL BE UTILIZED OVER ALL MAINS. TAPE SHALL BE SET AT APPROXIMATELY 1' BELOW FIN



REFERENCES:

- RECORDED PLAN ENTITLED: "ADMINISTRATIVE SUBDIVISION PLAN OF LAND FOR PHILIPPE J. DESMARAIS CUMBERLAND, RHODE ISLAND", DATED NOVEMBER, 1998, PREPARED BY MARC N. NYBERG & ASSOCIATES, INCa. AND FILED ON PLAT CARD #1188.
- RECORDED PLAN ENTITLED: "BLACKALL FAMILY PROPERTY SUBDIVISION AP 51, LOTS 11-14, 16-18 & 52 LOTS 14 & 347 CUMBERLAND, RHODE ISLAND ADMINISTRATIVE SUBDIVISION OLD WEST WRENTHAM ROAD & HIGHLAND CORPORATE DRIVE CUMBERLAND, RHODE ISLAND", REVISION 1 DATED 9/02, PREPARED BY NORTHEAST ENGINEERS & CONSULTANTS, INC. AND FILED ON PLAT CARD 1271A - 1271F.
- RECORDED PLAN ENTITLED: "CHRISTINE ACRES BELONGING TO GALIN REALTY INC. CUMBERLAND HILL - CUMBERLAND, R.I.", DATED AUG. 1956, PREPARED BY EDWARD J. HAYDEN AND FILED ON PLAT CARD #115, DRAWER #2.
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- RECORDED PLAN ENTITLED: "MINOR SUBDIVISION PROPERTY LINE PLAN FOR HAZEBROUCK ACRES PLAT 52, LOT 324 HAZEBROUCK STREET CUMBERLAND, RHODE ISLAND", REVISION DATED 8-10-00, PREPARED BY RC COURNOYER ENTERPRISES, INC. AND FILED ON PLAT CARD #1217.
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- RECORDED PLAN ENTITLED: "PLAN NO. 2 GADOURY HIGHLAND ANNEX TOWN LAND DEVELOPMENT CO. INC. CUMBERLAND, RHODE ISLAND", DATED DEC. 1955, PREPARED BY LEO A. DEMERS AND FILED ON PLAT CARD #104 DRAWER #2.
- RECORDED PLAN ENTITLED: "GADOURY HIGHLAND PLAT ANNEX BELONGING TO GADOURY BUILDING COMPANY INC. CUMBERLAND, RHODE ISLAND", DATED OCT. 1954, PREPARED BY EDWARD J. HAYDEN AND FILED ON PLAT CARD #85.
- RECORDED PLAN ENTITLED: "FINAL PLAN MINOR SUBDIVISION REPLAT LOUISE AVENUE EXTENSION A.P. 52 LOTS 9, 373 AND 374 OWNER C AND K ASSOCIATES, INC. 3 SQUIRREL LANE, EAST GREENWICH, RHODE ISLAND", REVISION #4 DATED 11/3/03, PREPARED BY DAVID M. GARRIGAN, PLS #1580 AND FILED ON PLAT CARD #1329.
- RECORDED PLAN ENTITLED: "WOODLAND TERRACE PLAT NO. 1 BELONGING TO OSCAR LAVALLEE CUMBERLAND HILL CUMBERLAND R.I.", DATED APRIL 1953, PREPARED BY EDWARD J. HAYED AND FILED AS ENGINEERS DRAW NO. 11 SHEET NO. 35-A.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 30 2017 FILE # 07-0027
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Charles A. Horbert III

LEGEND:

STONEWALL
IRON ROD ○ IR
DRILL HOLE ● DH

STREET INDEX

AMERICA STREET
ALTON AVENUE
CHRISTINE DRIVE
SIMONE STREET
WEST WRENTHAM ROAD

CERTIFICATION:

THIS SURVEY AND PLAN CONFORM TO A CLASS I STANDARD AS ADOPTED BY THE RHODE ISLAND BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS.

BY: Anthony E. Muscatelli 5-5-11
REGISTERED PROFESSIONAL LAND SURVEYOR DATE

ANTHONY E. MUSCATELLI No. 1718 PROFESSIONAL LAND SURVEYOR

SCALE (FEET)
0 50 100 200 400
1 INCH = 100 FT

SEP 12 2017

INTERNATIONAL MAPPING & SURVEYING CORP.
LAND SURVEYING CIVIL ENGINEERING PHOTOGRAMMETRIC MAPPING
19 INDUSTRIAL DRIVE, SMITHFIELD, R.I. 02917 (401) 232-2620

ANTHONY E. MUSCATELLI No. 1718 PROFESSIONAL LAND SURVEYOR

HIGHLAND ESTATES (PHASE I)

CUMBERLAND, RHODE ISLAND

AP 52 LOTS 10, 307, 308, 309, 310, 315 & 316

REVISIONS:

NO.	DATE.	DESCRIPTION

DESIGNED BY:	
DRAWN BY:	K.R.R.
CHECKED BY:	A.E.M.
DATE:	APRIL 2011
PROJECT NO:	05-77

CLASS I SURVEY PLAN

SHEET 3 OF 16

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LEGEND

- PROPOSED PROPERTY LINE
- ABUTTING PROPERTY LINE
- WETLAND EDGE
- EXISTING CONTOUR
- 100 PROPOSED CONTOUR
- APPROXIMATE EXISTING WET AREA
- EXISTING STONE WALL
- IRON PIN
- DRILL HOLE
- CONCRETE BOUND
- WELL
- UTILITY POLE
- TP SOIL EVALUATION
- EXISTING LIMIT OF WOODLAND (APPROXIMATE)

ZONING CRITERIA- PROPOSED (CLUSTER)

	CONVENTIONAL	CONVENTIONAL	CLUSTER	CLUSTER
ZONING DISTRICT	A-2	R-1	A-2	R-1
MINIMUM LOT AREA	80,000 SF	25,000 SF	40,000 SF	25,000 SF
MINIMUM LOT FRONTAGE	180 FT	100 FT	100 FT	100 FT
MINIMUM FRONT YARD SETBACK	75 FT	20 FT	20 FT	20 FT
MINIMUM SIDE YARD SETBACK	20 FT	10 FT	10 FT	10 FT
MINIMUM REAR YARD SETBACK	30 FT	25 FT	25FT	25FT
MAXIMUM BUILDING COVERAGE	15%	20%	25 %	25 %
MAXIMUM BUILDING HEIGHT	35 FT	35 FT	35 FT	35 FT

MA - ME - NH - RI - VT
CALL TOLL FREE
1-888-DIG-SAFE
PROTECT YOURSELF, GIVE THREE WORKING DAYS NOTICE

LOCATION OF EXISTING UTILITIES SHOWN, ARE FROM GATE LOCATION AND EXISTING DOCUMENTATION AND MAY NOT BE ACCURATE. EXACT LOCATION TO BE DONE BY THE APPROPRIATE UTILITY COMPANY OR MUNICIPALITY PRIOR TO ANY EXCAVATION CALL *DIGSAFE* AT *1-888-DIG-SAFE* *1-888-344-7233*

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 30 2017 FILE # 07-0029
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

TOTAL AREA OF SUBDIVISION
AREA = 2,755,400 SF (63.25 ACRES)

TEST PIT DATA TABLE

TP #	DATE	ELEVATION	SHGWT	DEPTH
1A	10-25-06	310.0	302.0	8'
2B	10-25-06	308.0	305.9	26"
1W	10-25-06	316.0	314.5	17"
2W	10-25-06	313.0	310.3	29"

NOTES:
1. TOPOGRAPHY BASED ON BASE MAP INFORMATION TAKEN FROM A PLAN ENTITLED: "EXISTING CONDITIONS PLAN FOR REGIONAL FINANCING CO., CLASS IV SURVEY OF AP 52, LOTS 10, 307, 308, 310, 311, 313-316; BY MARSH SURVEYING INC. 11-20-03.
2. WETLAND RESOURCES DELINEATED BY NATURAL RESOURCE SERVICES, INC. AND VERIFIED UNDER APPLICATION No. 04-0510, EXPIRATION DATE: 7-13-09.

SCALE (FEET)
0 40 80 160 320
1 INCH = 80 FT

JCE
JOE CASALI ENGINEERING, INC.
CIVIL · SITE DEVELOPMENT · TRANSPORTATION
ENVIRONMENTAL · LAND SURVEYING · PLANNING
DRAINAGE · TRAFFIC STUDIES · FORENSICS
300 POST ROAD, WARWICK, RI 02888
(401)944-1300 (401)944-1313 FAX WWW.JOECASALI.COM

JOSEPH A. CASALI
No. 7250
REGISTERED PROFESSIONAL ENGINEER
CIVIL
9.6.17

HIGHLAND ESTATES
CUMBERLAND, RHODE ISLAND
AP 52 LOTS 10, 307, 308, 309, 310, 315 & 316
MAJOR LAND DEVELOPMENT

REVISIONS:		
NO.	DATE.	DESCRIPTION
2	8-2007	RIDEM COMMENTS
3	2-2008	RIDEM COMMENTS
4	5-2008	RIDEM COMMENTS
5	12-2009	WATER&SEWER SUB.
6	2-2010	WATER RESUB.
7	5-2011	PRELIM. PLAN SUB.
8	6-2011	PRELIM. PLAN APPROVAL
9	7-2011	FINAL PLAN
10	01-2016	MODIFIED PRELIM.
11	08-2017	RIDEM PERMIT MOD.

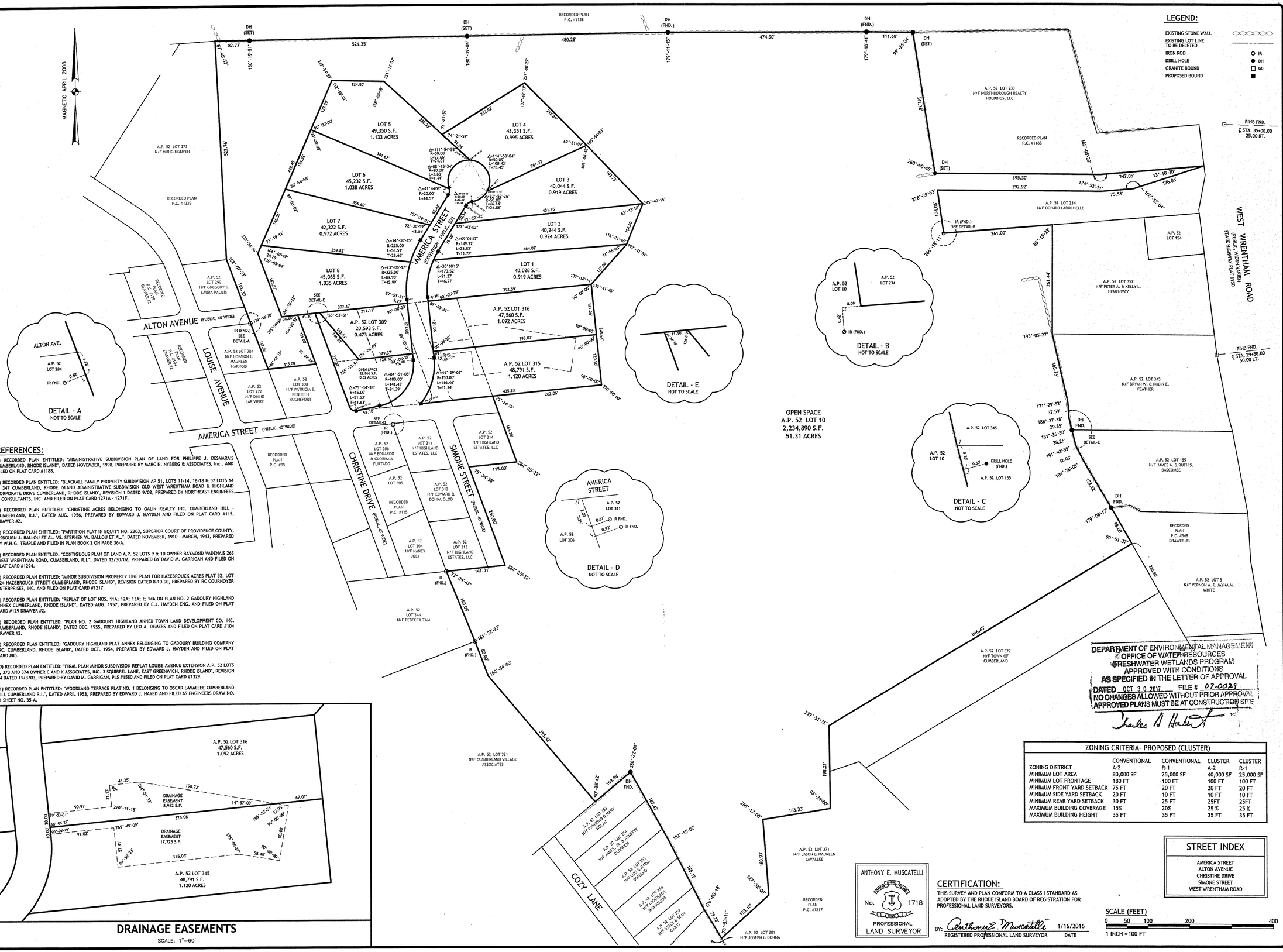
DESIGNED BY:	GC & ACK
DRAWN BY:	WMJR
CHECKED BY:	JAC
DATE:	JANUARY 07
PROJECT NO:	05-77a

PRELIMINARY, NOT FOR CONSTRUCTION

EXISTING CONDITIONS PLAN

SHEET 4 OF 16

Q:\05-77 Regional Finance\05-77a Highland Estates\Plan Set\HIGHLAND ESTATES (RIDEM PERMIT MODIFICATION).dwg Sep. 08, 2017 9:38am



REFERENCES:

1) RECORDED PLAN ENTITLED: "ADMINISTRATIVE SUBDIVISION PLAN OF LAND FOR PHILIPPE J. DESMARAIS CUMBERLAND, RHODE ISLAND", DATED NOVEMBER, 1998, PREPARED BY MARC N. NYBERG & ASSOCIATES, Inc.. AND FILED ON PLAT CARD #1188.

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DRAINAGE EASEMENTS

SCALE: 1"=60'

LEGEND:

- EXISTING STONE WALL
- EXISTING LOT LINE TO BE DELETED
- IRON ROD (IR)
- DRILL HOLE (DH)
- GRANITE BOUND (GB)
- PROPOSED BOUND

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
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ZONING CRITERIA- PROPOSED (CLUSTER)

	CONVENTIONAL	CONVENTIONAL	CLUSTER	CLUSTER
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MINIMUM LOT AREA	80,000 SF	25,000 SF	40,000 SF	25,000 SF
MINIMUM LOT FRONTAGE	180 FT	100 FT	100 FT	100 FT
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MINIMUM REAR YARD SETBACK	30 FT	25 FT	25FT	25FT
MAXIMUM BUILDING COVERAGE	15%	20%	25 %	25 %
MAXIMUM BUILDING HEIGHT	35 FT	35 FT	35 FT	35 FT

ANTHONY E. MUSCATELLI
No. 1718
PROFESSIONAL LAND SURVEYOR

CERTIFICATION:

THIS SURVEY AND PLAN CONFORM TO A CLASS I STANDARD AS ADOPTED BY THE RHODE ISLAND BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS.

BY: Anthony E. Muscatelli 1/16/2016
REGISTERED PROFESSIONAL LAND SURVEYOR DATE

SCALE (FEET)
0 50 100 200 400
1 INCH = 100 FT

STREET INDEX

AMERICA STREET
ALTON AVENUE
CHRISTINE DRIVE
SIMONE STREET
WEST WRENTHAM ROAD

INTERNATIONAL MAPPING & SURVEYING CORP.
LAND SURVEYING CIVIL ENGINEERING PHOTOGRAMMETRIC MAPPING
19 INDUSTRIAL DRIVE, SMITHFIELD, R.I. 02917 (401) 232-2620

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No. 1718
PROFESSIONAL LAND SURVEYOR

HIGHLAND ESTATES

CUMBERLAND, RHODE ISLAND
AP 52 LOTS 10, 307, 308, 309, 310, 315 & 316
MAJOR LAND DEVELOPMENT

REVISIONS:

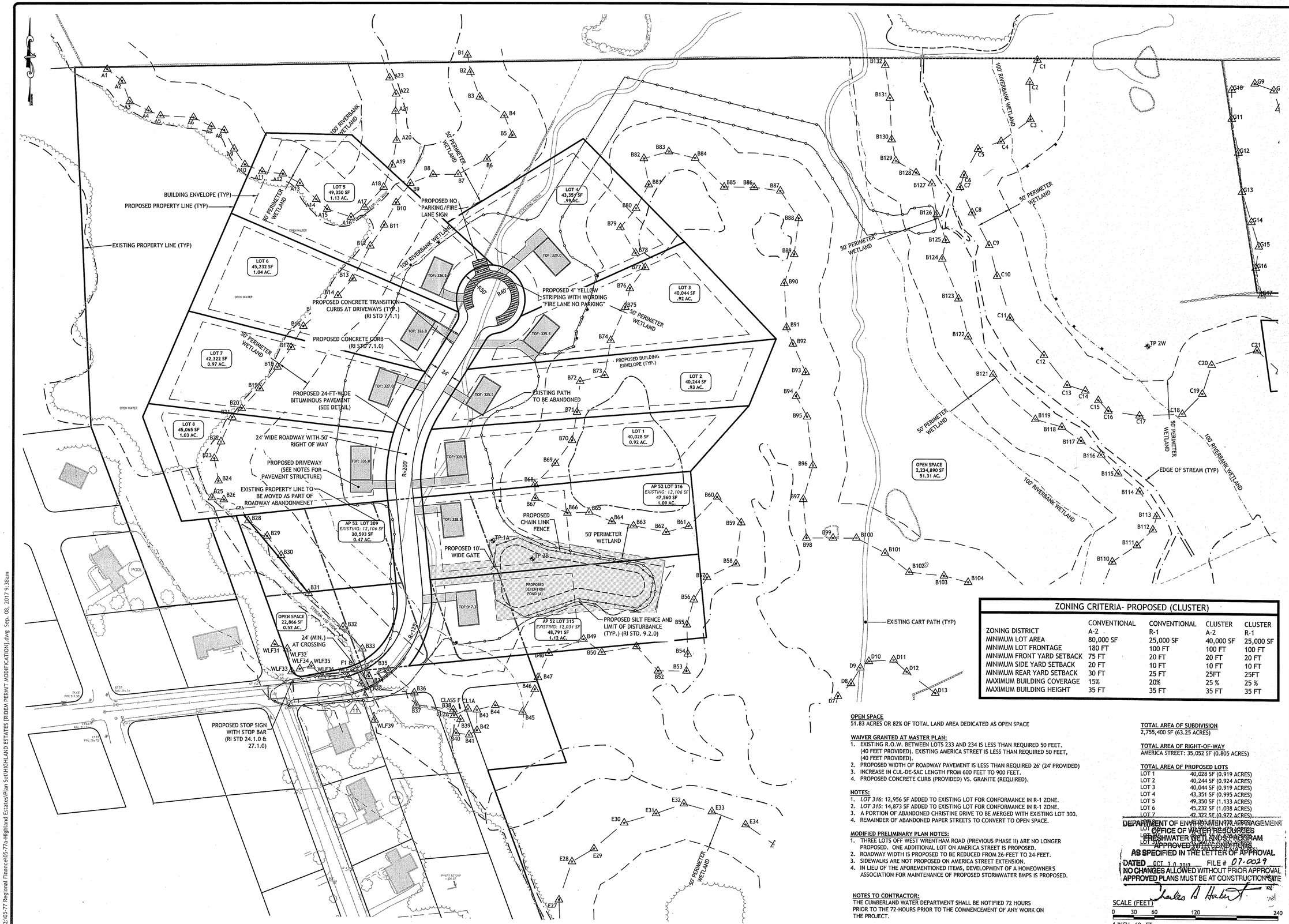
NO.	DATE.	DESCRIPTION

DESIGNED BY:	PAK
DRAWN BY:	PAK
CHECKED BY:	AEM
DATE:	JANUARY 2016
PROJECT NO:	05-77a

SUBDIVISION PLAN

SHEET 5 OF 16

Q:\05-77 Regional Finance\05-77a-Highland Estates\Plan Set\HIGHLAND ESTATES [MOD PRELIM PLAN - SUBDIVISION PLAN].dwg Feb. 19, 2016 3:42pm



ZONING CRITERIA- PROPOSED (CLUSTER)				
	CONVENTIONAL	CONVENTIONAL	CLUSTER	CLUSTER
ZONING DISTRICT	A-2	R-1	A-2	R-1
MINIMUM LOT AREA	80,000 SF	25,000 SF	40,000 SF	25,000 SF
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MINIMUM SIDE YARD SETBACK	20 FT	10 FT	10 FT	10 FT
MINIMUM REAR YARD SETBACK	30 FT	25 FT	25FT	25FT
MAXIMUM BUILDING COVERAGE	15%	20%	25 %	25 %
MAXIMUM BUILDING HEIGHT	35 FT	35 FT	35 FT	35 FT

OPEN SPACE
51.83 ACRES OR 82% OF TOTAL LAND AREA DEDICATED AS OPEN SPACE

WAIVER GRANTED AT MASTER PLAN:
1. EXISTING R.O.W. BETWEEN LOTS 233 AND 234 IS LESS THAN REQUIRED 50 FEET. (40 FEET PROVIDED). EXISTING AMERICA STREET IS LESS THAN REQUIRED 50 FEET, (40 FEET PROVIDED).
2. PROPOSED WIDTH OF ROADWAY PAVEMENT IS LESS THAN REQUIRED 26' (24' PROVIDED)
3. INCREASE IN CUL-DE-SAC LENGTH FROM 600 FEET TO 900 FEET.
4. PROPOSED CONCRETE CURB (PROVIDED) VS. GRANITE (REQUIRED).

NOTES:
1. *LOT 316*: 12,956 SF ADDED TO EXISTING LOT FOR CONFORMANCE IN R-1 ZONE.
2. *LOT 315*: 14,873 SF ADDED TO EXISTING LOT FOR CONFORMANCE IN R-1 ZONE.
3. A PORTION OF ABANDONED CHRISTINE DRIVE TO BE MERGED WITH EXISTING LOT 300.
4. REMAINDER OF ABANDONED PAPER STREETS TO CONVERT TO OPEN SPACE.

MODIFIED PRELIMINARY PLAN NOTES:
1. THREE LOTS OFF WEST WRENTHAM ROAD (PREVIOUS PHASE II) ARE NO LONGER PROPOSED. ONE ADDITIONAL LOT ON AMERICA STREET IS PROPOSED.
2. ROADWAY WIDTH IS PROPOSED TO BE REDUCED FROM 26-FEET TO 24-FEET.
3. SIDEWALKS ARE NOT PROPOSED ON AMERICA STREET EXTENSION.
4. IN LIEU OF THE AFOREMENTIONED ITEMS, DEVELOPMENT OF A HOMEOWNER'S ASSOCIATION FOR MAINTENANCE OF PROPOSED STORMWATER BMPS IS PROPOSED.

NOTES TO CONTRACTOR:
THE CUMBERLAND WATER DEPARTMENT SHALL BE NOTIFIED 72 HOURS PRIOR TO THE 72-HOURS PRIOR TO THE COMMENCEMENT OF ANY WORK ON THE PROJECT.

TOTAL AREA OF SUBDIVISION
2,755,400 SF (63.25 ACRES)

TOTAL AREA OF RIGHT-OF-WAY
AMERICA STREET: 35,052 SF (0.805 ACRES)

TOTAL AREA OF PROPOSED LOTS

LOT 1	40,028 SF (0.919 ACRES)
LOT 2	40,244 SF (0.924 ACRES)
LOT 3	40,044 SF (0.919 ACRES)
LOT 4	43,351 SF (0.995 ACRES)
LOT 5	49,350 SF (1.133 ACRES)
LOT 6	45,232 SF (1.038 ACRES)
LOT 7	42,322 SF (0.972 ACRES)
LOT 8	45,065 SF (1.034 ACRES)
LOT 309	20,593 SF (0.472 ACRES)
LOT 315	48,791 SF (1.120 ACRES)
LOT 316	47,560 SF (1.092 ACRES)

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED AS NOTED ON PLANS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 3 0 2017 FILE # 07-0029
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
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SCALE (FEET)
0 30 60 120 240
1 INCH =60 FT

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(401) 944-1300 WWW.JOECASALI.COM

JOSEPH A. CASALI
No. 7250
REGISTERED PROFESSIONAL ENGINEER
CIVIL
9.6.17

HIGHLAND ESTATES
CUMBERLAND, RHODE ISLAND
AP 52 LOTS 10, 307, 308, 309, 310, 315 & 316
MAJOR LAND DEVELOPMENT

RECEIVED SEP 12 2017

REVISIONS:		
NO.	DATE.	DESCRIPTION
2	8-2007	RIDEM COMMENTS
3	2-2008	RIDEM COMMENTS
4	5-2008	RIDEM COMMENTS
5	12-2009	WATER&SEWER SUB.
6	2-2010	WATER RESUB.
7	5-2011	PRELIM. PLAN SUB.
8	6-2011	PRELIM. PLAN APPROVAL
9	7-2011	FINAL PLAN
10	01-2016	MODIFIED PRELIM.
11	08-2017	RIDEM PERMIT MOD.

DESIGNED BY:	GC & ACK
DRAWN BY:	WMLJR
CHECKED BY:	JAC
DATE:	JANUARY 07
PROJECT NO:	05-77a

PRELIMINARY, NOT FOR CONSTRUCTION

OVERALL SITE PLAN

SHEET 6 OF 16

Q:\05-77 Regional Finance\05-77a-Highland Estates\Plan Set\HIGHLAND ESTATES (RIDEM PERMIT MODIFICATION).dwg Sep. 08, 2017 9:38am

AMERICA ST. DRAINAGE STRUCTURE TABLE					
STRUCTURE NAME	STATION:	RIM	INV (IN)	INV (OUT)	R.I. STANDARDS
CB A1	7+67, 23.8' R	321.16		317.16	4.4.0M1, 6.3.2 & 7.1.8
CB A2	7+64, 19.1' L	321.58	316.94 (CB A1)	316.84	4.4.0M1, 6.3.2 & 7.1.8 WITH OIL /WATER SEPARATOR
CB A3	3+57, 10.8' L	320.60	308.59 (CB A4)	308.50	4.4.0M2, 6.3.2 & 7.1.8
CB A4	2+85, 10.9' L	315.56	309.01 (CB A5)	308.94	4.4.0M1, 6.3.4 & 7.1.8 WITH OIL/WATER SEPARATOR
CB A5	2+83, 10.9' R	312.98		309.12	4.4.0M2, 6.3.4 & 7.1.8
CB A6	1+08, 10.9' R	305.94	303.59	303.42	STORMCEPTOR 6.3.2
CB A7	1+08, 10.9' L	305.94		303.69	4.5.0, 6.3.2 & 7.1.8
CB A8	6+25, 10.9' L	327.88	316.26 (CB A2)	316.16	4.4.0M2, 6.3.2 & 7.1.8
DMH 1	6+31, 79.1' R	321.00	315.26 (CB A8)	315.16	4.4.0 M2 & 6.2.1

11

PIPE TABLE				
PIPE #	DIAMETER	LENGTH	MATERIAL	SLOPE
1	12"	152 LF	ADS N-12 HDPE	0.97%
2	12"	86 LF	ADS N-12 HDPE	1.00%
3	12"	135 LF	ADS N-12 HDPE	0.42%
4	12"	39 LF	ADS N-12 HDPE	0.50%
6	12"	20 LF	ADS N-12 HDPE	0.50%
7	12"	67 LF	ADS N-12 HDPE	0.20%
8	12"	63 LF	ADS N-12 HDPE	0.32%
9	12"	18 LF	ADS N-12 HDPE	0.51%
10	12"	197 LF	ADS N-12 PIPE	3.60%

11

LEGEND

- PROPOSED PROPERTY LINE
- ABUTTING PROPERTY LINE
- WETLAND EDGE
- EXISTING CONTOUR
- 100 PROPOSED CONTOUR
- APPROXIMATE EXISTING WET AREA
- EXISTING STONE WALL
- IRON PIN
- DRILL HOLE
- CONCRETE BOUND
- W WELL
- UTILITY POLE
- TP SOIL EVALUATION
- EXISTING LIMIT OF WOODLAND (APPROXIMATE)

NOTE:

SINGLE FAMILY HOME FOOTPRINTS AS SHOWN ARE NOT FINAL. FINAL FOUNDATION FOOTPRINTS AND RESPECTIVE FOUNDATION STEPS WILL BE DETERMINED AND DESIGNED AT A LATER DATE.

NOTE TO CONTRACTOR:

THE CUMBERLAND WATER DEPARTMENT SHALL BE NOTIFIED 72 HOURS PRIOR TO THE 72-HOURS PRIOR TO THE COMMENCEMENT OF ANY WORK ON THE PROJECT.

PLANTING NOTES:

PLANTINGS OF RED MAPLE (ACERRUBRUM), SPICEBUSH (LINDERA BENZOIN), ROSEBAY RHODODENDRON (RHODODENDRON MAXIMUM), AND NORTHERN WHITE CEDAR (THUJA OCCIDENTAILS) PLANTED THREE TO FIVE FEET (3'-5') IN HEIGHT, SPACED SIX TO TEN (6'-10') APART ON CENTER ARE REQUIRED PER RIDEM FRESHWATER WETLANDS APPROVAL.
(SEE SHEET 13 FOR DETAILS)

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JOSEPH A. CASALI
No. 7250
REGISTERED PROFESSIONAL ENGINEER
CIVIL
9.8.17

HIGHLAND ESTATES

CUMBERLAND, RHODE ISLAND

AP 52 LOTS 10, 307, 308, 309, 315 & 316

MAJOR LAND DEVELOPMENT

RECEIVED
SEP 12 2017
Office of Water Resources

REVISIONS:		
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10	01-2016	MODIFIED PRELIM.
11	08-2017	RIDEM PERMIT MOD.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
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AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT. 3 0 2017 FILE # 07-0021
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DESIGNED BY:	GC & ACK
DRAWN BY:	WMLJR
CHECKED BY:	JAC
DATE:	JANUARY 07
PROJECT NO:	05-77a

PRELIMINARY, NOT FOR CONSTRUCTION

AMERICA ST. GRADING AND DRAINAGE PLAN

SHEET 7 OF 16

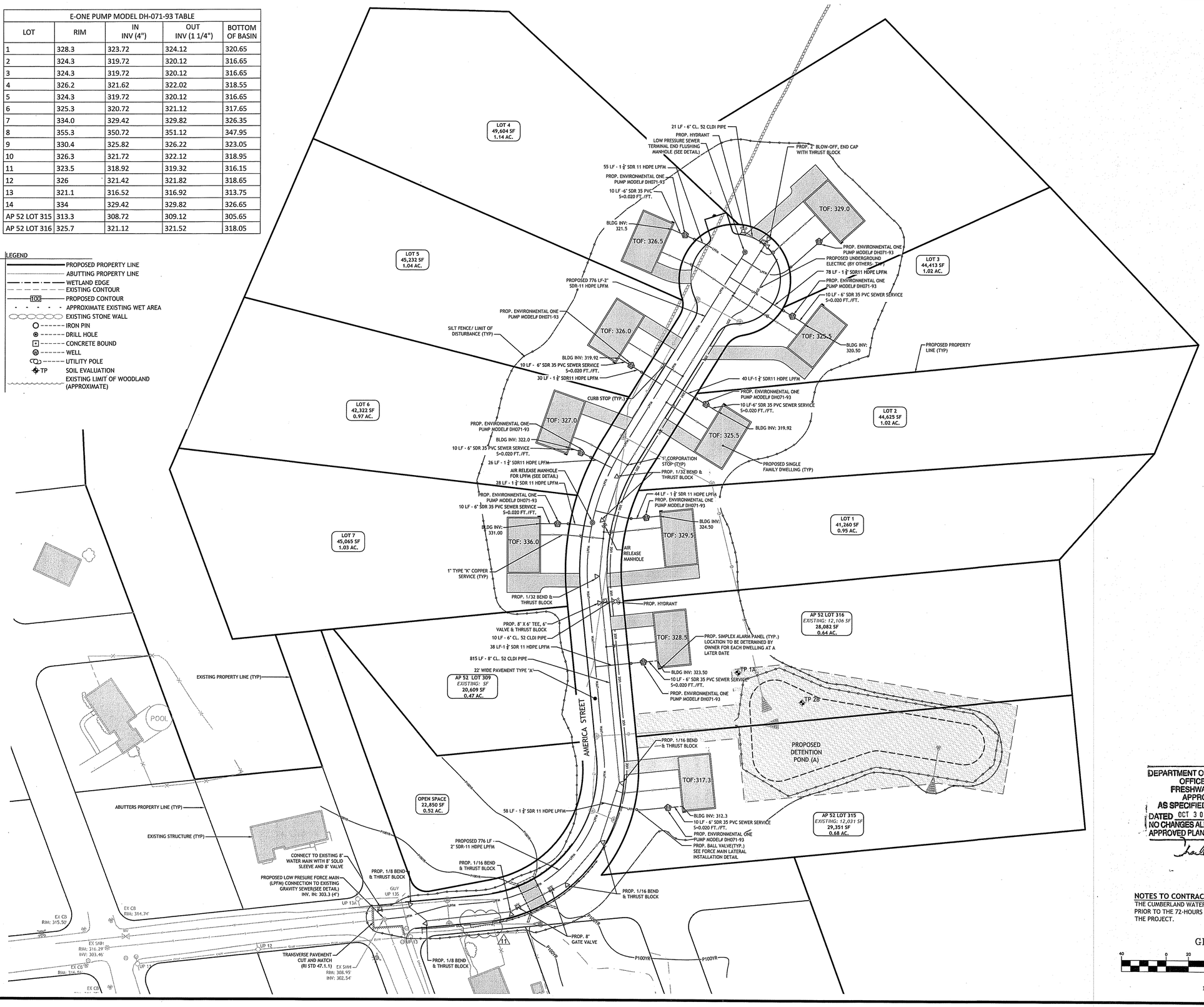
GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

Q:\05-77 Regional Finance\05-77a-Highland Estates\Plan Set\HIGHLAND ESTATES [RIDEM PERMIT MODIFICATION].dwg Sep. 08, 2017 9:38am

E-ONE PUMP MODEL DH-071-93 TABLE				
LOT	RIM	IN INV (4")	OUT INV (1 1/4")	BOTTOM OF BASIN
1	328.3	323.72	324.12	320.65
2	324.3	319.72	320.12	316.65
3	324.3	319.72	320.12	316.65
4	326.2	321.62	322.02	318.55
5	324.3	319.72	320.12	316.65
6	325.3	320.72	321.12	317.65
7	334.0	329.42	329.82	326.35
8	355.3	350.72	351.12	347.95
9	330.4	325.82	326.22	323.05
10	326.3	321.72	322.12	318.95
11	323.5	318.92	319.32	316.15
12	326	321.42	321.82	318.65
13	321.1	316.52	316.92	313.75
14	334	329.42	329.82	326.65
AP 52 LOT 315	313.3	308.72	309.12	305.65
AP 52 LOT 316	325.7	321.12	321.52	318.05

LEGEND

- PROPOSED PROPERTY LINE
- ABUTTING PROPERTY LINE
- WETLAND EDGE
- EXISTING CONTOUR
- 100 PROPOSED CONTOUR
- APPROXIMATE EXISTING WET AREA
- EXISTING STONE WALL
- IRON PIN
- DRILL HOLE
- CONCRETE BOUND
- W WELL
- UTILITY POLE
- TP SOIL EVALUATION
- EXISTING LIMIT OF WOODLAND (APPROXIMATE)



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JOSEPH A. CASALI
No. 7250
REGISTERED PROFESSIONAL ENGINEER CIVIL
9.6.17

HIGHLAND ESTATES

CUMBERLAND, RHODE ISLAND

AP 52 LOTS 10, 307, 308, 309, 310, 315 & 316

MAJOR LAND DEVELOPMENT

SEP 12 2017

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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DESIGNED BY:	GC & ACK
DRAWN BY:	WMLJR
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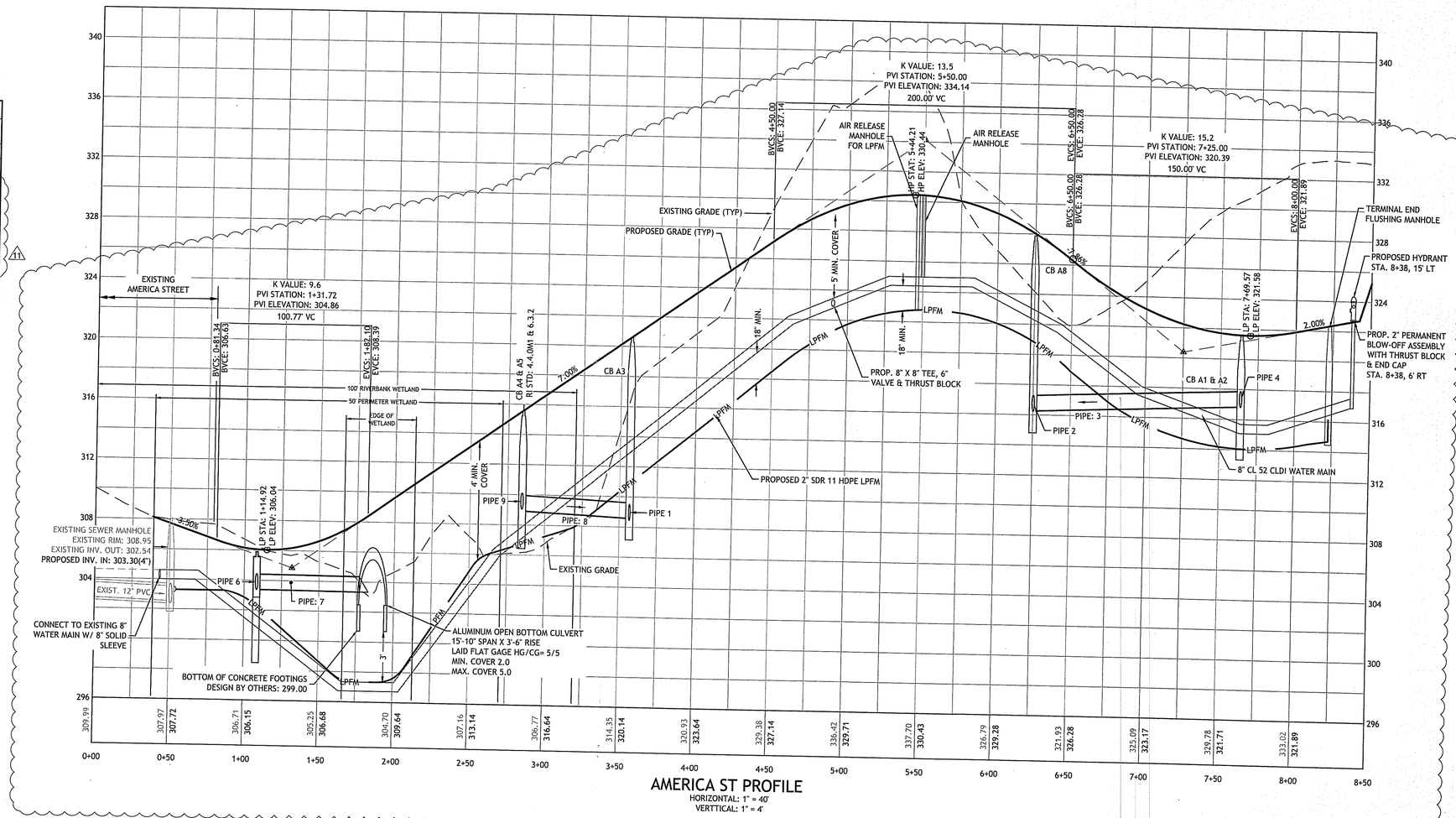
AMERICA STREET UTILITY PLAN

SHEET 8 OF 16

Q:\05-77 Regional Finance\05-77a-Highland Estates\Plan Set\HIGHLAND ESTATES (RIDEM PERMIT MODIFICATION).dwg Sep. 08, 2017 9:51am

AMERICA ST. DRAINAGE STRUCTURE TABLE					
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CB A3	3+57, 10.8' L	320.60	308.59 (CB A4)	308.50	4.4.0M2, 6.3.2 & 7.1.8
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CB A7	1+08, 10.9' L	305.94		303.69	4.5.0, 6.3.2 & 7.1.8
CB A8	6+25, 10.9' L	327.89	316.20 (CB A2)	316.10	4.4.0M2, 6.3.2 & 7.1.8
DMH 1	6+31, 79.1' R	321.00	315.26 (CB A8)	315.16	4.4.0 M2 & 6.2.1

PIPE TABLE				
PIPE #	DIAMETER	LENGTH	MATERIAL	SLOPE
1	12"	152 LF	ADS N-12 HDPE	0.97%
2	12"	86 LF	ADS N-12 HDPE	1.00%
3	12"	135 LF	ADS N-12 HDPE	0.42%
4	12"	39 LF	ADS N-12 HDPE	0.50%
6	12"	20 LF	ADS N-12 HDPE	0.50%
7	12"	67 LF	ADS N-12 HDPE	0.20%
8	12"	63 LF	ADS N-12 HDPE	0.52%
9	12"	18 LF	ADS N-12 HDPE	0.51%
10	12"	197 LF	ADS N-12 PIPE	3.60%



AMERICA ST PROFILE
HORIZONTAL: 1" = 40'
VERTTICAL: 1" = 4'

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
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DATED OCT 30 2017 FILE # 07-0029
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
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Charles A Horbert

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9.6.17

HIGHLAND ESTATES
CUMBERLAND, RHODE ISLAND
AP 52 LOTS 10, 307, 308, 309, 310, 315 & 316
MAJOR LAND DEVELOPMENT

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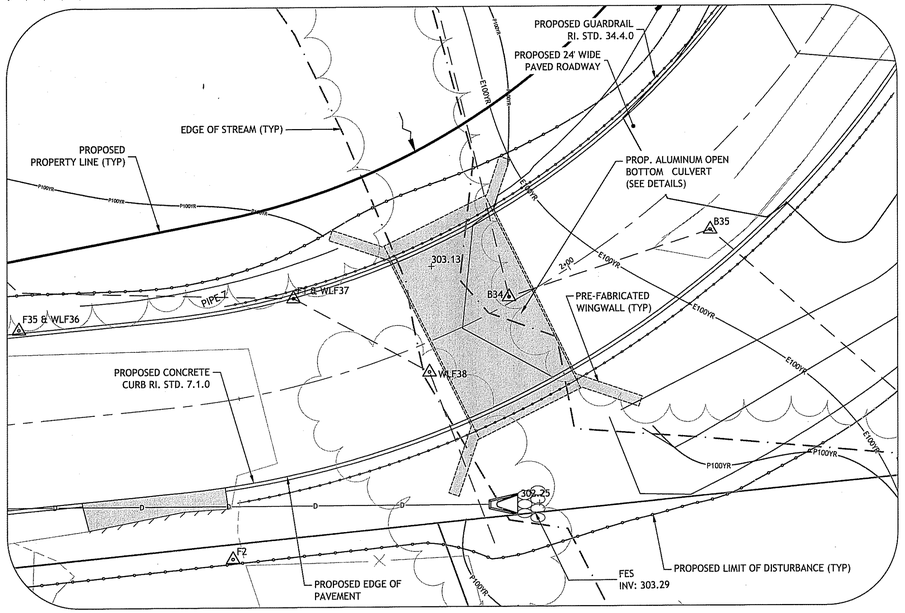
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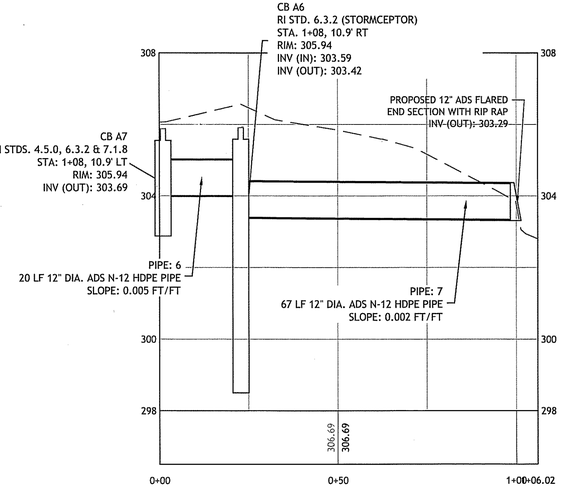
AMERICA STREET PROFILE

SHEET 9 OF 16

Q:\05-77 Regional Finance\05-77a Highland Estates\Plan Set\HIGHLAND ESTATES [RIDEM PERMIT MODIFICATION].dwg Sep. 08, 2017 9:39am



ALUMINUM OPEN BOTTOM CULVERT CROSSING DETAIL STA: 1+86
SCALE: 1" = 10'



AMERICA ST. STORMCEPTOR (1) PROFILE

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 2'

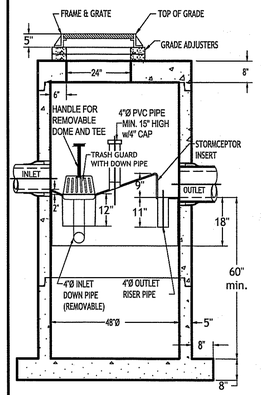
Stormceptor®

Hydro Conduit

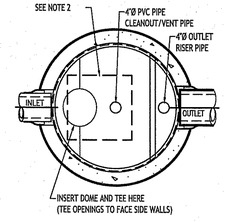
STC 450i Precast Concrete Stormceptor
(450 US Gallon Capacity)

PROJECT:
LOCATION:

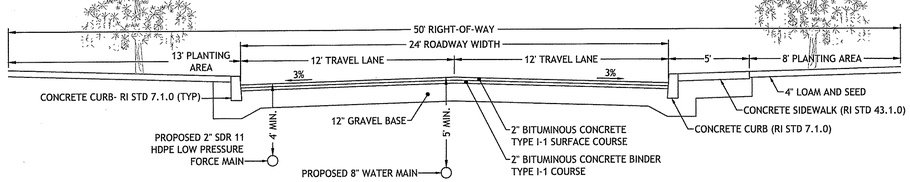
DR. BY:
CK. BY:
DATE:
SCALE: N.T.S.
DWG.#



SECTION THRU CHAMBER

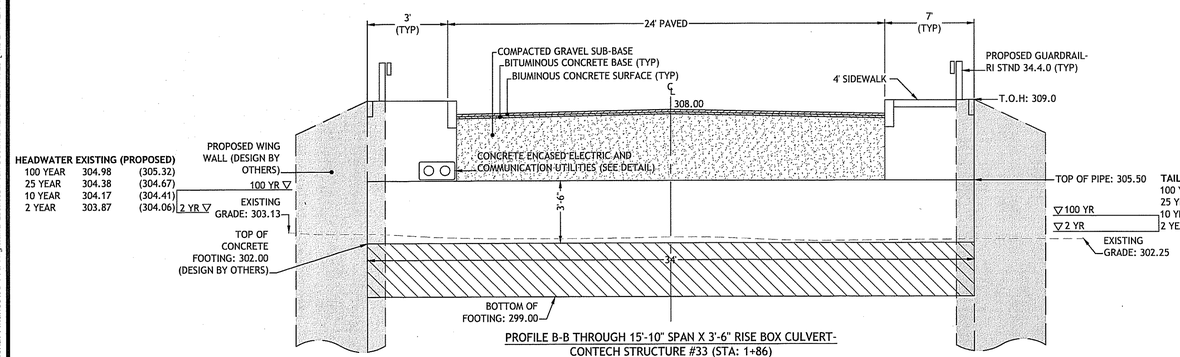


SECTION THRU PLAN VIEW



TYPICAL ROADWAY CROSS SECTION FOR PROPOSED AMERICA STREET (50' RIGHT OF WAY)
SCALE: 1" = 4'

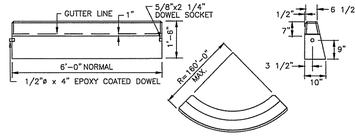
NOTE:
1. MATERIALS AND CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH THE TOWN OF CUMBERLAND LAND DEVELOPMENT AND SUBDIVISION REGULATIONS DATED APRIL 2005 AND THE RIDOT STANDARD SPECIFICATIONS FOR ROADWAY AND BRIDGE CONSTRUCTION, 2004 EDITION INCLUDING ALL REVISIONS.



HEADWATER EXISTING (PROPOSED)		
100 YEAR	304.98	(305.32)
25 YEAR	304.38	(304.67)
10 YEAR	304.17	(304.41)
2 YEAR	303.87	(304.06)

TAILWATER EXISTING (PROPOSED)		
100 YEAR	303.97	(303.76)
25 YEAR	303.38	(303.32)
10 YEAR	303.14	(303.13)
2 YEAR	302.82	(303.86)

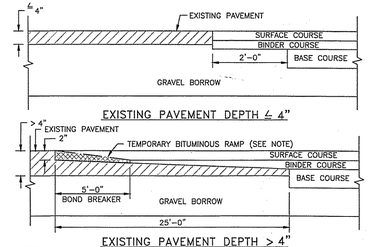
PROFILE B-B THROUGH 15'-10" SPAN X 3'-6" RISE BOX CULVERT-
CONTECH STRUCTURE #33 (STA: 1+86)
(34 LF LAID FLAT)
SCALE: 1"=4'



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 — R.I. STANDARD 7.1.0



NOTE:
A BOND BREAKER (TAPERED OR EQUIVALENT) WILL BE PLACED 5'-0" FROM THE JOINT AND COVERED WITH THE BINDER COURSE AS THE TEMPORARY RAMP. PRIOR TO PLACING THE SURFACE COURSE, THE BINDER COURSE AND BOND BREAKER WILL BE REMOVED.

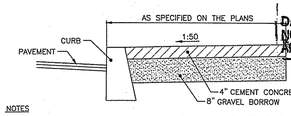
TRANSVERSE PAVEMENT CUT AND MATCH — R.I. STANDARD 47.1.1

SIGN NUMBER			R1-1	
LEGEND		STOP		
COLOR	BACKGROUND	RED		
	COPY	WHITE		
SIGN DIMENSION	WIDTH	24"	30"	36"	48"
	HEIGHT	24"	30"	36"	48"

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION T.15 OF THE R.I. STANDARD SPECIFICATIONS.
2. DENOTES TYPE IX GRADE SHEETING.
3. REGULATORY SIGNS SHALL BE MOUNTED IN ACCORDANCE WITH STD. 24.1.0, 24.2.0 OR 24.6.0.
4. THICKNESS OF ALUMINUM SIGN PLATES: LESS THAN 10 SQ. FT. — 0.081 IN. 10 SQ. FT. TO 36 SQ. FT. — 0.102 IN. GREATER THAN 36 SQ. FT. — 0.125 IN.
5. FOR ADDITIONAL SIGNS SEE THE MUTCD.

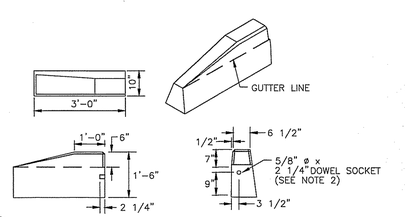
REGULATORY SIGNS — R.I. STANDARD 27.1.0

DEPARTMENT OF ENVIRONMENTAL MANAGEME
OFFICE OF WATER RESOURCES
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NO CHANGES ALLOWED WITHOUT PRIOR APPROVA
APPROVED PLANS MUST BE AT CONSTRUCTION SI



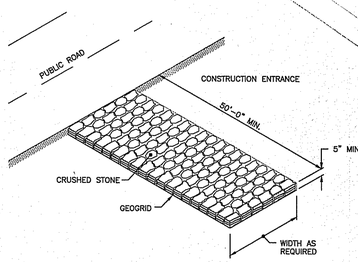
NOTES
1. SHALL BE IN ACCORDANCE WITH SECTION 905 OF THE R.I. STANDARD SPECIFICATIONS.
2. FOR CURB SETTING DETAIL REFERENCE STD. 7.6.0.

TRANSVERSE PAVEMENT CUT AND MATCH — R.I. STANDARD 43.1.0



NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. DRAWING SHOWS TRANSITION CURB FOR ONE DIRECTION, FOR OTHER DIRECTION USED OPPOSITE HAND AND INCLUDE A 1/2" ø X 4" EPOXY COATED DOWEL.
3. EXPOSED SURFACES TO HAVE A SPONGE FLOAT FINISH.
4. EXPOSED EDGES TO HAVE A 3/4" CHAMFER.

3' - 0" PRECAST CONCRETE TRANSITION CURB — R.I. STANDARD 7.1.1



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

CONSTRUCTION ACCESS — R.I. STANDARD 9.9.0

JCE
JOE CASALI ENGINEERING, INC.
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JOSEPH A. CASALI
No. 7250
REGISTERED
PROFESSIONAL ENGINEER
CIVIL
9.6.17

HIGHLAND ESTATES

CUMBERLAND, RHODE ISLAND
AP 52 LOTS 10, 307, 308, 309, 310, 315 & 316
MAJOR LAND DEVELOPMENT

REVISIONS:		
NO.	DATE.	DESCRIPTION
2	8-2007	RIDEM COMMENTS
3	2-2008	RIDEM COMMENTS
4	5-2008	RIDEM COMMENTS
5	12-2009	WATER&SEWER SUB.
6	2-2010	WATER RESUB.
7	5-2011	PRELIM. PLAN SUB.
8	6-2011	PRELIM. PLAN APPROVAL
9	7-2011	FINAL PLAN
10	01-2016	MODIFIED PRELIM.
11	08-2017	RIDEM PERMIT MOD.

DESIGNED BY:	GC & ACK
DRAWN BY:	WMJR
CHECKED BY:	JAC
DATE:	JANUARY 07
PROJECT NO:	05-77a

PRELIMINARY, NOT FOR CONSTRUCTION

DETAILS I

SHEET 10 OF 16

Q:\05-77 Regional Finance\05-77a-Highland Estates\Plan Set\HIGHLAND ESTATES [RIDEM PERMIT MODIFICATION].dwg Sep. 08, 2017 9:39am

PLATE AND RIB DETAILS

TABLE 1
PLATE AND RIB COMBINATIONS WITH ALLOWABLE HEIGHT OF COVER (6,7,8)

(3) STRUCT. NUMBER	SPAN "A" (FT-IN)	RISE "B" (FT-IN)	AREA (SQ. FT)	ADDITIONAL SHELL INFORMATION (1) CROWN ARC LENGTH "C" (N)	(1) LEG LENGTH "D" (N)	SIDE ANGLE "E" (DEG\MIN)	(1,3) HAUNCH PLATE LENGTH (N)	(1,3) CROWN PLATE LENGTH (N)†	MAX. BOLTS /FT. (EA.)	(9) MAX. SHELL WT./FT. (LB.)
33	15-10	3- 6	46.8	15	0.5	6:10	8	8	42.00	136
34	16- 0	4- 3	59.5		1.5		9		38.67	147
35	16- 2	5- 1	72.3		2.5		10		44.22	153
36	16- 4	5-11	85.2		3.5		11		44.67	161
37	16- 6	6- 8	98.3		4.5		12		45.11	172
38	16- 8	7- 6	111.5		5.5		13		45.56	176
39	16-10	8- 3	124.8		6.5		14		46.00	186

(*) NOTES REFER TO DRAWING 1010402

FOR CONTECH ALUMINUM BOX CULVERTS

Original Dwg. Date:	Last Revision Date:	Drawing Number:
K.M.K. 5-29-98	N/A	1010403A

TABLE 2
HS-20 LOADING (11)

(3) STRUCT. NUMBER	SPAN "A" (FT-IN)	RISE "B" (FT-IN)	AREA (SQ. FT)	A HG\ CG (GA.)	A HRS/ CRS (IN.)	A MIN	A MAX	B HG\ CG (GA.)	B HRS/ CRS (IN.)	B MIN	B MAX	C HG\ CG (GA.)	C HRS/ CRS (IN.)	C MIN	C MAX	D HG\ CG (GA.)	D HRS/ CRS (IN.)	D MIN	D MAX	E HG\ CG (GA.)	E HRS/ CRS (IN.)	E MIN	E MAX
						(FEET)				(FEET)				(FEET)				(FEET)				(FEET)	
33	15-10	3- 6	46.8	3\5	27/18	3.0	5.0	3\5	18/18	2.5	5.0	5\5	18/18	2.0	5.0	3\4	27/9	1.7		2\5	18/9	1.4	5.0
34	16- 0	4- 3	59.5	2\5	18/18			2\3	27/9			3\3	27/9			3\4		1.7		3\4			
35	16- 2	5- 1	72.3	2\5				4\5	18/18			3\3				3\5		1.7		3\4			
36	16- 4	5-11	85.2	3\4				3\2	27/9			3\3				3\5		1.7		3\5			
37	16- 6	6- 8	98.3	3\5				2\4	9/18			3\4				3\4	18/9	1.7		4\4			
38	16- 8	7- 6	111.5	3\5				3\3	27/9			3\4				3\4		1.7		2\3	9/9		
39	16-10	8- 3	124.8	3\5				2\5	18/9			2\5	18/9			3\5		1.7		4\5	18/9		

FOR CONTECH ALUMINUM BOX CULVERTS

Original Dwg. Date:	Last Revision Date:	Drawing Number:
K.M.K. 5-29-98	N/A	1010399A

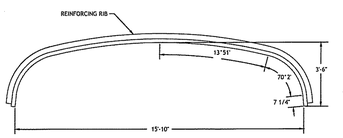
(*) NOTES REFER TO DRAWING 1010402

TABLE 4
ALUMINUM HEADWALL & WINGWALL DETAILS

STRUCT. NUMBER	SPAN "A" (FT-IN)	RISE "B" (FT-IN)	BASEWALL WIDTH (FT-IN)	(3) HEIGHT (FT-IN)	NO. OF ANCHOR RODS TO STRUCTURE FROM CAP (EA.)	WEIGHT (LB./EA.)	WINGWALL CORNER PANEL (LB./EA.)	WING PANEL (LB./EA.)
33	15-10	3- 6	20-10	7-10	5	434	196	159
34	16- 0	4- 3	20-10	8- 7	5	459	210	169
35	16- 2	5- 1	20-10	9- 5	5	485	224	180
36	16- 4	5-11	20-10	10- 2	5	510	238	190
37	16- 6	6- 8	20-10	11- 0	5	536	252	201
38	16- 8	7- 6	20-10	11-10	5	561	266	211
39	16-10	8- 3	20-10	12- 7	5	587	280	222

FOR CONTECH ALUMINUM BOX CULVERTS

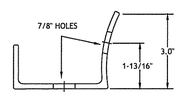
Original Dwg. Date:	Last Revision Date:	Drawing Number:
K.M.K. 5-29-98	N/A	1010396A



SCALE: 1/2" =1'-0"
APPROX. AREA = 46.8 SQ. FT.

ALUMINUM BOX CULVERT STRUCTURE #33 15'-10" SPAN x 3'-6" RISE

Original Dwg. Date:	Last Revision Date:	Drawing Number:
7-30-08	7-30-08	10097218

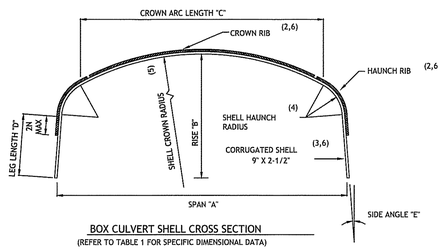


ALUMINUM RECEIVING CHANNEL

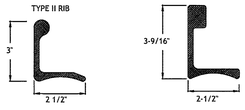
FOR CONTECH ALUMINUM CULVERT
NOT TO SCALE

Original Dwg. Date:	Last Revision Date:	Drawing Number:
K.M.K. 5-29-98	N/A	1010386A

*Notes are on drawing 1010393A.dwg.



BOX CULVERT SHELL CROSS SECTION
(REFER TO TABLE 1 FOR SPECIFIC DIMENSIONAL DATA)



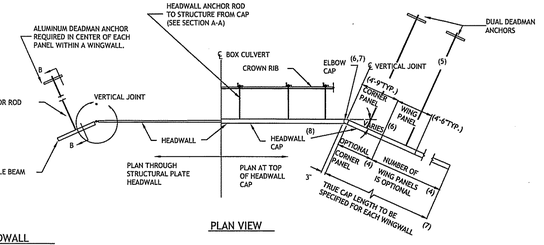
RIB GEOMETRY (2)

NOTES - SHELL

1. N = 9.625" OR 9-5/8".
2. ALL RIBS ARE TYPE IV, EXCEPT HAUNCH RIBS FOR STRUCTURES 1-39 WHICH ARE TYPE II.
3. STRUCTURE 1 IS A ONE-PLATE SHELL. STRUCTURES 2-26 ARE TWO-PLATE SHELLS. STRUCTURES 27-87 ARE THREE-PLATE SHELLS.
4. SHELL HAUNCH RADIUS FOR STRUCTURES 1-39 IS 30-1/4". SHELL HAUNCH RADIUS FOR STRUCTURES 40-87 IS 37-3/8".
5. SHELL CROWN RADIUS FOR STRUCTURES 1-39 IS 297-1/2". SHELL CROWN RADIUS FOR STRUCTURES 40-87 IS 258-3/4"
6. IN SHELL FILL HEIGHT TABLE 1, THE HG\CG DESIGNATION INDICATES THICKNESS OR GAGE OF HAUNCH (HG) AND CROWN (CG) PLATES AS FOLLOWS: 2 = .125", 3 = .150", 4 = .175", 5 = .200", 6 = .225", 7 = .250". EXAMPLE: 3\6 = .150" HAUNCH AND .225" CROWN PLATE THICKNESS. THE HRS/CRS DESIGNATION INDICATES THE RIB SPACING ON THE HAUNCH (HRS) AND CROWN (CRS) PLATES. EXAMPLE: 27/9 = 27" O.C. HAUNCH AND 9" O.C. CROWN.
7. ALLOWABLE COVER (MINIMUM AND MAXIMUM) IS MEASURED FROM THE OUTSIDE VALLEY OF CROWN PLATE TO BOTTOM OF FLEXIBLE PAVEMENT OR FROM THE OUTSIDE VALLEY OF CROWN PLATE TO TOP OF RIGID PAVEMENT. MINIMUM COVER IS MEASURED AT THE LOWEST FILL AREA SUBJECTED TO POSSIBLE WHEEL LOADS (TYPICALLY AT THE ROADWAY SHOULDER). THE ROADWAY SURFACE MUST BE MAINTAINED TO ENSURE MINIMUM COVER TO PREVENT HIGH-IMPACT LOADS BEING IMPARTED TO THE STRUCTURE. MAXIMUM COVER IS MEASURED AT THE HIGHEST FILL AND/OR PAVEMENT ELEVATION.
8. SELECT THE STRUCTURE, WITH THE LOWEST ALPHABET SUB-DESIGNATION AND COVER RANGE, THAT WILL INCLUDE THE ACTUAL MINIMUM AND MAXIMUM COVER. EXAMPLE: STRUCTURE 51-A IS MORE ECONOMICAL THAN 51-B IF THE COVER IS BETWEEN 3.0 AND 4.5 FEET.
9. SHELL WT./FT. SHOWN IS MAXIMUM HANDLING WEIGHT AND IS BASED ON HEAVIEST COMPONENT MAKEUP FOR A SPECIFIC SPAN AND RISE COMBINATION. WEIGHT PER FOOT OF SHELL INCLUDES PLATES, REINFORCING RIBS, RIB SPLICES, BOLTS AND NUTS.
10. TOTAL STRUCTURE LENGTH CAN BE ANY DIMENSION, BUT WHENEVER POSSIBLE, IT IS RECOMMENDED TO WORK WITH A MULTIPLE OF 4.5' (NET PLATE WIDTH). THIS PRACTICE USUALLY RESULTS IN LOWER TOTAL STRUCTURE COST. EXAMPLE: 50' PROPOSED STRUCTURE / 4.5' = 11.1, NEAREST WHOLE NUMBER IS 11, THEREFORE USE 11 X 4.5' = 49.5' FOR TOTAL STRUCTURE LENGTH. WHEN ORDERING A STRUCTURE WITH TOEWALLS AND/OR HEADWALLS ON EACH END, TOTAL STRUCTURE LENGTH SHOULD BE A MULTIPLE OF 9'.
11. ALUMINUM BOX CULVERTS, AS SHOWN ON THIS DRAWING, ARE DESIGNED TO MEET OR EXCEED THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES SECTION 12.8 FOR STANDARD HIGHWAY HS-20 & HS-25 WHEEL LOADS.

FOR CONTECH ALUMINUM CULVERTS

Original Dwg. Date:	Last Revision Date:	Drawing Number:
K.M.K. 5-29-98	N/A	1010402A



PLAN VIEW

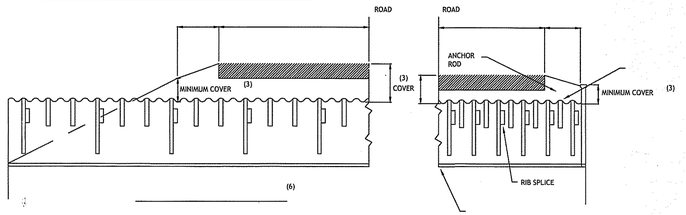
NOTES - HEADWALL

1. ALL PANELS ARE FABRICATED FROM ALUMINUM STRUCTURAL PLATE AS SPECIFIED IN ASTM B746.
2. CENTER PANELS ABOVE THE BOX CULVERT CROWN RADIUS ARE 0.100" THICKNESS FOR STRUCTURES 1-39 AND 0.125" FOR STRUCTURES 40-87. ALL OTHER PANELS ARE 0.150" THICKNESS. SEE TABLE 5 FOR PANEL THICKNESS.
3. HEIGHT OF HEADWALL LISTED IN TABLE 4 PERMITS APPROXIMATELY 24" ENTRENCHMENT DEPTH BELOW THE INVERT. ALL HEADWALL PANELS MUST BE TRENCHED INTO EXISTING GROUND. IF STABLE ROCK FOUNDATION IS ENCOUNTERED, THE PANELS MAY BE TRIMMED AND PLACED INTO A CEMENT-GROUTED KEYWAY.
4. NUMBER OF CORNER PANELS AND ADDITIONAL WING PANELS IS OPTIONAL.
5. A VERTICAL JOINT IS USED ONLY WHEN A WINGWALL IS AT AN ANGLE WITH RESPECT TO THE HEADWALL.
6. SPECIFY THE DEGREE OF HORIZONTAL ROTATION ON THE WINGWALL. THIS ANGLE SHOULD NOT EXCEED 90 DEGREES.
7. THE TOP OF A HEADWALL AND ITS WINGWALL IS ALWAYS HORIZONTAL. UNLESS BEVELED WINGWALLS ARE REQUIRED. SPECIFY THE VERTICAL DROP IN ELEVATION FOR THE WINGWALL. THIS WILL SET THE PROPER VERTICAL ANGLE FABRICATION FOR THE HEADWALL ELBOW CAP AND THE PROPER OVERALL LENGTH OF THE WINGWALL CAP.
8. HEADWALL CAP MUST BE FIELD-DRILLED AND BOLTED TO THE HEADWALL PANELS. SEE ASSEMBLY DRAWINGS FOR MORE DETAILS.
9. STANDARD HEADWALLS SHOWN ARE FOR VERTICAL AND SQUARE ORIENTATION ONLY. ANY DESIGN, OTHER THAN VERTICAL AND SQUARE ORIENTATION, MUST BE REVIEWED BY THE DESIGN ENGINEER.
10. 1F SIDE SLOPE IS FLATTER THAN 2:1, A DOUBLE TIEBACK ASSEMBLY IS REQUIRED FOR EACH DEADMAN.
11. STANDARD HEADWALLS ARE SHOWN. HS-20 WHEEL LOADS MUST BE KEPT A MINIMUM OF 36" FROM THE WALL FACE. SPECIAL HEADWALL PACKAGES CAN BE FABRICATED TO MEET OTHER LOADING REQUIREMENTS.
12. CENTER OF DEADMAN ANCHOR IS PLACED 9" BELOW CENTER OF WALE BEAM.
13. THE CROWN RIB USED TO CONNECT THE HEADWALL MUST BE ORIENTED SO THAT THE FLAT SURFACE IS FACING AWAY FROM THE HEADWALL. THIS MAXIMIZES THE LOAD CARRYING CAPABILITY OF THE CONNECTION SHOWN IN SECTION A-A.
14. STRUCTURES ON CONCRETE FOOTINGS THAT USE HEADWALLS REQUIRE FIELD MODIFICATIONS OF THE HEADWALL PLATES SO THEY FIT AROUND THE FOOTINGS. THE NEED TO ATTACH THE PLATES TO THE FOOTING DEPENDS ON THE BACKFILL MATERIAL AND ITS POTENTIAL ERODIBILITY.

ALUMINUM HEADWALL DETAILS
FOR CONTECH ALUMINUM CULVERT
NOT TO SCALE

Original Dwg. Date:	Last Revision Date:	Drawing Number:
K.M.K. 5-29-98	N/A	1010394A

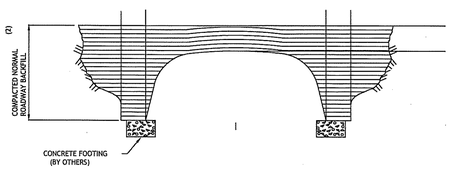
INSTALLATION DETAILS



(*)NOTES REFER TO DRAWING 1010401

FOR CONTECH ALUMINUM CULVERTS
NOT TO SCALE

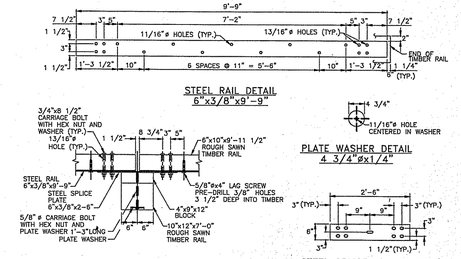
Original Dwg. Date:	Last Revision Date:	Drawing Number:
K.M.K. 5-29-98	N/A	1010398A



FOR CONTECH ALUMINUM CULVERTS
NOT TO SCALE

Original Dwg. Date:	Last Revision Date:	Drawing Number:
K.M.K. 5-29-98	N/A	1010397A

(*)NOTES REFER TO DRAWING 1010401



STEEL RAIL DETAIL
6"x3/8"x9'-9"

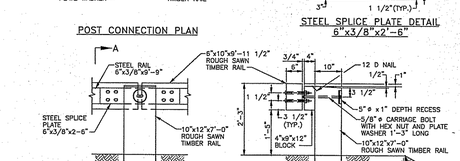
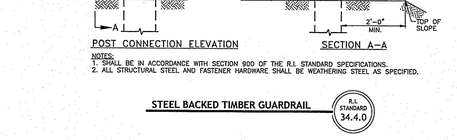


PLATE WASHER DETAIL
4 3/4"ø x 1/4"



STEEL SPLICE PLATE
6"x3/8"x2'-6"

POST CONNECTION PLAN



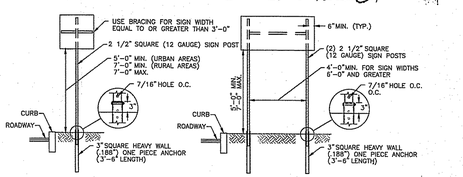
POST CONNECTION ELEVATION — SECTION A-A

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 900 OF THE R.I. STANDARD SPECIFICATIONS.
2. ALL STRUCTURAL STEEL AND FASTENER HARDWARE SHALL BE WEATHERING STEEL AS SPECIFIED.

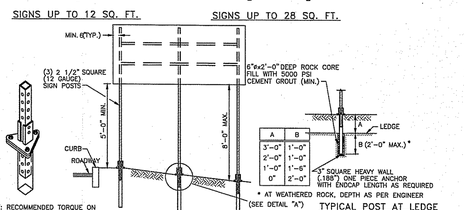
STEEL BACKED TIMBER GUARDRAIL — R.I. STANDARD 34.4.0

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 30 2017 FILE # 07-0029
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Charles A. Horbert

INSTALLATION DETAILS



SIGNS UP TO 12 SQ. FT. — SIGNS UP TO 28 SQ. FT.



NOTE: RECOMMENDED TORQUE ON SLIP-BASE FLANGE HEAD BOLT AND NUT 40 FT. LBS.

DETAIL "A"

SIGNS UP TO 8'-0"Wx4'-0"H

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION T.15 OF THE R.I. STANDARD SPECIFICATIONS.
2. SIGN SUPPORTS HAVE BEEN DESIGNED IN ACCORDANCE WITH AASHTO SPECIFICATIONS FOR A 10-YEAR MEAN WIND RECURRENCE INTERVAL.
3. FOR INSTALLATION IN GROUND OR BITUMINOUS CONCRETE DRIVE SIGN POST ANCHOR TO REQUIRED DEPTH SO THAT THE HOLE WILL MATCH TO SIGN POST ABOVE GROUND FOR THE BOLT CONNECTION. INSERT SIGN POST AND BOLT IN PLACE.
4. FOR INSTALLATION IN CONCRETE SEE STD. 25.3.0 AND FOLLOW THE PROCEDURE IN NOTE 2.
5. FOR INSTALLATION IN LEDGE LESS THAN 3'-0" BELOW GRADE SEE DETAIL ABOVE.
6. EDGE OF SIGN SHALL BE 1'-6" (MIN.) FROM EDGE OF CURB IN URBAN AREAS AND 6'-0" (MIN.) FROM EDGE OF CURB IN RURAL AREAS.
7. INSTALLATION PROCEDURES SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
8. BREAKAWAY SIGN SUPPORTS SHALL BE FABRICATED FROM STEEL AND SHALL CONFORM TO THE BREAKAWAY DESIGN SHOWN ON THIS SHEET.
9. STEEL POSTS SHALL CONFORM TO ASTM-A361, Fy= 55 KSI. THE CROSS SECTION OF THE POST SHALL BE SQUARE TUBE FORMED OF 12 GAUGE (.105" U.S.S. GAUGE) COLD-ROLLED CARBON STEEL SHEETS WHICH HAVE BEEN ZINC COATED (1.25 OZ.) CONFORMING TO ASTM-A525, CAREFULLY ROLLED TO SIZE AND WELDED DIRECTLY IN THE CORNER BY HIGH FREQUENCY RESISTANCE WELDING OR EQUAL AND EXTERNALLY SCARED TO AGREE WITH CORNER RADII. STANDARD CORNER RADIUS SHALL BE 3/16" PLUS OR MINUS 1/64".
10. ALL BOLTS SHALL CONFORM TO ASTM-A307, CLASS A.
11. ALL BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AS PER ASTM-A153.
12. FOR SIGNS GREATER THAN 32 SQ. FT., REFER TO STD. 30.1.0, 30.1.1, 30.2.0, 30.2.1, 30.3.0, 30.3.1, 30.4.0, 30.4.1, 30.4.2 AND 30.4.3.

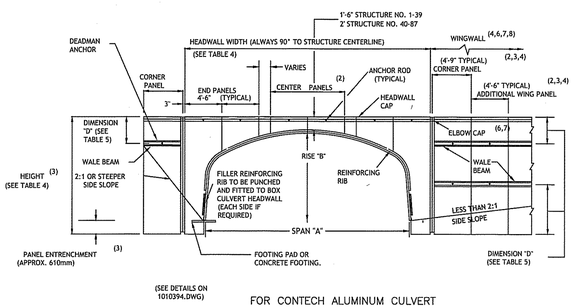
SIGN POST SELECTION AND INSTALLATION DETAILS
SQUARE POST (SIGN UP TO 8' - 0" W x 4' - 0" H — R.I. STANDARD 24.1.0

INSTALLATION NOTES:

1. X = SUFFICIENT SPACE FOR COMPACTION EQUIPMENT. IF SPACE IS NARROW, SPECIAL EQUIPMENT IS REQUIRED FOR COMPACTION OR CONCRETE GROUT IS REQUIRED.
2. BACKFILL TO BE WELL GRADED GRANULAR, A-1, A-3, A-2-4, OR A-2-5, PER AASHTO M145, PLACED IN SIX- TO EIGHT- INCH LIFTS SYMMETRICALLY ON EACH SIDE COMPACTED TO MINIMUM 90% DENSITY PER AASHTO T180. D-4 OR SMALLER TO OPERATE NEAR AND ABOVE STRUCTURE DURING BACKFILLING TO FINISH GRADE. REFER TO ASTM B789 INSTALLATION SPECIFICATION.
3. MINIMUM COVER MAY NEED TO BE INCREASED TO HANDLE TEMPORARY CONSTRUCTION VEHICLE LOADS (LARGER THAN D4) BUT NOT TO EXCEED MAXIMUM ALLOWABLE COVER FOR THE SPECIFIC BOX CULVERT DESIGN.
4. FOUNDATION TO HAVE MINIMUM 4,000 PSF BEARING BEDDING. IT SHOULD CONSIST OF STABLE, WELL GRADED GRANULAR MATERIAL.
5. STANDARD HEADWALLS SHOWN ARE FOR VERTICAL ORIENTATION ONLY. ANY DESIGN, OTHER THAN VERTICAL ORIENTATION, MUST BE REVIEWED BY THE DESIGN ENGINEER.
6. THE TYPE AND EXTENT OF END TREATMENT ON THE BOX CULVERT SHOULD BE CHOSEN AND DESIGNED SO AS TO PREVENT THE LOSS OF BACKFILL DUE TO HIGH FLOW CONDITIONS.
7. BOLT TORQUE REQUIREMENTS - PLATE LAP MUST BE PROPERLY MATED IN A TANGENT FASHION USING PROPER ALIGNMENT TECHNIQUES AND ADEQUATE BOLT TORQUE TO SEAT THE CORRUGATION. THE RECOMMENDED INSTALLATION BOLT TORQUE FOR ALUMINUM BOX CULVERTS IS 90-115 FT/LBS FOR FULL INVERTS AND 115-135 FT/LBS FOR ALL OTHER COMPONENTS. WHEN SEAM SEALANT TAPE IS USED, BOLTS SHALL BE INSTALLED AND RETIGHTENED TO THESE TORQUE LEVELS AFTER 24 HOURS. TORQUE LEVELS ARE FOR INSTALLATION, NOT RESIDUAL, IN-SERVICE REQUIREMENTS.
8. FOR ASSEMBLY INFORMATION, SEE THE MANUFACTURER'S DETAILED ASSEMBLY DRAWINGS AND INSTRUCTIONS.

FOR CONTECH ALUMINUM BOX CULVERTS

Original Dwg. Date:	Last Revision Date:	Drawing Number:
K.M.K. 5-29-98	N/A	1010401A



FOR CONTECH ALUMINUM CULVERT
NOT TO SCALE

Original Dwg. Date:	Last Revision Date:	Drawing Number:
K.M.K. 5-29-98	N/A	1010395A

*Notes are on drawing 1010393A.dwg.

JCE
JOE CASALI ENGINEERING, INC.
CIVIL · SITE DEVELOPMENT · TRANSPORTATION
DRAINAGE · WATER SUPPLY · WASTEWATER
300 POST ROAD, WARWICK, RI 02888
(401) 941-3000 (401) 941-3313 FAX WWW.JOECASALI.COM

JOSEPH A. CASALI
No. 7250
REGISTERED PROFESSIONAL ENGINEER
CIVIL
9.6.17

HIGHLAND ESTATES
CUMBERLAND, RHODE ISLAND
AP 52 LOTS 10, 307, 308, 309, 310, 315 & 316
MAJOR LAND DEVELOPMENT

REVISIONS:		
NO.	DATE.	DESCRIPTION
2	8-2007	RIDEM COMMENTS
3	2-2008	RIDEM COMMENTS
4	5-2008	RIDEM COMMENTS
5	12-2009	WATER&SEWER SUB.
6	2-2010	WATER RESUB.
7	5-2011	PRELIM. PLAN SUB.
8	6-2011	PRELIM. PLAN APPROVAL
9	7-2011	FINAL PLAN
10	01-2016	MODIFIED PRELIM.
11	08-2017	RIDEM PERMIT MOD.

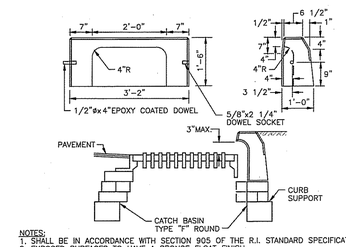
DESIGNED BY:	GC & ACK
DRAWN BY:	WMLJR
CHECKED BY:	JAC
DATE:	JANUARY 07
PROJECT NO:	05-77a

PRELIMINARY, NOT FOR CONSTRUCTION

DETAILS II

SHEET 11 OF 16

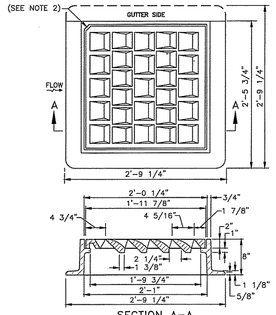
Q:\05-77 Regional Finance\05-77a-Highland Estates\Plan Set\HIGHLAND ESTATES (RIDEM PERMIT MODIFICATION).dwg Sep. 08, 2017 9:39am



NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 905 OF THE R.I. STANDARD SPECIFICATIONS.
2. EXPOSED SURFACES TO HAVE A SPONGE FLOAT FINISH.
3. EXPOSED EDGES TO HAVE A 3/4" CHAMFER.

PRECAST CONCRETE APRON STONE
(FOR ROUND CATCH BASIN)

R.I. STANDARD 7.1.8

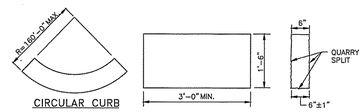


SECTION A–A

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)

R.I. STANDARD 6.3.4



CIRCULAR CURB

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. TOP SURFACE TO BE DRESSED BY SAW. REMAINDER TO BE QUARRY SPLIT.
3. MINIMUM LENGTH OF STRAIGHT OR CIRCULAR PIECES TO BE 3'-0".
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.

GRANITE CURB

R.I. STANDARD 7.3.0

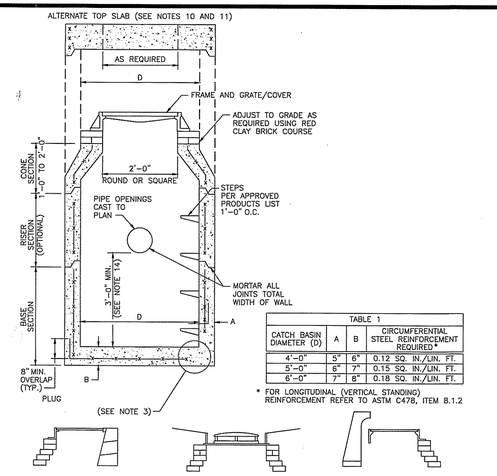


TABLE 1			
CATCH BASIN DIAMETER (D)	A	B	CIRCUMFERENTIAL STEEL REINFORCEMENT REQUIRED *
4'–0"	5"	6"	0.12 SQ. IN./LIN. FT.
5'–0"	6"	7"	0.15 SQ. IN./LIN. FT.
6'–0"	7"	8"	0.18 SQ. IN./LIN. FT.

* 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. NO SEEP HOLES SHALL BE ALLOWED IN THE BOTTOM OF THE CATCH BASIN.
14. CATCH BASINS 4 AND 10 4.4.0 SHALL HAVE A 4' SUMP AND A "SNOUT" OIL WATER SEPARATOR.

PRECAST 4'-0" ROUND CATCH BASIN

R.I. STANDARD 4.4.0 M1

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.

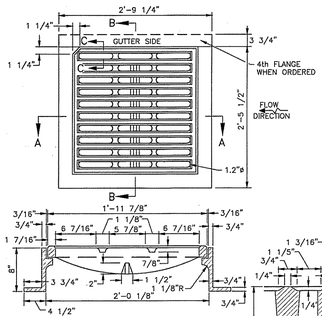
* FOR LONGITUDINAL (VERTICAL STANDING) REINFORCEMENT REFER TO ASTM C478, ITEM 8.1.2

TYPE CATCH BASIN AS REQUIRED

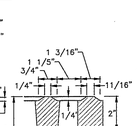
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. SEE TABLE 1 FOR STEEL REINFORCEMENT REQUIREMENTS.
3. STEEL REINFORCEMENT FOR BASE SECTION BOTTOM SHALL BE A MINIMUM OF 0.12 SQ. IN./LIN. FT. (BOTH WAYS).
4. STEPS SHALL CONFORM TO STD. 5.3.0 AND SHALL BE INSTALLED 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. NO SEEP HOLES SHALL BE ALLOWED IN THE BOTTOM OF THE CATCH BASIN.

PRECAST 4'-0" ROUND CATCH BASIN

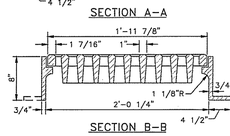
R.I. STANDARD 4.4.0 M2



SECTION A–A



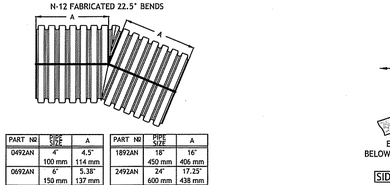
SECTION C–C



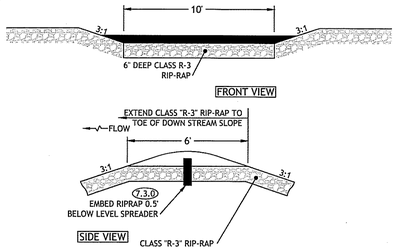
SECTION B–B

SQUARE FRAME AND GRATE
(BICYCLE SAFE)

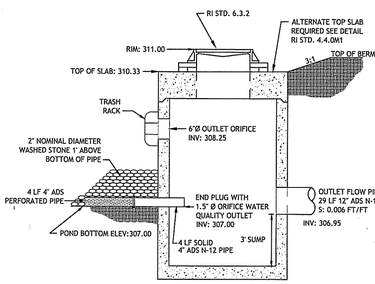
R.I. STANDARD 6.3.2



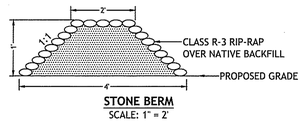
PART NO	PIPE SIZE	A	PART NO	PIPE SIZE	A
0492AN	4" 100 mm	4.5" 114 mm	1892AN	18" 450 mm	16" 406 mm
0692AN	6" 150 mm	5.38" 137 mm	2492AN	24" 600 mm	17.25" 438 mm
0892AN	8" 200 mm	7.63" 194 mm	3092AN	30" 750 mm	17.90" 455 mm
1092AN	10" 250 mm	7.75" 197 mm	3692AN	36" 900 mm	21.48" 546 mm
1292AN	12" 300 mm	9.63" 245 mm	4292AN	42" 1050 mm	24.9" 632 mm
1592AN	15" 375 mm	12.63" 321 mm			



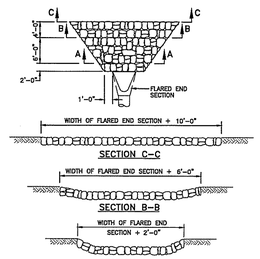
EMERGENCY SPILLWAY
NOT TO SCALE



OUTLET CONTROL STRUCTURE A (POND A)
SCALE: NTS

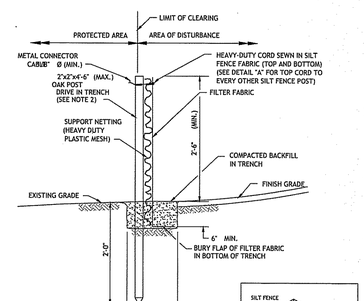


STONE BERM
SCALE: 1" = 2'



NOTES:
1. CLASS OF RIP–RAP AND BEDDING TO BE SPECIFIED IN CONTRACT DOCUMENTS.
2. DIMENSIONS MAY BE MODIFIED BY ENGINEER TO MEET FIELD CONDITIONS.
3. UNLESS OTHERWISE SPECIFIED, DUMPED RIP–RAP SHALL BE USED.

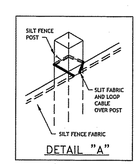
ROCK FILL RIP-RAP AT
FLARED END SECTIONS



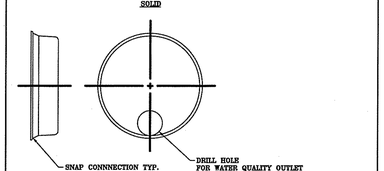
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 206 OF THE R.I. STANDARD SPECIFICATIONS.
2. 2"x2"x4'-6" (MAX.) OAK POSTS FOR SILT FENCE SHALL BE LOCATED 8'-0" (MAX.) O.C. IN WETLAND AREAS AND 4'-0" (MAX.) O.C. IN WETLAND RAVINE, GULLY OR DROP-OFF AREAS AS SHOWN ON PLANS.
3. 1"x1"x4'-6" (MIN.) POSTS PERMITTED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

SILT FENCE DETAIL

R.I. STANDARD 9.2.0



INTERNAL END PLUGS

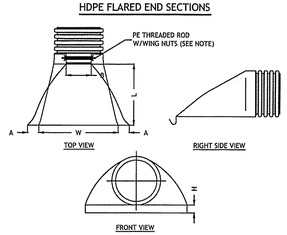


PART NO	PIPE SIZE	TYPE
0434-AA	4" 100 mm	PERFORATED

NOTE: ALL DIMENSIONS ARE NOMINAL

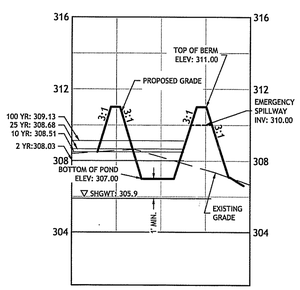
REVISIONS		
BY	DATE	

HDPE FLARED END SECTIONS



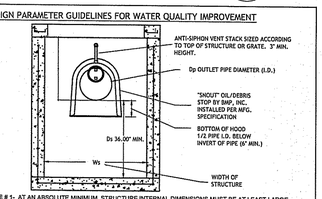
PART N ☐	PIPE SIZE	A	B (MAX)	H	L	W
1210-NP	12" 300 mm	6.5" 165 mm	10" 254 mm	6.5" 165 mm	25" 635 mm	29" 735 mm
1210-NP	15" 375 mm	6.5" 165 mm	10" 254 mm	6.5" 165 mm	25" 635 mm	29" 735 mm
1810-NP	18" 450 mm	7.5" 190 mm	15" 380 mm	6.5" 165 mm	32" 812 mm	35" 890 mm
2410-NP	24" 600 mm	7.5" 190 mm	18" 450 mm	6.5" 165 mm	36" 900 mm	45" 1140 mm
3012-NP	30" 750 mm	10.5" 266 mm	N/A	7.0" 178 mm	53" 1345 mm	68" 1725 mm
3612-NP	36" 900 mm	10.5" 266 mm	N/A	7.0" 178 mm	53" 1345 mm	68" 1725 mm

NOTE: PE THREADED ROD W/WING NUTS PROVIDED FOR END SECTIONS 12"-24", 30" & 36" END SECTIONS TO BE WELDED TO PIPE PER MANUFACTURER'S RECOMMENDATIONS.



SECTION A-A
HORIZONTAL: 1" = 40'
VERTICAL: 1" = 4'

DESIGN PARAMETER GUIDELINES FOR WATER QUALITY IMPROVEMENT



RULE # 1- AT AN ABSOLUTE MINIMUM, STRUCTURE INTERNAL DIMENSIONS MUST BE AT LEAST LARGE ENOUGH TO ACCOMODATE EXTERNAL DIMENSIONS OF THE SNOUT, AND ALLOW FOR A PERSON TO INSTALL IT. REFER TO BMP, INC. CAD DETAILS FOR PART DIMENSIONS.

RULE #2- USE ONLY "F" SERIES SNOUTS FOR RECTANGULAR OR SQUARE STRUCTURES, AVAILABLE IN 12", 18", 24", 30", 48", AND 96" SIZES. USE ONLY "R" SERIES SNOUTS FOR ROUND STRUCTURES, AVAILABLE IN 12", 18", 24", AND, 30" SIZES.

SUMP DEPTH (Ds)- SUMP DEPTH SHOULD BE A MINIMUM OF 36" FOR ANY NEW CONSTRUCTION FOR PIPES 12" AND LESS. FOR 15"-18" PIPE MIN. DEPTH SHOULD BE 48". OPTIMAL SIZING IS AT LEAST 2.5X TO 3X OUTLET PIPE DIAMETER (Dp) FOR MAXIMUM POLLUTANT REMOVAL EFFICIENCY AND MINIMAL CLEANOUT FREQUENCY.

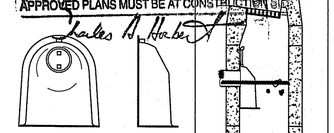
STRUCTURE DIMENSIONS- PLAN DIMENSIONS FOR A STRUCTURE SHOULD BE APPROX. 7X AREA OF OUTLET PIPE FOR MAXIMUM POLLUTANT REMOVAL EFFICIENCY AND MINIMAL CLEANOUT FREQUENCY. (SEE MAINTENANCE FREQUENCY CALCULATION SHEET FOR MORE INFORMATION)

IMPORTANT NOTICE: *DO NOT CONFUSE PIPE O.D WITH PIPE I.D.* A SNOUT FITS OVER A PIPE, NOT IN IT. THUS, SNOUT MUST BE SIZED TO FIT OVER PIPE OPENING IN STRUCTURE. SNOUTS ARE AVAILABLE FOR ROUND STRUCTURES TO ACCOMODATE PIPES OF 30" O.D. MAX. FOR PIPES 30" O.D. AND ABOVE, USE SQUARE OR RECTANGULAR STRUCTURES.

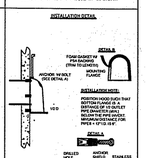
SIZING EXAMPLES:

STRUCTURE DIAMETER FOR STRUCTURE SIZES:
11.9"-12.0" O.D. 12"
12.0"-17.9" O.D. 18"
18.0"-23.9" O.D. 24"
24.0"-29.9" O.D. 30"
30.0"-47.9" O.D. 48"
48.0"-95.9" O.D. 96"

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 3 0 2017 FILE # 07-0029
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE



INSTALLATION DETAIL



NOTES:
1. ALL HOODS AND TRAPS FOR CATCH BASINS AND WATER QUALITY STRUCTURES SHALL BE AS MANUFACTURED BY: ADVANCED DRAINAGE PRODUCTS, INC. 53 NT. ADCOCK RD. LYME, CT 06371 (860) 434-2220 (860) 434-3105 FAX TOLL FREE: (800) 354-4838 OR (800) 354-7265 WEB SITE: www.bmpinc.com OR PRE-APPROVED EQUAL
2. ALL HOODS SHALL BE CONSTRUCTED OF A GLASS REINFORCED RESIN COMPOSITE WITH ISO 105 C06F EXTENDED FINISH AND A MINIMUM 0.125" GAMMETE THICKNESS.
3. ALL HOODS SHALL BE EQUIPPED WITH A WATERTIGHT ACCESS PORT, A MOUNTING FLANGE, AND AN ANTI-SIPHON VENT AS DRAWN. (SEE CONFIGURATION DETAILS)
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 BOWWARDS A DISTANCE EQUAL TO 1/2 THE OUTLET PIPE DIAMETER WITH A MINIMUM CLEARANCE OF 3" 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 STAINLESS STEEL INSERT GASKET AS SUPPLIED BY MANUFACTURER. (SEE INSTALLATION DETAIL)
9. INSTALLATION INSTRUCTIONS SHALL BE FURNISHED WITH MANUFACTURER SUPPLIED INSTALLATION KIT. INSTALLATION KIT SHALL INCLUDE:
   A. STAINLESS STEEL INSERT
   B. PVC ANTI-SIPHON VENT PIPE AND ADAPTER
   C. 3/8-RESISTANT EPDM RED CELL FOAM GASKET WITH PSA BACKING
   D. 3/8" STAINLESS STEEL BOLTS
   E. ANCHOR SHIELDS

DESCRIPTION	DATE	SCALE
		DRAWING NUMBER

JCE
JOE CASALI ENGINEERING, INC.
DRAINAGE • WETLANDS • EROSION CONTROL • TRANSPORTATION
300 POST ROAD, WARWICK, RI 02888
(401)944-1300 (401)944-1313 FAX WWW.JOECASALI.COM

JOSEPH A. CASALI
No. 7250
REGISTERED PROFESSIONAL ENGINEER
CIVIL
9.0.17

HIGHLAND ESTATES
CUMBERLAND, RHODE ISLAND
AP 52 LOTS 10, 307, 308, 309, 310, 315 & 316
MAJOR LAND DEVELOPMENT

RECEIVED SEP 12 2017

REVISIONS:		
NO.	DATE.	DESCRIPTION
2	8-2007	RIDEM COMMENTS
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10	01-2016	MODIFIED PRELIM.
11	08-2017	RIDEM PERMIT MOD.

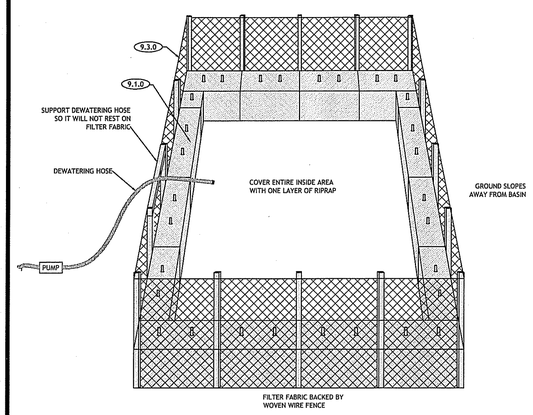
DESIGNED BY:	GC & ACK
DRAWN BY:	WMLJR
CHECKED BY:	JAC
DATE:	JANUARY 07
PROJECT NO:	05-77a

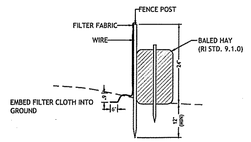
PRELIMINARY, NOT FOR CONSTRUCTION

DETAILS III

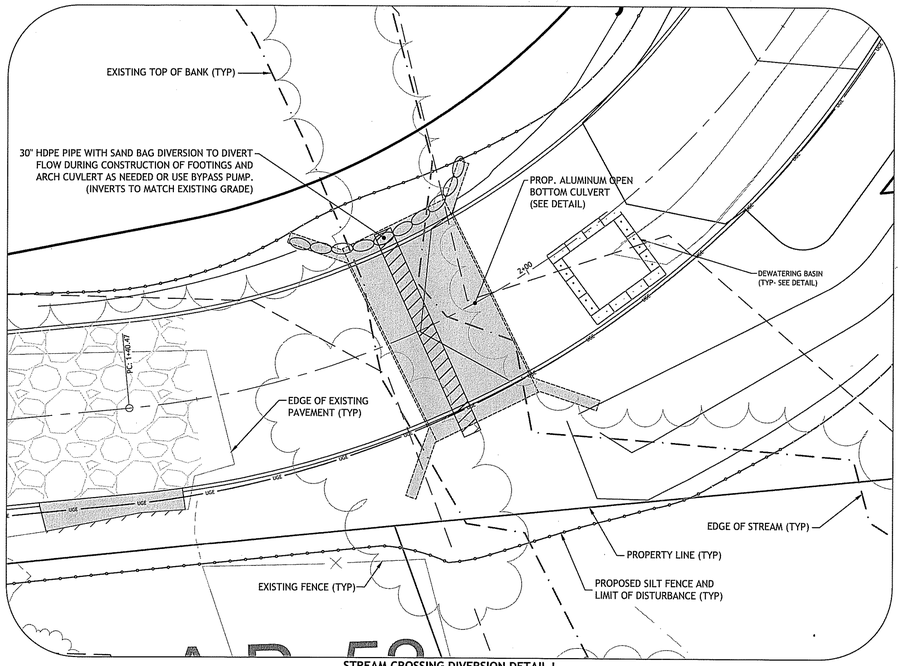
SHEET 12 OF 16

Q:\05-77 Regional Finance\05-77a-Highland Estates\Plan Set\HIGHLAND ESTATES (RIDEM PERMIT MODIFICATION).dwg Sep. 08, 2017 9:39am





DEWATERING BASIN DETAIL
NOT TO SCALE



STREAM CROSSING DIVERSION DETAIL I
SCALE: 1" = 10'

NOTES:
1. ALL CONSTRUCTION SHALL BE PERFORMED IN THE DRY. THE CONTRACTOR SHALL PROVIDE, OPERATE AND MAINTAIN ALL PUMPS, DRAINS, WET POINTS, SCREENS, OR OTHER FACILITIES NECESSARY TO CONTROL, COLLECT AND DISPOSE OF ALL SURFACE AND SUBSURFACE WATER ENCOUNTERED IN THE PERFORMANCE OF THE WORK.
2. THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH OSHA REQUIREMENTS INCLUDING SHORING IN TRENCHES.
3. CONSTRUCTION OF THE STREAM CROSSING SHALL BE LIMITED TO LOW FLOW CONDITIONS IN JULY-OCTOBER.
4. THE DIVERSION IS DESIGNED FOR THE 2 YEAR DESIGN STORM.
5. THE CONTRACTOR SHALL HAVE A BY-PASS PUMP AND ALL NECESSERY EQUIPMENT FOR TRENCH DEWATERING AND BY PASS PUMPING.
6. PROPOSED DIVERSION PLAN OFFERS TWO OPTIONS:
   A. INSTALL SANDBAG DAM AND UTILIZE BYPASS PUMP TO AVOID CONSTRUCTION AREA FOR CULVERT INSTALLATION.
   B. INSTALL SANDBAG DAM AND 30" HDPE PIPE TO CARRY FLOW THROUGH CONSTRUCTION AREA.

CONSTRUCTION PROCEDURE - ESTIMATED TIME ± 2-WEEKS:
1. ALL SOIL EROSION AND SEDIMENTATION CONTROLS (SILT FENCE AND DEWATERING BASIN) SHALL BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITY.
2. INSTALL THE DIVERSION AS SHOWN (1-DAY).
3. COMMENCE FOOTING EXCAVATION (1-DAY).
4. SET FORMS (1-DAY).
5. POUR FOOTINGS (1-DAY).
6. CURE FOR SEVEN (7) DAYS.
7. STRIP FORMS AND BACKFILL AROUND FOOTINGS (1/2 DAY).
8. INSTALL PRE-FABRICATED WING WALLS (1-DAY).
9. INSTALL BOX CULVERT (1-DAY).
10. RESTORE BACKFILL, GRADING, INSTALL RIP-RAP AND LOAM AND SEED THE DISTURBED AREA (1-DAY).

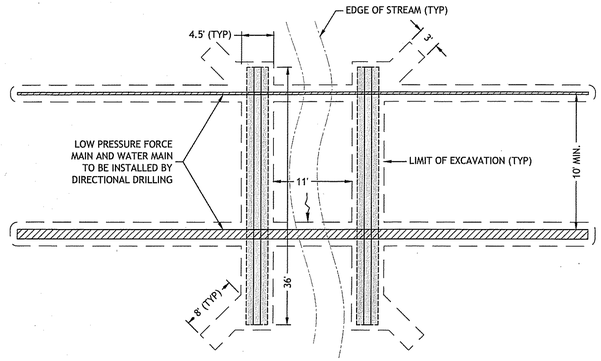
NEW ENGLAND EROSION CONTROL/RESTORATION MIX
(FOR DETENTION BASINS AND MOIST SITES)

THE NEW ENGLAND EROSION CONTROL/RESTORATION MIX CONTAINS A SELECTION OF NATIVE GRASSES AND WILDFLOWERS DESIGNED TO COLONIZE GENERALLY MOIST, RECENTLY DISTURBED SITES WHERE QUICK GROWTH OF VEGETATION IS DESIRED TO STABILIZE SOIL SURFACE. IT IS AN EXCELLENT SEED MIX FOR ECOLOGICALLY APPROPRIATE RESTORATIONS ON MOIST SITES THAT REQUIRE QUICK AS WELL AS LONG TERM ESTABLISHMENT OF NATIVE VEGETATION. THIS MIX IS PARTICULARLY APPROPRIATE FOR DETENTION BASINS THAT DO NOT NORMALLY HOLD STANDING WATER. THE PLANTS IN THIS MIX CAN TOLERATE INFREQUENT INUNDATION, BUT NOT CONSTANT FLOODING. THE MIX MAY BE APPLIED BY HYDRO- SEEDING, BY MECHANICAL SPREADER, OR IN SMALL SITES IT CAN BE SPREAD BY HAND. WHEN APPLYING ON BARE SOIL, RAKE THE SOIL TO CREATE GROOVES, APPLY SEED, AND THEN LIGHTLY RAKE OVER IT. IN NEW ENGLAND, THE BEST RESULTS ARE OBTAINED WITH A SPRING OR EARLY FALL SEEDING. SUMMER AND LATE FALL SEEDING WILL BENEFIT WITH A LIGHT MULCHING OF WEED-FREE STRAW TO CONSERVE MOISTURE. LATE FALL AND WINTER DORMANT SEEDING REQUIRE A SLIGHT INCREASE IN THE SEEDING RATE. FERTILIZATION IS NOT REQUIRED UNLESS THE SOILS ARE PARTICULARLY INFERTILE.

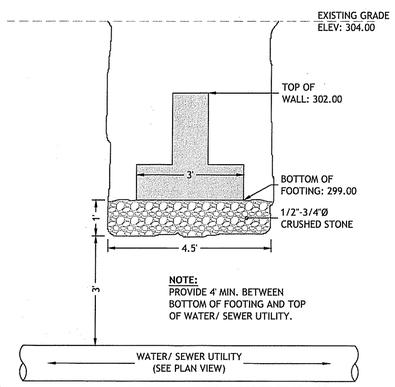
APPLICATION RATE: 35 LBS/ACRE 1245 SQ.FT./LB

SPECIES
SWITCHGRASS (*PANICUM VIRGATUM*), VIRGINIA WILD RYE (*ELYMUS VIRGINICUS*), CREEPING RED FESCUE (*FESTUCA RUBRA*), FOX SEDGE (*CAREX VULPINOIDEA*), CREEPING BENTGRASS (*AGROSTIS STOLONIFERA*), SOFT RUSH (*JUNCUS EFFUSES*), NEW ENGLAND ASTE (*ASTER NOVAE-ANGLIAE*), GRASS-LEAVED GOLDENROD (*EUTHAMIA GRAMINIFOLIA*), NODDING BUR MARIGOLD (*BIDENS CERNUA*), GREEN BULRUSH (*SCIRPUS ATROVIRENS*), JOE- PYE WEED (*EUPATORIUM MACULATUM*), BONESET (*EUPATORIUM PERFOLIATUM*), BLUE VERVAIN (*VERBENA HASTATA*)

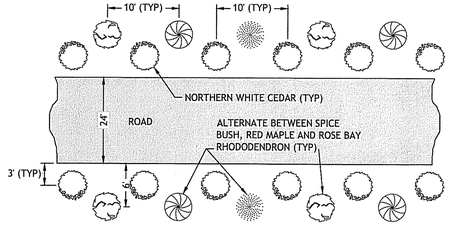
- SEED MIX CAN BE OBTAINED FROM NEW ENGLAND WETLAND PLANTS, INC. PHONE 413-548-800 AMHERST, MA 01002 OR OTHER APPROVED NURSERY.



LIMITS OF EXCAVATION- AMERICA STREET CROSSING
SCALE: 1" = 10'



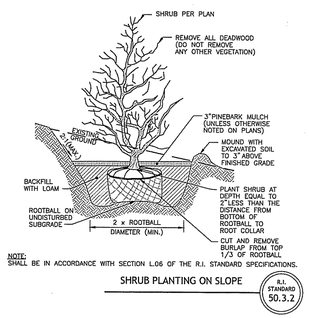
LIMIT OF EXCAVATION- AMERICA STREET CROSSING
SCALE: 1" = 2'



PLANTING DETAIL: STA: 1+00-3+50
SCALE: 1" = 10'

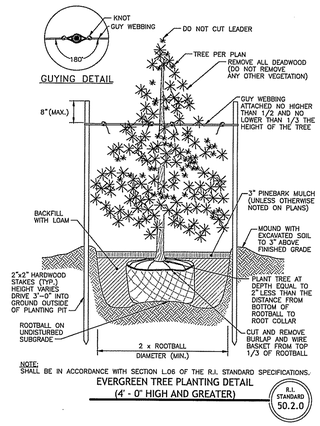
PLANTING SCHEDULE

SYMBOL	QUANTITY	PLANT NAME
	111	NORTHERN WHITE CEDAR (THUJA OCCIDENTALIS) (5' HIGH)
	11	RED MAPLE (ACER RUBRUM) (5' HIGH)
	9	SPICE BUSH (LINDERA BENZOIN) (3' HIGH)
	10	ROSEBAY RHODODENDRON (RHODODENDRON MAXIMUM) (3' HIGH)



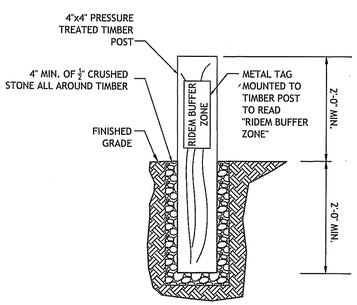
NOTE:
SHALL BE IN ACCORDANCE WITH SECTION L.06 OF THE R.I. STANDARD SPECIFICATIONS.

SHRUB PLANTING ON SLOPE
R.I. STANDARD 50.3.2

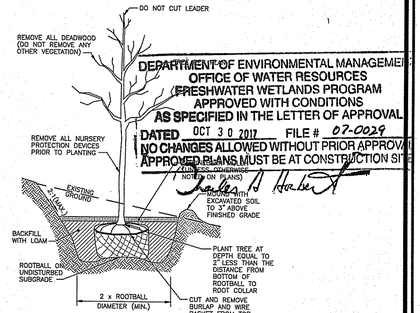


NOTE:
SHALL BE IN ACCORDANCE WITH SECTION L.06 OF THE R.I. STANDARD SPECIFICATIONS.

EVERGREEN TREE PLANTING DETAIL
(4' - 0" HIGH AND GREATER)
R.I. STANDARD 50.2.0

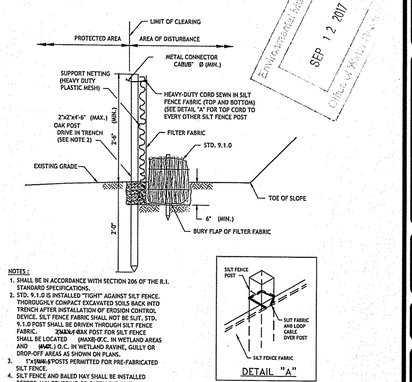


RIDEM BUFFER ZONE MARKER DETAIL
N.T.S



NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION L.06 OF THE R.I. STANDARD SPECIFICATIONS.
2. FOR STAKING DETAIL SEE STD. 50.1.0

TREE PLANTING ON SLOPE
R.I. STANDARD 50.1.1



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 POST FOR SILT FENCE SHALL BE LOCATED 6'MAX.@ C.C. IN WETLAND AREAS AND 10'MAX.) O.C. IN WETLAND RAVINE, GULLY OR DROP-OFF AREAS AS SHOWN ON PLANS.
3. 1"x1"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.

BALED HAY EROSION CHECK AND SILT FENCE COMBINED
R.I. STANDARD 9.3.0

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 30 2017 FILE # 07-0029
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
ACKNOWLEDGE
NOTED ON PLANS)

RECEIVED
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Environmental Management
Office of Water Resources

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JOE CASALI ENGINEERING, INC.
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DRAINAGE - WETLANDS - TRAFFIC - FLOODPLAIN
300 POST ROAD, WARWICK, RHODE ISLAND 02888
(401) 944-1300 (401) 944-1313 FAX WWW.JOECASALI.COM

JOSEPH A. CASALI
No. 7250
REGISTERED PROFESSIONAL ENGINEER
CIVIL
9.6.17

HIGHLAND ESTATES
CUMBERLAND, RHODE ISLAND
AP 52 LOTS 10, 307, 308, 309, 310, 315 & 316
MAJOR LAND DEVELOPMENT

REVISIONS:

NO.	DATE.	DESCRIPTION
2	8-2007	RIDEM COMMENTS
3	2-2008	RIDEM COMMENTS
4	5-2008	RIDEM COMMENTS
5	12-2009	WATER&SEWER SUB.
6	2-2010	WATER RESUB.
7	5-2011	PRELIM. PLAN SUB.
8	6-2011	PRELIM. PLAN APPROVAL
9	7-2011	FINAL PLAN
10	01-2016	MODIFIED PRELIM.
11	08-2017	RIDEM PERMIT MOD.

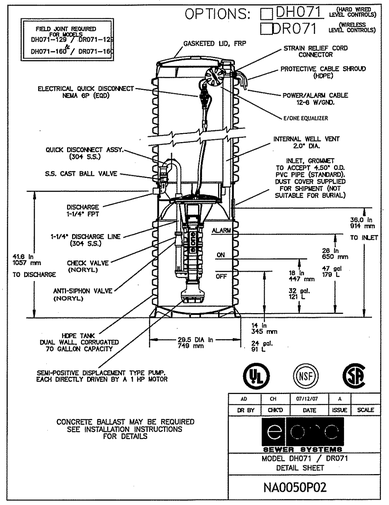
DESIGNED BY:	GC & ACK
DRAWN BY:	WMLJR
CHECKED BY:	JAC
DATE:	JANUARY 07
PROJECT NO:	05-77a

PRELIMINARY, NOT FOR CONSTRUCTION

DETAILS IV

SHEET 13 OF 16

Q:\05-77 Regional Finance\05-77a-Highland Estates\Plan Set\HIGHLAND ESTATES [RIDEM PERMIT MODIFICATION].dwg Sep. 08, 2017 9:52am



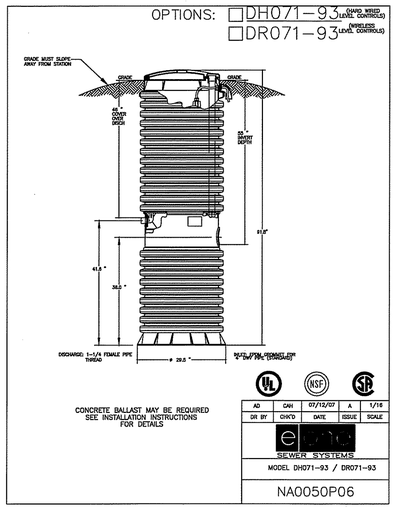
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DR BY	CHK'D	DATE	ISSUE	SCALE

SEWER SYSTEMS

MODEL DH071 / DR071

DETAIL SHEET

NA0050P02

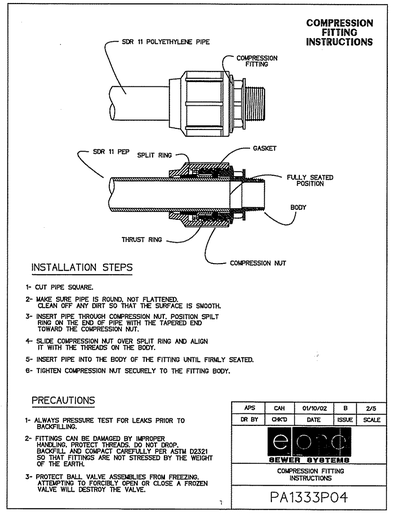


AD	CAH	07/12/07	A	1/16
DR BY	CHK'D	DATE	ISSUE	SCALE

SEWER SYSTEMS

MODEL DH071-93 / DR071-93

NA0050P06

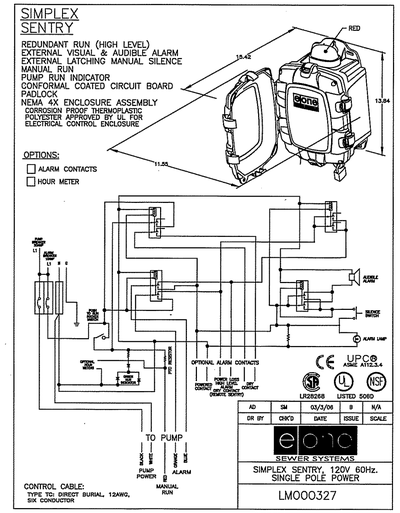


APS	CAH	01/10/02	B	2/5
DR BY	CHK'D	DATE	ISSUE	SCALE

SEWER SYSTEMS

COMPRESSION FITTING INSTRUCTIONS

PA1333P04

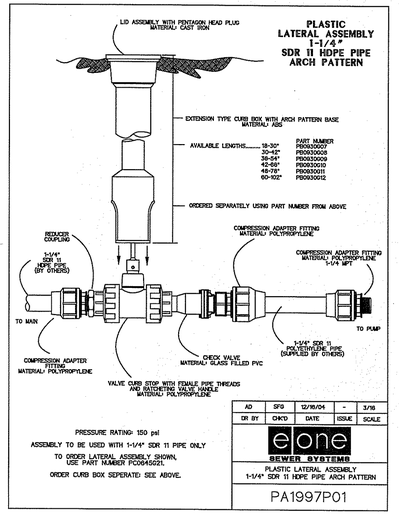


AD	SM	03/3/06	B	N/A
DR BY	CHK'D	DATE	ISSUE	SCALE

SEWER SYSTEMS

SIMPLEX SENTRY, 120V 60hz. SINGLE POLE POWER

LM000327

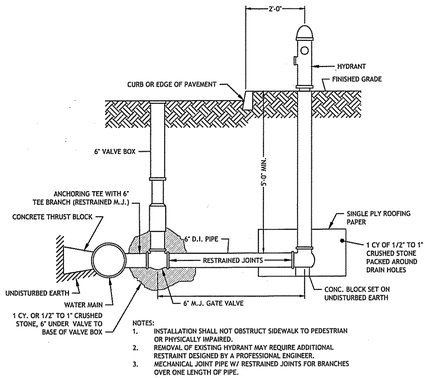


AD	SF9	12/19/04	-	3/16
DR BY	CHK'D	DATE	ISSUE	SCALE

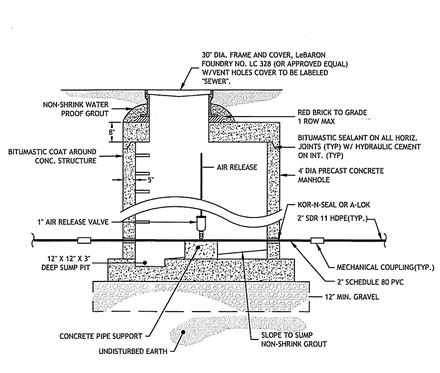
SEWER SYSTEMS

PLASTIC LATERAL ASSEMBLY 1-1/4" SDR 11 HDPE PIPE ARCH PATTERN

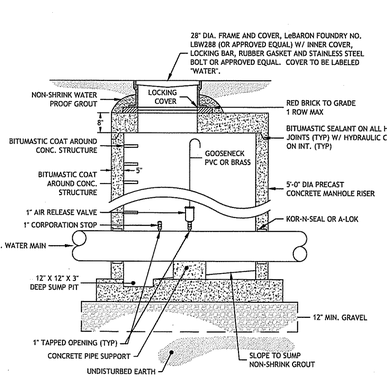
PA1997P01



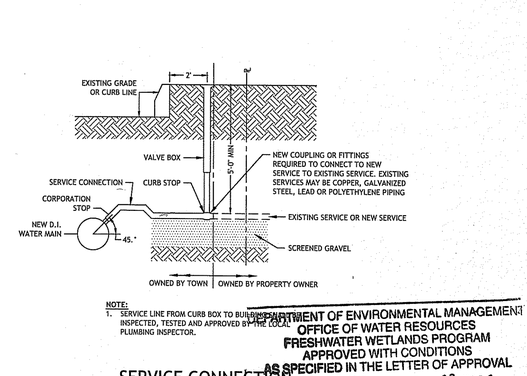
HYDRANT
NOT TO SCALE



LOW PRESSURE SEWER AIR RELEASE MANHOLE DETAIL
NOT TO SCALE



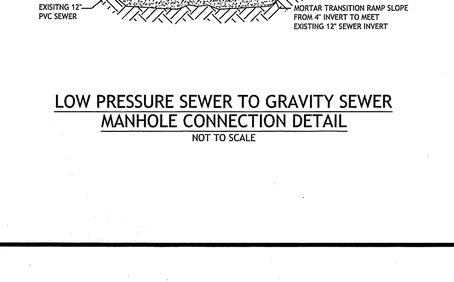
AUTOMATIC AIR RELEASE MANHOLE
NOT TO SCALE



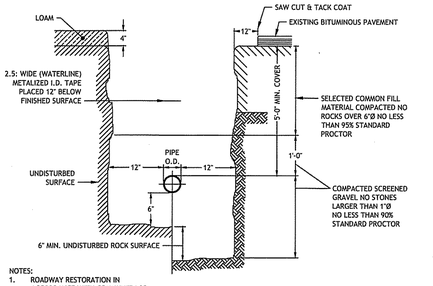
NOTE:
1. SERVICE LINE FROM CURB BOX TO BUILDING TO BE INSPECTED, TESTED AND APPROVED BY THE LOCAL PLUMBING INSPECTOR.

SERVICE CONNECTION
NOT TO SCALE

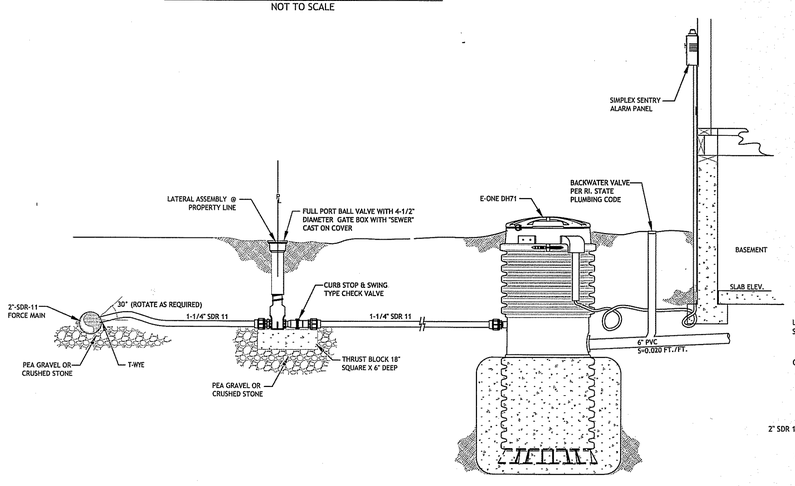
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
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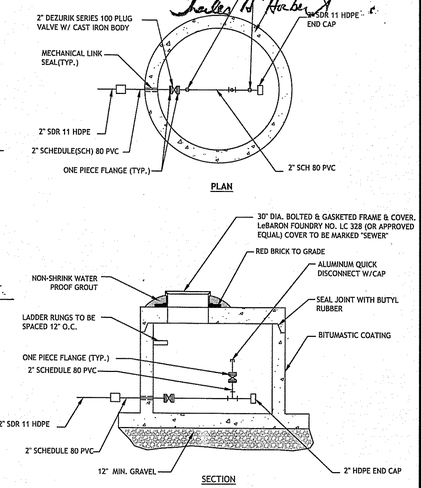
LOW PRESSURE SEWER TO GRAVITY SEWER MANHOLE CONNECTION DETAIL
NOT TO SCALE



TRENCH INSTALLATION IN ROCK AND SOIL
NOT TO SCALE



FORCE MAIN LATERAL INSTALLATION DETAIL
NOT TO SCALE



LOW PRESSURE SEWER IN-LINE FLUSHING CONNECTION DETAIL
NOT TO SCALE

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(401) 944-1300 FAX (401) 941-1815 WWW.JOECASALI.COM

JOSEPH A. CASALI
No. 7250
REGISTERED PROFESSIONAL ENGINEER
CIVIL
9.6.17

HIGHLAND ESTATES
CUMBERLAND, RHODE ISLAND
AP. 52 LOTS 10, 307, 308, 309, 310, 315 & 316
MAJOR LAND DEVELOPMENT

REVISIONS:		
NO.	DATE.	DESCRIPTION
2	8-2007	RIDEM COMMENTS
3	2-2008	RIDEM COMMENTS
4	5-2008	RIDEM COMMENTS
5	12-2009	WATER&SEWER SUB.
6	2-2010	WATER RESUB.
7	5-2011	PRELIM. PLAN SUB.
8	6-2011	PRELIM. PLAN APPROVAL
9	7-2011	FINAL PLAN
10	01-2016	MODIFIED PRELIM.
11	08-2017	RIDEM PERMIT MOD.

DESIGNED BY:	GC & ACK
DRAWN BY:	WMLJR
CHECKED BY:	JAC
DATE:	JANUARY 07
PROJECT NO:	05-77a

PRELIMINARY, NOT FOR CONSTRUCTION

DETAILS V

SHEET 14 OF 16

Q:\05-77 Regional Finance\05-77a-Highland Estates\Plan Set\HIGHLAND ESTATES (RIDEM PERMIT MODIFICATION).dwg Sep. 08, 2017 9:39am

PLANT SCHEDULE

DECIDUOUS TREES	CODE	QTY	COMMON NAME / BOTANICAL NAME	CONT	CAL	SIZE
	AG5	8	October Glory Maple / Acer rubrum `October Glory` TM	B & B;	3"Cal	
	FS2	3	Summit Ash / Fraxinus pennsylvanica `Summit`	B & B;	3"Cal	
	LT5	6	Tulip Tree / Liriodendron tulipifera	B & B;	3"Cal	
	UXH	4	Ulmus x homestead	B & B	3"Cal	
EVERGREEN TREES	**CODE**	**QTY**	**COMMON NAME / BOTANICAL NAME**	**CONT**	**CAL**	**SIZE**
	AC	6	White Fir / Abies concolor	B & B		6` - 7` HT.
	JV2	6	Eastern Red Cedar / Juniperus virginiana Native to RI	B & B		6` - 8` HT.

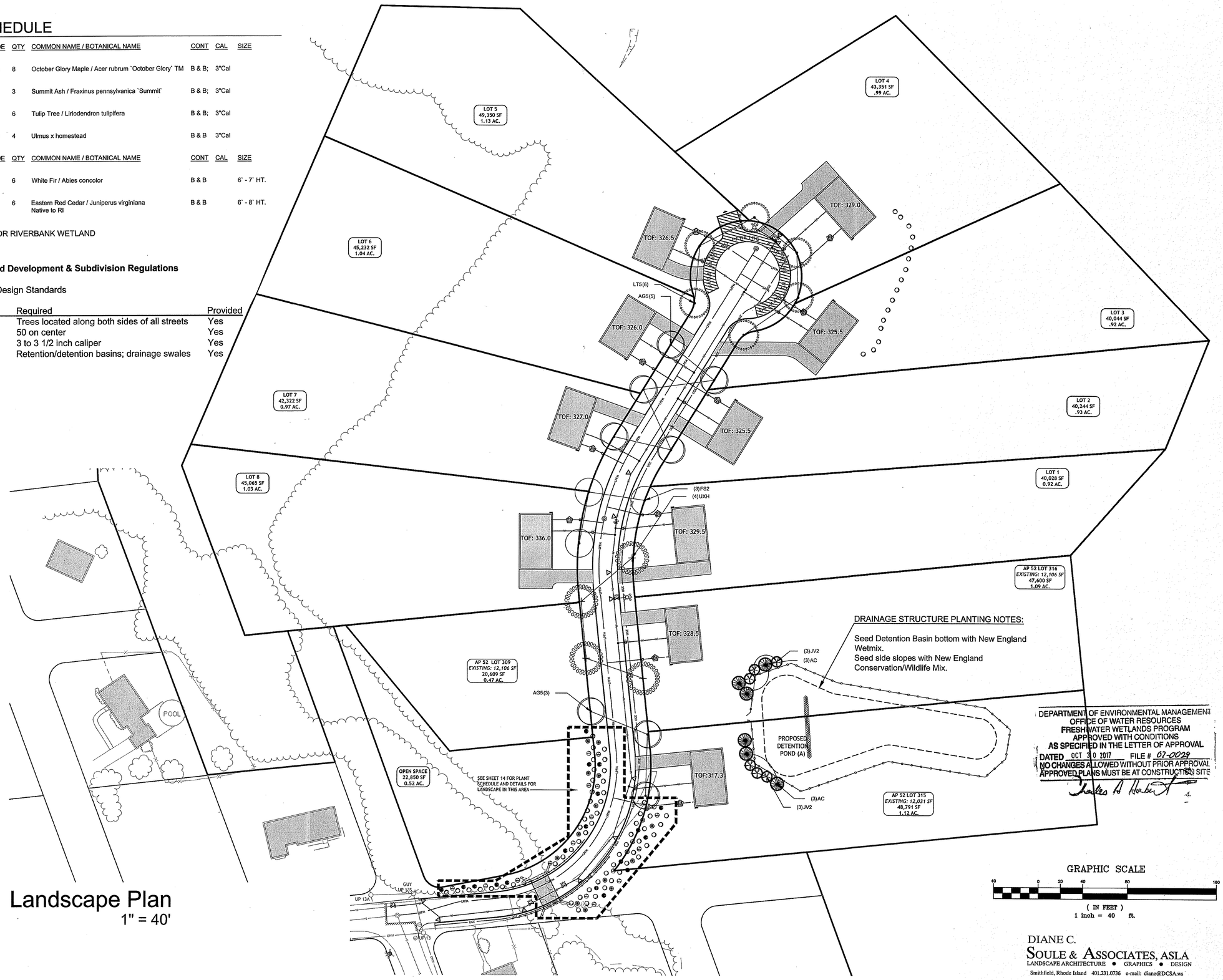
NOTE: SEE SHEET 14 FOR RIVERBANK WETLAND PLANTING SCHEDULE

TOWN OF CUMBERLAND Land Development & Subdivision Regulations

Section 7. Public Improvement Design Standards

STREET TREES

Description	Required	Provided
Tree location	Trees located along both sides of all streets	Yes
Tree spacing	50 on center	Yes
Street tree size at installation	3 to 3 1/2 inch caliper	Yes
Areas requiring buffering	Retention/detention basins; drainage swales	Yes



Landscape Plan
1" = 40'

DIANE C.
SOULE & ASSOCIATES, ASLA
LANDSCAPE ARCHITECTURE • GRAPHICS • DESIGN
Smithfield, Rhode Island 401.231.0736 e-mail: diane@DCSA.ws

JCE
JOE CASALI ENGINEERING, INC.
CIVIL - SITE DEVELOPMENT - TRANSPORTATION
DRAINAGE - WETLANDS - ISDS - TRAFFIC - FLOODPLAIN
300 Post Road, Warwick, RI 02888
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JOSEPH A. CASALI
No. 7250
REGISTERED PROFESSIONAL ENGINEER
CIVIL
9.6.17

HIGHLAND ESTATES

CUMBERLAND, RHODE ISLAND
AP 52 LOTS 10, 307, 308, 309, 310, 315, 316
MAJOR LAND DEVELOPMENT

SEP 12 2017

REVISIONS:		
NO.	DATE.	DESCRIPTION
1	3-2007	UPDATED PLANSET
2	8-2007	RIDEM COMMENTS
3	2-2008	RIDEM COMMENTS
4	5-2008	RIDEM COMMENTS
5	12-2009	WATER & SEWER SUBMISSION
6	2-2010	WATER RESUB.
7	3-2011	PRELIM. PLAN SUB.
8	6-2011	PRELIM. PLAN APPROVAL
9	7-2011	FINAL PLAN
10	01-2016	MODIFIED PRELIM. PLAN

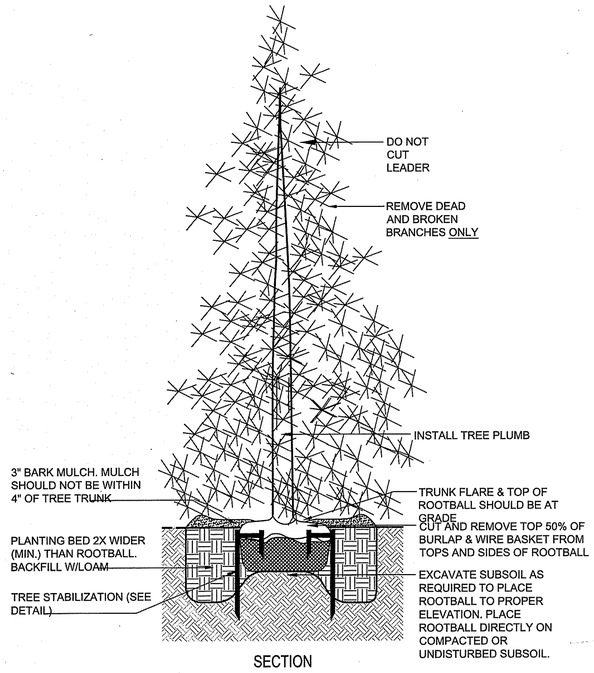
DESIGNED BY:	DCSA
DRAWN BY:	DCS
CHECKED BY:	DCS
DATE:	JANUARY 07
PROJECT NO:	05-77a

PRELIMINARY, NOT FOR CONSTRUCTION

LANDSCAPE PLAN

SHEET 15 OF 16

C:\ALL MASTER FILES\DRAWINGS\JCE\HIGHLAND ESTATES\HIGHLAND ESTATES (REVISED PLAN-SET) - Standard\Landscape Plan 01-13-16.dwg Jan. 13, 2016 9:39am

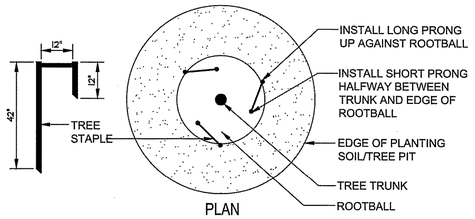


EVERGREEN TREE PLANTING DETAIL
no scale

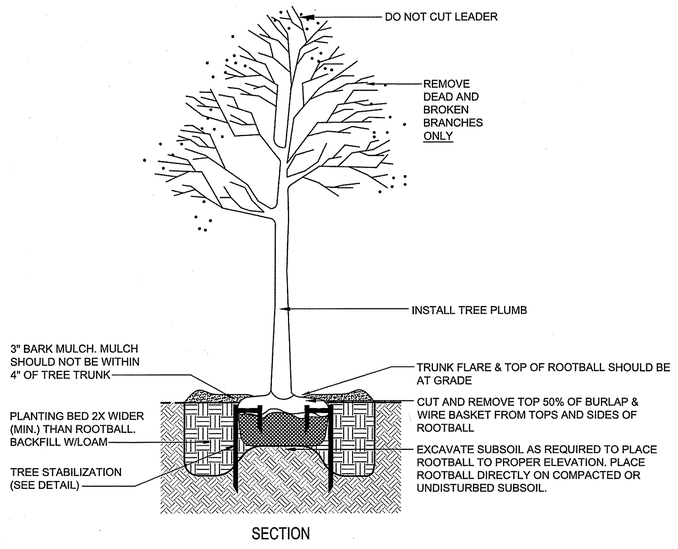
TOWN OF CUMBERLAND Land Development & Subdivision Regulations

Section 7. Public Improvement Design Standards
STREET TREES

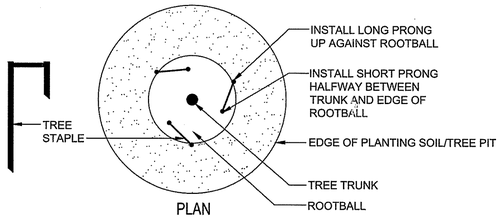
Description	Required	Provided
Tree location	Trees located along both sides of all streets	Yes
Tree spacing	50 on center	Yes
Street tree size at installation	3 to 3 1/2 inch caliper	Yes
Areas requiring buffering	Retention/detention basins; drainage swales	Yes



NOTE:
CONTRACTOR SHALL USE CAUTION WITH TREE STAPLES SO NOT TO BE DRIVEN INTO SUBGRADE PIPES AND UTILITIES



TREE PLANTING DETAIL
no scale



NOTE:
CONTRACTOR SHALL USE CAUTION WITH TREE STAPLES SO NOT TO BE DRIVEN INTO SUBGRADE PIPES AND UTILITIES

LANDSCAPE NOTES:

1. GUARANTEE THAT, UPON COMPLETION AND FINAL ACCEPTANCE, LANDSCAPE PLANTINGS CONFORM TO REQUIREMENTS OF CONTRACT DOCUMENTS. PROVIDE A WARRANTY FOR TREE PLANTINGS FOR A MINIMUM OF TWO (2) YEARS, INCLUDING TWO (2) CONTINUOUS GROWING SEASONS. COMMENCE WARRANTY ON DATE IDENTIFIED IN THE 'CERTIFICATE OF FINAL COMPLETION'.
   REPLACEMENTS: PLANTS OF SAME SIZE AND SPECIES AS SPECIFIED, PLANTED IN THE NEXT GROWING SEASON, WITH NEW WARRANTY AND EXTENDED MAINTENANCE SERVICE COMMENCING ON THE DATE OF REPLACEMENT.
2. PLANT MATERIALS SHALL BE OF SIZE AND CALIPER REQUIRED AND CONFORM TO THE REQUIREMENTS DESCRIBED IN THE LATEST EDITION OF AMERICAN STANDARD FOR NURSERY STOCK, PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
3. PLANTS OF OTHER KINDS THAN THOSE NAMED IN THE PLANT SCHEDULE SHALL NOT BE ACCEPTED WITHOUT APPROVAL. REPLACEMENT PLANTS LARGER IN SIZE THAN EXISTING MAY BE USED IF APPROVED BY THE A/E, PROVIDED USE OF LARGER PLANTS DOES NOT INCREASE CONTRACT PRICE.
4. A PROFESSIONAL HORTICULTURIST/NURSERYMAN SHALL BE CONSULTED TO DETERMINE THE PROPER TIME TO MOVE AND INSTALL PLANT MATERIAL SO THAT STRESS TO THE PLANT IS MINIMIZED. PLANTING OF DECIDUOUS MATERIAL MAY BE CONTINUED DURING WINTER MONTHS PROVIDED THERE IS NO FROST IN THE GROUND AND FROST–FREE TOPSOIL PLANTING MIXTURES ARE USED.
5. UNLESS OTHERWISE APPROVED BY THE A/E, ALL PLANTS SHALL BE NURSERY GROWN IN ACCORDANCE WITH GOOD HORTICULTURAL PRACTICES AND SHALL HAVE BEEN GROWN UNDER CLIMATIC CONDITIONS SIMILAR TO THOSE IN THE LOCALITY OF THE PROJECT FOR AT LEAST TWO (2) YEARS.
6. SET PLANTS PLUMB AND AT SUCH A LEVEL THAT AFTER SETTLEMENT THEY BEAR THE SAME RELATION TO THE SURROUNDING GROUND AS THEY BORE TO THE GROUND FROM WHICH THEY WERE DUG. SETTLE BACKFILL MATERIAL FOR PLANTS, THOROUGHLY & PROPERLY, BY FIRMING OR TAMPING. ACCOMPANY BACKFILLING WITH THOROUGH WATERING UNLESS OTHERWISE APPROVED. FORM SAUCER CAPABLE OF HOLDING WATER AROUND INDIVIDUAL PLANTS.
7. FERTILIZE SHRUB BEDS WITH 10–6–4 FERTILIZER AT THE RATE OF 3 POUNDS PER 100 SQUARE FEET OF SURFACE AREA, BROAD CAST. APPLY THE FERTILIZER UNIFORMLY TO THE SURFACE BEDS AND WORK INTO THE UPPER TWO (2) INCHES OF SOIL. FERTILIZE INDIVIDUAL TREES AT THE RATE OF ONE (1) AGRIFORM PELLET PER INCH OF TREE DIAMETER (FOLLOW MANUFACTURER'S WRITTEN INSTRUCTIONS). APPLY A SECOND APPLICATION OF FERTILIZER TO ALL PLANT ITEMS AT THE SAME SPECIFIED RATES OVER THE MULCH AT THE END OF AN EIGHT WEEK PERIOD.
8. CONTAINER GROWN MATERIALS: REMOVE PLANT FROM CONTAINER AND "BUTTERFLY" ROOT BALL OR OTHERWISE SPREAD OUT ROOTS ON SETTING MOUND. BACKFILL SHALL BE SIFTED THROUGH THEM AND SOLIDLY FIRMED.
9. AFTER PLANTING PRUNE ONLY BROKEN OR DEFORMED BRANCHES AND IN SUCH MANNER AS TO PRESERVE NATURAL CHARACTER OF PLANT.
10. IMMEDIATELY AFTER PLANTING, STAKE TREES OVER FIVE (5) FEET AS INDICATED ON DETAIL DRAWING INDICATED OR APPROVED BY THE OWNERS REPRESENTATIVE. REMOVE STAKES AT THE END OF GUARANTEE PERIOD.
11. MULCH SHALL BE APPLIED A MINIMUM OF THREE (3) INCHES IN DEPTH IN ALL PLANTING BEDS, AS INDICATED ON THE DRAWINGS.
12. THE PLANTS SHALL BE WATERED IMMEDIATELY FOLLOWING PLANTING, PREFERABLY WHEN TWO THIRDS OF THE BACKFILL HAS BEEN PLACED SO ALL AIR POCKETS ARE REMOVED AND THE PLANT PROPERLY SET. ADDITIONAL WATERING SHALL BE MADE AT LEAST ONCE EVERY THREE (3) WEEKS UNLESS OTHERWISE DIRECTED UNTIL FINAL ACCEPTANCE OF THE PLANT MATERIAL.
13. UNLESS OTHERWISE SPECIFIED, CONTRACTOR TO LOAM AND SEED ALL DISTURBED AREAS.
14. TREE PRUNING NOTE: STREET TREES SHOULD BE PRUNED TO MAINTAIN A MINIMAL BRANCH HEIGHT OF 8' WITHIN TWO (2) YEARS OF INSTALLATION OF THE TREE.
15. LANDSCAPE ESTABLISHMENT AND MAINTENANCE NOTE: CONTRACTOR SHALL ENSURE THAT ALL LAWN AREAS AND PLANTINGS ARE FULLY ESTABLISHED AND ACCEPTABLE TO THE OWNER'S REPRESENTATIVE PRIOR TO RELINQUISHING THEIR RESPONSIBILITIES FOR MAINTENANCE OF THESE AREAS.
16. TREE PROTECTION NOTE: NO MATERIAL, TEMPORARY SOIL DEPOSIT OR EXCAVATION SHALL OCCUR WITHIN FOUR FEET OF SHRUBS OR WITHIN TWO FEET OF THE DRIP LINE OF ANY SHRUBS OR TREES TO REMAIN. ANY RETAINED EXISTING VEGETATION SHALL BE PROTECTED AS PER NORTH KINGSTOWN ZONING ORDINANCE, SECTION 21–277, SUBSECTION 3a: PROTECTION OF EXISTING PLANTINGS AND SITE FEATURES.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED OCT 30 2017 FILE # 07-0029
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

DIANE C.
SOULE & ASSOCIATES, ASLA
LANDSCAPE ARCHITECTURE ● GRAPHICS ● DESIGN
Smithfield, Rhode Island 401.231.0736 e-mail: diane@DCSA.ws

JCE
JOE CASALI ENGINEERING, INC.
CIVIL ENGINEERS ● LAND SURVEYORS
DRAINAGE ● WETLANDS ● ISDS ● TRAFFIC ● FLOODPLAIN
300 Post Road, Warwick, RI 02888
(401)944-1300 (401)944-1313 FAX WWW.JOECASALI.COM

JOSEPH A. CASALI
No. 7250
REGISTERED PROFESSIONAL ENGINEER
CIVIL
9.10.17

HIGHLAND ESTATES

CUMBERLAND, RHODE ISLAND
AP 52 LOTS 10, 307, 308, 309, 310, 315, 316
MAJOR LAND DEVELOPMENT

REVISIONS:		
NO.	DATE.	DESCRIPTION
1	3-2007	UPDATED PLANSET
2	8-2007	RIDEM COMMENTS
3	2-2008	RIDEM COMMENTS
4	5-2008	RIDEM COMMENTS
5	12-2009	WATER & SEWER SUBMISSION
6	2-2010	WATER RESUB.
7	3-2011	PRELIM. PLAN SUB.
8	6-2011	PRELIM. PLAN APPROVAL
9	7-2011	FINAL PLAN
10	01-2016	MODIFIED PRELIM. PLAN

DESIGNED BY:	DCSA
DRAWN BY:	DCS
CHECKED BY:	DCS
DATE:	JANUARY 07
PROJECT NO:	05-77a

PRELIMINARY, NOT FOR CONSTRUCTION

LANDSCAPE DETAILS

SHEET 16 OF 16

C:\ALL MASTER FILES\DRAWINGS\JCE\HIGHLAND ESTATES\HIGHLAND ESTATES (REVISED PLAN-SET) - Standard\Landscape Plan 01-13-16.dwg Jan. 13, 2016 9:41am

SITE PLANS FOR A PROPOSED MAJOR SUBDIVISION:

HIGHLAND ESTATES

AP 52 LOTS 10, 307, 308, 309, 310, 315 & 316

CUMBERLAND, RHODE ISLAND

ZONING DISTRICTS: A-2 & R-1

SUBMITTED TO:

- THE TOWN OF CUMBERLAND PLANNING DEPARTMENT - MODIFIED PRELIMINARY PLAN / FINAL PLAN SUBMISSION

APPROVED BY:

- TOWN OF CUMBERLAND PLANNING BOARD - PRELIMINARY PLAN AND MODIFIED MASTER PLAN APPROVAL (JUNE 29, 2011)
- TOWN OF CUMBERLAND PLANNING BOARD - MASTER PLAN (MAY 15, 2006), EXTENDED UNTIL APRIL 29, 2010
- RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT FRESHWATER WETLANDS PROGRAM - PERMIT TO ALTER WETLANDS (NOVEMBER 24, 2008)
- TOWN OF CUMBERLAND SEWER DEPARTMENT
- TOWN OF CUMBERLAND WATER DEPARTMENT
- CUMBERLAND HILL FIRE DEPARTMENT

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED JAN 3 1 2017 FILE # 07-0029
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Charles A. Horbert

See Also Wetland Restoration Planting Plan dated 9/8/16

PROJECT TEAM

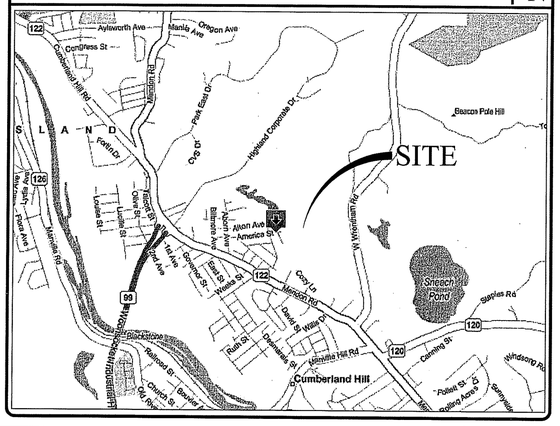
OWNER/
CO-APPLICANT: SEMINOLE DEVELOPMENT, LLC
MR. PAUL VANASSE, OWNER
1849 OLD LOUISQUISSET PIKE
LINCOLN, RI 02865
PHONE: 401-265-6144

CIVIL ENGINEER: JOE CASALI ENGINEERING, INC.
300 POST ROAD
WARWICK, RI 02888
PHONE: 401-944-1300
FAX: 401-944-1313

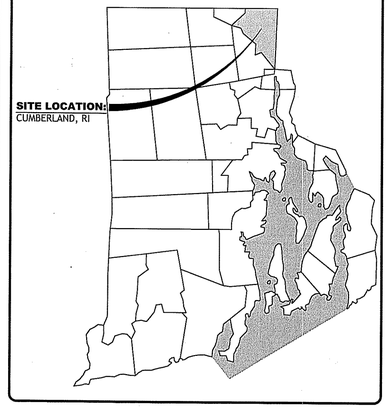
SURVEYOR: INTERNATIONAL MAPPING & SURVEY CORP.
19 INDUSTRIAL DRIVE
SMITHFIELD, RI 02917
PHONE: 401-232-2620

WETLANDS BIOLOGIST: NATURAL RESOURCE SERVICES, INC.
PO BOX 311
HARRISVILLE, RI 02830
PHONE: 401-568-7390

LOCUS MAP (NOT TO SCALE) ↑N



STATE WIDE MAP



INDEX OF DRAWINGS

SHEET NO.	PLAN
1	COVER SHEET
2	GENERAL NOTES
3	CLASS I SURVEY PLAN
4	EXISTING CONDITIONS PLAN
5	SUBDIVISION PLAN
6	OVERALL SITE PLAN
7	AMERICA STREET - GRADING AND DRAINAGE PLAN
8	AMERICA STREET- UTILITY PLAN
9	AMERICA STREET PROFILE
10	DETAILS I
11	DETAILS II
12	DETAILS III
13	DETAILS IV
14	DETAILS V
15	LANDSCAPE PLAN
16	LANDSCAPE DETAILS & NOTES

JCE
JOE CASALI ENGINEERING, INC.
CIVIL · SITE DEVELOPMENT · TRANSPORTATION
DRAINAGE · WATER & SEWER SYSTEMS · PERMITTING
300 POST ROAD, WARWICK, RI 02888
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JOSEPH A. CASALI
No. 7250
REGISTERED PROFESSIONAL ENGINEER
CIVIL
5.7.16

HIGHLAND ESTATES
CUMBERLAND, RHODE ISLAND
AP 52 LOTS 10, 307, 308, 309, 310, 315 & 316
MAJOR LAND DEVELOPMENT

REVISIONS:

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DESIGNED BY:	GC & ACK
DRAWN BY:	WMLJR
CHECKED BY:	JAC
DATE:	JANUARY 07
PROJECT NO:	05-77a

PRELIMINARY, NOT FOR CONSTRUCTION

MAY - 9 2016

COVER SHEET

SHEET 1 OF 16

Q:\05-77 Regional Finance\05-77a-Highland Estates\Plan Set\HIGHLAND ESTATES [MODIFIED PRELIM PLAN].dwg May. 09, 2016 8:06am

GENERAL NOTES:

1. CLASS I PROPERTY LINE AND CLASS III TOPOGRAPHIC SURVEY COMPLETED BY INTERNATIONAL MAPPING & SURVEY, CORP., 19 INDUSTRIAL DRIVE, SMITHFIELD RI.
2. THE LOCATION AND DEPTH OF EXISTING UTILITIES ARE APPROXIMATE AND HAVE BEEN PLOTTED FROM THE LATEST AVAILABLE INFORMATION. THE UTILITY LOCATIONS ARE APPROXIMATE AND MAY NOT BE ALL INCLUSIVE. THE CONTRACTOR SHALL CHECK AND VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES, BOTH OVERHEAD AND UNDERGROUND, AND "DIG-SAFE" MUST BE NOTIFIED PRIOR TO COMMENCING ANY CONSTRUCTION OPERATIONS. RESTORATION AND REPAIR OF DAMAGE TO EXISTING UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR WITH NO ADDITIONAL COST THE OWNER. NO EXCAVATION SHALL COMMENCE UNTIL ALL INVOLVED UTILITY COMPANIES AND/OR TOWN WHOSE FACILITIES MIGHT BE AFFECTED BY ANY WORK TO BE PERFORMED BY THE CONTRACTOR ARE NOTIFIED AT LEAST 72 HOURS IN ADVANCE.
3. THE MOST WESTERLY AND SOUTHERLY PORTIONS OF THE PARCEL ARE LOCATED WITHIN FEMA FLOOD ZONE "A" (AREAS OF 100 YEAR FLOOD) BASE FLOOD ELEVATIONS AND FLOOD FACTORS NOT DETERMINED. REFERENCE FEMA MAP COMMUNITY-PANEL #440016 0003B. REVISED 2-16-90
4. WETLAND RESOURCES DELINEATED BY NATIONAL RESOURCE SERVICES, INC. AND VERIFIED UNDER APPLICATION NO. 04-0510, EXPIRATION 7-13-2009.
5. CONTRACTOR SHALL COORDINATE A PRE-CONSTRUCTION MEETING WITH ENGINEER OF RECORD AT 300 POST ROAD, WARWICK, RI, PRIOR TO COMMENCEMENT OF CONSTRUCTION.

SITE NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND LEGALLY DISPOSING (R&D) OF ALL MATERIALS INDICATED ON THE PLANS.
2. STOCKPILES OF EARTH MATERIALS SHALL NOT BE LOCATED ADJACENT TO DRAINAGE STRUCTURES.
3. ALL DISTURBED AREAS OUTSIDE OF THE PAVED AREAS WILL RECEIVE A MINIMUM OF 6" OF LOAM AND SEED.
4. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN SURVEY LAYOUT SERVICES FOR THE WORK AND SHALL SUBMIT "AS-BUILT" DRAWINGS OF ALL WORK, WHICH SHALL BE STAMPED AND CERTIFIED BY A RHODE ISLAND REGISTERED PROFESSIONAL LAND SURVEYOR OR A RHODE ISLAND REGISTERED PROFESSIONAL ENGINEER.
5. ANY ITEM OF WORK NOT SPECIFICALLY INDICATED ON THE PLANS BUT REQUIRED FOR THE COMPLETE CONSTRUCTION OF THE PROJECT WILL BE CONSIDERED INCIDENTAL TO THE CONTRACT AND INCLUDED IN THE CONTRACT BID PRICE. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL EXISTING SITE CONDITIONS.
6. WHERE NECESSARY TO REMOVE CURBS, CATCH BASINS OR DRAINS TO COMPLETE WORK, THE CONTRACTOR SHALL REPLACE SUCH ITEMS TO THE SATISFACTION OF THE TOWN OF CUMBERLAND AT NO ADDITIONAL COST TO THE OWNER.
7. ANY EXISTING PIPE OR UTILITY DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED IMMEDIATELY BY THE CONTRACTOR AT NO COST TO THE OWNER OR TOWN.
8. THE CONTRACTOR SHALL RESTORE TO ITS ORIGINAL CONDITION OR REPLACE TREES, SHRUBS, FENCES, SIGNS, GUARDRAILS, DRIVEWAYS, SIDEWALKS AND ANY OTHER OBJECT AFFECTED BY THIS OPERATION.
9. THE TOPS OF ALL VALVE BOXES AND CURB BOXES SHALL BE FLUSH WITH GROUND OR PAVEMENT SURFACE LEVEL AND PLUMB, UNLESS OTHERWISE DIRECTED.
10. ROADWAYS SHALL BE LEFT PASSABLE AT ALL TIMES. CLOSURE OF ROADWAY IS NOT PERMITTED.
11. THE CONTRACTOR SHALL PROVIDE ACCESS TO ALL DRIVEWAYS AT COMPLETION OF EACH DAYS WORK.
12. WATER SERVICE SHALL BE MAINTAINED AT ALL TIMES.
13. ALL LEDGE TO BE REMOVED BY MECHANICAL MEANS. CONTRACTOR SHALL OBTAIN NECESSARY PERMITTING IF BLASTING IS REQUIRED.
14. ALL CONSTRUCTION WORK SHALL BE PERFORMED IN THE DRY. THE CONTRACTOR SHALL PROVIDE, OPERATE AND MAINTAIN ALL PUMPS, DRAINS, WET POINTS, SCREENS, OR OTHER FACILITIES NECESSARY TO CONTROL, COLLECT AND DISPOSE OF ALL SURFACE AND SUBSURFACE WATER ENCOUNTERED IN THE PERFORMANCE OF THE WORK.
15. REFER TO ARCHITECTURAL PLANS FOR ACTUAL SIZE OF DWELLING UNITS.
16. REFER TO PLUMBING PLANS FOR CONTINUATION OF ALL UTILITIES WITHIN 5' FEET OF THE BUILDING.
17. ALL SITE WORK, INCLUDING BUT NOT LIMITED TO, BITUMINOUS PAVEMENT, ROADWAY CONSTRUCTION, AGGREGATE MATERIALS, DRAINAGE STRUCTURES, CURBING, SIDEWALK, LANDSCAPING, SAW CUTTING, ETC. SHALL CONFORM TO THE RHODE ISLAND DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADWAY AND BRIDGE CONSTRUCTION, 2004 EDITION (WITH LATEST ADDENDA), THE RIDOT STANDARD DETAILS, 1998 EDITION (WITH LATEST ADDENDA) AND THE TOWN OF CUMBERLAND'S LAND DEVELOPMENT AND SUBDIVISION REGULATIONS DATED APRIL, 2005.

LAYOUT NOTE:

THE LAYOUT SHOWN REPRESENTS A GRAPHICAL DESIGN, AND PRIOR TO THE CONSTRUCTION, THE CONTRACTOR SHALL ENGAGE A PROFESSIONAL LAND SURVEYOR (PLS) REGISTERED IN THE STATE OF RHODE ISLAND TO SET AND VERIFY ALL LINES AND GRADES. ALL EXISTING UTILITY LOCATIONS AND ELEVATIONS ARE TO BE CONFIRMED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. ANY ITEMS FOUND WHICH DO NOT MATCH THE PLANS MUST BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO CONSTRUCTION FOR REVIEW. NO WORK SHALL PROCEED UNTIL AUTHORIZED BY THE ENGINEER.

MAINTENANCE AND PROTECTION OF TRAFFIC NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MAINTENANCE AND PROTECTION OF PEDESTRIAN AND VEHICULAR TRAFFIC INCLUDING POLICE PROTECTION. ALL TEMPORARY AND VEHICULAR SIGNS, BARRICADES AND LANE CLOSURES SHALL BE IN CONFORMANCE WITH THE LATEST REVISIONS OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.)
2. TEMPORARY CONSTRUCTION SIGNS AND ALL APPLICABLE TRAFFIC CONTROL DIVIDES SHALL BE IN PLACE PRIOR TO THE START OF WORK IN ANY AREA OPEN TO TRAFFIC.
3. THE PRIVATE VEHICLES OF CONSTRUCTION WORKERS SHALL NOT BE PARKED IN THE STATE OR TOWN RIGHT-OF-WAY.
4. ALL MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL SETUPS, SIGNS CHANNELING DEVICES, ETC, SHALL BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
5. SIGN MOUNTINGS SHALL BE IN ACCORDANCE WITH THE RIDOT SPECIFICATIONS FOR TEMPORARY CONSTRUCTION SIGNS.

DRAINAGE SYSTEM MAINTENANCE SCHEDULE:

UPON PROJECT COMPLETION, THE PROPERTY OWNER SHALL ADHERE TO THE FOLLOWING MAINTENANCE PLAN AND SCHEDULE:

1. **CATCH BASINS, MANHOLES AND DRAIN LINES:** AN INSPECTION MUST OCCUR ON AN ANNUAL BASIS BY QUALIFIED PERSONAL TO ENSURE PROPER OPERATION. THE INSPECTION SHOULD, AS A MINIMUM, CONCENTRATE ON THE FOLLOWING:
   * DAMAGE TO GRATE/ COVERS
   * EVIDENCE OF STANDING WATER
   * DEBRIS REMOVAL
   * STRUCTURAL ALIGNMENT/ INTEGRITY

   ANY DEFICIENCY NOTED DURING THE INSPECTION WILL BE IMMEDIATELY REPAIRED OR REPLACED.
2. **SEDIMENT REMOVAL:** ALL REMOVED SEDIMENT IS TO BE TESTED TO DETERMINE POLLUTANT CONTENT. THE SEDIMENT IS TO BE PROPERLY DISPOSED IN UPLAND AREAS BASED UPON THE TEST RESULTS AND LOCAL, STATE, AND FEDERAL REGULATIONS
   * SEDIMENT SHALL BE REMOVED FROM THE CATCH BASINS ON AN ANNUAL BASIS.
   * THE SEDIMENT STORAGE VOLUME IN BASIN-A IS FROM 308.0 TO 308.5. THE SEDIMENT SHALL BE CLEANED OUT TO ELEVATION 308.0 WHEN THE SEDIMENT REACHES ELEVATION 308.5.
   * THE SEDIMENT STORAGE VOLUME IN BASIN-B IS FROM 312.0 TO 313.0. THE SEDIMENT SHALL BE CLEANED OUT TO ELEVATION 312.0 WHEN THE SEDIMENT REACHES ELEVATION 313.0.

DRAINAGE SYSTEM NOTES:

1. ALL RIM ELEVATIONS SHOWN ARE APPROXIMATE AND ARE TO BE SET FLUSH WITH FINAL GRADES.
2. THE DESIGN ENGINEER MUST SUBMIT AN AS-BUILT PLAN AND A CERTIFICATION TO THE CITY ENGINEER THAT THE CONSTRUCTION IS IN COMPLIANCE WITH THE DESIGN PLANS FOR ALL ELEMENTS OF THE STORM OR DRAINAGE SYSTEM PRIOR TO THE ISSUANCE OF THE CERTIFICATE OF OCCUPANCY.

PROPOSED ROADWAY PAVEMENT STRUCTURE (PAVEMENT TYPE A):

2" BITUMINOUS CONCRETE SURFACE COURSE CLASS TYPE I-1
2" BITUMINOUS CONCRETE BINDER COURSE
12" GRAVEL BORROW SUBBASE COURSE

PROPOSED DRIVEWAY PAVEMENT STRUCTURE (PAVEMENT TYPE B):

2" BITUMINOUS CONCRETE SURFACE COURSE CLASS TYPE I-1
10" GRAVEL BORROW SUBBASE COURSE

ASPHALT EMULSION TACK COAT TO BE PLACED ON ALL BITUMINOUS COURSES PRIOR TO PAVING IN ACCORDANCE WITH SITE NOTE NO. 17.

SOIL EROSION AND SEDIMENTATION CONTROL NOTES

1. THE HAYBALE AND SILT FENCE LINE ILLUSTRATED ON THESE PLANS SHALL SERVE AS THE STRICT LIMIT OF DISTURBANCE FOR THE PROJECT WITHIN OR ADJACENT TO REGULATED FRESHWATER WETLAND AREAS.
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 PLAN SHALL BE TOTALLY UNDISTURBED, TO REMAIN IN NATURAL CONDITION.
3. ALL CATCH BASINS AND CULVERTS SHALL BE PROTECTED WITH STAKED HAYBALES (R.I. STD. 9.8.0) DURING CONSTRUCTION ACTIVITIES. ALL PROPOSED STORM WATER DISCHARGE AREAS SHALL BE LINED WITH A RIPRAP SPLASH PAD AND PROTECTED WITH STAKED HAYBALE OUTLET PROTECTION (R.I. STD. 9.1.0), OR SILT FENCE (R.I. STD. 9.2.0) STAKED HAYBALE OUTLET PROTECTION (R.I. STD. 9.1.0) SHALL ALSO BE INSTALLED AT ALL EXISTING STORMWATER DISCHARGE LOCATIONS WHERE DISTRIBUTING PIPES, CATCH BASINS, AND MANHOLES ARE TO BE CLEANED AND FLUSHED.
4. ALL DISTURBED SLOPES EITHER NEWLY CREATED OR CURRENTLY EXPOSED SHALL BE SEEDED, PROTECTED AND MAINTAINED BY THE CONTRACTOR. THE CONTRACTOR SHALL REGULARLY CHECK ALL SEEDED AREAS TO ENSURE THAT A GOOD STAND IS MAINTAINED.
5. ALL HAYBALES, TEMPORARY TREATMENT (HAY, STRAW, ETC.) AND TEMPORARY EROSION PROTECTION SHALL BE MAINTAINED BY THE CONTRACTOR THROUGHOUT CONSTRUCTION AND SHALL REMAIN IN PLACE UNTIL AN ACCEPTABLE STAND OF GRASS OR APPROVED GROUND COVER IS ESTABLISHED.
6. STOCKPILES OF TOPSOIL SHALL NOT BE LOCATED NEAR WATERWAYS. THEY SHALL HAVE SIDE SLOPES OF NO GREATER THAN 2:1 AND SHALL BE TEMPORARILY SEEDED AND/OR STABILIZED PER CONTRACT SPECIFICATIONS.
7. THE HAYBALES SHALL BE CHECKED BY THE CONTRACTOR ON A WEEKLY BASIS AND AFTER EACH STORM FOR UNDERMINING OR DETERIORATION. THE CONTRACTOR SHALL REPAIR OR REPLACE ANY HAYBALES AS NEEDED. THE CONTRACTOR SHALL CLEAN THE ACCUMULATED SEDIMENT IF HALF OF THE ORIGINAL HEIGHT OF THE HAY-BALES BECOMES FILLED WITH SEDIMENTS.
8. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN ALL SOIL EROSION AND SEDIMENT CONTROLS ON THE PROJECT SITE FOR THE ENTIRE DURATION OF THE CONSTRUCTION PERIOD. THE CONTRACTOR SHALL FOLLOW THE DIRECTION OF THE RESIDENT ENGINEER WITH REGARD TO INSTALLATION, MAINTENANCE, AND REPAIR OF ALL SOIL EROSION AND SEDIMENTATION CONTROLS ON THE PROJECT SITE. TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROLS (HAYBALES, SILT FENCE, ETC.) SHALL BE MAINTAINED UNTIL ALL EXPOSED SOILS ARE SATISFACTORILY STABILIZED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING AND/OR RESEEDING ALL AREAS THAT DO NOT DEVELOP WITHIN ONE YEAR FROM THE COMPLETION OF CONSTRUCTION.
9. ALL REFERENCED SOIL EROSION AND SEDIMENTATION CONTROLS INCLUDING MATERIALS USED, APPLICATION RATES AND THE INSTALLATION PROCEDURES SHALL BE PERFORMED PER THE "RHODE ISLAND EROSION AND SEDIMENTATION HANDBOOK", DATED 1993.

BMP MAINTENANCE SCHEDULE

1. ALL MAINTENANCE (INCLUDING CLEANING) REQUIRED DURING THE CONSTRUCTION PHASE OF THE PROJECT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
2. MEASURES NEEDED TO ENSURE THE PROPER OPERATION OF THE STORMWATER DRAINAGE SYSTEMS AND WATER QUALITY CONTROL SYSTEMS TO INCLUDE INSPECTION, CLEANING AND REPAIRS TO ALL PIPES, INTAKE AND DISCHARGE STRUCTURES (INCLUDING RIP-RAP SPLASH PADS), CATCH BASIN SUMPS, AND MANHOLES.
3. INSPECTION OF ALL SLOPES, BERMS, AND OTHER CONTROL STRUCTURES (INCLUDING ROADWAY SIDE SLOPES, FOR STRUCTURAL INTEGRITY, STABILITY AND EVIDENCE OF SOIL EROSION, SHALL INCLUDE MAINTENANCE OF THESE STRUCTURES IF NECESSARY. INSPECTIONS SHALL BE PERFORMED FOLLOWING ALL RAIN EVENTS OF ½ INCH RAINFALL OR MORE IN A 24-HOUR PERIOD, OR BIMONTHLY IF NO RAINFALL EVENT OCCURS.
4. UPON COMPLETION OF PROJECT CONSTRUCTION, AND PRIOR TO VACATING THE SITE, THE CONTRACTOR SHALL CONDUCT A FINAL INSPECTION, REPAIR ANY VEGETATIVE SOIL EROSION AND SEDIMENTATION CONTROL MEASURES, (SEEDING, PLANTING, ETC.) WHERE REQUIRED, AND REPAIR (OR REMOVE WHERE APPROPRIATE) ANY TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROL DEVICES. AFTER PERMANENT SOIL STABILIZATION ON THE ENTIRE SITE HAS OCCURRED, ALL TEMPORARY CONTROL MEASURES MUST BE REMOVED.
5. AFTER THE COMPLETION OF PROJECT CONSTRUCTION AND THE FINAL STABILIZATION OF THE ENTIRE SITE, THE INSPECTION AND MAINTENANCE OF ALL STORMWATER FACILITIES MUST BE PERFORMED.
6. REPLANTING, REGRADING, OR OTHER REPAIRS NEEDED AS A RESULT OF SOIL EROSION AND SEDIMENTATION PROCESSES SHALL BE DONE PROMPTLY TO ENSURE PROPER FUNCTIONING OF THE ENTIRE SYSTEM.
7. ANY TRASH, DEBRIS, ETC. SHOULD BE REMOVED FROM ANY WETLAND AREAS, SWALE, AND PIPE OUTLETS.
8. SWALES AND DETENTION AREAS SHALL BE INSPECTED AFTER MAJOR STORM EVENTS OR ON AN ANNUAL BASIS. REPAIRS SHALL BE PERFORMED IMMEDIATELY AS CONDITIONS WARRANT. BARE SPOTS AND ERODED AREAS SHALL BE RESEEDED IMMEDIATELY FOLLOWING OBSERVATIONS. ALL LITTER AND TRASH SHALL BE REMOVED DURING INSPECTIONS.

EXTENDED DETENTION BASIN NOTES:

1. GRASSES MUST BE PLANTED AROUND AND WITHIN THE BASIN IMMEDIATELY FOLLOWING CONSTRUCTION TO STABILIZE THE SLOPES AND PREVENT EROSION. TREES AND SHRUBS SHALL NOT BE ON THE IMPOUNDING EMBANKMENTS TO PREVENT POSSIBLE FAILURE OF THE STRUCTURE. IT IS SUGGESTED THE DEVELOPER USE STORM WATER BASIN PLANTS AND LANDSCAPING GUIDE: A SIMPLE GUIDE FOR DESIGNERS AND COMMUNITIES (LMP, 1991) TO ASSIST THE SELECTION OF APPROPRIATE VEGETATION.
2. SIDE-SLOPES, EMBANKMENTS AND THE UPPER STAGE OF THE BASIN SHOULD BE MOWED AT LEAST ONCE DURING THE GROWING SEASON PREFERABLE AFTER AUGUST 15TH, TO PREVENT UNWANTED WOODY GROWTH. MOWINGS CAN BE MORE FREQUENT IN RESIDENTIAL AREAS IF A MORE GROOMED APPEARANCE IS DESIRED HOWEVER GROOMED AREAS (SHORT GRASS) WILL ATTRACT CANADIAN GEESE. LONGER MORE NATURAL GRASS WILL BENEFIT OTHER SPECIES OF WILDLIFE. ALL TRASH AND LITTER SHALL BE REMOVED FROM THE BASIN DURING MOWING OPERATIONS.
3. SEDIMENTS SHALL BE REMOVED FROM THE BASIN DURING THE FIRST YEAR OF OPERATION AND EVERY 10 YEARS THEREAFTER. MORE FREQUENT REMOVALS MAY BE NECESSARY IF THE SEDIMENT STORAGE CAPACITY OF THE FOREBAY OR POND IS EXCEEDED OR WHEN THE SEDIMENT DEPTH REACHES 6 INCHES, WHICHEVER COMES FIRST.
4. THE DETENTION BASIN(S) OUTLET AND OUTFLOW CHANNEL SHALL BE INSPECTED AT LEAST TWICE PER YEAR. INSPECTIONS SHALL BE ACCOMPLISHED SEVERAL TIMES DURING THE FIRST SIX MONTHS OF OPERATIONS, ESPECIALLY AFTER RAINFALL EVENTS, TO CHECK FOR CLOGGING OR TOO RAPID RELEASE RESULTING IN EROSION.
5. IF STANDING WATER IS FOUND IN EITHER BASIN MORE THAN (3) DAYS AFTER A RAINFALL EVENT, THE BASIN(S) SHALL BE DETERMINED TO HAVE FAILED AND THE OWNER SHALL BE RESPONSIBLE TO HAVE THE BASIN(S) CHECKED BY A PROFESSIONAL REGISTERED ENGINEER AND REPAIRED OR REPLACED IMMEDIATELY.
6. THE GRASSED AREAS SHALL BE INSPECTED AT LEAST TWICE PER YEAR TO CHECK FOR EROSION PROBLEMS. PROBLEM AREAS SHALL BE RE-SEEDED IMMEDIATELY TO STABILIZE EXPOSED SOIL, THEREBY PREVENTING EROSION AND POTENTIAL CLOGGING OF OUTFLOW DEVICES.
7. AN AREA SHALL BE SET ASIDE IN THE DEVELOPMENT SITE IN AN UPLAND LOCATION OUTSIDE OF JURISDICTIONAL WETLANDS FOR THE PURPOSE OF SEDIMENT DISPOSAL, IF AN OFF SITE DISPOSAL AREA IS NOT FEASIBLE.
8. MOWING SHALL OCCUR WHEN VEGETATION REACHES A HEIGHT BETWEEN 18 AND 24 INCHES. MOWING SHALL UTILIZE A ROTARY MOWER SET AT A HEIGHT OF 8 INCHES.

LONG TERM MAINTENANCE RESPONSIBILITY:

WHEN ALL CONSTRUCTION IS COMPLETE, THE SITE HAS BEEN STABILIZED TO PREVENT EROSION AND SEDIMENTATION BY A WELL ESTABLISHED VEGETATIVE COVER AND THE DRAINAGE IMPROVEMENTS HAVE BEEN INSPECTED AND ACCEPTED BY THE TOWN OF CUMBERLAND, THE PARTY RESPONSIBLE FOR LONG TERM MAINTENANCE, INSPECTION AND REPAIRS TO ALL DRAINAGE FACILITIES AND DETENTION PONDS SHOWN ON THESE PLANS, SHALL BE THE TOWN OF CUMBERLAND.

CUL-DE-SAC LANDSCAPE MAINTENANCE NOTES:

1. THE CUL-DE-SAC SHALL HAVE A RAISED CURB LANDSCAPED AREA PLANTED WITH LAWN GRASS AND OR LOW GROWING SHRUBS.
2. THE GRASS SHALL BE MOWED ONCE A WEEK DURING THE GROWING SEASON AS NEEDED. SHRUBS SHALL BE KEPT TRIMMED TO A HEIGHT OF 3 FEET.

DEWATERING

THE FOLLOWING ARE THE REQUIREMENTS FOR DESIGNING, FURNISHING, INSTALLING, MAINTAINING, OPERATING AND REMOVAL OF TEMPORARY DEWATERING SYSTEMS REQUIRED TO MANAGE GROUNDWATER DURING EXCAVATION ACTIVITIES.

1.01 DEFINITIONS
A. DEWATERING: LOWERING THE ZONE OF SATURATION AND INTERCEPTING GROUNDWATER SEEPAGE WHICH WOULD OTHERWISE EMERGE FROM THE SLOPES OR BOTTOM OF THE EXCAVATIONS. THE PURPOSES OF DEWATERING ARE TO INCREASE THE STABILITY OF EXCAVATED SLOPES; PREVENT LOSS OF MATERIAL FROM BENEATH THE SLOPES OR BOTTOM OF THE EXCAVATION; IMPROVE THE EXCAVATING AND HAULING CHARACTERISTICS OF ON SITE SOIL; PREVENT RUPTURE OR HEAVING OF THE BOTTOM OF AN EXCAVATION; AND DISPOSE OF PUMPED WATER.

1.02 DESIGN REQUIREMENTS
A. THE CONTRACTOR IS RESPONSIBLE FOR THE ADEQUACY OF THE DEWATERING AND SEDIMENT REMOVAL SYSTEM.
B. DESIGN DEWATERING AND SEDIMENT REMOVAL SYSTEMS TO:
1. EFFECTIVELY REDUCE THE HYDROSTATIC PRESSURE AND LOWER THE GROUNDWATER LEVELS TO A MINIMUM OF 2 FEET BELOW EXCAVATION IN SOIL;
2. DEVELOP A SUBSTANTIALLY DRY AND STABLE SUBGRADE FOR THE PROTECTION OF SUBSEQUENT OPERATIONS;
3. RESULT IN NO DAMAGE TO ADJACENT BUILDINGS, STRUCTURES, UTILITIES AND OTHER WORK, INCLUDED IN THIS CONTRACT.
4. DEPRESSURIZE STRATIFIED LAYERS OF SAND THAT MAY BE CONFINED BY SILT LAYERS SO THAT A STABLE EXCAVATION BOTTOM IS MAINTAINED.
5. ROUTE DISCHARGE FROM DEWATERING SYSTEM THROUGH A SEDIMENT REMOVAL SYSTEM SUCH THAT SEDIMENTS ARE NOT DISCHARGED TO OPEN WATERS OR WETLAND SYSTEMS. SEDIMENT REMOVAL SYSTEM SHALL BE SIZED BASED ON ANTICIPATED DISCHARGE FROM DEWATERING SYSTEM AND ADEQUATE DETENTION TIME FOR SEDIMENT REMOVAL.
6. PROTECT SEDIMENT REMOVAL SYSTEM DISCHARGE AREA FROM SCOURING.
C. DEWATERING METHODS MAY INCLUDE SUMP PUMPING, SINGLE OR MULTIPLE STAGE WELL POINT OR JET EDUCTOR WELL POINT SYSTEMS, DEEP WELLS, OR COMBINATIONS THEREOF.
D. LOCATE DEWATERING FACILITIES WHERE THEY WILL NOT INTERFERE WITH EXISTING UTILITIES, FACILITIES AND/OR CONSTRUCTION WORK TO BE DONE UNDER THIS CONTRACT.
E. SEDIMENT REMOVAL SYSTEM METHODS MAY INCLUDE FILTRATION SYSTEMS, SETTLING BASINS, SEDIMENTATION TANKS OR OTHER APPROVED METHOD.
F. CONTRACTOR IS RESPONSIBLE TO OBTAIN ALL NECESSARY PERMITS FROM STATE AND LOCAL AUTHORITIES REGARDING THE OPERATION AND DISCHARGE OF THE DEWATERING AND SEDIMENT REMOVAL SYSTEM, AND TO CONDUCT ALL NECESSARY SAMPLING AND TESTING THAT MAY BE REQUIRED BY THOSE AUTHORITIES.

1.03 SUBMITTALS
A. SHOP DRAWINGS
1. THE FOLLOWING PRIOR TO DEWATERING SYSTEM AND SEDIMENT REMOVAL SYSTEM INSTALLATION:
A. PROPOSED SYSTEM COMPONENTS.
B. OPERATIONAL PLAN TO INCLUDE LOCATIONS AND DEPTH OF COMPONENTS.
C. METHOD OF DISPOSAL OF PUMPED WATER, INCLUDING METHOD OF INSURING PROPER SEDIMENT REMOVAL SHOULD UPSET IN DEWATERING SYSTEM OCCUR.
D. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER AND THE RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT DIVISION OF FRESHWATER WETLANDS.
B. QUALITY ASSURANCE/CONTROL SUBMITTALS
1. IN ACCORDANCE WITH SECTION 01300 SUBMIT THE FOLLOWING:
A. DEWATERING SYSTEMS TO BE DESIGNED UNDER THE DIRECT SUPERVISION OF A PROFESSIONAL CIVIL ENGINEER REGISTERED IN THE STATE WHICH THE WORK IS TO BE DONE.

1.04 PROJECT/SITE CONDITIONS
A. ENVIRONMENTAL REQUIREMENTS
1. DISPOSE OF ALL PUMPED WATER IN ACCORDANCE WITH RIDEM RULES AND REGULATIONS GOVERNING THE ADMINISTRATION AND ENFORCEMENT OF THE FRESHWATER WETLANDS ACT AND ALL REQUIREMENTS OF RIDEM PERMIT NO. 05-0535.
B. EXISTING CONDITIONS
1. GROUNDWATER ELEVATIONS HAVE BEEN INTERPRETED FROM SOIL EVALUATIONS AND ARE NOTED IN THE TEST PIT LOGS.
2. GROUNDWATER SURFACE IS SUBJECT TO FLUCTUATIONS DURING PERIODS OF HEAVY PRECIPITATION.

PART 2 PRODUCTS
NOT USED

PART 3 EXECUTION
3.01 SITE PREPARATION AND INSTALLATION
A. SURFACE DRAINAGE
1. CONSTRUCT DIKES, DITCHES, PIPE LINES, SUMPS OR OTHER MEANS TO INTERCEPT AND DIVERT PRECIPITATION AND SURFACE WATER AWAY FROM EXCAVATIONS.
B. DRAINAGE OF EXCAVATED AREAS
1. CONSTRUCT DIKES, DITCHES, PIPE LINES, SUMPS OR OTHER MEANS TO COLLECT SURFACE AND SEEPAGE WATER WHICH MAY ENTER THE EXCAVATION.
2. DISCHARGE WATER THROUGH DEWATERING BASINS OR METHOD APPROVED BY ENGINEER.
3. AT NO TIME SHALL DISCHARGE WATERS BE DIRECTLY DISCHARGES TO REGULATED WETLANDS OR SURFACE WATERS.

3.02 MONITORING
A. OBSERVE AND RECORD DAILY THE ELEVATION OF THE GROUNDWATER DURING THE LENGTH OF THE DEWATERING OPERATION AND PROVIDE DATA TO ENGINEER ON DAILY BASIS.

3.03 OPERATION
A. OPERATE DEWATERING SYSTEMS TO LOWER THE GROUNDWATER LEVEL IN EXCAVATIONS ALLOWING ALL SUBSEQUENT WORK TO BE DONE ON A STABLE DRY SUBGRADE.
B. MODIFY DEWATERING PROCEDURES WHICH CAUSE, OR THREATEN TO CAUSE, DAMAGE TO NEW OR EXISTING FACILITIES, TO PREVENT FURTHER DAMAGE. MODIFICATIONS MADE AT NO ADDITIONAL EXPENSE TO THE OWNER.
C. MAINTAIN THE WATER LEVEL A MINIMUM OF TWO (2) FEET BELOW SUBGRADE OR AT LOWER ELEVATION TO ELIMINATE HYDROSTATIC PRESSURE ON STRUCTURES.
D. PREVENT DISTURBANCE OF FOUNDATION SOILS AND LOSS OF GROUND AS WATER IS REMOVED.
E. NOTIFY THE ENGINEER OF DISTURBANCE TO THE FOUNDATION SOILS CAUSED BY AN INTERRUPTION OR INADEQUACY OF THE DEWATERING SYSTEM.
F. MAINTAIN ON SITE, AUXILIARY EQUIPMENT TO OPERATE THE DEWATERING SYSTEM CONTINUOUSLY WHILE EXCAVATIONS ARE OPENED BELOW ELEVATION OF FINAL GRADE.

3.04 DISPOSAL OF WATER
A. DISCHARGE WATER IN A MANNER THAT WILL NOT CAUSE EROSION, FLOODING, DAMAGE TO EXISTING FACILITIES, COMPLETED WORK OR ADJACENT PROPERTY, IMPROVED OR OTHERWISE.

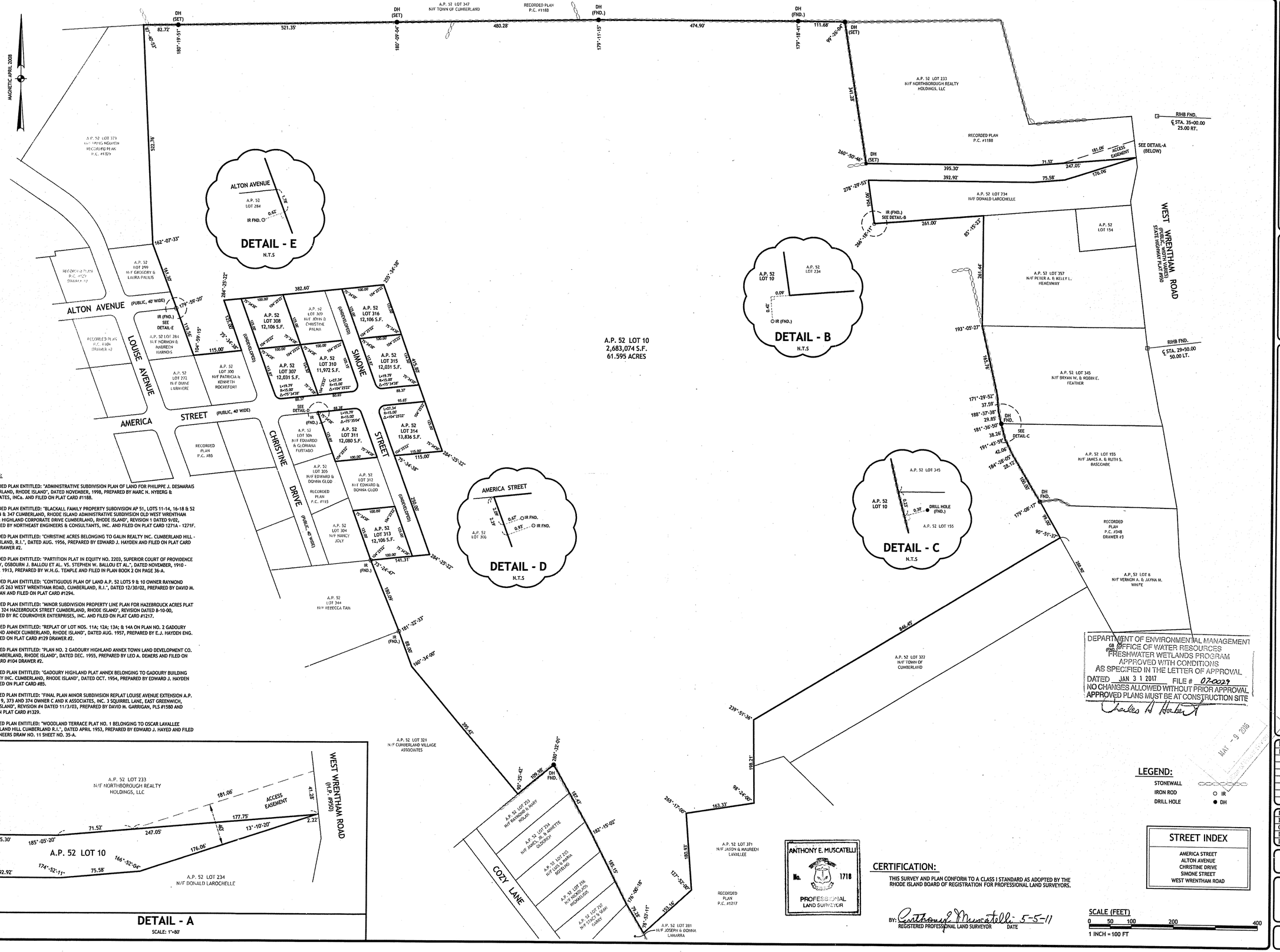
3.05 REMOVAL
A. REMOVE ALL MATERIAL AND EQUIPMENT FROM THE SITE UPON COMPLETION OF DEWATERING OPERATIONS.
B. SEAL ALL DEWATERING WELLS UPON COMPLETION OF THE DEWATERING BY PRESSURE INJECTING A GROUT CAPABLE OF SEALING THE WELLS AND PREVENTING LEAKAGE.

MISCELLANEOUS UTILITY NOTES:

1. PRIOR TO CONSTRUCTION, ALL POTENTIAL UTILITY/DRAINAGE CONFLICTS MUST BE IDENTIFIED BY THE CONTRACTOR. ANY MODIFICATIONS TO THE PROPOSED UTILITIES TO AVOID CONFLICTS MUST BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION. NO EXTRA PAYMENT TO THE CONTRACTOR DUE TO RELOCATIONS WILL BE AUTHORIZED.
2. THE UTILITY PLAN DOES NOT DEPICT THE NECESSARY ELECTRICAL CONDUIT/WIRING TO SERVICE ANY PROPOSED LIGHTING, WHICH WILL BE PERFORMED BY THE CONTRACTOR FOR NO ADDITIONAL COST.
3. OVERHEAD ELECTRIC AND TELEPHONE SERVICES ARE TO BE REMOVED BY THE APPROPRIATE UTILITY COMPANY AND COORDINATED BY THE CONTRACTOR.
4. THE CONTRACTOR SHALL AT ALL TIMES PROVIDE A SUFFICIENT NUMBER OF WORKMEN AND GUARDS AS MAY BE NECESSARY TO PROPERLY SAFEGUARD THE PUBLIC FROM THERE OPERATIONS.
5. THE CONTRACTOR SHALL TAKE PRECAUTIONS AGAINST DAMAGING OF PAVING, SIDEWALKS, UTILITIES, OR PRIVATE PROPERTIES AND SHALL PROMPTLY REPAIR AT HIS OWN EXPENSE ANY DAMAGE TO SUCH PAVING, SIDEWALKS, UTILITIES, OR PRIVATE PROPERTIES TO THE SATISFACTION OF THE OWNER OR TOWN.
6. EXISTING UTILITY FRAMES AND COVERS FOR SANITARY SEWER, WATER, GAS, STORM DRAINAGE AND OTHER UTILITIES SHALL BE ADJUSTED TO GRADE AS REQUIRED IN NEW PAVING AND PAVEMENT OVERLAY AREAS.

WATER NOTES:

1. ALL INSTALLATIONS, JOINTS, CONSTRUCTION METHODS AND MATERIALS SHALL BE ACCORDING TO THE CUMBERLAND WATER DISTRICT REQUIREMENTS, AWWA STANDARDS AND GOVERNMENTAL REQUIREMENTS.
2. WATER PIPES SHALL TYPICALLY BE LOCATED AT LEAST TEN (10) FEET HORIZONTALLY FROM SEWER PIPES, AND AT A MINIMUM DEPTH OF COVER EQUAL TO 5'. WHERE A NEW WATER PIPE IS LESS THAN 18 INCHES CLEAR DISTANCE ABOVE A SEWER OR WHERE WATER AND SEWER MUST CROSS, THE SEWER IN 6" OF CONCRETE FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE CROSSING WHERE PIPES ARE [illegible]
3. ALL SYSTEM COMPONENTS AND CONSTRUCTION METHODS; SUCH AS PIPE, THRUST BLOCKS, FITTINGS, CASTINGS, ETC. SHALL BE SUBMITTED TO CUMBERLAND WATER FOR APPROVAL PRIOR TO PURCHASE AND INSTALLATION. THIS SUBMISSION SHALL INCLUDE MANUFACTURERS LITERATURE, SHOP DRAWINGS, PROPOSED CONSTRUCTION METHODS, ETC.
4. WATER LINE TRENCH TO BE AWWA TYPE 5 A METALIZED DETECTABLE IDENTIFICATION TAPE 2" IN WIDTH, BLUE IN COLOR AND PRINTED WITH "CAUTION WATERLINE BURIED BELOW" SHALL BE UTILIZED OVER ALL MAINS. TAPE SHALL BE SET AT APPROXIMATELY 1' BELOW FINISHED GRADE.
5. THE CONTRACTOR SHALL RECEIVE VERIFICATION FROM THE ARCHITEC



REFERENCES:

- RECORDED PLAN ENTITLED: "ADMINISTRATIVE SUBDIVISION PLAN OF LAND FOR PHILIPPE J. DESMARAIS CUMBERLAND, RHODE ISLAND", DATED NOVEMBER, 1998, PREPARED BY MARC N. NYBERG & ASSOCIATES, INCs. AND FILED ON PLAT CARD #1188.
- RECORDED PLAN ENTITLED: "BLACKALL FAMILY PROPERTY SUBDIVISION AP 51, LOTS 11-14, 16-18 & 52 LOTS 14 & 347 CUMBERLAND, RHODE ISLAND ADMINISTRATIVE SUBDIVISION OLD WEST WRENTHAM ROAD & HIGHLAND CORPORATE DRIVE CUMBERLAND, RHODE ISLAND", REVISION 1 DATED 9/02, PREPARED BY NORTHEAST ENGINEERS & CONSULTANTS, INC. AND FILED ON PLAT CARD 1271A - 1271F.
- RECORDED PLAN ENTITLED: "CHRISTINE ACRES BELONGING TO GALIN REALTY INC. CUMBERLAND HILL - CUMBERLAND, R.I.", DATED AUG. 1956, PREPARED BY EDWARD J. HAYDEN AND FILED ON PLAT CARD #115, DRAWER #2.
- RECORDED PLAN ENTITLED: "PARTITION PLAT IN EQUITY NO. 2203, SUPERIOR COURT OF PROVIDENCE COUNTY, OSBOURN J. BALLOU ET AL. VS. STEPHEN W. BALLOU ET AL.", DATED NOVEMBER, 1910 - MARCH, 1913, PREPARED BY W.H.G. TEMPLE AND FILED IN PLAN BOOK 2 ON PAGE 36-A.
- RECORDED PLAN ENTITLED: "CONTIGUOUS PLAN OF LAND A.P. 52 LOTS 9 & 10 OWNER RAYMOND VADENAIS 263 WEST WRENTHAM ROAD, CUMBERLAND, R.I.", DATED 12/30/02, PREPARED BY DAVID M. GARRIGAN AND FILED ON PLAT CARD #1294.
- RECORDED PLAN ENTITLED: "MINOR SUBDIVISION PROPERTY LINE PLAN FOR HAZEBROUCK ACRES PLAT 52, LOT 324 HAZEBROUCK STREET CUMBERLAND, RHODE ISLAND", REVISION DATED 8-10-00, PREPARED BY RC COURNOYER ENTERPRISES, INC. AND FILED ON PLAT CARD #1217.
- RECORDED PLAN ENTITLED: "REPLAT OF LOT NOS. 11A; 12A; 13A; & 14A ON PLAN NO. 2 GADOURY HIGHLAND ANNEX CUMBERLAND, RHODE ISLAND", DATED AUG. 1957, PREPARED BY E.J. HAYDEN ENG. AND FILED ON PLAT CARD #129 DRAWER #2.
- RECORDED PLAN ENTITLED: "PLAN NO. 2 GADOURY HIGHLAND ANNEX TOWN LAND DEVELOPMENT CO. INC. CUMBERLAND, RHODE ISLAND", DATED DEC. 1955, PREPARED BY LEO A. DEMERS AND FILED ON PLAT CARD #104 DRAWER #2.
- RECORDED PLAN ENTITLED: "GADOURY HIGHLAND PLAT ANNEX BELONGING TO GADOURY BUILDING COMPANY INC. CUMBERLAND, RHODE ISLAND", DATED OCT. 1954, PREPARED BY EDWARD J. HAYDEN AND FILED ON PLAT CARD #85.
- RECORDED PLAN ENTITLED: "FINAL PLAN MINOR SUBDIVISION REPLAT LOUISE AVENUE EXTENSION A.P. 52 LOTS 9, 373 AND 374 OWNER C AND K ASSOCIATES, INC. 3 SQUIRREL LANE, EAST GREENWICH, RHODE ISLAND", REVISION #4 DATED 11/3/03, PREPARED BY DAVID M. GARRIGAN, PLS #1580 AND FILED ON PLAT CARD #1329.
- RECORDED PLAN ENTITLED: "WOODLAND TERRACE PLAT NO. 1 BELONGING TO OSCAR LAVALLEE CUMBERLAND HILL CUMBERLAND R.I.", DATED APRIL 1953, PREPARED BY EDWARD J. HAYED AND FILED AS ENGINEERS DRAW NO. 11 SHEET NO. 35-A.

ANTHONY E. MUSCATELLI
No. 1718
PROFESSIONAL LAND SURVEYOR

CERTIFICATION:

THIS SURVEY AND PLAN CONFORM TO A CLASS I STANDARD AS ADOPTED BY THE RHODE ISLAND BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS.

BY: Anthony E. Muscatelli 5-5-11
REGISTERED PROFESSIONAL LAND SURVEYOR DATE

LEGEND:

STONEWALL
IRON ROD ○ IR
DRILL HOLE ● DH

STREET INDEX

AMERICA STREET
ALTON AVENUE
CHRISTINE DRIVE
SIMONE STREET
WEST WRENTHAM ROAD

SCALE (FEET)
0 50 100 200 400
1 INCH = 100 FT

INTERNATIONAL MAPPING & SURVEYING CORP
LAND SURVEYING CIVIL ENGINEERING PHOTOGRAMMETRIC MAPPING
19 INDUSTRIAL DRIVE, SMITHFIELD, R.I. 02917 (401) 232-2620

ANTHONY E. MUSCATELLI No. 1718 PROFESSIONAL LAND SURVEYOR

HIGHLAND ESTATES (PHASE I)

CUMBERLAND, RHODE ISLAND
AP 52 LOTS 10, 307, 308, 309, 310, 315 & 316

REVISIONS:

NO.	DATE.	DESCRIPTION

DESIGNED BY:
DRAWN BY: K.R.R.
CHECKED BY: A.E.M.
DATE: APRIL 2011
PROJECT NO: 05-77

CLASS I SURVEY PLAN

SHEET 3 OF 16

Q:\05-77 Regional Finance\05-77a Highland Estates\Plan Set\Highland Cl.I.dwg May. 05, 2011 9:56am

A.P. 52 LOT 347
N/F TOWN OF CUMBERLAND

A.P. 52 LOT 373
N/F HUNG NGUYEN

A.P. 52 LOT 233
N/F NORTHBOROUGH REALTY HOLDINGS, LLC

A.P. 52 LOT 234
N/F DONALD LAROCHELLE

A.P. 52 LOT 299
N/F GREGORY & LAURA PALILIS

A.P. 52 LOT 284
N/F NORMON & MAUREEN HARNOIS

A.P. 52 LOT 300
N/F PATRICIA & KENNETH ROCHEFORT

A.P. 52 LOT 272
N/F DIANE LARIVIERE

A.P. 52 LOT 306
N/F EDUARDO & GLORIANA FURTADO

A.P. 52 LOT 305
N/F EDWARD & DONNA GLOD

A.P. 52 LOT 303
N/F NANCY JOLY

A.P. 52 LOT 344
N/F REBECCA TAM

AP 52 LOT 309 12,106 SF

AP 52 LOT 308 12,106 SF

AP 52 LOT 307 12,031 SF

AP 52 LOT 310 11,972 SF

AP 52 LOT 315 12,031 SF

AP 52 LOT 316 12,106 SF

A.P. 52 LOT 311 N/F HIGHLAND ESTATES LLC

A.P. 52 LOT 314 N/F HIGHLAND ESTATES LLC

A.P. 52 LOT 312 N/F EDWARD & DONNA GLOD

AP 52 LOT 313 12,106 SF

AP 52 LOT 10
2,683,074 SF
61.595 ACRES

ALTON AVENUE
LOUISE AVENUE
CHRISTINE DRIVE
AMERICA STREET
SIMONE STREET

OPEN WATER
WOODED SWAMP
FORESTED WETLAND
RIVER EDGE (TYP)

100' RIVERBANK WETLAND
50' PERIMETER WETLAND
50' WOODED SWAMP PERIMETER WETLAND
STREAM FLOW DIRECTION

EXISTING STONE WALL (TYP)
EXISTING PATH
EXISTING TREE LINE (TYP)
EXISTING STRUCTURE (TYP)
PROPERTY LINE (TYP)
ABUTTER'S PROPERTY LINE (TYP)

TP 1A
TP 2B
TP 1W
TP 2W

BEGIN 'D' SERIES
END 'D' SERIES
BEGIN 'E' SERIES
END 'E' SERIES

40' SEWER EASEMENT
30' SEWER EASEMENT

LEGEND

- PROPOSED PROPERTY LINE
- ABUTTING PROPERTY LINE
- WETLAND EDGE
- EXISTING CONTOUR
- 100 PROPOSED CONTOUR
- APPROXIMATE EXISTING WET AREA
- EXISTING STONE WALL
- IRON PIN
- DRILL HOLE
- CONCRETE BOUND
- W WELL
- UTILITY POLE
- TP SOIL EVALUATION
- EXISTING LIMIT OF WOODLAND (APPROXIMATE)

ZONING CRITERIA- PROPOSED (CLUSTER)

	CONVENTIONAL	CONVENTIONAL	CLUSTER	CLUSTER
ZONING DISTRICT	A-2	R-1	A-2	R-1
MINIMUM LOT AREA	80,000 SF	25,000 SF	40,000 SF	25,000 SF
MINIMUM LOT FRONTAGE	180 FT	100 FT	100 FT	100 FT
MINIMUM FRONT YARD SETBACK	75 FT	20 FT	20 FT	20 FT
MINIMUM SIDE YARD SETBACK	20 FT	10 FT	10 FT	10 FT
MINIMUM REAR YARD SETBACK	30 FT	25 FT	25FT	25FT
MAXIMUM BUILDING COVERAGE	15%	20%	25 %	25 %
MAXIMUM BUILDING HEIGHT	35 FT	35 FT	35 FT	35 FT

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PROTECT YOURSELF, GIVE THREE WORKING DAYS NOTICE

LOCATION OF EXISTING UTILITIES SHOWN, ARE FROM GATE LOCATION AND EXISTING DOCUMENTATION AND MAY NOT BE ACCURATE. EXACT LOCATION TO BE DONE BY THE APPROPRIATE UTILITY COMPANY OR MUNICIPALITY PRIOR TO ANY EXCAVATION CALL *DIGSAFE* AT *1-888-DIG-SAFE* *1-888-344-7233*

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED JAN 31 2017 FILE # 07-0029
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Charles A. Horbert

MAY - 9 2016

TOTAL AREA OF SUBDIVISION
AREA = 2,755,400 SF (63.25 ACRES)

TEST PIT DATA TABLE

TP #	DATE	ELEVATION	SHGWT	DEPTH
1A	10-25-06	310.0	302.0	8'
2B	10-25-06	308.0	305.9	26"
1W	10-25-06	316.0	314.5	17"
2W	10-25-06	313.0	310.3	29"

NOTES:
1. TOPOGRAPHY BASED ON BASE MAP INFORMATION TAKEN FROM A PLAN ENTITLED: "EXISTING CONDITIONS PLAN FOR REGIONAL FINANCING CO., CLASS IV SURVEY OF AP 52, LOTS 10, 307, 308, 310, 311, 313-316; BY MARSH SURVEYING INC. 11-20-03.

2. WETLAND RESOURCES DELINEATED BY NATURAL RESOURCE SERVICES, INC. AND VERIFIED UNDER APPLICATION No. 04-0510, EXPIRATION DATE: 7-13-09.

SCALE (FEET)
0 40 80 160 320
1 INCH = 80 FT

JCE
JOE CASALI ENGINEERING, INC.
CIVIL · SITE DEVELOPMENT · TRANSPORTATION
DRAINAGE · WETLANDS · ISDS · TRAFFIC · FLOODPLAIN
300 POST ROAD, WARWICK, RHODE ISLAND 02888
(401)944-1300 (401)944-1313 FAX WWW.JOECASALI.COM

JOSEPH A. CASALI
No. 7250
REGISTERED PROFESSIONAL ENGINEER
CIVIL
5.7.16

HIGHLAND ESTATES
CUMBERLAND, RHODE ISLAND
AP 52 LOTS 10, 307, 308, 309, 310, 311, 313-316
MAJOR LAND DEVELOPMENT

REVISIONS:		
NO.	DATE.	DESCRIPTION
1	3-2007	UPDATED PLANSET
2	8-2007	RIDEM COMMENTS
3	2-2008	RIDEM COMMENTS
4	5-2008	RIDEM COMMENTS
5	12-2009	WATER&SEWER SUB.
6	2-2010	WATER RESUB.
7	5-2011	PRELIM. PLAN SUB.
8	6-2011	PRELIM. PLAN APPROVAL
9	7-2011	FINAL PLAN
10	01-2016	MODIFIED PRELIM. PLAN

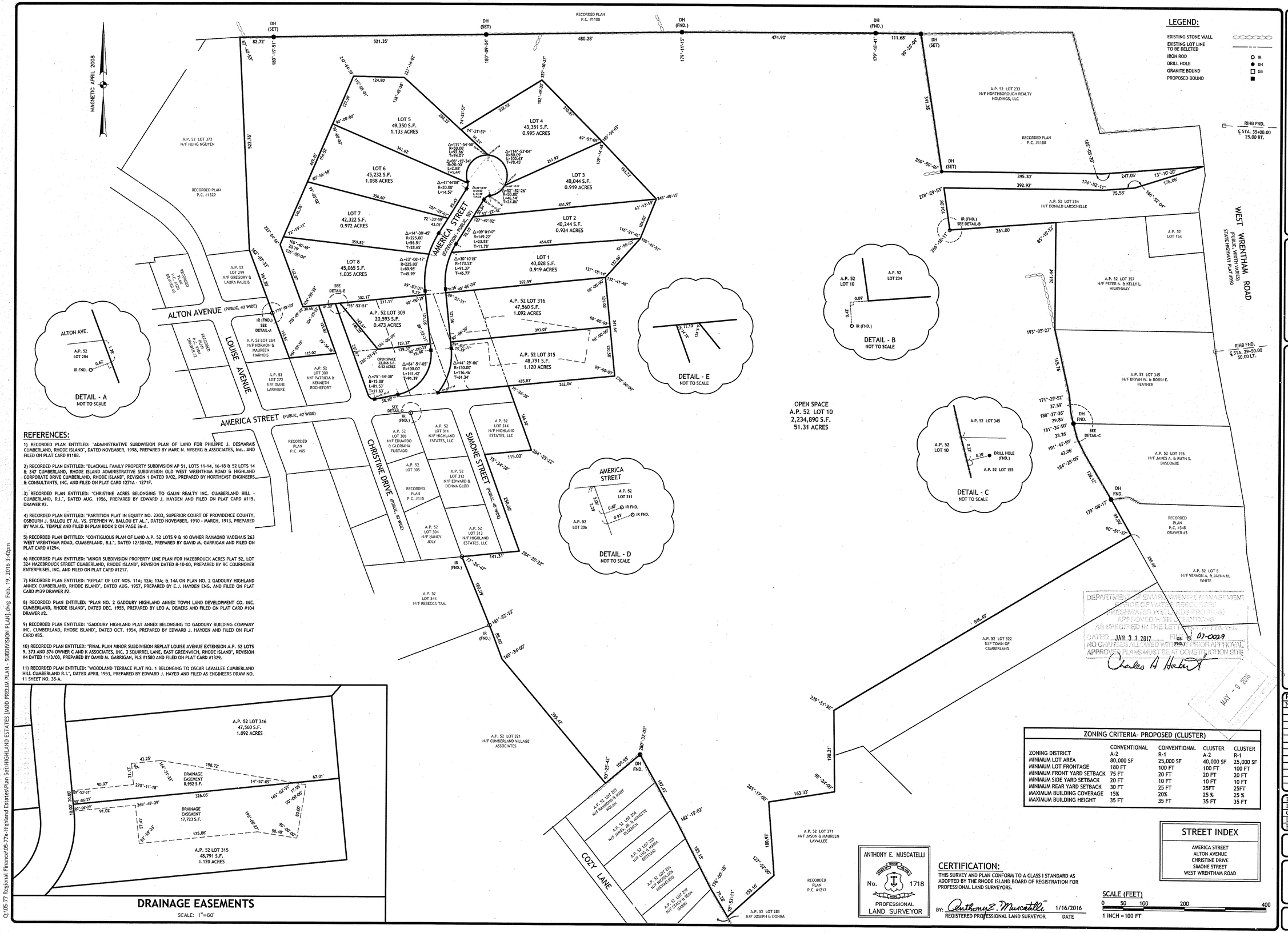
DESIGNED BY:	GC & ACK
DRAWN BY:	WMLJR
CHECKED BY:	JAC
DATE:	JANUARY 07
PROJECT NO:	05-77a

PRELIMINARY, NOT FOR CONSTRUCTION

EXISTING CONDITIONS PLAN

SHEET 4 OF 16

Q:\05-77 Regional Finance\05-77a Highland Estates\Plan Set\HIGHLAND ESTATES (MODIFIED PRELIM PLAN).dwg May. 09, 2016 8:07am



REFERENCES:

1) RECORDED PLAN ENTITLED: "ADMINISTRATIVE SUBDIVISION PLAN OF LAND FOR PHILIPPE J. DESMARAIS CUMBERLAND, RHODE ISLAND", DATED NOVEMBER, 1998, PREPARED BY MARC N. NYBERG & ASSOCIATES, Inc.. AND FILED ON PLAT CARD #1188.

2) RECORDED PLAN ENTITLED: "BLACKALL FAMILY PROPERTY SUBDIVISION AP 51, LOTS 11-14, 16-18 & 52 LOTS 14 & 347 CUMBERLAND, RHODE ISLAND ADMINISTRATIVE SUBDIVISION OLD WEST WRENTHAM ROAD & HIGHLAND CORPORATE DRIVE CUMBERLAND, RHODE ISLAND", REVISION 1 DATED 9/02, PREPARED BY NORTHEAST ENGINEERS & CONSULTANTS, INC. AND FILED ON PLAT CARD 1271A - 1271F.

3) RECORDED PLAN ENTITLED: "CHRISTINE ACRES BELONGING TO GALIN REALTY INC. CUMBERLAND HILL - CUMBERLAND, R.I.", DATED AUG. 1956, PREPARED BY EDWARD J. HAYDEN AND FILED ON PLAT CARD #115, DRAWER #2.

4) RECORDED PLAN ENTITLED: "PARTITION PLAT IN EQUITY NO. 2203, SUPERIOR COURT OF PROVIDENCE COUNTY, OSBOURN J. BALLOU ET AL. VS. STEPHEN W. BALLOU ET AL.", DATED NOVEMBER, 1910 - MARCH, 1913, PREPARED BY W.H.G. TEMPLE AND FILED IN PLAN BOOK 2 ON PAGE 36-A.

5) RECORDED PLAN ENTITLED: "CONTIGUOUS PLAN OF LAND A.P. 52 LOTS 9 & 10 OWNER RAYMOND VADENAIS 263 WEST WRENTHAM ROAD, CUMBERLAND, R.I.", DATED 12/30/02, PREPARED BY DAVID M. GARRIGAN AND FILED ON PLAT CARD #1294.

6) RECORDED PLAN ENTITLED: "MINOR SUBDIVISION PROPERTY LINE PLAN FOR HAZEBROUCK ACRES PLAT 52, LOT 324 HAZEBROUCK STREET CUMBERLAND, RHODE ISLAND", REVISION DATED 8-10-00, PREPARED BY RC COURNOYER ENTERPRISES, INC. AND FILED ON PLAT CARD #1217.

7) RECORDED PLAN ENTITLED: "REPLAT OF LOT NOS. 11A; 12A; 13A; & 14A ON PLAN NO. 2 GADOURY HIGHLAND ANNEX CUMBERLAND, RHODE ISLAND", DATED AUG. 1957, PREPARED BY E.J. HAYDEN ENG. AND FILED ON PLAT CARD #129 DRAWER #2.

8) RECORDED PLAN ENTITLED: "PLAN NO. 2 GADOURY HIGHLAND ANNEX TOWN LAND DEVELOPMENT CO. INC. CUMBERLAND, RHODE ISLAND", DATED DEC. 1955, PREPARED BY LEO A. DEMERS AND FILED ON PLAT CARD #104 DRAWER #2.

9) RECORDED PLAN ENTITLED: "GADOURY HIGHLAND PLAT ANNEX BELONGING TO GADOURY BUILDING COMPANY INC. CUMBERLAND, RHODE ISLAND", DATED OCT. 1954, PREPARED BY EDWARD J. HAYDEN AND FILED ON PLAT CARD #85.

10) RECORDED PLAN ENTITLED: "FINAL PLAN MINOR SUBDIVISION REPLAT LOUISE AVENUE EXTENSION A.P. 52 LOTS 9, 373 AND 374 OWNER C AND K ASSOCIATES, INC., 3 SQUIRREL LANE, EAST GREENWICH, RHODE ISLAND", REVISION #4 DATED 11/3/03, PREPARED BY DAVID M. GARRIGAN, PLS #1580 AND FILED ON PLAT CARD #1329.

11) RECORDED PLAN ENTITLED: "WOODLAND TERRACE PLAT NO. 1 BELONGING TO OSCAR LAVALLEE CUMBERLAND HILL CUMBERLAND R.I.", DATED APRIL 1953, PREPARED BY EDWARD J. HAYED AND FILED AS ENGINEERS DRAW NO. 11 SHEET NO. 35-A.

ZONING CRITERIA- PROPOSED (CLUSTER)

	CONVENTIONAL	CONVENTIONAL	CLUSTER	CLUSTER
ZONING DISTRICT	A-2	R-1	A-2	R-1
MINIMUM LOT AREA	80,000 SF	25,000 SF	40,000 SF	25,000 SF
MINIMUM LOT FRONTAGE	180 FT	100 FT	100 FT	100 FT
MINIMUM FRONT YARD SETBACK	75 FT	20 FT	20 FT	20 FT
MINIMUM SIDE YARD SETBACK	20 FT	10 FT	10 FT	10 FT
MINIMUM REAR YARD SETBACK	30 FT	25 FT	25FT	25FT
MAXIMUM BUILDING COVERAGE	15%	20%	25 %	25 %
MAXIMUM BUILDING HEIGHT	35 FT	35 FT	35 FT	35 FT

STREET INDEX

AMERICA STREET
ALTON AVENUE
CHRISTINE DRIVE
SIMONE STREET
WEST WRENTHAM ROAD

ANTHONY E. MUSCATELLI — No. 1718 — PROFESSIONAL LAND SURVEYOR

CERTIFICATION:

THIS SURVEY AND PLAN CONFORM TO A CLASS I STANDARD AS ADOPTED BY THE RHODE ISLAND BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS.

BY: Anthony E. Muscatelli — REGISTERED PROFESSIONAL LAND SURVEYOR — 1/16/2016 DATE

SCALE (FEET): 0 50 100 200 400 — 1 INCH = 100 FT

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER DATED
DATED JAN 3 1 2017 FILE NO. 07-0029
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Charles A Horbert
MAY - 9 2016

INTERNATIONAL MAPPING & SURVEYING CORP.
LAND SURVEYING CIVIL ENGINEERING PHOTOGRAMMETRIC MAPPING
19 INDUSTRIAL DRIVE, SMITHFIELD, R.I. 02917 (401) 232-2620

ANTHONY E. MUSCATELLI — No. 1718 — PROFESSIONAL LAND SURVEYOR

HIGHLAND ESTATES
CUMBERLAND, RHODE ISLAND
AP 52 LOTS 10, 307, 308, 309, 310, 315 & 316
MAJOR LAND DEVELOPMENT

REVISIONS:

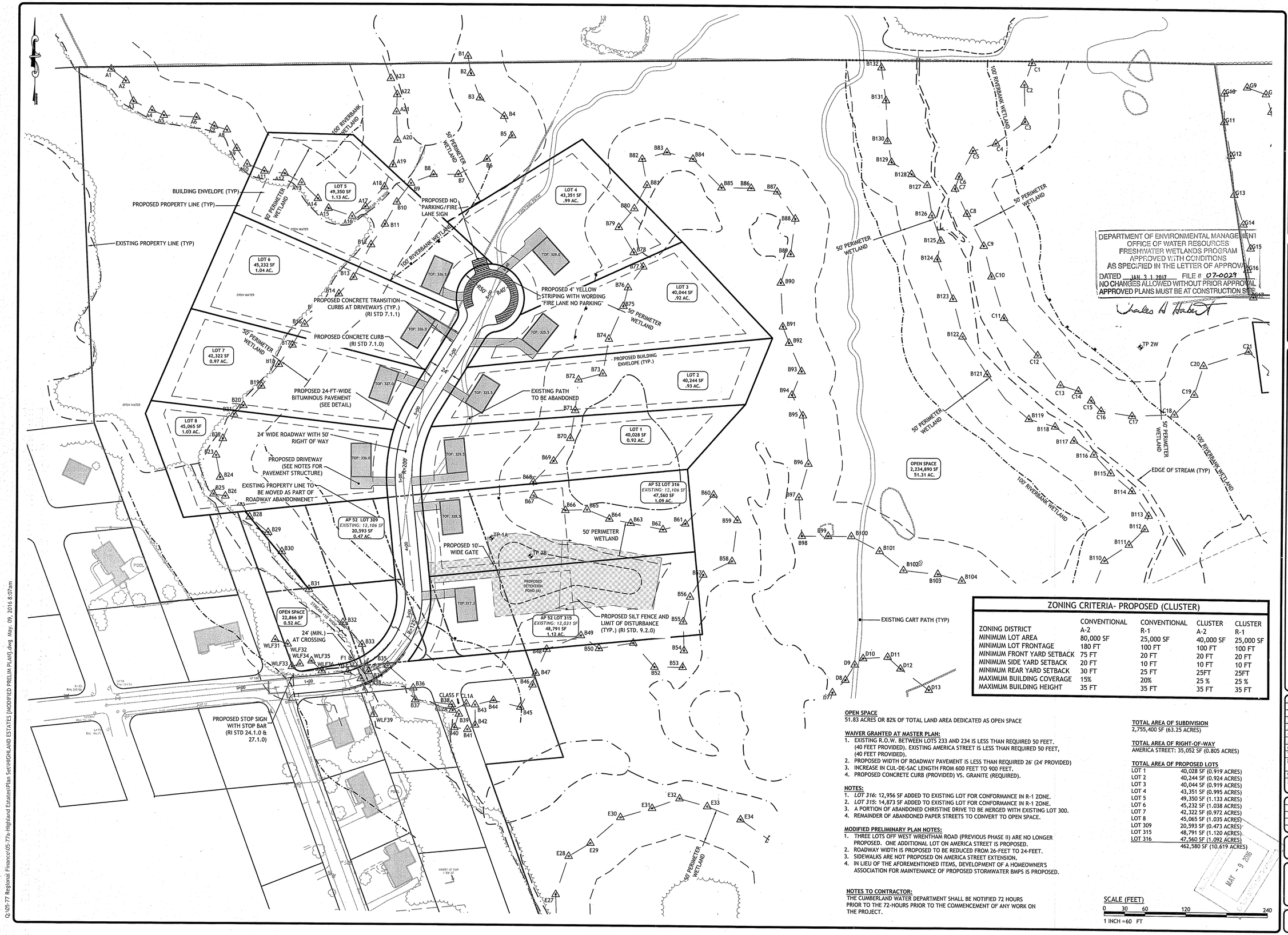
NO.	DATE.	DESCRIPTION

DESIGNED BY: PAK
DRAWN BY: PAK
CHECKED BY: AEM
DATE: JANUARY 2016
PROJECT NO: 05-77a

SUBDIVISION PLAN

SHEET 5 OF 16

Q:\05-77 Regional Finance\05-77a-Highland Estates\Plan Set\HIGHLAND ESTATES [MOD PRELIM PLAN - SUBDIVISION PLAN].dwg Feb. 19, 2016 3:42pm



DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED JAN 3 1 2017 FILE # 07-0029
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Charles A Horbert

ZONING CRITERIA- PROPOSED (CLUSTER)

ZONING DISTRICT	CONVENTIONAL A-2	CONVENTIONAL R-1	CLUSTER A-2	CLUSTER R-1
MINIMUM LOT AREA	80,000 SF	25,000 SF	40,000 SF	25,000 SF
MINIMUM LOT FRONTAGE	180 FT	100 FT	100 FT	100 FT
MINIMUM FRONT YARD SETBACK	75 FT	20 FT	20 FT	20 FT
MINIMUM SIDE YARD SETBACK	20 FT	10 FT	10 FT	10 FT
MINIMUM REAR YARD SETBACK	30 FT	25 FT	25FT	25FT
MAXIMUM BUILDING COVERAGE	15%	20%	25 %	25 %
MAXIMUM BUILDING HEIGHT	35 FT	35 FT	35 FT	35 FT

OPEN SPACE
51.83 ACRES OR 82% OF TOTAL LAND AREA DEDICATED AS OPEN SPACE

WAIVER GRANTED AT MASTER PLAN:
1. EXISTING R.O.W. BETWEEN LOTS 233 AND 234 IS LESS THAN REQUIRED 50 FEET. (40 FEET PROVIDED). EXISTING AMERICA STREET IS LESS THAN REQUIRED 50 FEET, (40 FEET PROVIDED).
2. PROPOSED WIDTH OF ROADWAY PAVEMENT IS LESS THAN REQUIRED 26' (24' PROVIDED)
3. INCREASE IN CUL-DE-SAC LENGTH FROM 600 FEET TO 900 FEET.
4. PROPOSED CONCRETE CURB (PROVIDED) VS. GRANITE (REQUIRED).

NOTES:
1. *LOT 316*: 12,956 SF ADDED TO EXISTING LOT FOR CONFORMANCE IN R-1 ZONE.
2. *LOT 315*: 14,873 SF ADDED TO EXISTING LOT FOR CONFORMANCE IN R-1 ZONE.
3. A PORTION OF ABANDONED CHRISTINE DRIVE TO BE MERGED WITH EXISTING LOT 300.
4. REMAINDER OF ABANDONED PAPER STREETS TO CONVERT TO OPEN SPACE.

MODIFIED PRELIMINARY PLAN NOTES:
1. THREE LOTS OFF WEST WRENTHAM ROAD (PREVIOUS PHASE II) ARE NO LONGER PROPOSED. ONE ADDITIONAL LOT ON AMERICA STREET IS PROPOSED.
2. ROADWAY WIDTH IS PROPOSED TO BE REDUCED FROM 26-FEET TO 24-FEET.
3. SIDEWALKS ARE NOT PROPOSED ON AMERICA STREET EXTENSION.
4. IN LIEU OF THE AFOREMENTIONED ITEMS, DEVELOPMENT OF A HOMEOWNER'S ASSOCIATION FOR MAINTENANCE OF PROPOSED STORMWATER BMPS IS PROPOSED.

NOTES TO CONTRACTOR:
THE CUMBERLAND WATER DEPARTMENT SHALL BE NOTIFIED 72 HOURS PRIOR TO THE 72-HOURS PRIOR TO THE COMMENCEMENT OF ANY WORK ON THE PROJECT.

TOTAL AREA OF SUBDIVISION
2,755,400 SF (63.25 ACRES)

TOTAL AREA OF RIGHT-OF-WAY
AMERICA STREET: 35,052 SF (0.805 ACRES)

TOTAL AREA OF PROPOSED LOTS

LOT 1	40,028 SF (0.919 ACRES)
LOT 2	40,244 SF (0.924 ACRES)
LOT 3	40,044 SF (0.919 ACRES)
LOT 4	43,351 SF (0.995 ACRES)
LOT 5	49,350 SF (1.133 ACRES)
LOT 6	45,232 SF (1.038 ACRES)
LOT 7	42,322 SF (0.972 ACRES)
LOT 8	45,065 SF (1.035 ACRES)
LOT 309	20,593 SF (0.473 ACRES)
LOT 315	48,791 SF (1.120 ACRES)
LOT 316	47,560 SF (1.092 ACRES)
	462,580 SF (10.619 ACRES)

SCALE (FEET)
0 30 60 120 240
1 INCH = 60 FT

MAY - 9 2016

JCE
JOE CASAL

AMERICA ST. DRAINAGE STRUCTURE TABLE					
STRUCTURE NAME	STATION:	RIM	INV (IN)	INV (OUT)	R.I. STANDARDS
CB A1	7+67, 23.8' R	321.16		317.16	4.4.0M1, 6.3.2 & 7.1.8
CB A2	7+64, 19.1' L	321.16	316.94 (CB A1)	316.84	4.4.0M1, 6.3.2 & 7.1.8 WITH OIL/WATER SEPARATOR
CB A3	3+57, 10.8' L	318.75	308.59 (CB A4)	308.50	4.4.0M2, 6.3.2 & 7.1.8
CB A4	2+85, 10.9' L	312.96	309.01 (CB A5)	308.94	4.4.0M1, 6.3.4 & 7.1.8 WITH OIL/WATER SEPARATOR
CB A5	2+83, 10.9' R	312.98		309.12	4.4.0M2, 6.3.4 & 7.1.8
CB A6	1+30, 10.8' R	306.96		304.01	4.4.0M1 (WITH ALTERNATE SLAB), 6.3.2 & 7.1.8 WITH OIL/WATER SEPARATOR
CB A7	1+30, 10.9' L	306.96	303.79 (CB A6)	303.69	STORM CEPTOR 6.3.2
CB A8	6+25, 10.9' L	327.88	316.26 (CB A2)	316.16	4.4.0M2, 6.3.2 & 7.1.8
DMH 1	6+31, 79.1' R	321.00	315.26 (CB A8)	315.16	4.4.0 M2 & 6.2.1

PIPE TABLE				
PIPE #	DIAMETER	LENGTH	MATERIAL	SLOPE
1	12"	152 LF	ADS N-12 HDPE	0.97%
2	12"	86 LF	ADS N-12 HDPE	1.00%
3	12"	135 LF	ADS N-12 HDPE	0.42%
4	12"	39 LF	ADS N-12 HDPE	0.50%
6	12"	18 LF	ADS N-12 HDPE	1.01%
7	12"	38 LF	ADS N-12 HDPE	1.26%
8	12"	63 LF	ADS N-12 HDPE	0.52%
9	12"	18 LF	ADS N-12 HDPE	0.51%
10	12"	197 LF	ADS N-12 PIPE	3.60%

PLANTING NOTES:

PLANTINGS OF RED MAPLE (ACERRUBRUM), SPICEBUSH (LINDERA BENZOIN), ROSEBAY RHODODENDRON (RHODODENDRON MAXIMUM), AND NORTHERN WHITE CEDAR (THUJA OCCIDENTAILS) PLANTED THREE TO FIVE FEET (3'-5') IN HEIGHT, SPACED SIX TO TEN (6'-10') APART ON CENTER ARE REQUIRED PER RIDEM FRESHWATER WETLANDS APPROVAL.
(SEE SHEET 13 FOR DETAILS)

LEGEND

- PROPOSED PROPERTY LINE
- ABUTTING PROPERTY LINE
- WETLAND EDGE
- EXISTING CONTOUR
- 100 PROPOSED CONTOUR
- APPROXIMATE EXISTING WET AREA
- EXISTING STONE WALL
- IRON PIN
- DRILL HOLE
- CONCRETE BOUND
- WELL
- UTILITY POLE
- TP SOIL EVALUATION
- EXISTING LIMIT OF WOODLAND (APPROXIMATE)

NOTE:

SINGLE FAMILY HOME FOOTPRINTS AS SHOWN ARE NOT FINAL. FINAL FOUNDATION FOOTPRINTS AND RESPECTIVE FOUNDATION STEPS WILL BE DETERMINED AND DESIGNED AT A LATER DATE.

NOTE TO CONTRACTOR:

THE CUMBERLAND WATER DEPARTMENT SHALL BE NOTIFIED 72 HOURS PRIOR TO THE 72-HOURS PRIOR TO THE COMMENCEMENT OF ANY WORK ON THE PROJECT.

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
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MAY - 9 2016

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JOSEPH A. CASALI
No. 7250
REGISTERED PROFESSIONAL ENGINEER
CIVIL
5.7.16

HIGHLAND ESTATES

CUMBERLAND, RHODE ISLAND

AP 52 LOTS 10, 307, 308, 309, 310, 315 & 316

MAJOR LAND DEVELOPMENT

REVISIONS:		
NO.	DATE.	DESCRIPTION
1	3-2007	UPDATED PLANSET
2	8-2007	RIDEM COMMENTS
3	2-2008	RIDEM COMMENTS
4	5-2008	RIDEM COMMENTS
5	12-2009	WATER&SEWER SUB.
6	2-2010	WATER RESUB.
7	5-2011	PRELIM. PLAN SUB.
8	6-2011	PRELIM. PLAN APPROVAL
9	7-2011	FINAL PLAN
10	01-2016	MODIFIED PRELIM. PLAN

DESIGNED BY:	GC & ACK
DRAWN BY:	WMLJR
CHECKED BY:	JAC
DATE:	JANUARY 07
PROJECT NO:	05-77a

PRELIMINARY, NOT FOR CONSTRUCTION

AMERICA ST. GRADING AND DRAINAGE PLAN

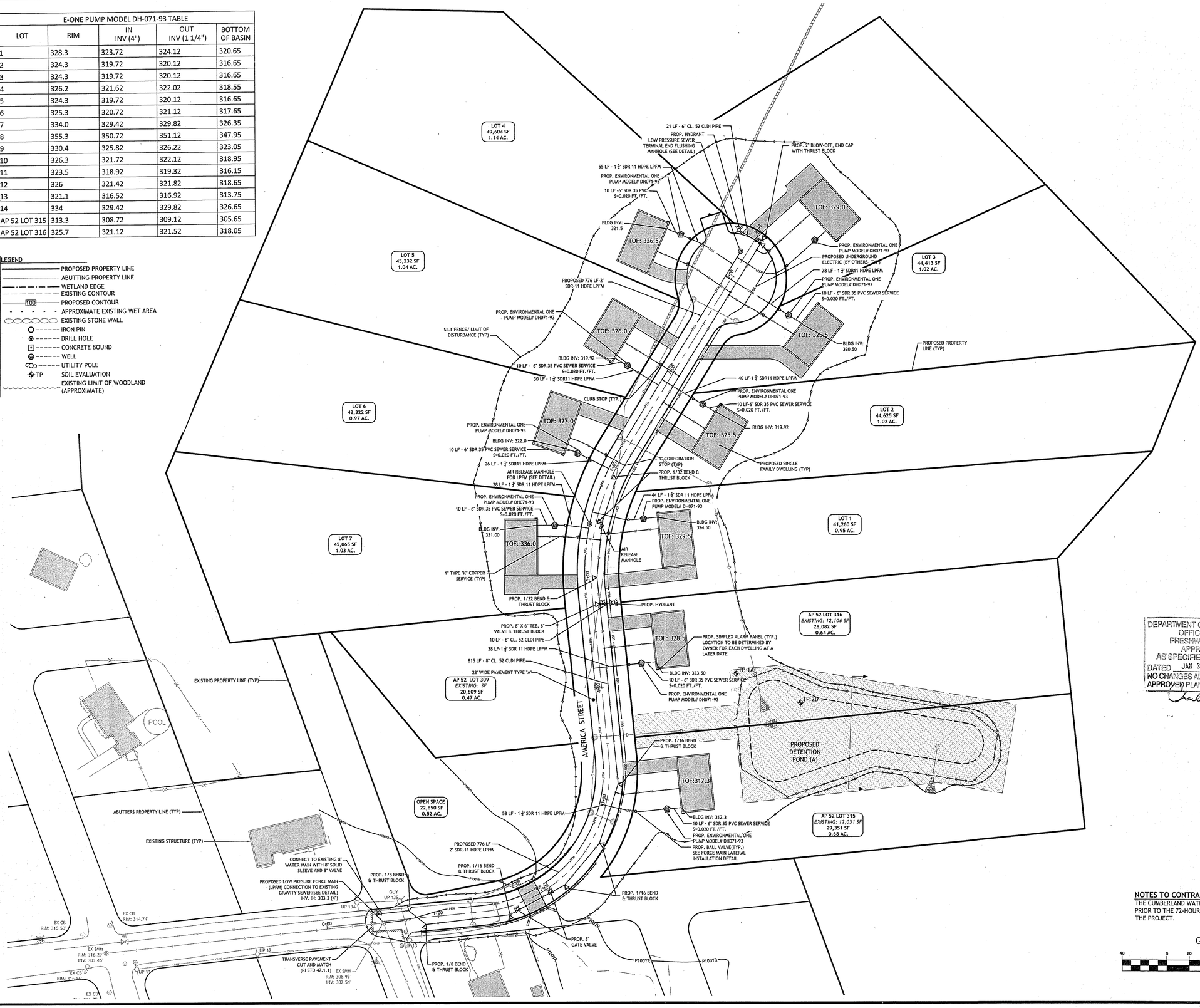
SHEET 7 OF 16

Q:\05-77 Regional Finance\05-77a-Highland Estates\Plan Set\HIGHLAND ESTATES [MODIFIED PRELIM PLAN].dwg May. 09, 2016 8:07am

E-ONE PUMP MODEL DH-071-93 TABLE				
LOT	RIM	IN INV (4")	OUT INV (1 1/4")	BOTTOM OF BASIN
1	328.3	323.72	324.12	320.65
2	324.3	319.72	320.12	316.65
3	324.3	319.72	320.12	316.65
4	326.2	321.62	322.02	318.55
5	324.3	319.72	320.12	316.65
6	325.3	320.72	321.12	317.65
7	334.0	329.42	329.82	326.35
8	355.3	350.72	351.12	347.95
9	330.4	325.82	326.22	323.05
10	326.3	321.72	322.12	318.95
11	323.5	318.92	319.32	316.15
12	326	321.42	321.82	318.65
13	321.1	316.52	316.92	313.75
14	334	329.42	329.82	326.65
AP 52 LOT 315	313.3	308.72	309.12	305.65
AP 52 LOT 316	325.7	321.12	321.52	318.05

LEGEND

- PROPOSED PROPERTY LINE
- ABUTTING PROPERTY LINE
- WETLAND EDGE
- EXISTING CONTOUR
- 100 PROPOSED CONTOUR
- APPROXIMATE EXISTING WET AREA
- EXISTING STONE WALL
- IRON PIN
- DRILL HOLE
- CONCRETE BOUND
- WELL
- UTILITY POLE
- TP SOIL EVALUATION
- EXISTING LIMIT OF WOODLAND (APPROXIMATE)



DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
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MAY - 9 2016

NOTES TO CONTRACTOR:
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GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

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JOSEPH A. CASALI
No. 7250
REGISTERED PROFESSIONAL ENGINEER
CIVIL
5.7.16

HIGHLAND ESTATES
CUMBERLAND, RHODE ISLAND
AP 52 LOTS 10, 307, 308, 309, 310, 315 & 316
MAJOR LAND DEVELOPMENT

REVISIONS:		
NO.	DATE.	DESCRIPTION
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7	5-2011	PRELIM. PLAN SUB.
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9	7-2011	FINAL PLAN
10	01-2016	MODIFIED PRELIM. PLAN

DESIGNED BY:	GC & ACK
DRAWN BY:	WMLJR
CHECKED BY:	JAC
DATE:	JANUARY 07
PROJECT NO:	05-77a

PRELIMINARY, NOT FOR CONSTRUCTION

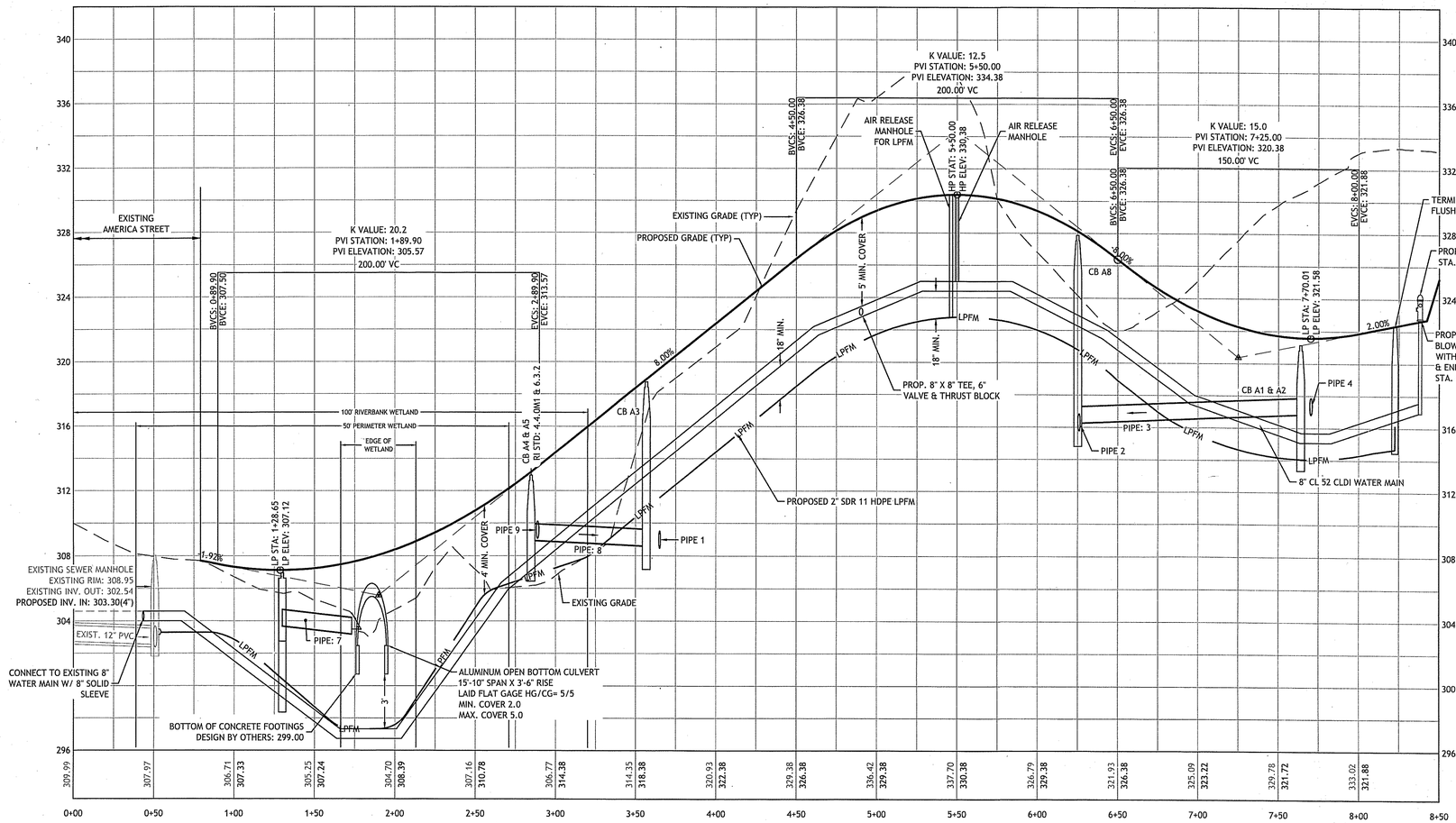
AMERICA STREET UTILITY PLAN

SHEET 8 OF 16

Q:\05-77 Regional Finance\05-77a-Highland Estates\Plan Set\HIGHLAND ESTATES (MODIFIED PRELIM PLAN)_dwg May. 09, 2016 8:07am

AMERICA ST. DRAINAGE STRUCTURE TABLE					
STRUCTURE NAME	STATION:	RIM	INV (IN)	INV (OUT)	R.I. STANDARDS
CB A1	7+67, 23.8' R	321.16		317.16	4.4.0M1, 6.3.2 & 7.1.8
CB A2	7+64, 19.1' L	321.16	316.94 (CB A1)	316.84	4.4.0M1, 6.3.2 & 7.1.8 WITH OIL/WATER SEPARATOR
CB A3	3+57, 10.8' L	318.75	308.59 (CB A4)	308.50	4.4.0M2, 6.3.2 & 7.1.8
CB A4	2+85, 10.9' L	312.96	309.01 (CB A5)	308.94	4.4.0M1, 6.3.4 & 7.1.8 WITH OIL/WATER SEPARATOR
CB A5	2+83, 10.9' R	312.98		309.12	4.4.0M2, 6.3.4 & 7.1.8
CB A6	1+30, 10.8' R	306.96		304.01	4.4.0M1 (WITH ALTERNATE SLAB), 6.3.2 & 7.1.8 WITH OIL/WATER SEPARATOR
CB A7	1+30, 10.9' L	306.96	303.79 (CB A6)	303.69	STORM CEPTOR 6.3.2
CB A8	6+25, 10.9' L	327.88	316.26 (CB A2)	316.16	4.4.0M2, 6.3.2 & 7.1.8
DMH 1	6+31, 79.1' R	321.00	315.26 (CB A8)	315.16	4.4.0 M2 & 6.2.1

PIPE TABLE				
PIPE #	DIAMETER	LENGTH	MATERIAL	SLOPE
1	12"	152 LF	ADS N-12 HDPE	0.97%
2	12"	86 LF	ADS N-12 HDPE	1.00%
3	12"	135 LF	ADS N-12 HDPE	0.42%
4	12"	39 LF	ADS N-12 HDPE	0.50%
6	12"	18 LF	ADS N-12 HDPE	1.01%
7	12"	38 LF	ADS N-12 HDPE	1.26%
8	12"	63 LF	ADS N-12 HDPE	0.92%
9	12"	18 LF	ADS N-12 HDPE	0.51%
10	12"	197 LF	ADS N-12 PIPE	3.60%



AMERICA ST PROFILE
HORIZONTAL: 1" = 40'
VERTTICAL: 1" = 4'

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
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AS SPECIFIED IN THE LETTER OF APPROVAL
DATED JAN 3 1 2017 FILE # 07-0029
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Charles A. Horbert

MAY - 9 2016

JCE
JOE CASALI ENGINEERING, INC.
CIVIL · SITE DEVELOPMENT · TRANSPORTATION
DRAINAGE · WETLANDS · ISDS · TRAFFIC · FLOODPLAIN
300 POST ROAD, WARWICK, RI 02888
(401)944-1300 (401)944-1313 FAX WWW.JOECASALI.COM

JOSEPH A. CASALI
No. 7250
REGISTERED PROFESSIONAL ENGINEER
CIVIL
5.7.16

HIGHLAND ESTATES
CUMBERLAND, RHODE ISLAND
AP 52 LOTS 10, 307, 308, 309, 310, 315 & 316
MAJOR LAND DEVELOPMENT

REVISIONS:		
NO.	DATE.	DESCRIPTION
1	3-2007	UPDATED PLANSET
2	8-2007	RIDEM COMMENTS
3	2-2008	RIDEM COMMENTS
4	5-2008	RIDEM COMMENTS
5	12-2009	WATER&SEWER SUB.
6	2-2010	WATER RESUB.
7	5-2011	PRELIM. PLAN SUB.
8	6-2011	PRELIM. PLAN APPROVAL
9	7-2011	FINAL PLAN
10	01-2016	MODIFIED PRELIM. PLAN

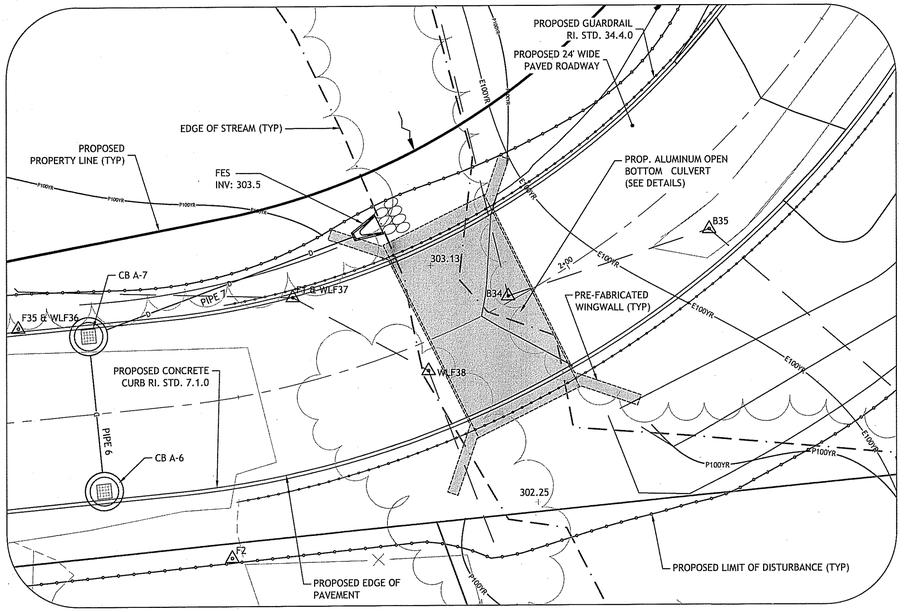
DESIGNED BY:	GC & ACK
DRAWN BY:	WMLJR
CHECKED BY:	JAC
DATE:	JANUARY 07
PROJECT NO:	05-77a

PRELIMINARY, NOT FOR CONSTRUCTION

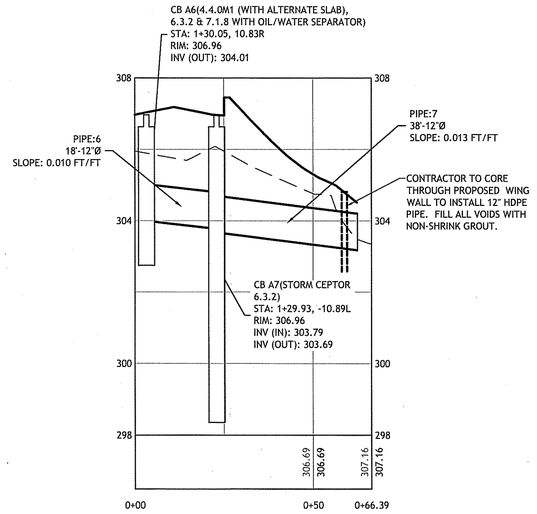
AMERICA STREET PROFILE

SHEET 9 OF 16

Q:\05-77 Regional Finance\05-77a-Highland Estates\Plan Set\HIGHLAND ESTATES [MODIFIED PRELIM PLAN].dwg May. 09, 2016 8:08am



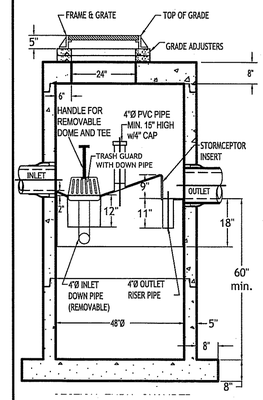
ALUMINUM OPEN BOTTOM CULVERT CROSSING DETAIL STA: 1+86
SCALE: 1" = 10'



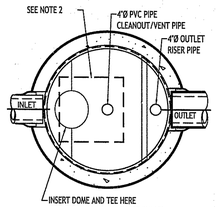
AMERICA ST. STORMCEPTOR (1) PROFILE

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 2'

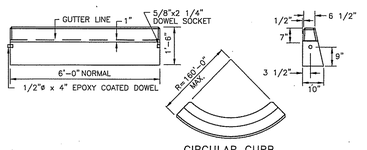
Stormceptor® — Hydro Conduit
STC 4501 Precast Concrete Stormceptor (450 US Gallon Capacity)
PROJECT:
LOCATION:
DR. BY:
CK. BY:
DATE:
SCALE: N.T.S.
DWG.#



SECTION THRU CHAMBER



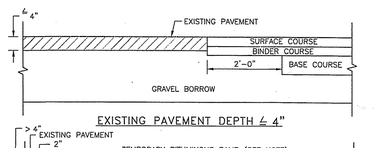
SECTION THRU PLAN VIEW



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 — R.I. STANDARD 7.1.0



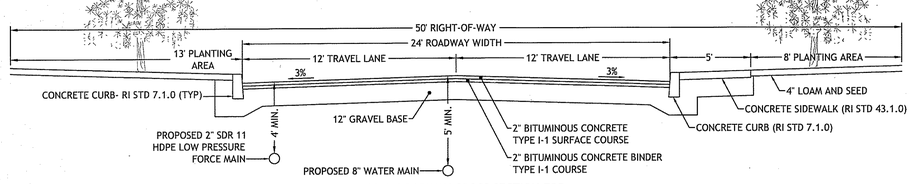
NOTE:
A BOND BREAKER (TAPERED OR EQUIVALENT) WILL BE PLACED 5'-0" FROM THE JOINT AND COVERED WITH THE BINDER COURSE AS THE TEMPORARY RAMP. PRIOR TO PLACING THE SURFACE COURSE, THE BINDER COURSE AND BOND BREAKER WILL BE REMOVED.

TRANSVERSE PAVEMENT CUT AND MATCH — R.I. STANDARD 47.1.1

SIGN NUMBER					R1-1
LEGEND					STOP
COLOR	BACKGROUND	RED			
	COPY	WHITE			
SIGN DIMENSION	WIDTH	24"	30"	36"	48"
	HEIGHT	24"	30"	36"	48"

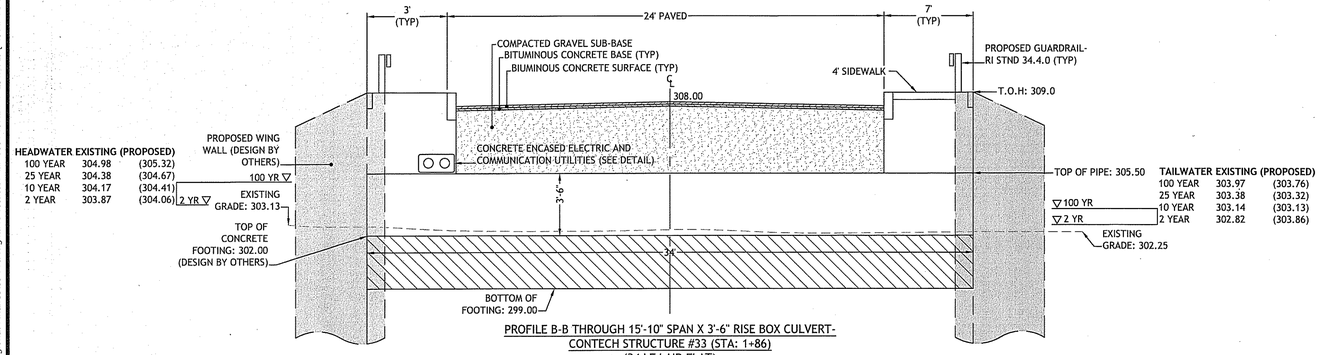
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION T.15 OF THE R.I. STANDARD SPECIFICATIONS.
2. DENOTES TYPE III GRADE SHEETING.
3. REGULATORY SIGNS SHALL BE MOUNTED IN ACCORDANCE WITH STD. 24.1.0, 24.2.0 OR 24.6.0.
4. THICKNESS OF ALUMINUM SIGN PLATES: LESS THAN TO SQ. FT. – 0.081 IN. 10 SQ. FT. TO 36 SQ. FT. – 0.102 IN. GREATER THAN 36 SQ. FT. – 0.125 IN.
5. FOR ADDITIONAL SIGNS SEE THE MUTCD.

REGULATORY SIGNS — R.I. STANDARD 27.1.0

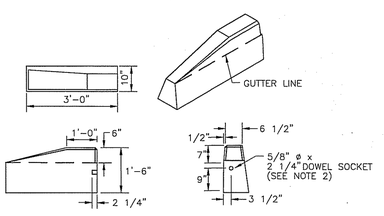


TYPICAL ROADWAY CROSS SECTION FOR PROPOSED AMERICA STREET (50' RIGHT OF WAY)
SCALE: 1" = 4'

NOTE:
1. MATERIALS AND CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH THE TOWN OF CUMBERLAND LAND DEVELOPMENT AND SUBDIVISION REGULATIONS DATED APRIL 2005 AND THE RIDOT STANDARD SPECIFICATIONS FOR ROADWAY AND BRIDGE CONSTRUCTION, 2004 EDITION INCLUDING ALL REVISIONS.



PROFILE B-B THROUGH 15'-10" SPAN X 3'-6" RISE BOX CULVERT-CONTECH STRUCTURE #33 (STA: 1+86)
(34 LF LAID FLAT)
SCALE: 1"=4'



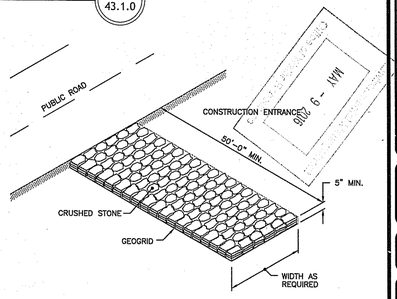
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. DRAWING SHOWS TRANSITION CURB FOR ONE DIRECTION, FOR OTHER DIRECTION USED OPPOSITE HAND AND INCLUDE A 1/2" ø X 4" EPOXY COATED DOWEL.
3. EXPOSED SURFACES TO HAVE A SPONGE FLOAT FINISH.
4. EXPOSED EDGES TO HAVE A 3/4" CHAMFER.

3' - 0" PRECAST CONCRETE TRANSITION CURB — R.I. STANDARD 7.1.1

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.

TRANSVERSE PAVEMENT CUT AND MATCH — R.I. STANDARD 43.1.0

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED JAN 31 2017 FILE # 07-0029
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Charles A Horbert



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

CONSTRUCTION ACCESS — R.I. STANDARD 9.9.0

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JOSEPH A. CASALI
No. 7250
REGISTERED PROFESSIONAL ENGINEER
CIVIL
5.7.16

HIGHLAND ESTATES
CUMBERLAND, RHODE ISLAND
AP 52 LOTS 10, 307, 308, 309, 310, 315 & 316
MAJOR LAND DEVELOPMENT

REVISIONS:		
NO.	DATE.	DESCRIPTION
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DESIGNED BY:	GC & ACK
DRAWN BY:	WMLJR
CHECKED BY:	JAC
DATE:	JANUARY 07
PROJECT NO:	05-77a

PRELIMINARY, NOT FOR CONSTRUCTION

DETAILS I

SHEET 10 OF 16

Q:\05-77 Regional Finance\05-77a-Highland Estates\Plan Set\HIGHLAND ESTATES [MODIFIED PRELIM PLAN].dwg Nov. 09, 2016 8:08am

PLATE AND RIB DETAILS

TABLE 1

PLATE AND RIB COMBINATIONS WITH ALLOWABLE HEIGHT OF COVER (6,7,8)

(3) STRUCT. NUMBER	SPAN "A" (FT-IN)	RISE "B" (FT-IN)	AREA (SQ. FT)	ADDITIONAL SHELL INFORMATION: (1) CROWN ARC LENGTH "C" (N)	(1) LEG LENGTH "D" (N)	SIDE ANGLE "E" DEG(MIN)	(1,3) HAUNCH PLATE LENGTH (N)	(1,3) CROWN PLATE LENGTH (N)†	MAX. BOLTS /FT. (EA.)	(9) MAX. SHELL WT./FT. (LB.)
33	15-10	3- 6	46.8	15	0.5	6:10	8	8	42.00	136
34	16- 0	4- 3	59.5		1.5		9		38.67	147
35	16- 2	5- 1	72.3		2.5		10		44.22	153
36	16- 4	5-11	85.2		3.5		11		44.67	161
37	16- 6	6- 8	98.3		4.5		12		45.11	172
38	16- 8	7- 6	111.5		5.5		13		45.56	176
39	16-10	8- 3	124.8		6.5		14		46.00	186

(9) NOTES REFER TO DRAWING 1010402

FOR CONTECH ALUMINUM BOX CULVERTS

Original Dwg. Date:	Last Revision Date:	Drawing Number:
K.M.K. 5-29-98	N/A	1010403A

TABLE 2

HS-20 LOADING (11)

(3) STRUCT. NUMBER	SPAN "A" (FT-IN)	RISE "B" (FT-IN)	AREA (SQ. FT)	A: HG=CG (GA.)	A: HRS/CRS (IN.)	A: MIN MAX (FEET)	B: HG=CG (GA.)	B: HRS/CRS (IN.)	B: MIN MAX (FEET)	C: HG=CG (GA.)	C: HRS/CRS (IN.)	C: MIN MAX (FEET)	D: HG=CG (GA.)	D: HRS/CRS (IN.)	D: MIN MAX (FEET)	E: HG=CG (GA.)	E: HRS/CRS (IN.)	E: MIN MAX (FEET)
33	15-10	3- 6	46.8	3=5	27/18	3,0 5,0	3=5	18/18	2,5 5,0	5=5	18/18	2.0 5.0	3=4	27/9	1.7	2=5	18/9	1.4 5.0
34	16- 0	4- 3	59.5	2=5	18/18		2=3	27/9		3=3	27/9		3=4		1.7	3=4		
35	16- 2	5- 1	72.3	2=5			4=5	18/18		3=3			3=5		1.7	3=5		
36	16- 4	5-11	85.2	3=4			3=2	27/9		3=4			3=5	18/9	1.7	4=4		
37	16- 6	6- 8	98.3	3=5			2=4	9/18		3=4			3=4		1.7	2=3	9/9	
38	16- 8	7- 6	111.5	3=5			3=3	27/9		3=4			3=4		1.7	4=5	18/9	
39	16-10	8- 3	124.8	3=5			2=3	18/9		2=5	18/9		3=5					

FOR CONTECH ALUMINUM BOX CULVERTS

Original Dwg. Date:	Last Revision Date:	Drawing Number:
K.M.K. 5-29-98	N/A	1010399A

(c) NOTES REFER TO DRAWING 1010402

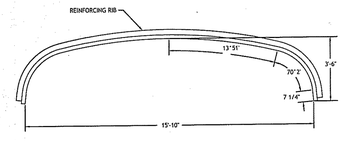
TABLE 4

ALUMINUM HEADWALL & WINGWALL DETAILS

STRUCT. NUMBER	SPAN "A" (FT-IN)	RISE "B" (FT-IN)	BASEWALL: WIDTH (FT-IN)	(3) HEIGHT (FT-IN)	NO. OF ANCHOR RODS TO STRUCTURE FROM CAP (EA.)	WEIGHT (LB./EA.)	WINGWALL: CORNER PANEL (LB./EA.)	WING PANEL (LB./EA.)
33	15-10	3- 6	20-10	7-10	5	434	196	159
34	16- 0	4- 3	20-10	8- 7	5	459	210	169
35	16- 2	5- 1	20-10	9- 5	5	485	224	180
36	16- 4	5-11	20-10	10- 2	5	510	238	190
37	16- 6	6- 8	20-10	11- 0	5	536	252	201
38	16- 8	7- 6	20-10	11-10	5	561	266	211
39	16-10	8- 3	20-10	12- 7	5	587	280	222

FOR CONTECH ALUMINUM BOX CULVERTS

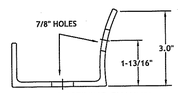
Original Dwg. Date:	Last Revision Date:	Drawing Number:
K.M.K. 5-29-98	N/A	1010396A



SCALE: 1/2" = 1'-0"
APPROX. AREA = 46.8 SQ. FT.

ALUMINUM BOX CULVERT STRUCTURE #33 15'-10" SPAN x 3'-6" RISE

Original Dwg. Date:	Last Revision Date:	Drawing Number:
K.M.K. 5-29-98	N/A	1009721B

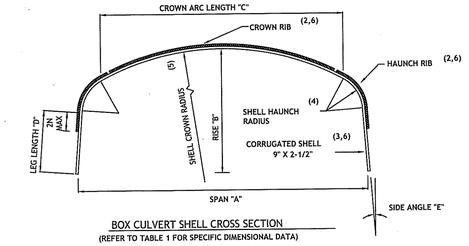


ALUMINUM RECEIVING CHANNEL

FOR CONTECH ALUMINUM CULVERT NOT TO SCALE

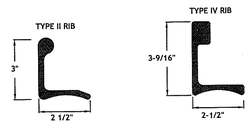
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K.M.K. 5-29-98	N/A	1010386A

[illegible] 1010393A.dgn [illegible].



BOX CULVERT SHELL CROSS SECTION

(REFER TO TABLE 1 FOR SPECIFIC DIMENSIONAL DATA)



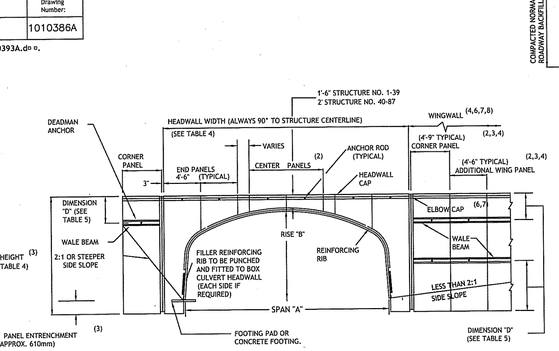
RIB GEOMETRY (2)

NOTES - SHELL

1. N = 9.625" OR 9-5/8".
2. ALL RIBS ARE TYPE IV, EXCEPT HAUNCH RIBS FOR STRUCTURES 1-39 WHICH ARE TYPE II.
3. STRUCTURE 1 IS A ONE-PLATE SHELL. STRUCTURES 2-26 ARE TWO-PLATE SHELLS. STRUCTURES 27-87 ARE THREE-PLATE SHELLS.
4. SHELL HAUNCH RADIUS FOR STRUCTURES 1-39 IS 30-1/4". SHELL HAUNCH RADIUS FOR STRUCTURES 40-87 IS 37-3/8".
5. SHELL CROWN RADIUS FOR STRUCTURES 1-39 IS 297-1/2". SHELL CROWN RADIUS FOR STRUCTURES 40-87 IS 258-3/4"
6. IN SHELL FILL HEIGHT TABLE 1, THE HG=CG DESIGNATION INDICATES THICKNESS OR GAGE OF HAUNCH (HG) AND CROWN (CG) PLATES AS FOLLOWS: 2 = .125", 3 = .150", 4 = .175", 5 = .200", 6 = .225", 7 = .250". EXAMPLE: 3=6 = .150" HAUNCH AND .225" CROWN PLATE THICKNESS. THE HRS/CRS DESIGNATION INDICATES THE RIB SPACING ON THE HAUNCH (HRS) AND CROWN (CRS) PLATES. EXAMPLE: 27/9 = 27" O.C. HAUNCH AND 9" O.C. CROWN.
7. ALLOWABLE COVER (MINIMUM AND MAXIMUM) IS MEASURED FROM THE OUTSIDE VALLEY OF CROWN PLATE TO BOTTOM OF FLEXIBLE PAVEMENT OR FROM THE OUTSIDE VALLEY OF CROWN PLATE TO TOP OF RIGID PAVEMENT. MINIMUM COVER IS MEASURED AT THE LOWEST FILL AREA SUBJECTED TO POSSIBLE WHEEL LOADS (TYPICALLY AT THE ROADWAY SHOULDER). THE ROADWAY SURFACE MUST BE MAINTAINED TO ENSURE MINIMUM COVER TO PREVENT HIGH-IMPACT LOADS BEING IMPARTED TO THE STRUCTURE. MAXIMUM COVER IS MEASURED AT THE HIGHEST FILL AND/OR PAVEMENT ELEVATION.
8. SELECT THE STRUCTURE, WITH THE LOWEST ALPHABET SUB-DESIGNATION AND COVER RANGE, THAT WILL INCLUDE THE ACTUAL MINIMUM AND MAXIMUM COVER. EXAMPLE: STRUCTURE 51-A IS MORE ECONOMICAL THAN 51-B IF THE COVER IS BETWEEN 3.0 AND 4.5 FEET.
9. SHELL WT./FT. SHOWN IS MAXIMUM HANDLING WEIGHT AND IS BASED ON HEAVIEST COMPONENT MAKEUP FOR A SPECIFIC SPAN AND RISE COMBINATION. WEIGHT PER FOOT OF SHELL INCLUDES PLATES, REINFORCING RIBS, RIB SPLICES, BOLTS AND NUTS.
10. TOTAL STRUCTURE LENGTH CAN BE ANY DIMENSION, BUT WHENEVER POSSIBLE, IT IS RECOMMENDED TO WORK WITH A MULTIPLE OF 4.5=(NET PLATE WIDTH). THIS PRACTICE USUALLY RESULTS IN LOWER TOTAL STRUCTURE COST. EXAMPLE: 50=PROPOSED STRUCTURE / 4.5=11.1, NEAREST WHOLE NUMBER IS 11, THEREFORE USE 11 X 4.5=49.5=FOR TOTAL STRUCTURE LENGTH. WHEN ORDERING A STRUCTURE WITH TOEWALLS AND/OR HEADWALLS ON EACH END, TOTAL STRUCTURE LENGTH SHOULD BE A MULTIPLE OF 9".
11. ALUMINUM BOX CULVERTS, AS SHOWN ON THIS DRAWING, ARE DESIGNED TO MEET OR EXCEED THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES SECTION 12.8 FOR STANDARD HIGHWAY HS-20 AND HS-25 WHEEL LOADS.

FOR CONTECH ALUMINUM CULVERTS

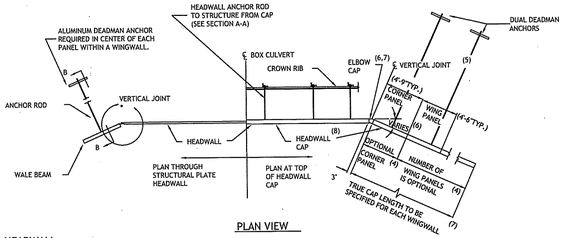
Original Dwg. Date:	Last Revision Date:	Drawing Number:
K.M.K. 5-29-98	N/A	1010402A



FOR CONTECH ALUMINUM CULVERT NOT TO SCALE

Original Dwg. Date:	Last Revision Date:	Drawing Number:
K.M.K. 5-29-98	N/A	1010395A

*Notes are on drawing 1010393A.dwg.



PLAN VIEW

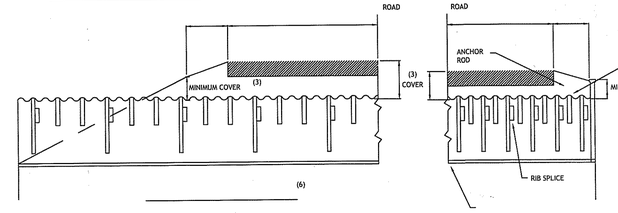
NOTES - HEADWALL

1. ALL PANELS ARE FABRICATED FROM ALUMINUM STRUCTURAL PLATE AS SPECIFIED IN ASTM B746.
2. CENTER PANELS ABOVE THE BOX CULVERT CROWN RADIUS ARE 0.100" THICKNESS FOR STRUCTURES 1-39 AND 0.125" FOR STRUCTURES 40-87. ALL OTHER PANELS ARE 0.150" THICKNESS. SEE TABLE 5 FOR PANEL THICKNESS.
3. HEIGHT OF HEADWALL LISTED IN TABLE 4 PERMITS APPROXIMATELY 24" EMBEDMENT DEPTH BELOW THE INVERT. ALL HEADWALL PANELS MUST BE TRENCHED INTO EXISTING GROUND. IF STABLE ROCK FOUNDATION IS ENCOUNTERED, THE PANELS MAY BE TRIMMED AND PLACED INTO A CEMENT-GROUTED KEYWAY.
4. NUMBER OF CORNER PANELS AND ADDITIONAL WING PANELS IS OPTIONAL.
5. A VERTICAL JOINT IS USED ONLY WHEN A WINGWALL IS AT AN ANGLE WITH RESPECT TO THE HEADWALL.
6. SPECIFY THE DEGREE OF HORIZONTAL ROTATION ON THE WINGWALL. THIS ANGLE SHOULD NOT EXCEED 90 DEGREES.
7. THE TOP OF A HEADWALL AND ITS WINGWALL IS ALWAYS HORIZONTAL, UNLESS BEVELED WINGWALLS ARE REQUIRED. SPECIFY THE VERTICAL DROP IN ELEVATION FOR THE WINGWALL. THIS WILL SET THE PROPER VERTICAL ANGLE FABRICATION FOR THE HEADWALL ELBOW CAP AND THE PROPER OVERALL LENGTH OF THE WINGWALL CAP.
8. HEADWALL CAP MUST BE FIELD-DRILLED AND BOLTED TO THE HEADWALL PANELS. SEE ASSEMBLY DRAWINGS FOR MORE DETAILS.
9. STANDARD HEADWALLS SHOWN ARE FOR VERTICAL AND SQUARE ORIENTATION ONLY. ANY DESIGN, OTHER THAN VERTICAL AND SQUARE ORIENTATION, MUST BE REVIEWED BY THE DESIGN ENGINEER.
10. IF SIDE SLOPE IS FLATTER THAN 2:1, A DOUBLE TIEBACK ASSEMBLY IS REQUIRED FOR EACH DEADMAN.
11. STANDARD HEADWALLS ARE SHOWN. HS-20 WHEEL LOADS MUST BE KEPT A MINIMUM OF 36" FROM THE WALL FACE. SPECIAL HEADWALL PACKAGES CAN BE FABRICATED TO MEET OTHER LOADING REQUIREMENTS.
12. CENTER OF DEADMAN ANCHOR IS PLACED 9" BELOW CENTER OF WALE BEAM.
13. THE CROWN RIB USED TO CONNECT THE HEADWALL MUST BE ORIENTED SO THAT THE FLAT SURFACE IS FACING AWAY FROM THE HEADWALL. THIS MAXIMIZES THE LOAD CARRYING CAPABILITY OF THE CONNECTION SHOWN IN SECTION A-A.
14. STRUCTURES ON CONCRETE FOOTINGS THAT USE HEADWALLS REQUIRE FIELD MODIFICATIONS OF THE HEADWALL PLATES SO THEY FIT AROUND THE FOOTINGS. THE NEED TO ATTACH THE PLATES TO THE FOOTING DEPENDS ON THE BACKFILL MATERIAL AND ITS POTENTIAL ERODIBILITY.

ALUMINUM HEADWALL DETAILS FOR CONTECH ALUMINUM CULVERT NOT TO SCALE

Original Dwg. Date:	Last Revision Date:	Drawing Number:
K.M.K. 5-29-98	N/A	1010394A

INSTALLATION DETAILS



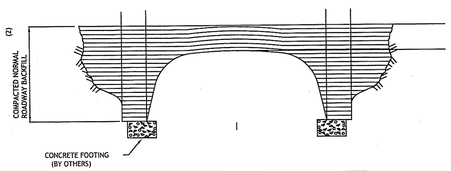
(*)NOTES REFER TO DRAWING 1010401

FOR CONTECH ALUMINUM CULVERTS NOT TO SCALE

Original Dwg. Date:	Last Revision Date:	Drawing Number:
K.M.K. 5-29-98	N/A	1010398A

(5,6)

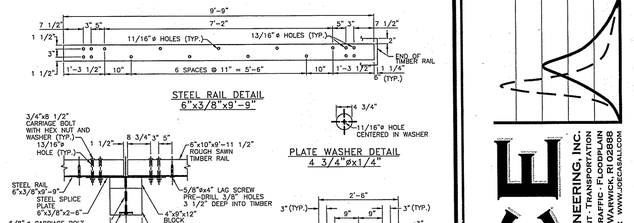
INSTALLATION DETAILS



FOR CONTECH ALUMINUM CULVERTS NOT TO SCALE

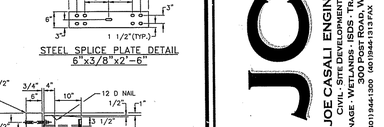
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K.M.K. 5-29-98	N/A	1010397A

(*)NOTES REFER TO DRAWING 1010401



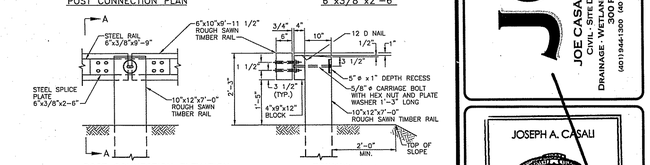
STEEL RAIL DETAIL 6"x3/8"x9'-9"

PLATE WASHER DETAIL 4 3/4"ø x1/4"



STEEL SPLICE PLATE DETAIL 6"x3/8"x2'-6"

POST CONNECTION PLAN



POST CONNECTION ELEVATION

SECTION A-A

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 900 OF THE R.I. STANDARD SPECIFICATIONS.
2. ALL STRUCTURAL STEEL AND FASTENER HARDWARE SHALL BE WEATHERING STEEL AS SPECIFIED.

STEEL BACKED TIMBER GUARDRAIL — R.I. STANDARD 34.4.0

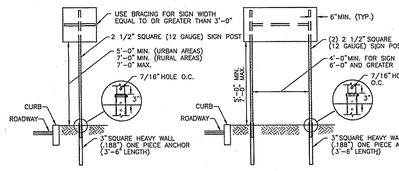
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED JAN 3 1 2017 FILE # 07-0029
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Charles A. Horbert

INSTALLATION NOTES:

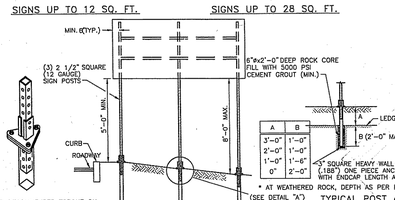
1. X = SUFFICIENT SPACE FOR COMPACTION EQUIPMENT. IF SPACE IS NARROW, SPECIAL EQUIPMENT IS REQUIRED FOR COMPACTION OR CONCRETE GROUT IS REQUIRED.
2. BACKFILL TO BE WELL GRADED GRANULAR, A-1, A-3, A-2-4, OR A-2-5, PER AASHTO M145, PLACED IN 50%- TO EIGHT- INCH LIFTS SYMMETRICALLY ON EACH SIDE COMPACTED TO MINIMUM 90% DENSITY PER AASHTO T180. D-4 OR SMALLER TO OPERATE NEAR AND ABOVE STRUCTURE DURING BACKFILLING TO FINISH GRADE. REFER TO ASTM B789 INSTALLATION SPECIFICATION.
3. MINIMUM COVER MAY NEED TO BE INCREASED TO HANDLE TEMPORARY CONSTRUCTION VEHICLE LOADS (LARGER THAN D4) BUT NOT TO EXCEED MAXIMUM ALLOWABLE COVER FOR THE SPECIFIC BOX CULVERT DESIGN.
4. FOUNDATION TO HAVE MINIMUM 4,000 PSF BEARING BEDDING. IT SHOULD CONSIST OF STABLE, WELL GRADED GRANULAR MATERIAL.
5. STANDARD HEADWALLS SHOWN ARE FOR VERTICAL ORIENTATION ONLY. ANY DESIGN, OTHER THAN VERTICAL ORIENTATION, MUST BE REVIEWED BY THE DESIGN ENGINEER.
6. THE TYPE AND EXTENT OF END TREATMENT ON THE BOX CULVERT SHOULD BE CHOSEN AND DESIGNED SO AS TO PREVENT THE LOSS OF BACKFILL DUE TO HIGH FLOW CONDITIONS.
7. BOLT TORQUE REQUIREMENTS - PLATE LAP MUST BE PROPERLY MATED IN A TANGENT FASHION USING PROPER ALIGNMENT TECHNIQUES AND ADEQUATE BOLT TORQUE TO SEAT THE CORRUGATION. THE RECOMMENDED INSTALLATION BOLT TORQUE FOR ALUMINUM BOX CULVERTS IS 90-115 FT/LBS FOR FULL INVERTS AND 115-135 FT/LBS FOR ALL OTHER COMPONENTS. WHEN SEAM SEALANT TAPE IS USED, BOLTS SHALL BE INSTALLED AND THE TENSIONED TO THESE TORQUE LEVELS AFTER 24 HOURS. TORQUE LEVELS ARE FOR INSTALLATION, NOT RESIDUAL, IN-SERVICE REQUIREMENTS.
8. FOR ASSEMBLY INFORMATION, SEE THE MANUFACTURER'S DETAILED ASSEMBLY DRAWINGS AND INSTRUCTIONS.

FOR CONTECH ALUMINUM BOX CULVERTS

Original Dwg. Date:	Last Revision Date:	Drawing Number:
K.M.K. 5-29-98	N/A	1010401A



SIGNS UP TO 12 SQ. FT. SIGNS UP TO 28 SQ. FT.



NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 7.15 OF THE R.I. STANDARD SPECIFICATIONS.
2. SIGN SUPPORTS HAVE BEEN DESIGNED IN ACCORDANCE WITH AASHTO SPECIFICATIONS FOR A 10-YEAR MEAN WIND RECURRENCE INTERVAL.
3. FOR INSTALLATION IN GROUND OR BITUMINOUS CONCRETE DRIVE SIGN POST ANCHOR TO REQUIRED DEPTH SO THAT THE HOLE WILL MATCH TO SIGN POST ABOVE GROUND FOR THE BOLT CONNECTION. INSERT SIGN POST AND BOLT IN PLACE.
4. FOR INSTALLATION IN CONCRETE SEE STD. 25.3.0 AND FOLLOW THE PROCEDURE IN NOTE 2.
5. FOR INSTALLATION IN LEDGE LESS THAN 3'-0" BELOW GRADE SEE DETAIL ABOVE.
6. EDGE OF SIGN SHALL BE 2'-0" (MIN.) FROM EDGE OF CURB IN URBAN AREAS AND 6'-0" (MIN.) FROM EDGE OF CURB IN RURAL AREAS.
7. INSTALLATION PROCEDURES SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
8. BREAKAWAY SIGN SUPPORTS SHALL BE FABRICATED FROM STEEL AND SHALL CONFORM TO THE BREAKAWAY DESIGN SHOWN ON THIS SHEET.
9. STEEL POSTS SHALL CONFORM TO ASTM-A361, FY= 55 KSI. THE CROSS SECTION OF THE POST SHALL BE SQUARE TUBE FORMED OF 12 GAUGE (.105" U.S.S. GAUGE) COLD-ROLLED CARBON STEEL SHEETS WHICH HAVE BEEN ZINC COATED (1.25 OZ.) CONFORMING TO ASTM-A525, CAREFULLY ROLLED TO SIZE AND WELDED DIRECTLY IN THE CORNER BY HIGH FREQUENCY RESISTANCE WELDING OR EQUAL AND EXTERNALLY SCARED TO AGREE WITH CORNER RADII. STANDARD CORNER RADIUS SHALL BE 3/32" PLUS OR MINUS 1/64".
10. ALL BOLTS SHALL CONFORM TO ASTM-A307, CLASS A.
11. ALL BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AS PER ASTM-A153.
12. FOR SIGNS GREATER THAN 32 SQ. FT., REFER TO STD. 30.1.0, 30.1.1, 30.2.0, 30.2.1, 30.3.0, 30.3.1, 30.4.0, 30.4.1, 30.4.2 AND 30.4.3.

SIGN POST SELECTION AND INSTALLATION DETAILS SQUARE POST (SIGN UP TO 8' - 0" W x 4' - 0" H — R.I. STANDARD 24.1.0

JOSEPH A. CASALI — No. 7250 — REGISTERED PROFESSIONAL ENGINEER — CIVIL — 6.7.16

JCE
JOE CASALI ENGINEERING, INC.
CIVIL · SITE DEVELOPMENT · TRANSPORTATION
DRAINAGE · WETLANDS · ISDS · TRAFFIC · FLOODPLAIN
300 POST ROAD, SUITE 201, WARWICK, RHODE ISLAND 02888
(401) 944-1300 (401) 944-1313 FAX WWW.JOECASALI.COM

HIGHLAND ESTATES
CUMBERLAND, RHODE ISLAND
AP 52 LOTS 10, 307, 308, 309, 310, 315 & 316
MAJOR LAND DEVELOPMENT

REVISIONS:		
NO.	DATE.	DESCRIPTION
1	3-2007	UPDATED PLANSET
2	8-2007	RIDEM COMMENTS
3	2-2008	RIDEM COMMENTS
4	5-2008	RIDEM COMMENTS
5	12-2009	WATER&SEWER SUB.
6	2-2010	WATER RESUB.
7	5-2011	PRELIM. PLAN SUB.
8	6-2011	PRELIM. PLAN APPROVAL
9	7-2011	FINAL PLAN
10	01-2016	MODIFIED PRELIM. PLAN

JAN - 9 2016

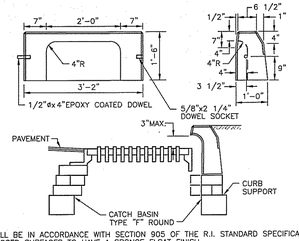
DESIGNED BY:	GC & ACK
DRAWN BY:	WMLJR
CHECKED BY:	JAC
DATE:	JANUARY 07
PROJECT NO:	05-77a

PRELIMINARY, NOT FOR CONSTRUCTION

DETAILS II

SHEET 11 OF 16

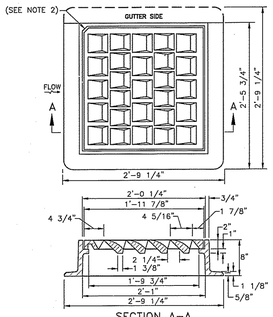
Q:\05-77 Regional Finance\05-77a-Highland Estates\Plan Set\HIGHLAND ESTATES (MODIFIED PRELIM PLAN).dwg May. 09, 2016 8:08am



NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 905 OF THE R.I. STANDARD SPECIFICATIONS.
2. EXPOSED SURFACES TO HAVE A SPONGE FLOAT FINISH.
3. EXPOSED EDGES TO HAVE A 3/4" CHAMFER.

PRECAST CONCRETE APRON STONE
(FOR ROUND CATCH BASIN)

R.I. STANDARD 7.1.8

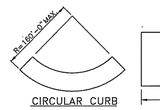


SECTION A–A

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)

R.I. STANDARD 6.3.4



CIRCULAR CURB

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. TOP SURFACE TO BE DRESSED BY SAW. REMAINDER TO BE QUARRY SPLIT.
3. MINIMUM LENGTH OF STRAIGHT OR CIRCULAR PIECES TO BE 3'-0".
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.

GRANITE CURB

R.I. STANDARD 7.3.0

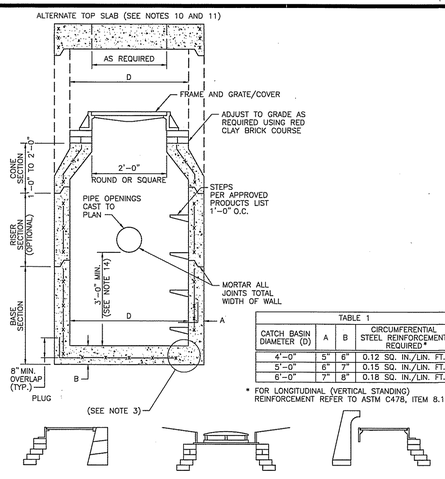


TABLE 1			
CATCH BASIN DIAMETER (D)	A	B	CIRCUMFERENTIAL STEEL REINFORCEMENT REQUIRED*
4'-0"	5"	6"	0.12 SQ. IN./LIN. FT.
5'-0"	6"	7"	0.15 SQ. IN./LIN. FT.
6'-0"	7"	8"	0.18 SQ. IN./LIN. FT.

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

TYPE "D" TYPE "R" TYPE "F"

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. NO SEEP HOLES SHALL BE ALLOWED IN THE BOTTOM OF THE CATCH BASIN.
14. CATCH BASINS 4 AND 10 4.4.0 SHALL HAVE A 4" SUMP AND A "SNOUT" OIL WATER SEPARATOR.

PRECAST 4'-0" ROUND CATCH BASIN

R.I. STANDARD 4.4.0 M1

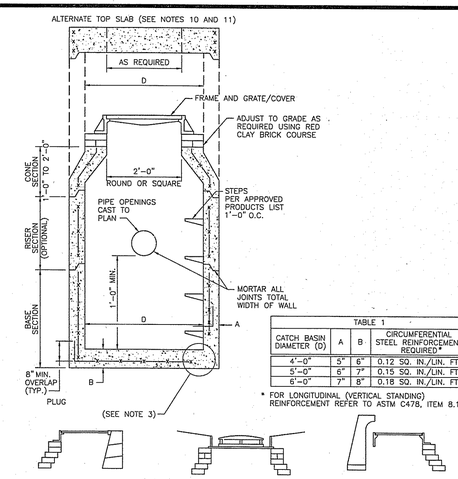


TABLE 1			
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5'-0"	6"	7"	0.15 SQ. IN./LIN. FT.
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* FOR LONGITUDINAL (VERTICAL STANDING) REINFORCEMENT REFER TO ASTM C478, ITEM 8.1.2

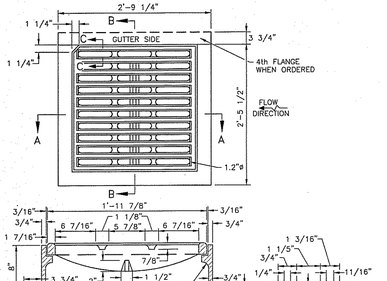
TYPE "D" TYPE "R" TYPE "F"

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. NO SEEP HOLES SHALL BE ALLOWED IN THE BOTTOM OF THE CATCH BASIN.

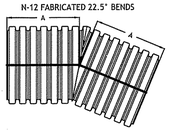
PRECAST 4'-0" ROUND CATCH BASIN

R.I. STANDARD 4.4.0 M2



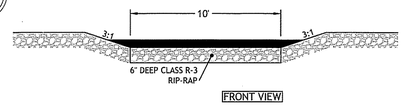
SQUARE FRAME AND GRATE
(BICYCLE SAFE)

R.I. STANDARD 6.3.2

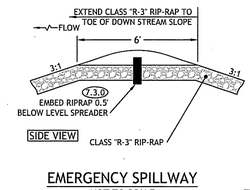


N-12 FABRICATED 22.5° BENDS

PART NO	PIPE SIZE	A	PART NO	PIPE SIZE	A
0492AN	4" 100 mm	4.5" 114 mm	1892AN	18" 450 mm	16" 406 mm
0692AN	6" 150 mm	5.38" 137 mm	2492AN	24" 600 mm	17.25" 438 mm
0892AN	8" 200 mm	7.63" 194 mm	3092AN	30" 750 mm	17.90" 455 mm
1092AN	10" 250 mm	7.75" 197 mm	3692AN	36" 900 mm	21.48" 546 mm
1292AN	12" 300 mm	9.63" 245 mm	4292AN	42" 1050 mm	24.9" 632 mm
1592AN	15" 375 mm	12.63" 321 mm			

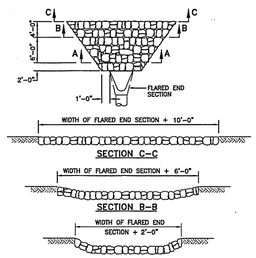


FRONT VIEW



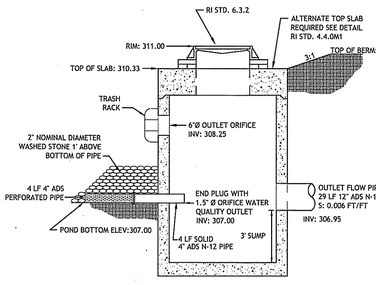
SIDE VIEW

EMERGENCY SPILLWAY
NOT TO SCALE

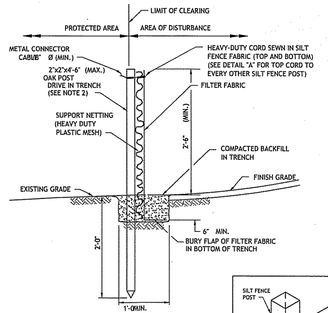


NOTES:
1. CLASS OF RIP–RAP AND BEDDING TO BE SPECIFIED IN CONTRACT DOCUMENTS.
2. DIMENSIONS MAY BE MODIFIED BY ENGINEER TO MEET FIELD CONDITIONS.
3. UNLESS OTHERWISE SPECIFIED, DUMPED RIP–RAP SHALL BE USED.

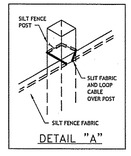
ROCK FILL RIP-RAP AT
FLARED END SECTIONS



OUTLET CONTROL STRUCTURE A (POND A)
SCALE: NTS



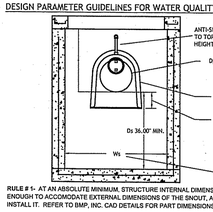
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 206 OF THE R.I. STANDARD SPECIFICATIONS.
2. 2"x2"x4'-6" (MAX.) OAK POSTS FOR SILT FENCE SHALL BE LOCATED 8'-0" (MAX.) O.C. IN WETLAND AREAS AND 4'-0" (MAX.) O.C. IN WETLAND RAVINE, GULLY OR DROP-OFF AREAS AS SHOWN ON PLANS.
3. 1"x1"x4'-6" (MIN.) POSTS PERMITTED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



SILT FENCE DETAIL

R.I. STANDARD 9.2.0

DESIGN PARAMETER GUIDELINES FOR WATER QUALITY IMPROVEMENT



RULE # 1- AT AN ABSOLUTE MINIMUM, STRUCTURE INTERNAL DIMENSIONS MUST BE AT LEAST LARGE ENOUGH TO ACCOMODATE EXTERNAL DIMENSIONS OF THE SNOUT, AND ALLOW FOR A PERSON TO INSTALL IT. REFER TO BMP, INC. CAD DETAILS FOR PART DIMENSIONS.

RULE #2- USE ONLY "I" SERIES SNOUTS FOR RECTANGULAR OR SQUARE STRUCTURES, AVAILABLE IN 12", 18", 24", 30", 48", AND 96" SIZES. USE ONLY "R" SERIES SNOUTS FOR ROUND STRUCTURES, AVAILABLE IN 12", 18", 24", AND, 30" SIZES.

SUMP DEPTH (Ds)- SUMP DEPTH SHOULD BE A MINIMUM OF 36" FOR ANY NEW CONSTRUCTION FOR PIPES 12" AND LESS. FOR 15"-18" PIPE MIN. DEPTH SHOULD BE 48". OPTIMAL SIZING IS AT LEAST 2.5X TO 3X OUTLET PIPE DIAMETER (Dp) FOR MAXIMUM POLLUTANT REMOVAL EFFICIENCY AND MINIMAL CLEANOUT FREQUENCY.

STRUCTURE DIMENSIONS- PLAN DIMENSIONS FOR A STRUCTURE SHOULD BE APPROX. 7X AREA OF OUTLET PIPE FOR MAXIMUM POLLUTANT REMOVAL EFFICIENCY AND MINIMAL CLEANOUT FREQUENCY. (SEE MAINTENANCE FREQUENCY CALCULATION SHEET FOR MORE INFORMATION)

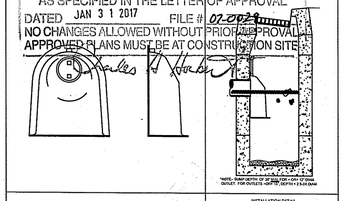
IMPORTANT NOTICE: *DO NOT CONFUSE PIPE O.D WITH PIPE I.D.* A SNOUT FITS OVER A PIPE, NOT IN IT. THUS, SNOUT MUST BE SIZED TO FIT OVER PIPE OPENING IN STRUCTURE. SNOUTS ARE AVAILABLE FOR ROUND STRUCTURES TO ACCOMODATE PIPES OF 30" O.D. MAX. FOR PIPES 30" O.D. AND ABOVE, USE SQUARE OR RECTANGULAR STRUCTURES.

SIZING EXAMPLES:

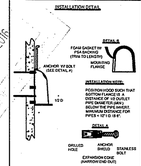
STRUCTURE OUTLET HOLE SIZE	SNOUT SIZE
11.9" O.D. OR LESS	12 I or R
12.0"-17.9" O.D.	18 I or R
18.0"-23.9 O.D.	24 I or R
24.0"-29.9 O.D.	30 I or R
30.0"-47.9 O.D.	48 I
48.0"-95.9" O.D.	96 I

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS

AS SPECIFIED IN THE LETTER OF APPROVAL
DATED JAN 3 1 2017 FILE # 07-0023
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE



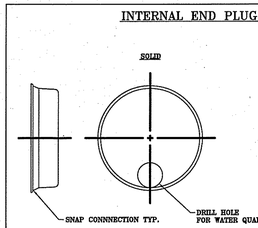
INSTALLATION DETAIL



NOTES:
1. ALL HOODS AND TRAPS FOR CATCH BASINS AND WATER QUALITY STRUCTURES SHALL BE AS MANUFACTURED BY:
EAST MANAGEMENT PRODUCTS, INC.
5 MT. JAFFA RD.
WOONSOCKET, RI 02895
(866) 434-5377, (866) 434-5193 FAX
TOLL FREE: (800) 734-4098 OR (888) 354-7385
WWW.EASTMANAGEMENT.COM
OR FAC APPROVED EQUAL
2. ALL HOODS SHALL BE CONSTRUCTED OF A GLASS REINFORCED POLYESTER COMPOSITE WITH A MIN. OF 100 GEL COAT EXTERIOR FINISH WITH A MINIMUM 0.125" LAMINATE THICKNESS.
3. ALL HOODS SHALL BE EQUIPPED WITH A WATERTIGHT ACCESS DOOR, A MOUNTING FLANGE, AND AN ANTI-SIPHON VENT AS SHOWN. (SEE CONSTRUCTION DETAILS)
4. THE SIZE AND POSITION OF THE HOOD SHALL BE DETERMINED BY OUTLET PIPE SIZE AS PER MANUFACTURERS RECOMMENDATION.
5. THE BOTTOM OF THE HOOD SHALL EXTEND DOWNWARD A DISTANCE EQUAL TO 1/2 THE I.D. OUTLET PIPE DIAMETER WITH A MINIMUM DISTANCE OF 6" FROM PIPE'S 12" I.D.
6. THE ANTI-SIPHON VENT SHALL EXTEND ABOVE HOOD BY MINIMUM OF 3' AND A MAXIMUM OF 14' 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 3/8" NEOPRENE GASKET AS SUPPLIED BY MANUFACTURER. (SEE INSTALLATION DETAILS)
9. INSTALLATION INSTRUCTIONS SHALL BE PUBLISHED WITH MANUFACTURER SUPPLIED SHOP DRAWINGS.
INSTALLATION KIT SHALL INCLUDE:
A. INSTALLATION INSTRUCTIONS
B. 1/2" BUTYL SEALANT FOR FRAME-TO-GRATE
C. ALL NECESSARY GASKETS AND FOAM GASKET WITH PSA BACKING
D. 3/8" STAINLESS STEEL BOLTS
E. ANCHOR SHIELDS

MAY - 9 2016

INTERNAL END PLUGS



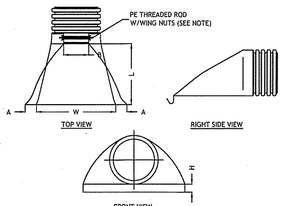
PART NO	PIPE SIZE	TYPE
0434-AA	4" 100 mm	PERFORATED

NOTE: ALL DIMENSIONS ARE NOMINAL

ADS

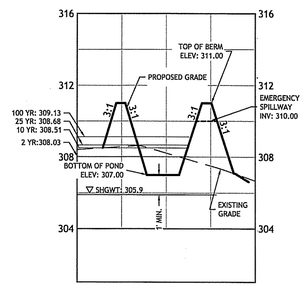
REVISIONS	
BY	DATE

HDPE FLARED END SECTIONS



PART N O	PIPE SIZE	A	B (MAX)	H	L	W
1210-NP	12" 300 mm	6.5" 165 mm	10" 254 mm	6.5" 165 mm	25" 635 mm	29" 735 mm
1210-NP	15" 375 mm	6.5" 165 mm	10" 254 mm	6.5" 165 mm	25" 635 mm	29" 735 mm
1810-NP	18" 450 mm	7.5" 190 mm	15" 380 mm	6.5" 165 mm	32" 812 mm	35" 890 mm
2410-NP	24" 600 mm	7.5" 190 mm	18" 450 mm	6.5" 165 mm	36" 900 mm	45" 1140 mm
3012-NP	30" 750 mm	10.5" 266 mm	N/A	7.0" 178 mm	53" 1345 mm	68" 1725 mm
3612-NP	36" 900 mm	10.5" 266 mm	N/A	7.0" 178 mm	53" 1345 mm	68" 1725 mm

NOTE: PE THREADED ROD W/WING NUTS PROVIDED FOR END SECTIONS 12"-24", 30" & 36" END SECTIONS TO BE WELDED TO PIPE PER MANUFACTURER'S RECOMMENDATIONS.



SECTION A-A
HORIZONTAL: 1" = 40'
VERTICAL: 1" = 4'

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DRAINAGE · WATER SUPPLY · WASTEWATER SYSTEMS
300 Post Road, Warwick, RI 02888
(401) 944-1300 (401) 944-1313 FAX www.joecasali.com

JOSEPH A. CASALI
No. 7250
REGISTERED PROFESSIONAL ENGINEER
CIVIL
5.7.16

HIGHLAND ESTATES
CUMBERLAND, RHODE ISLAND
AP 52 LOTS 10, 307, 308, 309, 310, 315 & 316
MAJOR LAND DEVELOPMENT

REVISIONS:		
NO.	DATE.	DESCRIPTION
1	3-2007	UPDATED PLANSET
2	8-2007	RIDEM COMMENTS
3	2-2008	RIDEM COMMENTS
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6	2-2010	WATER RESUB.
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8	6-2011	PRELIM. PLAN APPROVAL
9	7-2011	FINAL PLAN
10	01-2016	MODIFIED PRELIM. PLAN

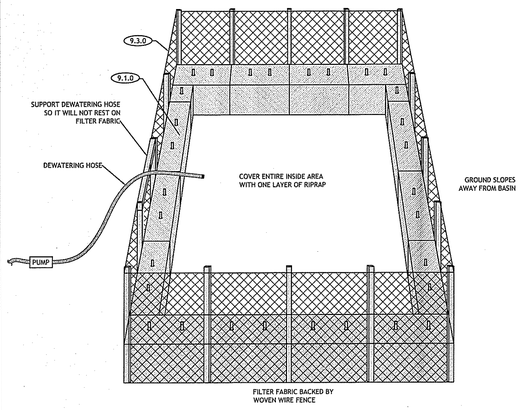
DESIGNED BY:	GC & ACK
DRAWN BY:	WMLJR
CHECKED BY:	JAC
DATE:	JANUARY 07
PROJECT NO:	05-77a

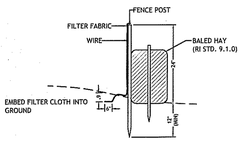
PRELIMINARY, NOT FOR CONSTRUCTION

DETAILS III

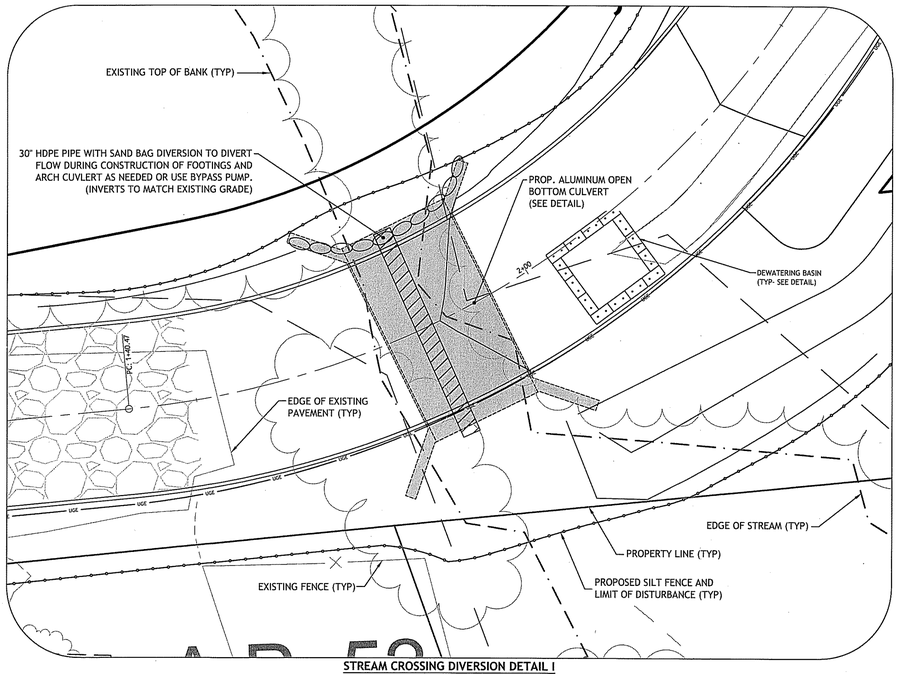
SHEET 12 OF 16

Q:\05-77 Regional Finance\05-77a-Highland Estates\Plan Set\HIGHLAND ESTATES [MODIFIED PRELIM PLAN].dwg May. 09, 2016 8:08am





DEWATERING BASIN DETAIL
NOT TO SCALE



STREAM CROSSING DIVERSION DETAIL I
SCALE: 1" = 10'

NOTES:
1. ALL CONSTRUCTION SHALL BE PERFORMED IN THE DRY. THE CONTRACTOR SHALL PROVIDE, OPERATE AND MAINTAIN ALL PUMPS, DRAINS, WET POINTS, SCREENS, OR OTHER FACILITIES NECESSARY TO CONTROL, COLLECT AND DISPOSE OF ALL SURFACE AND SUBSURFACE WATER ENCOUNTERED IN THE PERFORMANCE OF THE WORK.
2. THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH OSHA REQUIREMENTS INCLUDING SHORING IN TRENCHES.
3. CONSTRUCTION OF THE STREAM CROSSING SHALL BE LIMITED TO LOW FLOW CONDITIONS IN JULY-OCTOBER.
4. THE DIVERSION IS DESIGNED FOR THE 2 YEAR DESIGN STORM.
5. THE CONTRACTOR SHALL HAVE A BY-PASS PUMP AND ALL NECESSERY EQUIPMENT FOR TRENCH DEWATERING AND BY PASS PUMPING.
6. PROPOSED DIVERSION PLAN OFFERS TWO OPTIONS:
   A. INSTALL SANDBAG DAM AND UTILIZE BYPASS PUMP TO AVOID CONSTRUCTION AREA FOR CULVERT INSTALLATION.
   B. INSTALL SANDBAG DAM AND 30" HDPE PIPE TO CARRY FLOW THROUGH CONSTRUCTION AREA.

CONSTRUCTION PROCEDURE - ESTIMATED TIME ± 2-WEEKS:
1. ALL SOIL EROSION AND SEDIMENTATION CONTROLS (SILT FENCE AND DEWATERING BASIN) SHALL BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITY.
2. INSTALL THE DIVERSION AS SHOWN (1-DAY).
3. COMMENCE FOOTING EXCAVATION (1-DAY).
4. SET FORMS (1-DAY).
5. POUR FOOTINGS (1-DAY).
6. CURE FOR SEVEN (7) DAYS.
7. STRIP FORMS AND BACKFILL AROUND FOOTINGS (1/2 DAY).
8. INSTALL PRE-FABRICATED WING WALLS (1-DAY).
9. INSTALL BOX CULVERT (1-DAY).
10. RESTORE BACKFILL, GRADING, INSTALL RIP-RAP AND LOAM AND SEED THE DISTURBED AREA (1-DAY).

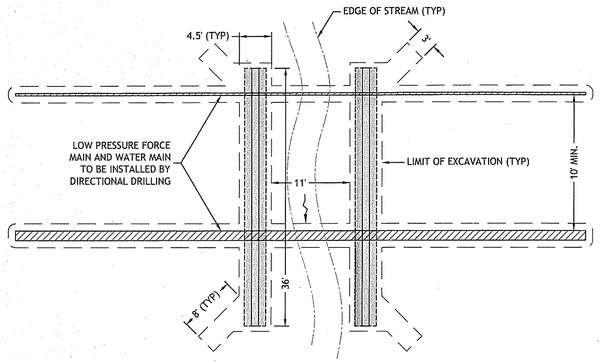
NEW ENGLAND EROSION CONTROL/RESTORATION MIX
(FOR DETENTION BASINS AND MOIST SITES)

THE NEW ENGLAND EROSION CONTROL/RESTORATION MIX CONTAINS A SELECTION OF NATIVE GRASSES AND WILDFLOWERS DESIGNED TO COLONIZE GENERALLY MOIST, RECENTLY DISTURBED SITES WHERE QUICK GROWTH OF VEGETATION IS DESIRED TO STABILIZE SOIL SURFACE. IT IS AN EXCELLENT SEED MIX FOR ECOLOGICALLY APPROPRIATE RESTORATIONS ON MOIST SITES THAT REQUIRE QUICK AS WELL AS LONG TERM ESTABLISHMENT OF NATIVE VEGETATION. THIS MIX IS PARTICULARLY APPROPRIATE FOR DETENTION BASINS THAT DO NOT NORMALLY HOLD STANDING WATER. THE PLANTS IN THIS MIX CAN TOLERATE INFREQUENT INUNDATION, BUT NOT CONSTANT FLOODING. THE MIX MAY BE APPLIED BY HYDRO- SEEDING, BY MECHANICAL SPREADER, OR IN SMALL SITES IT CAN BE SPREAD BY HAND. WHEN APPLYING ON BARE SOIL, RAKE THE SOIL TO CREATE GROOVES, APPLY SEED, AND THEN LIGHTLY RAKE OVER IT. IN NEW ENGLAND, THE BEST RESULTS ARE OBTAINED WITH A SPRING OR EARLY FALL SEEDING. SUMMER AND LATE FALL SEEDING WILL BENEFIT WITH A LIGHT MULCHING OF WEED-FREE STRAW TO CONSERVE MOISTURE. LATE FALL AND WINTER DORMANT SEEDING REQUIRE A SLIGHT INCREASE IN THE SEEDING RATE. FERTILIZATION IS NOT REQUIRED UNLESS THE SOILS ARE PARTICULARLY INFERTILE.

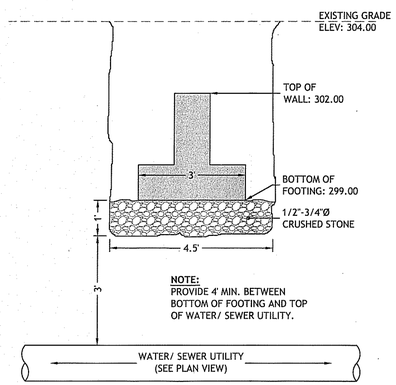
APPLICATION RATE: 35 LBS/ACRE 1245 SQ.FT./LB

SPECIES
SWITCHGRASS (*PANICUM VIRGATUM*), VIRGINIA WILD RYE (*ELYMUS VIRGINICUS*), CREEPING RED FESCUE (*FESTUCA RUBRA*), FOX SEDGE (*CAREX VULPINOIDEA*), CREEPING BENTGRASS (*AGROSTIS STOLONIFERA*), SOFT RUSH (*JUNCUS EFFUSES*), NEW ENGLAND ASTE (*ASTER NOVAE-ANGLIAE*), GRASS-LEAVED GOLDENROD (*EUTHAMIA GRAMINIFOLIA*), NODDING BUR MARIGOLD (*BIDENS CERNUA*), GREEN BULRUSH (*SCIRPUS ATROVIRENS*), JOE- PYE WEED (*EUPATORIUM MACULATUM*), BONESET (*EUPATORIUM PERFOLIATUM*), BLUE VERVAIN (*VERBENA HASTATA*)

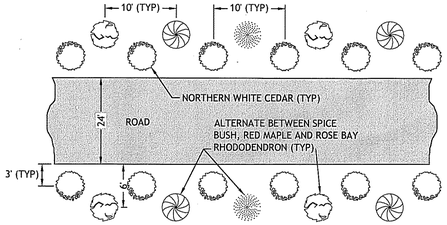
- SEED MIX CAN BE OBTAINED FROM NEW ENGLAND WETLAND PLANTS, INC. PHONE 413-548-800 AMHERST, MA 01002 OR OTHER APPROVED NURSERY.



LIMITS OF EXCAVATION- AMERICA STREET CROSSING
SCALE: 1" = 10'



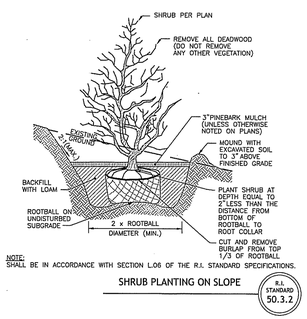
LIMIT OF EXCAVATION- AMERICA STREET CROSSING
SCALE: 1" = 2'



PLANTING DETAIL: STA: 1+00-3+50
SCALE: 1" = 10'

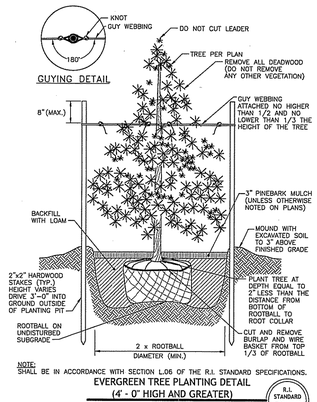
PLANTING SCHEDULE

SYMBOL	QUANTITY	PLANT NAME
	111	NORTHERN WHITE CEDAR (THUJA OCCIDENTALIS) (5' HIGH)
	11	RED MAPLE (ACER RUBRUM) (5' HIGH)
	9	SPICE BUSH (LINDERA BENZOIN) (3' HIGH)
	10	ROSEBAY RHODODENDRON (RHODODENDRON MAXIMUM) (3' HIGH)



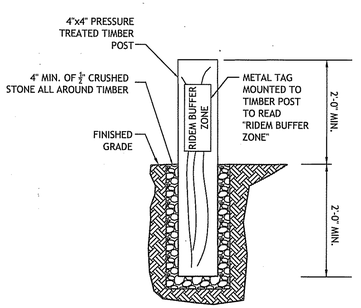
NOTE:
SHALL BE IN ACCORDANCE WITH SECTION L.06 OF THE R.I. STANDARD SPECIFICATIONS.

SHRUB PLANTING ON SLOPE
R.I. STANDARD 50.3.2

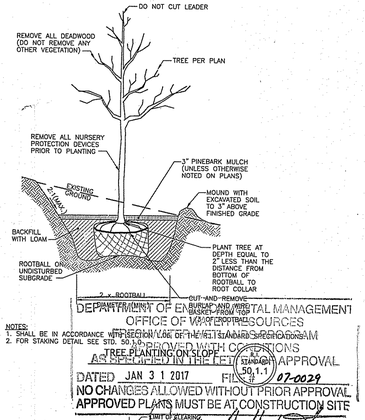


NOTE:
SHALL BE IN ACCORDANCE WITH SECTION L.06 OF THE R.I. STANDARD SPECIFICATIONS.

EVERGREEN TREE PLANTING DETAIL
(4' - 0' HIGH AND GREATER)
R.I. STANDARD 50.2.0

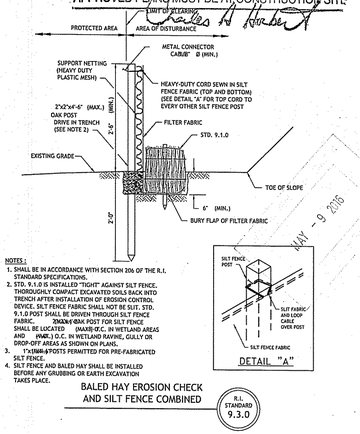


RIDEM BUFFER ZONE MARKER DETAIL
N.T.S



NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION L.06 OF THE R.I. STANDARD SPECIFICATIONS.
2. FOR STAKING DETAIL SEE STD. 50.3.

TREE PLANTING ON SLOPE



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"X4"(4'-0"X4' POST FOR SILT FENCE SHALL BE LOCATED (MAX)@ 8'-0" C. IN WETLAND AREAS AND (MAX.) O.C. IN WETLAND RAVINE, GULLY OR DROP-OFF AREAS AS SHOWN ON PLANS.
3. 1"x1(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.

BALED HAY EROSION CHECK AND SILT FENCE COMBINED
R.I. STANDARD 9.3.0

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
APPROVED IN ACCORDANCE WITH THE RULES AND REGULATIONS FOR THE ENFORCEMENT OF THE FRESHWATER WETLANDS ACT
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED JAN 31 2017 FILE # 07-0029
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Charles A. Horbert
DIRECTOR

MAY - 9 2016

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LAND SURVEYING - WATER RESOURCES - PLANNING
DRAINAGE - WASTEWATER - TRAFFIC - FORENSICS
300 POST ROAD, WARWICK, RI 02888
(401)944-1300 (401)944-1313 FAX WWW.JOECASALI.COM

JOSEPH A. CASALI
No. 7250
REGISTERED PROFESSIONAL ENGINEER
CIVIL
5.7.16

HIGHLAND ESTATES
CUMBERLAND, RHODE ISLAND
AP 52 LOTS 10, 307, 308, 309, 310, 315 & 316
MAJOR LAND DEVELOPMENT

REVISIONS:		
NO.	DATE.	DESCRIPTION
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9	7-2011	FINAL PLAN
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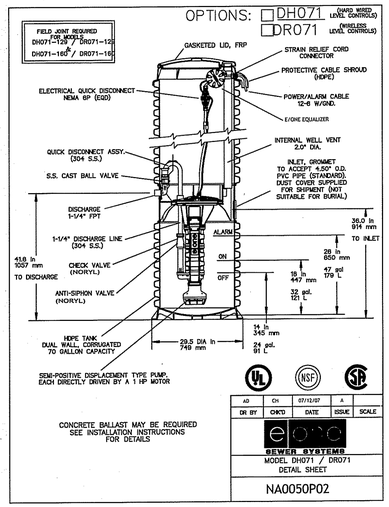
DESIGNED BY:	GC & ACK
DRAWN BY:	WMLJR
CHECKED BY:	JAC
DATE:	JANUARY 07
PROJECT NO:	05-77a

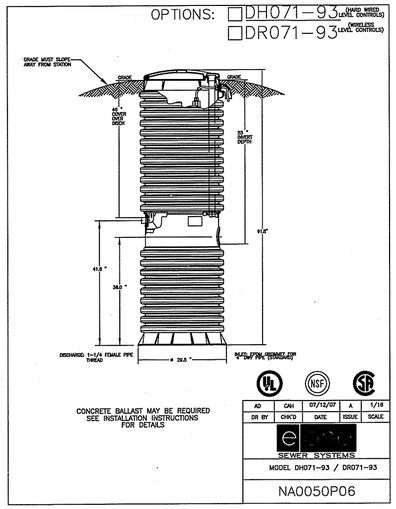
PRELIMINARY, NOT FOR CONSTRUCTION

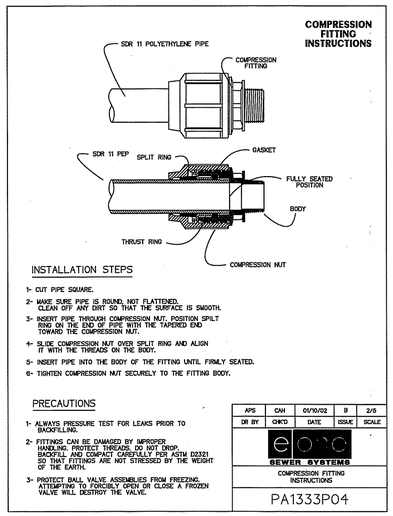
DETAILS IV

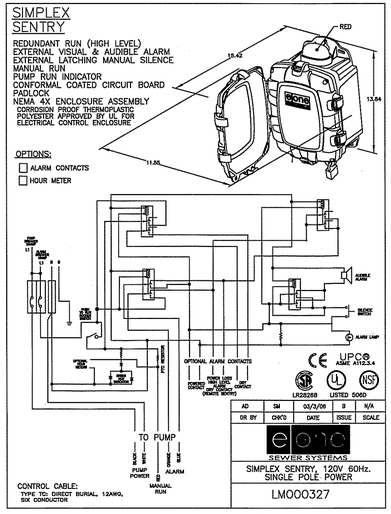
SHEET 13 OF 16

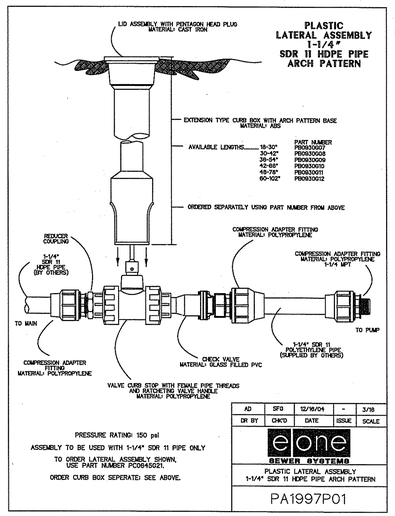
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HYDRANT
NOT TO SCALE

LOW PRESSURE SEWER AIR RELEASE MANHOLE DETAIL
NOT TO SCALE

AUTOMATIC AIR RELEASE MANHOLE
NOT TO SCALE

SERVICE CONNECTION
NOT TO SCALE

LOW PRESSURE SEWER TO GRAVITY SEWER MANHOLE CONNECTION DETAIL
NOT TO SCALE

TRENCH INSTALLATION IN ROCK AND SOIL
NOT TO SCALE

FORCE MAIN LATERAL INSTALLATION DETAIL
NOT TO SCALE

LOW PRESSURE SEWER IN-LINE FLUSHING CONNECTION DETAIL
NOT TO SCALE

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DRAINAGE
300 JOHN STREET · SUITE 201 · MEDFORD, MA 02155
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DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED JAN 3 1 2017 FILE # 07-0029
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

MAY - 9 2016

REVISIONS:

NO.	DATE.	DESCRIPTION
1	3-2007	UPDATED PLANSET
2	8-2007	RIDEM COMMENTS
3	2-2008	RIDEM COMMENTS
4	5-2008	RIDEM COMMENTS
5	12-2009	WATER&SEWER SUB.
6	2-2010	WATER RESUB.
7	5-2011	PRELIM. PLAN SUB.
8	6-2011	PRELIM. PLAN APPROVAL
9	7-2011	FINAL PLAN
10	01-2016	MODIFIED PRELIM. PLAN

DESIGNED BY:	GC & ACK
DRAWN BY:	WMLJR
CHECKED BY:	JAC
DATE:	JANUARY 07
PROJECT NO:	05-77a

PRELIMINARY, NOT FOR CONSTRUCTION

DETAILS V

SHEET 14 OF 16

Q:\05-77 Regional Finance\05-77a Highland Estates\Plan Set\HIGHLAND ESTATES (MODIFIED PRELIM PLAN).dwg May. 09, 2016 8:08am

PLANT SCHEDULE

DECIDUOUS TREES	CODE	QTY	COMMON NAME / BOTANICAL NAME	CONT	CAL	SIZE
	AG5	8	October Glory Maple / Acer rubrum `October Glory` TM	B & B;	3"Cal	
	FS2	3	Summit Ash / Fraxinus pennsylvanica `Summit`	B & B;	3"Cal	
	LT5	6	Tulip Tree / Liriodendron tulipifera	B & B;	3"Cal	
	UXH	4	Ulmus x homestead	B & B	3"Cal	

EVERGREEN TREES	CODE	QTY	COMMON NAME / BOTANICAL NAME	CONT	CAL	SIZE
	AC	6	White Fir / Abies concolor	B & B		6` - 7` HT.
	JV2	6	Eastern Red Cedar / Juniperus virginiana Native to RI	B & B		6` - 8` HT.

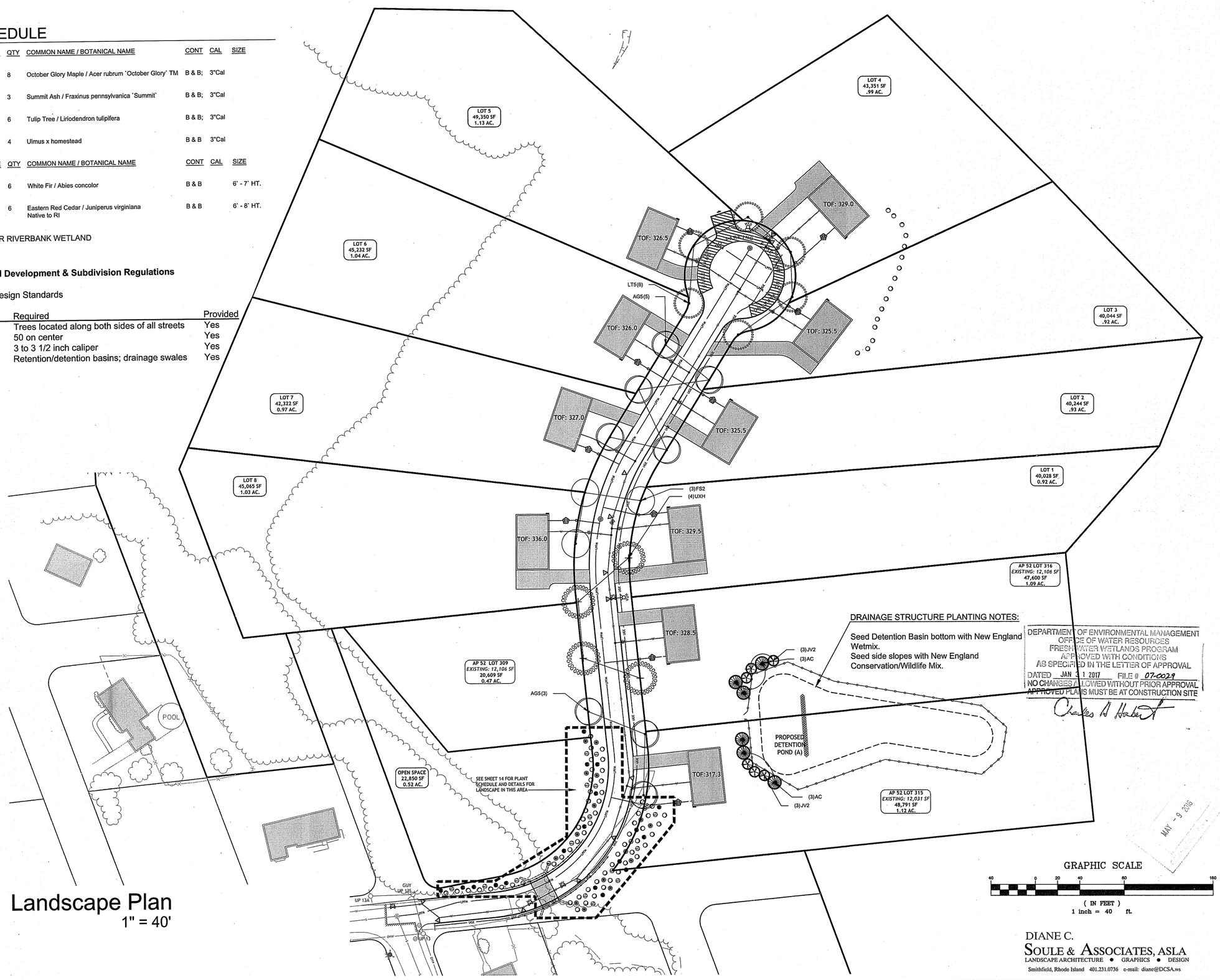
NOTE: SEE SHEET 14 FOR RIVERBANK WETLAND PLANTING SCHEDULE

TOWN OF CUMBERLAND Land Development & Subdivision Regulations

Section 7. Public Improvement Design Standards

STREET TREES

Description	Required	Provided
Tree location	Trees located along both sides of all streets	Yes
Tree spacing	50 on center	Yes
Street tree size at installation	3 to 3 1/2 inch caliper	Yes
Areas requiring buffering	Retention/detention basins; drainage swales	Yes



Landscape Plan
1" = 40'

DRAINAGE STRUCTURE PLANTING NOTES:

Seed Detention Basin bottom with New England Wetmix.
Seed side slopes with New England Conservation/Wildlife Mix.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED JAN 31 2017 FILE # 07-0029
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Charles A. Horbert

MAY - 9 2016

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

DIANE C.
SOULE & ASSOCIATES, ASLA
LANDSCAPE ARCHITECTURE • GRAPHICS • DESIGN
Smithfield, Rhode Island 401.231.0736 e-mail: diane@DCSA.ws

JCE
JOE CASALI ENGINEERING, INC.
CIVIL - SITE DEVELOPMENT - TRANSPORTATION
DRAINAGE - WETLANDS - ISDS - TRAFFIC - FLOODPLAIN
300 POST ROAD, WARWICK, RI 02888
(401)944-1230 (401)944-1313 FAX WWW.JOECASALI.COM

HIGHLAND ESTATES

CUMBERLAND, RHODE ISLAND
AP 52 LOTS 10, 307, 308, 309, 310, 315, 316
MAJOR LAND DEVELOPMENT

REVISIONS:		
NO.	DATE.	DESCRIPTION
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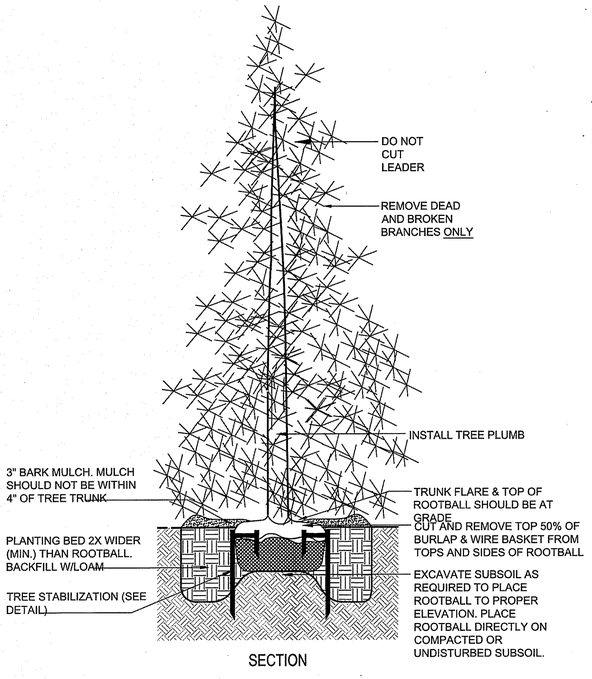
DESIGNED BY:	DCSA
DRAWN BY:	DCS
CHECKED BY:	DCS
DATE:	JANUARY 07
PROJECT NO:	05-77a

PRELIMINARY, NOT FOR CONSTRUCTION

LANDSCAPE PLAN

SHEET 15 OF 16

C:\ALL MASTER FILES\DRAWINGS\JCE\HIGHLAND ESTATES\HIGHLAND ESTATES (REVISED PLAN-SET) - Standard\Landscape Plan 01-13-16.dwg, Jan. 13, 2016 9:39am

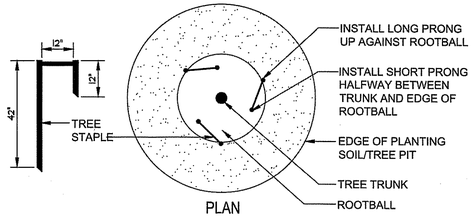


EVERGREEN TREE PLANTING DETAIL
no scale

TOWN OF CUMBERLAND Land Development & Subdivision Regulations

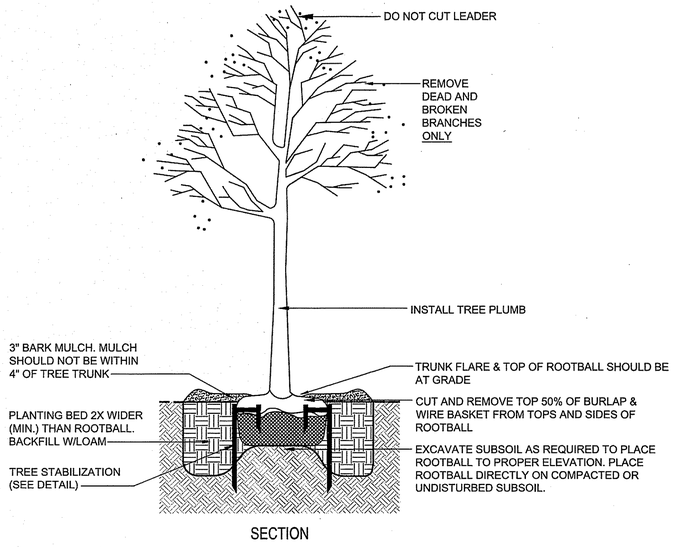
Section 7. Public Improvement Design Standards
STREET TREES

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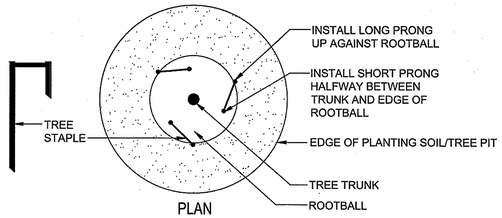


PLAN

NOTE:
CONTRACTOR SHALL USE CAUTION WITH TREE STAPLES SO NOT TO BE DRIVEN INTO SUBGRADE PIPES AND UTILITIES



TREE PLANTING DETAIL
no scale



PLAN

NOTE:
CONTRACTOR SHALL USE CAUTION WITH TREE STAPLES SO NOT TO BE DRIVEN INTO SUBGRADE PIPES AND UTILITIES

LANDSCAPE NOTES:

1. GUARANTEE THAT, UPON COMPLETION AND FINAL ACCEPTANCE, LANDSCAPE PLANTINGS CONFORM TO REQUIREMENTS OF CONTRACT DOCUMENTS. PROVIDE A WARRANTY FOR TREE PLANTINGS FOR A MINIMUM OF TWO (2) YEARS, INCLUDING TWO (2) CONTINUOUS GROWING SEASONS. COMMENCE WARRANTY ON DATE IDENTIFIED IN THE 'CERTIFICATE OF FINAL COMPLETION'.
   REPLACEMENTS: PLANTS OF SAME SIZE AND SPECIES AS SPECIFIED, PLANTED IN THE NEXT GROWING SEASON, WITH NEW WARRANTY AND EXTENDED MAINTENANCE SERVICE COMMENCING ON THE DATE OF REPLACEMENT.
2. PLANT MATERIALS SHALL BE OF SIZE AND CALIPER REQUIRED AND CONFORM TO THE REQUIREMENTS DESCRIBED IN THE LATEST EDITION OF AMERICAN STANDARD FOR NURSERY STOCK, PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
3. PLANTS OF OTHER KINDS THAN THOSE NAMED IN THE PLANT SCHEDULE SHALL NOT BE ACCEPTED WITHOUT APPROVAL. REPLACEMENT PLANTS LARGER IN SIZE THAN EXISTING MAY BE USED IF APPROVED BY THE A/E, PROVIDED USE OF LARGER PLANTS DOES NOT INCREASE CONTRACT PRICE.
4. A PROFESSIONAL HORTICULTURIST/NURSERYMAN SHALL BE CONSULTED TO DETERMINE THE PROPER TIME TO MOVE AND INSTALL PLANT MATERIAL SO THAT STRESS TO THE PLANT IS MINIMIZED. PLANTING OF DECIDUOUS MATERIAL MAY BE CONTINUED DURING WINTER MONTHS PROVIDED THERE IS NO FROST IN THE GROUND AND FROST–FREE TOPSOIL PLANTING MIXTURES ARE USED.
5. UNLESS OTHERWISE APPROVED BY THE A/E, ALL PLANTS SHALL BE NURSERY GROWN IN ACCORDANCE WITH GOOD HORTICULTURAL PRACTICES AND SHALL HAVE BEEN GROWN UNDER CLIMATIC CONDITIONS SIMILAR TO THOSE IN THE LOCALITY OF THE PROJECT FOR AT LEAST TWO (2) YEARS.
6. SET PLANTS PLUMB AND AT SUCH A LEVEL THAT AFTER SETTLEMENT THEY BEAR THE SAME RELATION TO THE SURROUNDING GROUND AS THEY BORE TO THE GROUND FROM WHICH THEY WERE DUG. SETTLE BACKFILL MATERIAL FOR PLANTS, THOROUGHLY & PROPERLY, BY FIRMING OR TAMPING. ACCOMPANY BACKFILLING WITH THOROUGH WATERING UNLESS OTHERWISE APPROVED. FORM SAUCER CAPABLE OF HOLDING WATER AROUND INDIVIDUAL PLANTS.
7. FERTILIZE SHRUB BEDS WITH 10–6–4 FERTILIZER AT THE RATE OF 3 POUNDS PER 100 SQUARE FEET OF SURFACE AREA, BROAD CAST. APPLY THE FERTILIZER UNIFORMLY TO THE SURFACE BEDS AND WORK INTO THE UPPER TWO (2) INCHES OF SOIL. FERTILIZE INDIVIDUAL TREES AT THE RATE OF ONE (1) AGRIFORM PELLET PER INCH OF TREE DIAMETER (FOLLOW MANUFACTURER'S WRITTEN INSTRUCTIONS). APPLY A SECOND APPLICATION OF FERTILIZER TO ALL PLANT ITEMS AT THE SAME SPECIFIED RATES OVER THE MULCH AT THE END OF AN EIGHT WEEK PERIOD.
8. CONTAINER GROWN MATERIALS: REMOVE PLANT FROM CONTAINER AND "BUTTERFLY" ROOT BALL OR OTHERWISE SPREAD OUT ROOTS ON SETTING MOUND. BACKFILL SHALL BE SIFTED THROUGH THEM AND SOLIDLY FIRMED.
9. AFTER PLANTING PRUNE ONLY BROKEN OR DEFORMED BRANCHES AND IN SUCH MANNER AS TO PRESERVE NATURAL CHARACTER OF PLANT.
10. IMMEDIATELY AFTER PLANTING, STAKE TREES OVER FIVE (5) FEET AS INDICATED ON DETAIL DRAWING INDICATED OR APPROVED BY THE OWNERS REPRESENTATIVE. REMOVE STAKES AT THE END OF GUARANTEE PERIOD.
11. MULCH SHALL BE APPLIED A MINIMUM OF THREE (3) INCHES IN DEPTH IN ALL PLANTING BEDS, AS INDICATED ON THE DRAWINGS.
12. THE PLANTS SHALL BE WATERED IMMEDIATELY FOLLOWING PLANTING, PREFERABLY WHEN TWO THIRDS OF THE BACKFILL HAS BEEN PLACED SO ALL AIR POCKETS ARE REMOVED AND THE PLANT PROPERLY SET. ADDITIONAL WATERING SHALL BE MADE AT LEAST ONCE EVERY THREE (3) WEEKS UNLESS OTHERWISE DIRECTED UNTIL FINAL ACCEPTANCE OF THE PLANT MATERIAL.
13. UNLESS OTHERWISE SPECIFIED, CONTRACTOR TO LOAM AND SEED ALL DISTURBED AREAS.
14. TREE PRUNING NOTE: STREET TREES SHOULD BE PRUNED TO MAINTAIN A MINIMAL BRANCH HEIGHT OF 8' WITHIN TWO (2) YEARS OF INSTALLATION OF THE TREE.
15. LANDSCAPE ESTABLISHMENT AND MAINTENANCE NOTE: CONTRACTOR SHALL ENSURE THAT ALL LAWN AREAS AND PLANTINGS ARE FULLY ESTABLISHED AND ACCEPTABLE TO THE OWNER'S REPRESENTATIVE PRIOR TO RELINQUISHING THEIR RESPONSIBILITIES FOR MAINTENANCE OF THESE AREAS.
16. TREE PROTECTION NOTE: NO MATERIAL, TEMPORARY SOIL DEPOSIT OR EXCAVATION SHALL OCCUR WITHIN FOUR FEET OF SHRUBS OR WITHIN TWO FEET OF THE DRIP LINE OF ANY SHRUBS OR TREES TO REMAIN. ANY RETAINED EXISTING VEGETATION SHALL BE PROTECTED AS PER NORTH KINGSTOWN ZONING ORDINANCE, SECTION 21–277, SUBSECTION 3a: PROTECTION OF EXISTING PLANTINGS AND SITE FEATURES.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED JAN 3 1 2017 FILE # 07-0021
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Charles A. Horbert

MAY – 9 2016

DIANE C.
SOULE & ASSOCIATES, ASLA
LANDSCAPE ARCHITECTURE • GRAPHICS • DESIGN
Smithfield, Rhode Island 401.231.0736 e-mail: diane@DCSA.ws

JCE
JOE CASALI ENGINEERING, INC.
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300 POST ROAD, WARWICK, RHODE ISLAND 02888
(401)944-1300 (401)944-1313 FAX WWW.JOECASALI.COM

HIGHLAND ESTATES

CUMBERLAND, RHODE ISLAND
AP 52 LOTS 10, 307, 308, 309, 310, 315, 316
MAJOR LAND DEVELOPMENT

REVISIONS:		
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DESIGNED BY:	DCSA
DRAWN BY:	DCS
CHECKED BY:	DCS
DATE:	JANUARY 07
PROJECT NO:	05-77a

PRELIMINARY, NOT FOR CONSTRUCTION

LANDSCAPE DETAILS

SHEET 16 OF 16

C:\ALL MASTER FILES\DRAWINGS\JCE\HIGHLAND ESTATES\HIGHLAND ESTATES (REVISED PLAN-SET) - Standard\Landscape Plan 01-13-16.dwg Jan. 13, 2016 9:41am

PLANT SCHEDULE

EVERGREEN TREES	CODE	QTY	BOTANICAL NAME / COMMON NAME	CONTAINER/B&B
	TO2	4	Thuja occidentalis / Northern White Cedar	B&B; 5'-6'
WETLAND MITIGATION	**CODE**	**QTY**	**BOTANICAL NAME / COMMON NAME**	**CONTAINER/B&B**
	AR	41	Acer rubrum / Red Maple	7 gal
	PS13	10	Pinus strobus / White Pine	B&B; 4'-5' HT.
	QA3	30	Quercus alba / White Oak	7 gal
WETLAND MITIGATION	**CODE**	**QTY**	**BOTANICAL NAME / COMMON NAME**	**CONT**
	IW5	18-31	Ilex verticillata / Winterberry	2 gal
	LB5	39-91	Lindera benzoin / Spicebush	2 gal
	RM6	51-103	Rhododendron maximum / Rose Bay	2 gal
	VH7	21-49	Vaccinium corymbosum / Highbush Blueberry	1 gal
	VA4	33-77	Viburnum dentatum / Viburnum	2 gal

LEGEND:

UNAUTHORIZED CLEARING OUTSIDE PERMITTED LIMIT OF DISTURBANCE

UNAUTHORIZED CLEARING OUTSIDE PERMITTED LIMIT OF DISTURBANCE WITHIN JURISDICTIONAL WETLANDS

NOTES:

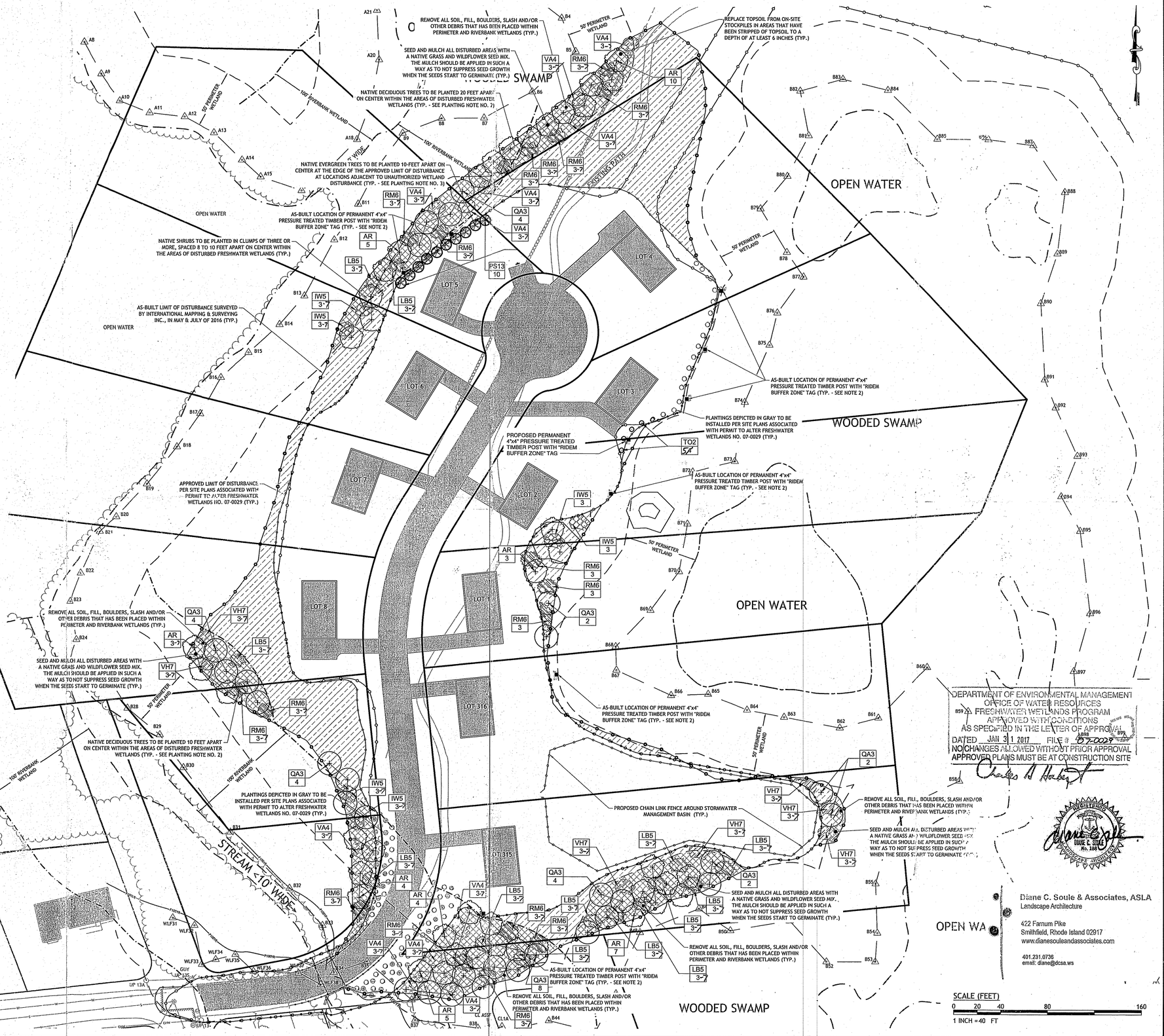
1. AS-BUILT LIMIT OF DISTURBANCE FIELD SURVEYED BY INTERNATIONAL MAPPING & SURVEYING CORP. ON MAY 23 & JULY 13, 2016.
2. RIDEM BUFFER ZONE POSTS INSTALLED & FIELD SURVEYED BY INTERNATIONAL MAPPING & SURVEYING CORP. ON JULY 13, 2016.

PLANTING NOTES:

1. NATIVE SHRUBS ARE TO BE PLANTED IN CLUMPS OF THREE OR MORE, SPACED 8 TO 10 FEET APART ON CENTER. APPROVED NATIVE SHRUBS INCLUDE A MIX OF SWEET PEPPERBUSH (CLEHTRA ALNIFOLIA), ROSEBAY RHODODENDRON (RHODODENDRON MAXIMUM), SPICEBUSH (LINDERA BENZOIN), HIGHBUSH BLUEBERRY (VACCINIUM CORYMBOSUM), SOUTHER ARROWWOOD (VIBURNUM DENTATUM) AND/OR MOUNTAIN LAUREL (KALMIA LATIFOLIA).
2. DECIDUOUS TREES ARE TO BE SPACED 20-FEET APART ON CENTER. APPROVED NATIVE DECIDUOUS TREES INCLUDE RED MAPLE (ACER RUBRUM), WHITE OAK (QUERCUS ALBA), OR ASH (FRAXINUS PENNSYLVANICA).
3. NATIVE EVERGREEN TREES ARE TO BE PLANTED SPACED 10 FEET APART ON CENTER AT THE APPROVED LIMIT OF DISTURBANCE ADJACENT TO AREAS OF WETLAND DISTURBANCE. APPROVED NATIVE EVERGREEN TREES INCLUDE EASTERN RED CEDAR (JUNIPERUS VIRGINIANA), ARBORVITAE (THUJA OCCIDENTALIS), OR AMERICAN HOLLY (ILEX OPACA). IN LIEU OF AN EVERGREEN SCREEN A PERMANENT FENCE MAY BE INSTALLED.

ORDER OF PROCEDURE NOTES:

1. PROPERLY INSTALL EROSION AND SEDIMENTATION CONTROLS AT THE APPROVED LIMIT OF DISTURBANCE.
2. REMOVE CULVERT AND ALL FILL THAT HAS BEEN PLACED IN THE RIVER AND RE-SHAPE THE BANKS TO CONDITIONS THAT EXISTED PRIOR TO CONSTRUCTION, USING APPROPRIATE EROSION AND SEDIMENTATION CONTROLS. ALL CONSTRUCTION ACTIVITIES INVOLVING SOIL DISTURBANCES WITHIN THIS WATERCOURSE MUST BE LIMITED TO THE LOW FLOW PERIOD (I.E., THE PERIOD FROM JULY 1 TO OCTOBER 31). SOIL DISTURBANCE MUST TEMPORARILY CEASE IN THE EVENT OF ANY ABNORMALLY HIGH STORMWATER RUNOFF EVENT DURING THE LOW FLOW PERIOD. ONCE THE RIVER AND ASSOCIATED WETLAND AT ROAD CROSSING HAS BEEN RESTORED, VEHICULAR ACCESS TO SITE IS PROHIBITED UNTIL SUCH TIME THAT THE APPROVED ARCH CULVERT AND ROADWAY THROUGH THE WETLAND HERE HAS BEEN CONSTRUCTED AS APPROVED.
3. REPLACE TOPSOIL FROM ON-SITE STOCKPILES IN AREAS THAT HAVE BEEN STRIPPED OF TOPSOIL TO A DEPTH OF AT LEAST 6 INCHES.
4. REPLANT ALL AREAS OF FRESHWATER WETLANDS AND AREAS OUTSIDE OF APPROVED LIMIT OF DISTURBANCE AS OUTLINED ON THIS SITE PLAN.
5. SEED AND MULCH ALL DISTURBED AREAS WITH A NATIVE GRASS AND WILDFLOWER SEED MIX AS DETAILED ON THIS PLAN.
6. ALL PLANTINGS IN THE RESTORATION AREAS MUST BE ALLOWED TO GROW IN A NATURAL UNDISTURBED MANNER WITHOUT ANY FUTURE MOWING, CUTTING, TRIMMING, OR MANICURING.
7. ONCE THE SITE HAS STABILIZED, REMOVE SILT FENCING CURRENTLY OUTSIDE OF THE APPROVED LIMIT OF DISTURBANCE ASSOCIATED WITH PERMIT TO ALTER FRESHWATER WETLANDS NO. 07-0029.



JCE
JOE CASALI ENGINEERING, INC.
CIVIL · SITE DEVELOPMENT · TRANSPORTATION
DRAINAGE · WETLANDS · ISDS · TRAFFIC · FLOODPLAIN
944 HOPE FURNACE ROAD, SUITE 8 · DAVISVILLE, RI 02854
(401) 294-3300 (401) 294-3313 FAX www.JCEinc.com

Environmental Management
SEP 08 2016
Office of Water Resources

HIGHLAND ESTATES

CUMBERLAND, RHODE ISLAND
AP 52 LOTS 10, 307, 308, 309, 310, 315 & 316
MAJOR LAND DEVELOPMENT

REVISIONS:

NO.	DATE.	DESCRIPTION

DESIGNED BY:	JMM
DRAWN BY:	JMM
CHECKED BY:	JAC
DATE:	JULY 2016
PROJECT NO:	05-77a

PRELIMINARY, NOT FOR CONSTRUCTION

WETLAND RESTORATION PLANTING PLAN

SHEET 1 OF 1

Diane C. Soule & Associates, ASLA
Landscape Architecture
422 Farnum Pike
Smithfield, Rhode Island 02917
www.dianesouleandassociates.com
401.231.0736
email: diane@dcsa.ws

DIANE C. SOULE No. 188 REGISTERED LANDSCAPE ARCHITECT

D:\ALL MASTER FILES\DRAWINGS\JCE\HIGHLAND ESTATES\July 2016\HIGHLAND ESTATES (WETLAND RESTORATION PLAN) 7 Sep 16.dwg Sep. 08, 2016 5:49am

SITE PLANS FOR A PROPOSED MAJOR SUBDIVISION:

HIGHLAND ESTATES

AP 52 LOTS 10, 233, 234, 307, 308, 310, 311, 313-316

CUMBERLAND, RHODE ISLAND

ZONING DISTRICTS- A-2 & R-1

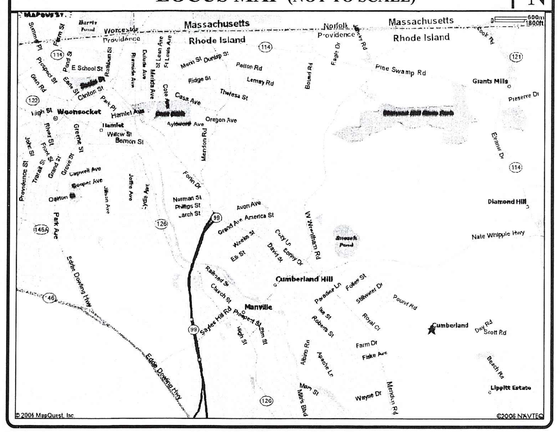
MASTER PLAN APPROVAL: MAY 15, 2006

CONSISTENT WITH THE MASTER PLAN APPROVAL, THE APPLICANT SEEKS THE FOLLOWING WAIVERS OF THE REQUIREMENTS OF THE LAND DEVELOPMENT AND SUBDIVISION REVIEW REGULATIONS:
- REDUCTION IN ROADWAY WIDTH FROM 26 FEET TO 24 FEET.
- INCREASE IN CUL-DE-SAC LENGTH FROM 600 FEET TO 900 FEET.
- SIDEWALKS ON ONE SIDE OF AMERICA STREET
- CONCRETE CURB INSTEAD OF GRANITE

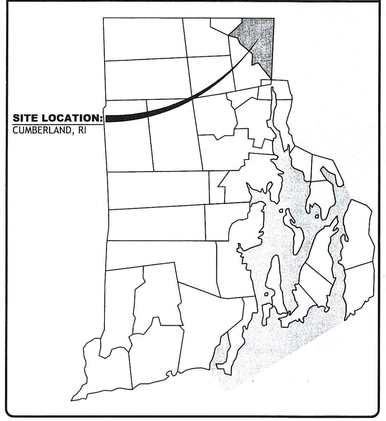
PROJECT TEAM

OWNER:	REGIONAL FINANCING COMPANY, INC. J. TWO, LLC C/O JOSEPH GIUTTARI 16 WEYBOSSET STREET SUITE 400 PROVIDENCE, RI 02903
CIVIL ENGINEER:	CASALI & D'AMICO ENGINEERING, INC. 300 POST ROAD WARWICK, RI 02888 PHONE: 401-944-1300 FAX: 401-944-1313
SURVEYOR:	MARSH SURVEYING, INC. 640 GEORGE WASHINGTON HIGHWAY LINCOLN, RI 02864 PHONE: 401-334-0600
WETLANDS BIOLOGIST:	NATURAL RESOURCE SERVICES, INC. PO BOX 311 HARRISVILLE, RI 02830 PHONE: 401-568-7390

LOCUS MAP (NOT TO SCALE)



STATE WIDE MAP



INDEX OF DRAWINGS

SHEET NO.	PLAN
1.	COVER SHEET
2.	GENERAL NOTES
3.	EXISTING CONDITIONS PLAN
4.	OVERALL SITE PLAN
5.	AMERICA STREET- CONCEPTUAL UTILITY PLAN
6.	VERONA DRIVE- CONCEPTUAL UTILITY PLAN
7.	AMERICA STREET- GRADING AND DRAINAGE PLAN
8.	VERONA DRIVE- GRADING AND DRAINAGE PLAN
9.	AMERICA STREET PROFILE
10.	VERONA DRIVE PROFILE
11.	DETAILS I
12.	DETAILS II
13.	DETAILS III
14.	DETAILS IV
15.	DETAILS V
16.	UTILITY DETAILS

RECEIVED AUG 4 2008

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
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Charles A. Horbert

CDE
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CIVIL • SITE • TRANSPORTATION
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300 POST ROAD, WARWICK, RI 02888
(401) 944-1300 (401)944-1313 fax www.casalidamico.com

DAVID M. D'AMICO
No. 6745
REGISTERED PROFESSIONAL ENGINEER
CIVIL
5/22/08

HIGHLAND ESTATES
CUMBERLAND, RHODE ISLAND
AP 52 LOTS 10, 233, 234, 307, 308, 310, 311, 313-316

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DESIGNED BY:	WA
DRAWN BY:	GAH
CHECKED BY:	DMD/ JAC
DATE:	JANUARY 07
PROJECT NO:	05-77a

PRELIMINARY, NOT FOR CONSTRUCTION

COVER SHEET

SHEET 1 OF 16

PLAN FOR NOTICE

Q:\05-77 Regional Finance\05-77a America St. Cumberland\ACAD\PLAN SET\AMERICA ST. CUMBERLAND (PLAN SET).dwg, May. 19, 2008 2:20pm

GENERAL NOTES:

1. CLASS IV PROPERTY LINE AND CLASS IIII TOPOGRAPHIC SURVEY COMPLETED BY MARSH SURVEYING, INC, 640 GEORGE WASHINGTON HIGHWAY LINCOLN, RI.

2. THE LOCATION AND DEPTH OF EXISTING UTILITIES ARE APPROXIMATE AND HAVE BEEN PLOTTED FROM THE LATEST AVAILABLE INFORMATION. THE UTILITY LOCATIONS ARE APPROXIMATE AND MAY NOT BE ALL INCLUSIVE. THE CONTRACTOR SHALL CHECK AND VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES, BOTH OVERHEAD AND UNDERGROUND, AND "DIG-SAFE" MUST BE NOTIFIED PRIOR TO COMMENCING ANY CONSTRUCTION OPERATIONS. RESTORATION AND REPAIR OF DAMAGE TO EXISTING UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR WITH NO ADDITIONAL COST THE OWNER. NO EXCAVATION SHALL COMMENCE UNTIL ALL INVOLVED UTILITY COMPANIES AND/OR TOWN WHOSE FACILITIES MIGHT BE AFFECTED BY ANY WORK TO BE PERFORMED BY THE CONTRACTOR ARE NOTIFIED AT LEAST 72 HOURS IN ADVANCE.

3. THE MOST WESTERLY AND SOUTHERLY PORTIONS OF THE PARCEL ARE LOCATED WITHIN FEMA FLOOD ZONE "A" (AREAS OF 100 YEAR FLOOD) BASE FLOOD ELEVATIONS AND FLOOD FACTORS NOT DETERMINED. REFERENCE FEMA MAP COMMUNITY-PANEL #440016 0003B. REVISED 2-16-90

4. WETLAND RESOURCES DELINEATED BY NATIONAL RESOURCE SERVICES, INC. AND VERIFIED UNDER APPLICATION NO. 04-0510, EXPIRATION 7-13-2009.

SITE NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND LEGALLY DISPOSING (R&D) OF ALL MATERIALS INDICATED ON THE PLANS.

2. STOCKPILES OF EARTH MATERIALS SHALL NOT BE LOCATED ADJACENT TO DRAINAGE STRUCTURES.

3. ALL DISTURBED AREAS OUTSIDE OF THE PAVED AREAS WILL RECEIVE A MINIMUM OF 6" OF LOAM AND SEED.

4. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN SURVEY LAYOUT SERVICES FOR THE WORK AND SHALL SUBMIT "AS-BUILT" DRAWINGS OF ALL WORK, WHICH SHALL BE STAMPED AND CERTIFIED BY A RHODE ISLAND REGISTERED PROFESSIONAL LAND SURVEYOR.

5. ANY ITEM OF WORK NOT SPECIFICALLY INDICATED ON THE PLANS BUT REQUIRED FOR THE COMPLETE CONSTRUCTION OF THE PROJECT WILL BE CONSIDERED INCIDENTAL TO THE CONTRACT AND INCLUDED IN THE CONTRACT BID PRICE. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL EXISTING SITE CONDITIONS.

6. WHERE NECESSARY TO REMOVE CURBS, CATCH BASINS OR DRAINS TO COMPLETE WORK, THE CONTRACTOR SHALL REPLACE SUCH ITEMS TO THE SATISFACTION OF THE TOWN OF CUMBERLAND AT NO ADDITIONAL COST TO THE OWNER.

7. ANY EXISTING PIPE OR UTILITY DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED IMMEDIATELY BY THE CONTRACTOR AT NO COST TO THE OWNER OR TOWN.

8. THE CONTRACTOR SHALL RESTORE TO ITS ORIGINAL CONDITION OR REPLACE TREES, SHRUBS, FENCES, SIGNS, GUARDRAILS, DRIVEWAYS, SIDEWALKS AND ANY OTHER OBJECT AFFECTED BY THIS OPERATION.

9. THE TOPS OF ALL VALVE BOXES AND CURB BOXES SHALL BE FLUSH WITH GROUND OR PAVEMENT SURFACE LEVEL AND PLUMB, UNLESS OTHERWISE DIRECTED.

10. ROADWAYS SHALL BE LEFT PASSABLE AT ALL TIMES. CLOSURE OF ROADWAY IS NOT PERMITTED.

11 THE CONTRACTOR SHALL PROVIDE ACCESS TO ALL DRIVEWAYS AT COMPLETION OF EACH DAYS WORK.

12. WATER SERVICE SHALL BE MAINTAINED AT ALL TIMES.

13. ALL LEDGE TO BE REMOVED BY MECHANICAL MEANS. CONTRACTOR SHALL OBTAIN NECESSARY PERMITTING IF BLASTING IS REQUIRED.

14. ALL CONSTRUCTION WORK SHALL BE PERFORMED IN THE DRY. THE CONTRACTOR SHALL PROVIDE, OPERATE AND MAINTAIN ALL PUMPS, DRAINS, WET POINTS, SCREENS, OR OTHER FACILITIES NECESSARY TO CONTROL, COLLECT AND DISPOSE OF ALL SURFACE AND SUBSURFACE WATER ENCOUNTERED IN THE PERFORMANCE OF THE WORK.

15. REFER TO PLUMBING PLANS FOR CONTINUATION OF ALL UTILITIES WITHIN 5' FEET OF THE BUILDING.

16. ALL SITE WORK, INCLUDING BUT NOT LIMITED TO, BITUMINOUS PAVEMENT, ROADWAY CONSTRUCTION, AGGREGATE MATERIALS, DRAINAGE STRUCTURES, CURBING, SIDEWALK, LANDSCAPING, SAW CUTTING, ETC. SHALL CONFORM TO THE RHODE ISLAND DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADWAY AND BRIDGE CONSTRUCTION, 2004 EDITION (WITH LATEST ADDENDA), THE RIDOT STANDARD DETAILS, 1998 EDITION (WITH LATEST ADDENDA) AND THE TOWN OF CUMBERLAND'S LAND DEVELOPMENT AND SUBDIVISION REGULATIONS.

MISCELLANEOUS UTILITY NOTES:

1. PRIOR TO CONSTRUCTION, ALL POTENTIAL UTILITY/DRAINAGE CONFLICTS MUST BE IDENTIFIED BY THE CONTRACTOR. ANY MODIFICATIONS TO THE PROPOSED UTILITIES TO AVOID CONFLICTS MUST BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION. NO EXTRA PAYMENT TO THE CONTRACTOR DUE TO RELOCATIONS WILL BE AUTHORIZED.

2. THE UTILITY PLAN DOES NOT DEPICT THE NECESSARY ELECTRICAL CONDUIT/WIRING TO SERVICE THE PROPOSED LIGHTING AND SIGNS, WHICH WILL BE PERFORMED BY THE CONTRACTOR FOR NO ADDITIONAL COST.

3. OVERHEAD ELECTRIC AND TELEPHONE SERVICES ARE TO BE REMOVED BY THE APPROPRIATE UTILITY COMPANY AND COORDINATED BY THE CONTRACTOR.

4. THE CONTRACTOR SHALL AT ALL TIMES PROVIDE A SUFFICIENT NUMBER OF WORKMEN AND GUARDS AS MAY BE NECESSARY TO PROPERLY SAFEGUARD THE PUBLIC FROM THERE OPERATIONS.

5. THE CONTRACTOR SHALL TAKE PRECAUTIONS AGAINST DAMAGING OF PAVING, SIDEWALKS, UTILITIES, OR PRIVATE PROPERTIES AND SHALL PROMPTLY REPAIR AT HIS OWN EXPENSE ANY DAMAGE TO SUCH PAVING, SIDEWALKS, UTILITIES, OR PRIVATE PROPERTIES TO THE SATISFACTION OF THE OWNER OR TOWN.

6. EXISTING UTILITY FRAMES AND COVERS FOR SANITARY SEWER, WATER, GAS, STORM DRAINAGE AND OTHER UTILITIES SHALL BE ADJUSTED TO GRADE AS REQUIRED IN NEW PAVING AND PAVEMENT OVERLAY AREAS.

LAYOUT NOTE:

THE LAYOUT SHOWN REPRESENTS A GRAPHICAL DESIGN, AND PRIOR TO THE CONSTRUCTION, THE CONTRACTOR SHALL ENGAGE A PROFESSIONAL LAND SURVEYOR (PLS) REGISTERED IN THE STATE OF RHODE ISLAND TO SET AND VERIFY ALL LINES AND GRADES. ALL EXISTING UTILITY LOCATIONS AND ELEVATIONS ARE TO BE CONFIRMED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. ANY ITEMS FOUND WHICH DO NOT MATCH THE PLANS MUST BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO CONSTRUCTION FOR REVIEW. NO WORK SHALL PROCEED UNTIL AUTHORIZED BY THE ENGINEER.

MAINTENANCE AND PROTECTION OF TRAFFIC NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MAINTENANCE AND PROTECTION OF PEDESTRIAN AND VEHICULAR TRAFFIC INCLUDING POLICE PROTECTION. ALL TEMPORARY AND VEHICULAR SIGNS, BARRICADES AND LANE CLOSURES SHALL BE IN CONFORMANCE WITH THE LATEST REVISIONS OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.)

2. TEMPORARY CONSTRUCTION SIGNS AND ALL APPLICABLE TRAFFIC CONTROL DIVIDES SHALL BE IN PLACE PRIOR TO THE START OF WORK IN ANY AREA OPEN TO TRAFFIC.

3. THE PRIVATE VEHICLES OF CONSTRUCTION WORKERS SHALL NOT BE PARKED IN THE STATE OR TOWN RIGHT-OF-WAY.

4. ALL MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL SETUPS, SIGNS CHANNELING DEVICES, ETC, SHALL BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. 1988 EDITION. INCLUDING REVISION 3, SEPTEMBER 3, 1993 AND SUBSEQUENT ADDENDA.

5. SIGN MOUNTINGS SHALL BE IN ACCORDANCE WITH THE R.I.D.O.T. SPECIFICATIONS FOR TEMPORARY CONSTRUCTION SIGNS.

DRAINAGE SYSTEM MAINTENANCE SCHEDULE:

UPON PROJECT COMPLETION, THE PROPERTY OWNER SHALL ADHERE TO THE FOLLOWING MAINTENANCE PLAN AND SCHEDULE:

1. **CATCH BASINS, MANHOLES AND DRAIN LINES**:---AN INSPECTION MUST OCCUR ON AN ANNUAL BASIS BY QUALIFIED PERSONAL TO ENSURE PROPER OPERATION. THE INSPECTION SHOULD, AS A MINIMUM, CONCENTRATE ON THE FOLLOWING:
   * DAMAGE TO GRATE/ COVERS
   * EVIDENCE OF STANDING WATER
   * DEBRIS REMOVAL
   * STRUCTURAL ALIGNMENT/ INTEGRITY

   ANY DEFICIENCY NOTED DURING THE INSPECTION WILL BE IMMEDIATELY REPAIRED OR REPLACED.

2. **SEDIMENT REMOVAL:**---ALL REMOVED SEDIMENT IS TO BE TESTED TO DETERMINE POLLUTANT CONTENT. THE SEDIMENT IS TO BE PROPERLY DISPOSED IN UPLAND AREAS BASED UPON THE TEST RESULTS AND LOCAL, STATE, AND FEDERAL REGULATIONS
   * SEDIMENT SHALL BE REMOVED FROM THE CATCH BASINS ON AN ANNUAL BASIS.
   * THE SEDIMENT STORAGE VOLUME IN BASIN-A IS FROM 308.0 TO 308.5. THE SEDIMENT SHALL BE CLEANED OUT TO ELEVATION 308.0 WHEN THE SEDIMENT REACHES ELEVATION 308.5.
   * THE SEDIMENT STORAGE VOLUME IN BASIN-B IS FROM 312.0 TO 313.0. THE SEDIMENT SHALL BE CLEANED OUT TO ELEVATION 312.0 WHEN THE SEDIMENT REACHES ELEVATION 313.0.

DRAINAGE SYSTEM NOTES:

1. ALL RIM ELEVATIONS SHOWN ARE APPROXIMATE AND ARE TO BE SET FLUSH WITH FINAL GRADES.
2. THE DESIGN ENGINEER MUST SUBMIT AN AS-BUILT PLAN AND A CERTIFICATION TO THE CITY ENGINEER THAT THE CONSTRUCTION IS IN COMPLIANCE WITH THE DESIGN PLANS FOR ALL ELEMENTS OF THE STORM OR DRAINAGE SYSTEM PRIOR TO THE ISSUANCE OF THE CERTIFICATE OF OCCUPANCY.

PROPOSED ROADWAY PAVEMENT STRUCTURE (PAVEMENT TYPE A):

2" BITUMINOUS CONCRETE SURFACE COURSE CLASS TYPE I-1
2" BITUMINOUS CONCRETE BINDER COURSE
12" GRAVEL BORROW SUBBASE COURSE

PROPOSED DRIVEWAY PAVEMENT STRUCTURE (PAVEMENT TYPE B):

2" BITUMINOUS CONCRETE SURFACE COURSE CLASS TYPE I-1
10" GRAVEL BORROW SUBBASE COURSE

ASPHALT EMULSION TACK COAT TO BE PLACED ON ALL BITUMINOUS COURSES PRIOR TO PAVING.

WATER NOTES:

1. ALL INSTALLATIONS, JOINTS, CONSTRUCTION METHODS AND MATERIALS SHALL BE ACCORDING TO THE CUMBERLAND WATER DISTRICT REQUIREMENTS, AWWA STANDARDS AND GOVERNMENTAL REQUIREMENTS.

2. WATER PIPES SHALL TYPICALLY BE LOCATED AT LEAST TEN (10) FEET HORIZONTALLY FROM SEWER PIPES, AND AT A MINIMUM DEPTH OF COVER EQUAL TO 5'. WHERE A NEW WATER PIPE IS LESS THAN 18 INCHES CLEAR DISTANCE ABOVE A SEWER OR WHERE A WATER PIPE PASSES BENEATH A SEWER, ENCASE THE SEWER IN 6" OF CONCRETE FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE CROSSING WATER PIPE.

3. ALL SYSTEM COMPONENTS AND CONSTRUCTION METHODS; SUCH AS PIPE, THRUST BLOCKS, FITTINGS, CASTINGS, ETC. SHALL BE SUBMITTED TO CUMBERLAND WATER FOR APPROVAL PRIOR TO PURCHASE AND INSTALLATION. THIS SUBMISSION SHALL INCLUDE MANUFACTURER'S LITERATURE, SHOP DRAWINGS, PROPOSED CONSTRUCTION METHODS, ETC.

4. WATER LINE TRENCH TO BE AWWA TYPE 5 A METALIZED DETECTABLE IDENTIFICATION TAPE 2" IN WIDTH, BLUE IN COLOR AND PRINTED WITH "CAUTION WATERLINE BURIED BELOW" SHALL BE UTILIZED OVER ALL MAINS. TAPE SHALL BE SET AT APPROXIMATELY 1' BELOW FINISHED GRADE.

5. THE CONTRACTOR SHALL RECEIVE VERIFICATION FROM THE ARCHITECT AS TO THE APPROPRIATE SIZE OF THE DOMESTIC WATER AND FIRE PROTECTION LINE SHOWN ON THE PLANS PRIOR TO ORDERING WATER PIPE RELATED ITEMS.

6. SPECIFIC BENDS ARE SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL PROVIDE ADDITIONAL BENDS AS NECESSARY TO INSTALL THE PIPE AT THE REQUIRED DEPTH AND ALIGNMENT.

SOIL EROSION AND SEDIMENTATION CONTROL NOTES

1. THE HAYBALE AND SILT FENCE LINE ILLUSTRATED ON THESE PLANS SHALL SERVE AS THE STRICT LIMIT OF DISTURBANCE FOR THE PROJECT WITHIN OR ADJACENT TO REGULATED FRESHWATER WETLAND AREAS.

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 PLAN SHALL BE TOTALLY UNDISTURBED, TO REMAIN IN NATURAL CONDITION.

3. ALL CATCH BASINS AND CULVERTS SHALL BE PROTECTED WITH STAKED HAYBALES (R.I. STD. 9.8.0) DURING CONSTRUCTION ACTIVITIES. ALL PROPOSED STORM WATER DISCHARGE AREAS SHALL BE LINED WITH A RIPRAP SPLASH PAD AND PROTECTED WITH STAKED HAYBALE OUTLET PROTECTION (R.I. STD. 9.1.0), OR SILT FENCE (R.I. STD. 9.2.0) SHALL ALSO BE INSTALLED AT ALL EXISTING STORMWATER DISCHARGE LOCATIONS WHERE DISTRIBUTING PIPES, CATCH BASINS, AND MANHOLES ARE TO BE CLEANED AND FLUSHED.

4. ALL DISTURBED SLOPES EITHER NEWLY CREATED OR CURRENTLY EXPOSED SHALL BE SEEDED, PROTECTED AND MAINTAINED BY THE CONTRACTOR. THE CONTRACTOR SHALL REGULARLY CHECK ALL SEEDED AREAS TO ENSURE THAT A GOOD STAND IS MAINTAINED.

5. ALL HAYBALES, TEMPORARY TREATMENT (HAY, STRAW, ETC.) AND TEMPORARY EROSION PROTECTION SHALL BE MAINTAINED BY THE CONTRACTOR THROUGHOUT CONSTRUCTION AND SHALL REMAIN IN PLACE UNTIL AN ACCEPTABLE STAND OF GRASS OR APPROVED GROUND COVER IS ESTABLISHED.

6. STOCKPILES OF TOPSOIL SHALL NOT BE LOCATED NEAR WATERWAYS. THEY SHALL HAVE SIDE SLOPES OF NO GREATER THAN 2:1 AND SHALL BE TEMPORARILY SEEDED AND/OR STABILIZED PER CONTRACT SPECIFICATIONS.

7. THE HAYBALES SHALL BE CHECKED BY THE CONTRACTOR ON A WEEKLY BASIS AND AFTER EACH STORM FOR UNDERMINING OR DETERIORATION. THE CONTRACTOR SHALL REPAIR OR REPLACE ANY HAYBALES AS NEEDED. THE CONTRACTOR SHALL CLEAN THE ACCUMULATED SEDIMENT IF HALF OF THE ORIGINAL HEIGHT OF THE HAY-BALES BECOMES FILLED WITH SEDIMENTS.

8. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN ALL SOIL EROSION AND SEDIMENT CONTROLS ON THE PROJECT SITE FOR THE ENTIRE DURATION OF THE CONSTRUCTION PERIOD. THE CONTRACTOR SHALL FOLLOW THE DIRECTION OF THE RESIDENT ENGINEER WITH REGARD TO INSTALLATION, MAINTENANCE, AND REPAIR OF ALL SOIL EROSION AND SEDIMENTATION CONTROLS ON THE PROJECT SITE. TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROLS (HAYBALES, SILT FENCE, ETC.) SHALL BE MAINTAINED UNTIL ALL EXPOSED SOILS ARE SATISFACTORILY STABILIZED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING AND/OR RESEEDING ALL AREAS THAT DO NOT DEVELOP WITHIN ONE YEAR FROM THE COMPLETION OF CONSTRUCTION.

9. ALL REFERENCED SOIL EROSION AND SEDIMENTATION CONTROLS INCLUDING MATERIALS USED, APPLICATION RATES AND THE INSTALLATION PROCEDURES SHALL BE PERFORMED PER THE "RHODE ISLAND EROSION AND SEDIMENTATION HANDBOOK", DATED 1993.

BMP MAINTENANCE SCHEDULE

1. ALL MAINTENANCE (INCLUDING CLEANING) REQUIRED DURING THE CONSTRUCTION PHASE OF THE PROJECT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

2. MEASURES NEEDED TO ENSURE THE PROPER OPERATION OF THE STORMWATER DRAINAGE SYSTEMS AND WATER QUALITY CONTROL SYSTEMS TO INCLUDE INSPECTION, CLEANING AND REPAIRS TO ALL PIPES, INTAKE AND DISCHARGE STRUCTURES (INCLUDING RIP-RAP SPLASH PADS), CATCH BASIN SUMPS, AND MANHOLES.

3. INSPECTION OF ALL SLOPES, BERMS, AND OTHER CONTROL STRUCTURES (INCLUDING ROADWAY SIDE SLOPES, FOR STRUCTURAL INTEGRITY, STABILITY AND EVIDENCE OF SOIL EROSION, SHALL INCLUDE MAINTENANCE OF THESE STRUCTURES IF NECESSARY. INSPECTIONS SHALL BE PERFORMED FOLLOWING ALL RAIN EVENTS OF ½ INCH RAINFALL OR MORE IN A 24-HOUR PERIOD, OR BIMONTHLY IF NO RAINFALL EVENT OCCURS.

4. UPON COMPLETION OF PROJECT CONSTRUCTION, AND PRIOR TO VACATING THE SITE, THE CONTRACTOR SHALL CONDUCT A FINAL INSPECTION, REPAIR ANY VEGETATIVE SOIL EROSION AND SEDIMENTATION CONTROL MEASURES, (SEEDING, PLANTING, ETC.) WHERE REQUIRED, AND REPAIR (OR REMOVE WHERE APPROPRIATE) ANY TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROL DEVICES. AFTER PERMANENT SOIL STABILIZATION ON THE ENTIRE SITE HAS OCCURRED, ALL TEMPORARY CONTROL MEASURES MUST BE REMOVED.

5. AFTER THE COMPLETION OF PROJECT CONSTRUCTION AND THE FINAL STABILIZATION OF THE ENTIRE SITE, THE INSPECTION AND MAINTENANCE OF ALL STORMWATER FACILITIES MUST BE PERFORMED.

6. REPLANTING, REGRADING, OR OTHER REPAIRS NEEDED AS A RESULT OF SOIL EROSION AND SEDIMENTATION PROCESSES SHALL BE DONE PROMPTLY TO ENSURE PROPER FUNCTIONING OF THE ENTIRE SYSTEM.

7. ANY TRASH, DEBRIS, ETC. SHOULD BE REMOVED FROM ANY WETLAND AREAS, SWALE, AND PIPE OUTLETS.

8. SWALES AND DETENTION AREAS SHALL BE INSPECTED AFTER MAJOR STORM EVENTS OR ON AN ANNUAL BASIS. REPAIRS SHALL BE PERFORMED IMMEDIATELY AS CONDITIONS WARRANT. BARE SPOTS AND ERODED AREAS SHALL BE RESEEDED IMMEDIATELY FOLLOWING OBSERVATIONS. ALL LITTER AND TRASH SHALL BE REMOVED DURING INSPECTIONS.

EXTENDED DETENTION BASIN NOTES:

1. GRASSES MUST BE PLANTED AROUND AND WITHIN THE BASIN IMMEDIATELY FOLLOWING CONSTRUCTION TO STABILIZE THE SLOPES AND PREVENT EROSION. TREES AND SHRUBS SHALL NOT BE ON THE IMPOUNDING EMBANKMENTS TO PREVENT POSSIBLE FAILURE OF THE STRUCTURE. IT IS SUGGESTED THE DEVELOPER USE STORM WATER BASIN PLANTS AND LANDSCAPING GUIDE: A SIMPLE GUIDE FOR DESIGNERS AND COMMUNITIES (LMP, 1991) TO ASSIST THE SELECTION OF APPROPRIATE VEGETATION.

2. SIDE-SLOPES, EMBANKMENTS AND THE UPPER STAGE OF THE BASIN SHOULD BE MOWED AT LEAST ONCE DURING THE GROWING SEASON PREFERABLE AFTER AUGUST 15TH, TO PREVENT UNWANTED WOODY GROWTH. MOWINGS CAN BE MORE FREQUENT IN RESIDENTIAL AREAS IF A MORE GROOMED APPEARANCE IS DESIRED HOWEVER GROOMED AREAS (SHORT GRASS) WILL ATTRACT CANADIAN GEESE. LONGER MORE NATURAL GRASS WILL BENEFIT OTHER SPECIES OF WILDLIFE. ALL TRASH AND LITTER SHALL BE REMOVED FROM THE BASIN DURING MOWING OPERATIONS.

3. SEDIMENTS SHALL BE REMOVED FROM THE BASIN DURING THE FIRST YEAR OF OPERATION AND EVERY 10 YEARS THEREAFTER. MORE FREQUENT REMOVALS MAY BE NECESSARY IF THE SEDIMENT STORAGE CAPACITY OF THE FOREBAY OR POND IS EXCEEDED OR WHEN THE SEDIMENT DEPTH REACHES 6 INCHES, WHICHEVER COMES FIRST.

4. THE DETENTION BASIN(S) OUTLET AND OUTFLOW CHANNEL SHALL BE INSPECTED AT LEAST TWICE PER YEAR. INSPECTIONS SHALL BE ACCOMPLISHED SEVERAL TIMES DURING THE FIRST SIX MONTHS OF OPERATIONS, ESPECIALLY AFTER RAINFALL EVENTS, TO CHECK FOR CLOGGING OR TOO RAPID RELEASE RESULTING IN EROSION.

5. IF STANDING WATER IS FOUND IN EITHER BASIN MORE THAN (3) DAYS AFTER A RAINFALL EVENT, THE BASIN(S) SHALL BE DETERMINED TO HAVE FAILED AND THE OWNER SHALL BE RESPONSIBLE TO HAVE THE BASIN(S) CHECKED BY A PROFESSIONAL REGISTERED ENGINEER AND REPAIRED OR REPLACED IMMEDIATELY.

6. THE GRASSED AREAS SHALL BE INSPECTED AT LEAST TWICE PER YEAR TO CHECK FOR EROSION PROBLEMS. PROBLEM AREAS SHALL BE RE-SEEDED IMMEDIATELY TO STABILIZE EXPOSED SOIL, THEREBY PREVENTING EROSION AND POTENTIAL CLOGGING OF OUTFLOW DEVICES.

7. AN AREA SHALL BE SET ASIDE IN THE DEVELOPMENT SITE IN AN UPLAND LOCATION OUTSIDE OF JURISDICTIONAL WETLANDS FOR THE PURPOSE OF SEDIMENT DISPOSAL, IF AN OFF SITE DISPOSAL AREA IS NOT FEASIBLE.

8. MOWING SHALL OCCUR WHEN VEGETATION REACHES A HEIGHT BETWEEN 18 AND 24 INCHES. MOWING SHALL UTILIZE A ROTARY MOWER SET AT A HEIGHT OF 8 INCHES.

AUG 4 2008

LONG TERM MAINTENANCE RESPONSIBILITY:

WHEN ALL CONSTRUCTION IS COMPLETE, THE SITE HAS BEEN STABILIZED TO PREVENT EROSION AND SEDIMENTATION BY A WELL ESTABLISHED VEGETATIVE COVER AND THE DRAINAGE IMPROVEMENTS HAVE BEEN INSPECTED AND ACCEPTED BY THE TOWN OF CUMBERLAND, THE PARTY RESPONSIBLE FOR LONG TERM MAINTENANCE, INSPECTION AND REPAIRS TO ALL DRAINAGE FACILITIES AND DETENTION PONDS SHOWN ON THESE PLANS, SHALL BE THE TOWN OF CUMBERLAND.

CUL-DE-SAC LANDSCAPE MAINTENANCE NOTES:

1. EACH CUL-DE-SAC SHALL HAVE A RAISED CURB LANDSCAPED AREA PLANTED WITH LAWN GRASS AND OR LOW GROWING SHRUBS.

2. THE GRASS SHALL BE MOWED ONCE A WEEK DURING THE GROWING SEASON AS NEEDED. SHRUBS SHALL BE KEPT TRIMMED TO A HEIGHT OF 3 FEET.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED NOV 2 4 2008 FILE # 07-0029
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Charles A. Horbert

CDE
CASALI & D'AMICO ENGINEERING, INC.
CIVIL - SITE DEVELOPMENT - TRANSPORTATION
DRAINAGE - WATER & SEWER SYSTEMS - FLOOD PLAIN
300 POST ROAD, WARWICK, RI 02888
(401) 944-1300 (401)944-1313 fax www.casalidamico.com

DAVID M. D'AMICO
No. 6749
REGISTERED PROFESSIONAL ENGINEER
CIVIL
5/22/08

HIGHLAND ESTATES
CUMBERLAND, RHODE ISLAND
AP 52 LOTS 10, 233, 234, 307, 308, 310, 311, 313-316

REVISIONS:

NO.	DATE.	DESCRIPTION
1	3-2007	UPDATED PLANSET
2	8-2007	RIDEM COMMENTS
3	2-2008	RIDEM COMMENTS
4	5-2008	RIDEM COMMENTS

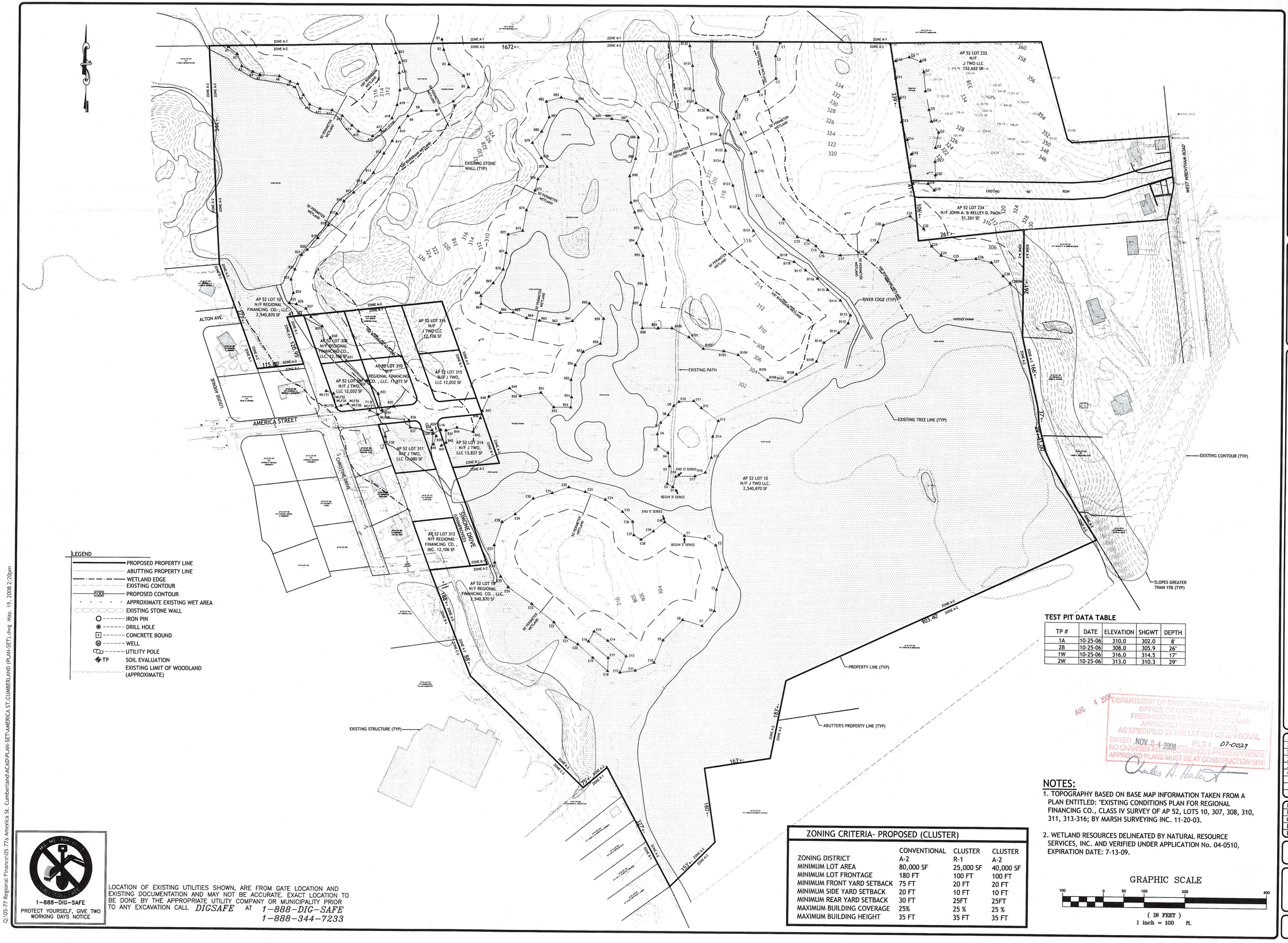
DESIGNED BY:	WA
DRAWN BY:	GAH
CHECKED BY:	DMD/ JAC
DATE:	JANUARY 07
PROJECT NO:	05-77a

PRELIMINARY, NOT FOR CONSTRUCTION

GENERAL NOTES

SHEET 2 OF 16

Q:\05-77 Regional Finance\05-77a America St. Cumberland\CAD\PLAN SET\AMERICA ST CUMBERLAND (PLAN SET).dwg, May. 19, 2008 2:20pm



TEST PIT DATA TABLE

TP #	DATE	ELEVATION	SHGWT	DEPTH
1A	10-25-06	310.0	302.0	8'
2B	10-25-06	308.0	305.9	26"
1W	10-25-06	316.0	314.5	17"
2W	10-25-06	313.0	310.3	29"

ZONING CRITERIA- PROPOSED (CLUSTER)

	CONVENTIONAL	CLUSTER	CLUSTER
ZONING DISTRICT	A-2	R-1	A-2
MINIMUM LOT AREA	80,000 SF	25,000 SF	40,000 SF
MINIMUM LOT FRONTAGE	180 FT	100 FT	100 FT
MINIMUM FRONT YARD SETBACK	75 FT	20 FT	20 FT
MINIMUM SIDE YARD SETBACK	20 FT	10 FT	10 FT
MINIMUM REAR YARD SETBACK	30 FT	25FT	25FT
MAXIMUM BUILDING COVERAGE	25%	25 %	25 %
MAXIMUM BUILDING HEIGHT	35 FT	35 FT	35 FT

NOTES:

1. TOPOGRAPHY BASED ON BASE MAP INFORMATION TAKEN FROM A PLAN ENTITLED: "EXISTING CONDITIONS PLAN FOR REGIONAL FINANCING CO., CLASS IV SURVEY OF AP 52, LOTS 10, 307, 308, 310, 311, 313-316; BY MARSH SURVEYING INC. 11-20-03.
2. WETLAND RESOURCES DELINEATED BY NATURAL RESOURCE SERVICES, INC. AND VERIFIED UNDER APPLICATION No. 04-0510, EXPIRATION DATE: 7-13-09.

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

AUG 4 2008
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED NOV 24 2008 FILE # 07-0029
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Charles A. Horbert

WE MAKE IT SAFE TO DIG
1-888-DIG-SAFE
PROTECT YOURSELF, GIVE TWO WORKING DAYS NOTICE

LOCATION OF EXISTING UTILITIES SHOWN, ARE FROM GATE LOCATION AND EXISTING DOCUMENTATION AND MAY NOT BE ACCURATE. EXACT LOCATION TO BE DONE BY THE APPROPRIATE UTILITY COMPANY OR MUNICIPALITY PRIOR TO ANY EXCAVATION CALL *DIGSAFE* AT *1-888-DIG-SAFE* *1-888-344-7233*

Q:\05-77 Regional Finance\05-77a America St. Cumberland\ACAD\PLAN-SET\AMERICA ST. CUMBERLAND (PLAN-SET).dwg May. 19, 2008 2:20pm

CDE
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DAVID M. D'AMICO
No. 5727
REGISTERED PROFESSIONAL ENGINEER
CIVIL
5/22/08

HIGHLAND ESTATES
CUMBERLAND, RHODE ISLAND
AP 52 LOTS 10, 233, 234, 307, 308, 310, 311, 313-316

REVISIONS:

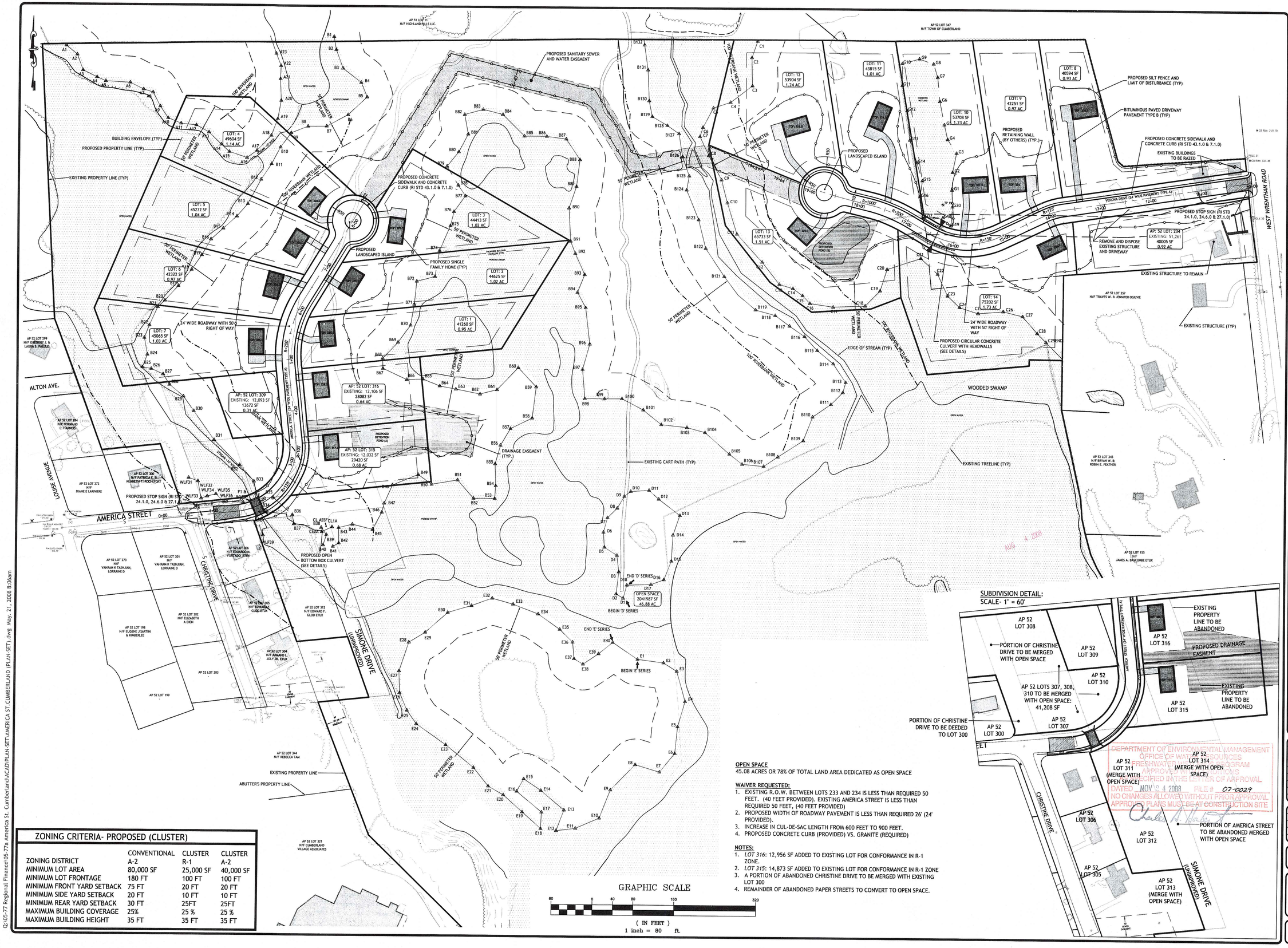
NO.	DATE.	DESCRIPTION
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DESIGNED BY:	WA
DRAWN BY:	GAH
CHECKED BY:	DMD/JAC
DATE:	JANUARY 07
PROJECT NO:	05-77a

PRELIMINARY, NOT FOR CONSTRUCTION

EXISTING CONDITIONS PLAN

SHEET 3 OF 16



ZONING CRITERIA- PROPOSED (CLUSTER)

	CONVENTIONAL	CLUSTER	CLUSTER
ZONING DISTRICT	A-2	R-1	A-2
MINIMUM LOT AREA	80,000 SF	25,000 SF	40,000 SF
MINIMUM LOT FRONTAGE	180 FT	100 FT	100 FT
MINIMUM FRONT YARD SETBACK	75 FT	20 FT	20 FT
MINIMUM SIDE YARD SETBACK	20 FT	10 FT	10 FT
MINIMUM REAR YARD SETBACK	30 FT	25FT	25FT
MAXIMUM BUILDING COVERAGE	25%	25 %	25 %
MAXIMUM BUILDING HEIGHT	35 FT	35 FT	35 FT

OPEN SPACE
45.08 ACRES OR 78% OF TOTAL LAND AREA DEDICATED AS OPEN SPACE

WAIVER REQUESTED:
1. EXISTING R.O.W. BETWEEN LOTS 233 AND 234 IS LESS THAN REQUIRED 50 FEET. (40 FEET PROVIDED). EXISTING AMERICA STREET IS LESS THAN REQUIRED 50 FEET, (40 FEET PROVIDED)
2. PROPOSED WIDTH OF ROADWAY PAVEMENT IS LESS THAN REQUIRED 26' (24' PROVIDED).
3. INCREASE IN CUL-DE-SAC LENGTH FROM 600 FEET TO 900 FEET.
4. PROPOSED CONCRETE CURB (PROVIDED) VS. GRANITE (REQUIRED)

NOTES:
1. *LOT 316:* 12,956 SF ADDED TO EXISTING LOT FOR CONFORMANCE IN R-1 ZONE.
2. *LOT 315:* 14,873 SF ADDED TO EXISTING LOT FOR CONFORMANCE IN R-1 ZONE
3. A PORTION OF ABANDONED CHRISTINE DRIVE TO BE MERGED WITH EXISTING LOT 300
4. REMAINDER OF ABANDONED PAPER STREETS TO CONVERT TO OPEN SPACE.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
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DATED NOV 24 2008 FILE # 07-0029
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AUG. 4 2008

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(401) 944-1300 (401) 944-1313 fax www.casalidamico.com

DAVID M. D'AMICO
No. 7710
REGISTERED PROFESSIONAL ENGINEER
CIVIL
7/22/08

HIGHLAND ESTATES
CUMBERLAND, RHODE ISLAND
AP 52 LOTS 10, 233, 234, 307, 308, 310, 311, 313-316

REVISIONS:		
NO.	DATE.	DESCRIPTION
1	3-2007	UPDATED PLANSET
2	8-2007	RIDEM COMMENTS
3	2-2008	RIDEM COMMENTS
4	5-2008	RIDEM COMMENTS

DESIGNED BY:	WA
DRAWN BY:	GAH
CHECKED BY:	DMD/ JAC
DATE:	JANUARY 07
PROJECT NO:	05-77a

PRELIMINARY, NOT FOR CONSTRUCTION

OVERALL SITE PLAN

SHEET 4 OF 16

Q:\05-77 Regional Finance\05-77a America St. Cumberland\ACAD\PLAN-SET\AMERICA ST.CUMBERLAND (PLAN-SET).dwg May. 21, 2008 8:06am

LEGEND

- PROPOSED PROPERTY LINE
- ABUTTING PROPERTY LINE
- WETLAND EDGE
- EXISTING CONTOUR
- 100 PROPOSED CONTOUR
- APPROXIMATE EXISTING WET AREA
- EXISTING STONE WALL
- IRON PIN
- DRILL HOLE
- CONCRETE BOUND
- W WELL
- UTILITY POLE
- TP SOIL EVALUATION
- EXISTING LIMIT OF WOODLAND (APPROXIMATE)

LOT: 4 49604 SF 1.14 AC

LOT: 5 45232 SF 1.04 AC

LOT: 6 42322 SF 0.97 AC

LOT: 7 45065 SF 1.03 AC

LOT: 3 44413 SF 1.02 AC

LOT: 2 44625 SF 1.02 AC

LOT: 1 41260 SF 0.95 AC

AP: 52 LOT: 316 EXISTING: 12,106 SF 28082 SF 0.64 AC

AP: 52 LOT: 315 EXISTING: 12,032 SF 29402 SF 0.68 AC

AP: 52 LOT: 309 EXISTING: 12,093 SF 13672 SF 0.31 AC

AP 52 LOT 299 N/F GREGORY J. & LAURA S. PALULIS

AP 52 LOT 284 N/F NORMAND L. HARNOIS

AP 52 LOT 300 N/F PATRICIA E. & KENNETH T. ROCHEFORT

AP 52 LOT 272 N/F DIANE E LARIVIERE

AP 52 LOT 306

TOF: 328.0

TOF: 326.0

TOF: 325.5

TOF: 326.0

TOF: 325.5

TOF: 329.5

TOF: 336.0

TOF: 328.5

TOF: 317.0

WOODED SWAMP

OPEN WATER

PROPOSED PROPERTY LINE (TYP)

EDGE OF WETLAND (TYP)

SILT FENCE/ LIMIT OF DISTURBANCE (TYP)

WETLAND FLAG (TYP)

50' PERIMETER WETLAND

100' RIVERBANK WETLAND

STREAM ~10' WIDE

MATCH LINE (SEE UTILITY PLAN II)

10' MIN. SEPARATION (TYP.)

PROPOSED 40' WIDE WATER AND SANITARY SEWER EASEMENT (TYP)

PROPOSED ENVIRONMENTAL ONE GP 2010-93 SIMPLEX GRINDER PUMP SYSTEM (TYP)

4" SDR 35 PVC S: 0.020 FT/FT (TYP)

PROPOSED SDR-11 HDPE LPFM

PROPOSED DWELLING (TYP)

THRUST BLOCK (TYP)

PROPOSED UNDERGROUND ELECTRIC (BY OTHERS- TYP)

PROPOSED DETENTION POND (A)

AMERICA STREET (24' WIDE PAVEMENT TYPE A)

ALTON AVE.

LOUISE AVENUE

AMERICA STREET

EXISTING PROPERTY LINE (TYP)

ABUTTERS PROPERTY LINE (TYP)

EXISTING STRUCTURE (TYP)

PROPOSED LOW PRESURE FORCE MAIN (LPFM) CONNECTION TO EXISTING GRAVITY SEWER

TRANSVERSE PAVEMENT CUT AND MATCH RI STND 47.1.1

RIM CATCH BASIN = 315.50

RIM CATCH BASIN = 314.74

RIM SEWER MANHOLE = 316.29 INVERT = 303.46

RIM CATCH BASIN = 316.56

RIM CATCH BASIN

POLE-11

POLE-12

POLE-12A

POLE-13

AUG 4 2008

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)

1 inch = 40 ft.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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FRESHWATER WETLANDS PROGRAM
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Charles A. Horbert

CDE

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CIVIL - SITE DEVELOPMENT - TRANSPORTATION
DRAINAGE - WETLANDS - ISDS - TRAFFIC - FLOODPLAIN
100 HIGHLAND CORPORATE DRIVE - SUITE 101 - MIDDLETOWN, RI 02842
(401) 944-1300 (401) 944-1313 fax www.casalidamico.com

DAVID M. D'AMICO
No. 6740
REGISTERED PROFESSIONAL ENGINEER
CIVIL

HIGHLAND ESTATES

CUMBERLAND, RHODE ISLAND

AP 52 LOTS 10, 233, 234, 307, 308, 310, 311, 313-316

REVISIONS:		
NO.	DATE.	DESCRIPTION
1	3-2007	UPDATED PLANSET
2	8-2007	RIDEM COMMENTS
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4	5-2008	RIDEM COMMENTS

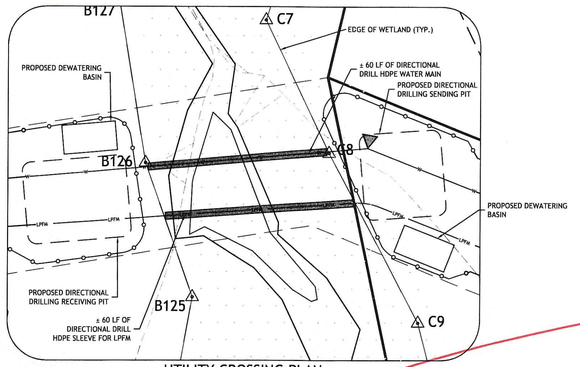
DESIGNED BY:	WA
DRAWN BY:	GAH
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PROJECT NO:	05-77a

PRELIMINARY, NOT FOR CONSTRUCTION

AMERICA ST. CONCEPTUAL UTILITY PLAN

SHEET 5 OF 16

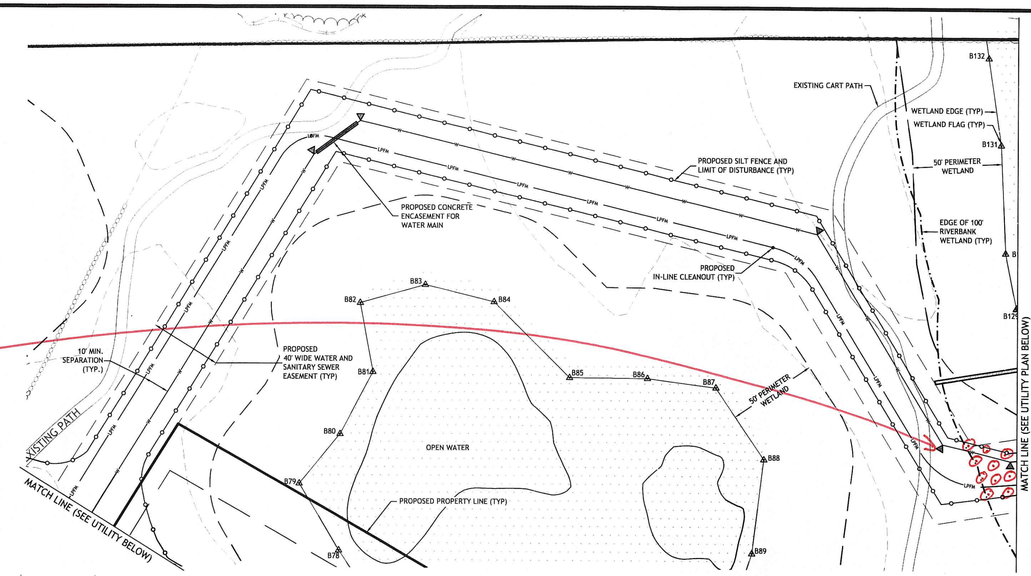
Q:\05-77 Regional Finance\05-77a America St. Cumberland\ACAD\PLAN SET\AMERICA ST. CUMBERLAND (PLAN-SET).dwg May. 19, 2008 2:21pm



UTILITY CROSSING PLAN

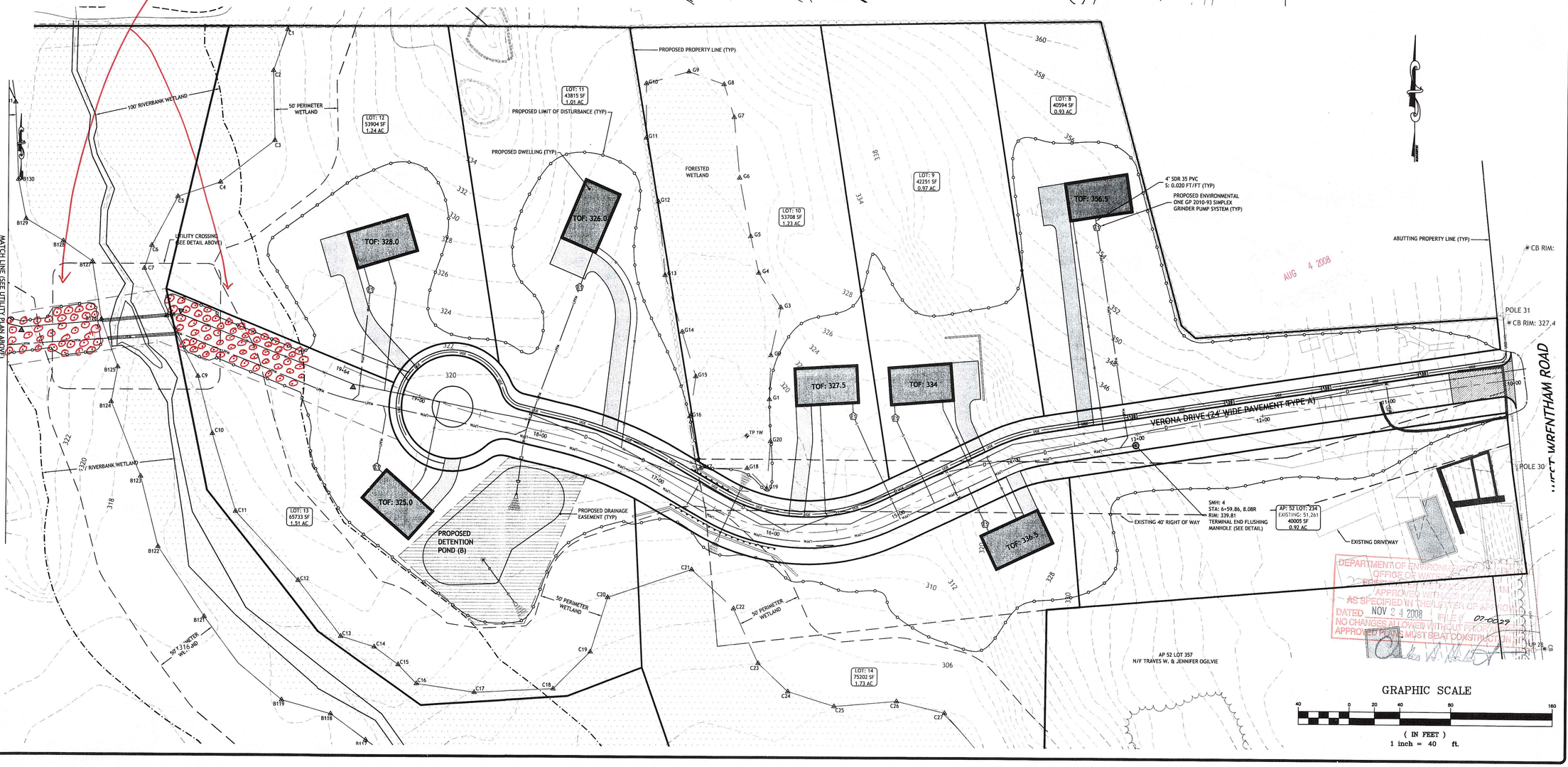
SCALE: 1: 20'

Plantings of red maple (Acer rubrum), spicebush (Lindera benzoin), rosebay rhododendron (Rhododendron maximum), and northern white cedar (Thuja occidentalis) spaced six to ten feet (6'-10') apart on center, planted three to five feet (3'-5') in height per RIDEM.



LEGEND

- PROPOSED PROPERTY LINE
- ABUTTING PROPERTY LINE
- WETLAND EDGE
- EXISTING CONTOUR
- 100 PROPOSED CONTOUR
- APPROXIMATE EXISTING WET AREA
- EXISTING STONE WALL
- IRON PIN
- DRILL HOLE
- CONCRETE BOUND
- WELL
- UTILITY POLE
- TP SOIL EVALUATION
- EXISTING LIMIT OF WOODLAND (APPROXIMATE)



GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)

1 inch = 40 ft.

AUG 4 2008

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT OFFICE OF WATER RESOURCES FRESHWATER WETLANDS APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL DATED NOV 24 2008 IF FILE # 07-0029 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL. APPROVED PLANS MUST BE AT CONSTRUCTION SITE

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(401) 944-1300 (401)944-1313 fax www.casalidamico.com

DAVID M. D'AMICO
No. 6749
REGISTERED PROFESSIONAL ENGINEER
CIVIL
5/22/08

HIGHLAND ESTATES

CUMBERLAND, RHODE ISLAND

AP 52 LOTS 10, 233, 234, 307, 308, 310, 311, 313-316

REVISIONS:		
NO.	DATE:	DESCRIPTION
1	3-2007	UPDATED PLANSET
2	8-2007	RIDEM COMMENTS
3	2-2008	RIDEM COMMENTS
4	5-2008	RIDEM COMMENTS

DESIGNED BY:	WA
DRAWN BY:	GAH
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PROJECT NO:	05-77a

PRELIMINARY, NOT FOR CONSTRUCTION

VERONA DRIVE CONCEPTUAL UTILITY PLAN

SHEET 6 OF 16

Q:\05-77 Regional Finance\05-77a America St. Cumberland\ACAD\PLAN SET\AMERICA ST. CUMBERLAND (PLAN SET).dwg May. 22, 2008 10:29am

AMERICA ST. DRAINAGE STRUCTURE TABLE					
STRUCTURE NAME	STATION:	RIM	INV (IN)	INV (OUT)	R.I. STANDARDS
CB 1	7+65.07, 15.81' R	321.60		318.00	4.4.0M1 & 6.3.2
CB 2	7+65.07, -15.81' L	321.60	317.84 (CB 1)	317.50	4.4.0M1 & 6.3.2
CB 3	3+65.00, -11.00' L	319.36	312.57 (DMH 1) 308.59 (CB 13)	308.59	4.4.0M2 & 6.3.4
CB 4	3+65.00, 11.00' R	319.36	308.37 (CB 3)	308.27	4.4.0M2 & 6.3.4
CB 11	1+30.00, -11.00' L	306.97	303.79 (CB 12)	303.69	STORM CEPTOR
CB 12	1+30.00, 11.00' R	306.97		304.01	4.4.0M1 & 6.3.2
CB 13	2+89.00, -11.00' L	313.28	309.01 (CB 14)	309.01	4.4.0M1 & 6.3.4
CB 14	2+89.00, 11.00' R	313.28		309.12	4.4.0M2 & 6.3.4
DMH 1	5+60.00, -11.00' L	330.12	316.40 (CB 2)	316.30	4.4.0M2 & 6.2.1

PIPE TABLE				
PIPE #	DIAMETER	LENGTH	MATERIAL	SLOPE
1	12"	126 LF	ADS N-12 HDPE	1.01%
2	12"	22 LF	ADS N-12 HDPE	1.00%
3	12"	198 LF	ADS N-12 HDPE	1.88%
4	12"	208 LF	ADS N-12 HDPE	0.53%
5	12"	32 LF	ADS N-12 HDPE	0.51%
6	12"	22 LF	ADS N-12 HDPE	1.00%
7	12"	40 LF	ADS N-12 HDPE	0.50%
8	12"	70 LF	ADS N-12 HDPE	0.60%
9	12"	22 LF	ADS N-12 HDPE	0.50%

Plantings of red maple (Acer rubrum), spicebush (Lindera benzoin), rosebay rhododendron (Rhododendron maximum), and northern white cedar (Thuja occidentalis) spaced six to ten feet (6'-10') apart on center, planted three to five feet (3'-5') in height per RIDEM.

Buffer Zone Markers (▼) to be placed in these locations per Condition No. 10 of the Permit.

LEGEND
- PROPOSED PROPERTY LINE
- ABUTTING PROPERTY LINE
- WETLAND EDGE
- EXISTING CONTOUR
- 100 PROPOSED CONTOUR
- APPROXIMATE EXISTING WET AREA
- EXISTING STONE WALL
- IRON PIN
- DRILL HOLE
- CONCRETE BOUND
- WELL
- UTILITY POLE
- TP SOIL EVALUATION
- EXISTING LIMIT OF WOODLAND (APPROXIMATE)

OPEN WATER
WOODED SWAMP
50' PERIMETER WETLAND
100' RIVERBANK WETLAND
STREAM <10' WIDE
EXISTING PATH
EXISTING TREE LINE (TYP)
PROPOSED PROPERTY LINE (TYP)
ABUTTER'S PROPERTY LINE (TYP)
PROPOSED SILT FENCE AND LIMIT OF DISTRIBUANCE (TYP)
PROPOSED DRIVEWAY (TYP)
PROPOSED DWELLING UNIT (TYP)
PROPOSED SCREENING VEGETATION NORTHERN WHITE CEDAR 10' O.C. 5' HIGH AFTER PLANTING
PROPOSED DRAINAGE EASEMENT (TYP)
PROPOSED GUARDRAIL (RI STD 34.4.0)
PROPOSED BOX CULVERT (SEE DETAIL)
PROPOSED STORMCEPTOR (SEE DETAILS)
PROPOSED FLARED END SECTION WITH RIP-RAP OUTLET PROTECTION (TYP)
STONE BERM (SEE DETAIL)
PROPOSED DETENTION POND A (SEE DETAIL)
EMERGENCY SPILLWAY ELEVATION: 310.00 (SEE DETAIL)
OCS - A INV OUT: 306.95 (SEE DETAIL)
FES - A INV: 306.76
12"Ø ADS N-12 HDPE PIPE 29 LF - SLOPE: 0.006 FT/FT
100 YEAR FLOOD ELEVATION EXISTING: 306.11 PROPOSED: 306.10
CONSTRUCTION ACCESS (RI STD 9.1.10)
AMERICA STREET
LOUISE AVENUE
ALTON AVE.
CHRISTINE DRIVE
AP 52 LOT 299 N/F GREGORY J. & LAURA S. PALULIS
AP 52 LOT 284 N/F NORMAND L. HARNOIS
AP 52 LOT 272 DIANE E LARIVIERE
AP 52 LOT 300 N/F PATRICIA E. & KENNETH T. ROCHEFORT
AP: 52 LOT: 309 EXISTING: 12,093 SF ↑672 SF 0.31 AC
AP: 52 LOT: 316 EXISTING: 12,106 SF 28082 SF 0.64 AC
AP: 52 LOT: 315 EXISTING: 12,032 SF 29420 SF 0.68 AC
LOT: 1 41360 SF 0.95 AC
LOT: 2 44625 SF 1.02 AC
LOT: 3 44413 SF 1.02 AC
LOT: 4 49604 SF 1.14 AC
LOT: 5 45232 SF 1.04 AC
LOT: 6 42322 SF 0.97 AC
LOT: 7 45065 SF 1.03 AC
TOF: 328.0
TOF: 325.5
TOF: 326.0
TOF: 325.5
TOF: 326.0
TOF: 329.5
TOF: 336.0
TOF: 328.5
TOF: 317.0
RIM CATCH BASIN = 315.50'
RIM SEWER MANHOLE = 316.29' INVERT = 303.46'
RIM CATCH BASIN = 316.56'
RIM CATCH BASIN = 314.74'
RIM SEWER MANHOLE = 308.95' INVERT = 302.64'
POLE-11
POLE-12
POLE-13
POLE-13A
POOL

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
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Charles A. Horbert

AUG 4 2008

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DAVID M. D'AMICO
No. 6745
REGISTERED PROFESSIONAL ENGINEER
CIVIL
5/22/08

HIGHLAND ESTATES
CUMBERLAND, RHODE ISLAND
AP 52 LOTS 10, 233, 234, 307, 308, 310, 311, 313-316

REVISIONS:		
NO.	DATE.	DESCRIPTION
1	3-2007	UPDATED PLANSET
2	8-2007	RIDEM COMMENTS
3	2-2008	RIDEM COMMENTS
4	5-2008	RIDEM COMMENTS

DESIGNED BY:	WA
DRAWN BY:	GAH
CHECKED BY:	DMD/ JAC
DATE:	JANUARY 07
PROJECT NO:	05-77a

PRELIMINARY, NOT FOR CONSTRUCTION

AMERICA ST. GRADING AND DRAINAGE PLAN

SHEET 7 OF 16

Q:\05-77 Regional Finance\05-77a America St. Cumberland\ACAD\PLAN-SET\AMERICA ST.CUMBERLAND (PLAN-SET).dwg May, 19, 2008 2:21pm

Buffer Zone Markers to be placed in these locations per Condition No. 10 of the Permit.

VERONA DRIVE DRAINAGE STRUCTURE TABLE					
STRUCTURE NAME	STATION:	RIM	INV (IN)	INV (OUT)	R.I. STANDARDS
CB 5	11+00.00, 11.00' R	330.80	327.55 (CB 6) 327.45 (CB 7)		4.4.0M1 & 6.3.4
CB 6	11+00.00, -11.00' L	330.80		327.77	4.4.0M1 & 6.3.4
CB 7	14+51.87, 11.00' R	330.65	323.40 (CB 8)	323.92 322.96	4.4.0M1 & 6.3.4
CB 8	14+51.87, -12.00' L	330.63		323.63	4.4.0M1 & 6.3.4
CB 9	16+70.00, 11.00' R	318.00	314.89 (CB 10)	314.95 314.85	4.4.0M1, 7.8.1 & 6.3.2
CB 10	16+70.00, -11.00' L	318.00		315.00	4.4.0M1, 7.1.8 & 6.3.2
CB 11	18+11.58, 11.00' R	320.53	314.13 (CB 9)	314.05	4.4.0M1 & 6.3.2
CB 12	18+11.58, -11.00' L	320.53		312.73	4.4.0M1 & 6.3.2
DMH 2	15+88.86, -0.28' L	320.41	317.40 (CB 7) 316.14 (CB 9)		4.4.0M2 & 6.2.1

PIPE TABLE				
PIPE #	DIAMETER	LENGTH	MATERIAL	SLOPE
10	12"	22 LF	ADS N-12 HDPE	1.00%
11	12"	353 LF	ADS N-12 HDPE	-1.00%
12	12"	23 LF	ADS N-12 HDPE	1.00%
13	12"	134 LF	ADS N-12 HDPE	4.16%
14	12"	79 LF	ADS N-12 HDPE	-1.50%
15	12"	22 LF	ADS N-12 HDPE	0.50%
16	12"	144 LF	ADS N-12 HDPE	0.50%
17	12"	22 LF	ADS N-12 HDPE	1.00%
18	18"	41 LF	ADS N-12 HDPE	0.55%

LEGEND

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- ABUTTING PROPERTY LINE
- WETLAND EDGE
- EXISTING CONTOUR
- 100 PROPOSED CONTOUR
- APPROXIMATE EXISTING WET AREA
- EXISTING STONE WALL
- IRON PIN
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- WELL
- UTILITY POLE
- TP SOIL EVALUATION
- EXISTING LIMIT OF WOODLAND (APPROXIMATE)

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

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HIGHLAND ESTATES
CUMBERLAND, RHODE ISLAND
AP 52 LOTS 10, 233, 234, 307, 308, 310, 311, 313-316

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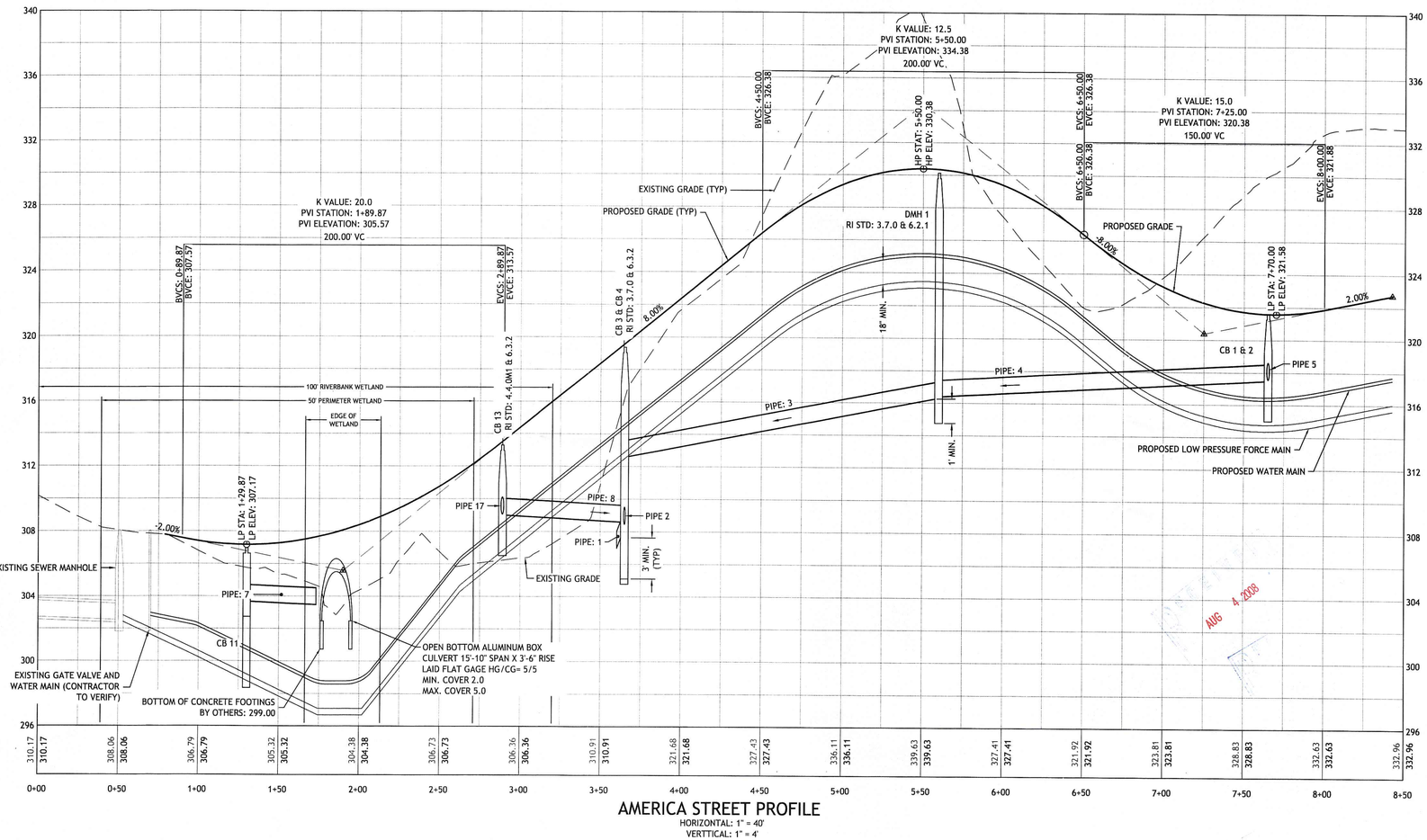
VERONA DRIVE GRADING AND DRAINAGE PLAN

SHEET 8 OF 16

Q:\05-77 Regional Finance\05-77a America St. Cumberland\ACAD\PLAN SET\AMERICA ST. CUMBERLAND (PLAN-SET).dwg May. 21, 2008 8:06am

AMERICA ST. DRAINAGE STRUCTURE TABLE					
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CB 1	7+65.07, 15.81' R	321.60		318.00	4.4.0M1 & 6.3.2
CB 2	7+65.07, -15.81' L	321.60	317.84 (CB 1)	317.50	4.4.0M1 & 6.3.2
CB 3	3+65.00, -11.00' L	319.36	312.57 (DMH 1) 308.59 (CB 13)	308.59	4.4.0M2 & 6.3.4
CB 4	3+65.00, 11.00' R	319.36	308.37 (CB 3)	308.27	4.4.0M2 & 6.3.4
CB 11	1+30.00, -11.00' L	306.97	303.79 (CB 12)	303.69	STORM CEPTOR
CB 12	1+30.00, 11.00' R	306.97		304.01	4.4.0M1 & 6.3.2
CB 13	2+89.00, -11.00' L	313.28	309.01 (CB 14)	309.01	4.4.0M1 & 6.3.4
CB 14	2+89.00, 11.00' R	313.28		309.12	4.4.0M2 & 6.3.4
DMH 1	5+60.00, -11.00' L	330.12	316.40 (CB 2)	316.30	4.4.0M2 & 6.2.1

PIPE TABLE				
PIPE #	DIAMETER	LENGTH	MATERIAL	SLOPE
1	12"	126 LF	ADS N-12 HDPE	1.01%
2	12"	22 LF	ADS N-12 HDPE	1.00%
3	12"	198 LF	ADS N-12 HDPE	1.88%
4	12"	208 LF	ADS N-12 HDPE	0.53%
5	12"	32 LF	ADS N-12 HDPE	0.51%
6	12"	22 LF	ADS N-12 HDPE	1.00%
7	12"	40 LF	ADS N-12 HDPE	0.50%
8	12"	70 LF	ADS N-12 HDPE	0.60%
9	12"	22 LF	ADS N-12 HDPE	0.50%



AMERICA STREET PROFILE
HORIZONTAL: 1" = 40'
VERTTICAL: 1" = 4'

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED NOV 24 2008 FILE # 07-0029
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Charles A. Horbert

AUG 4 2008

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DAVID M. D'AMICO
No. 6745
REGISTERED PROFESSIONAL ENGINEER CIVIL
5/22/08

HIGHLAND ESTATES
CUMBERLAND, RHODE ISLAND
AP 52 LOTS 10, 233, 234, 307, 308, 310, 311, 313-316

REVISIONS:		
NO.	DATE:	DESCRIPTION
1	3-2007	UPDATED PLANSET
2	8-2007	RIDEM COMMENTS
3	2-2008	RIDEM COMMENTS
4	5-2008	RIDEM COMMENTS

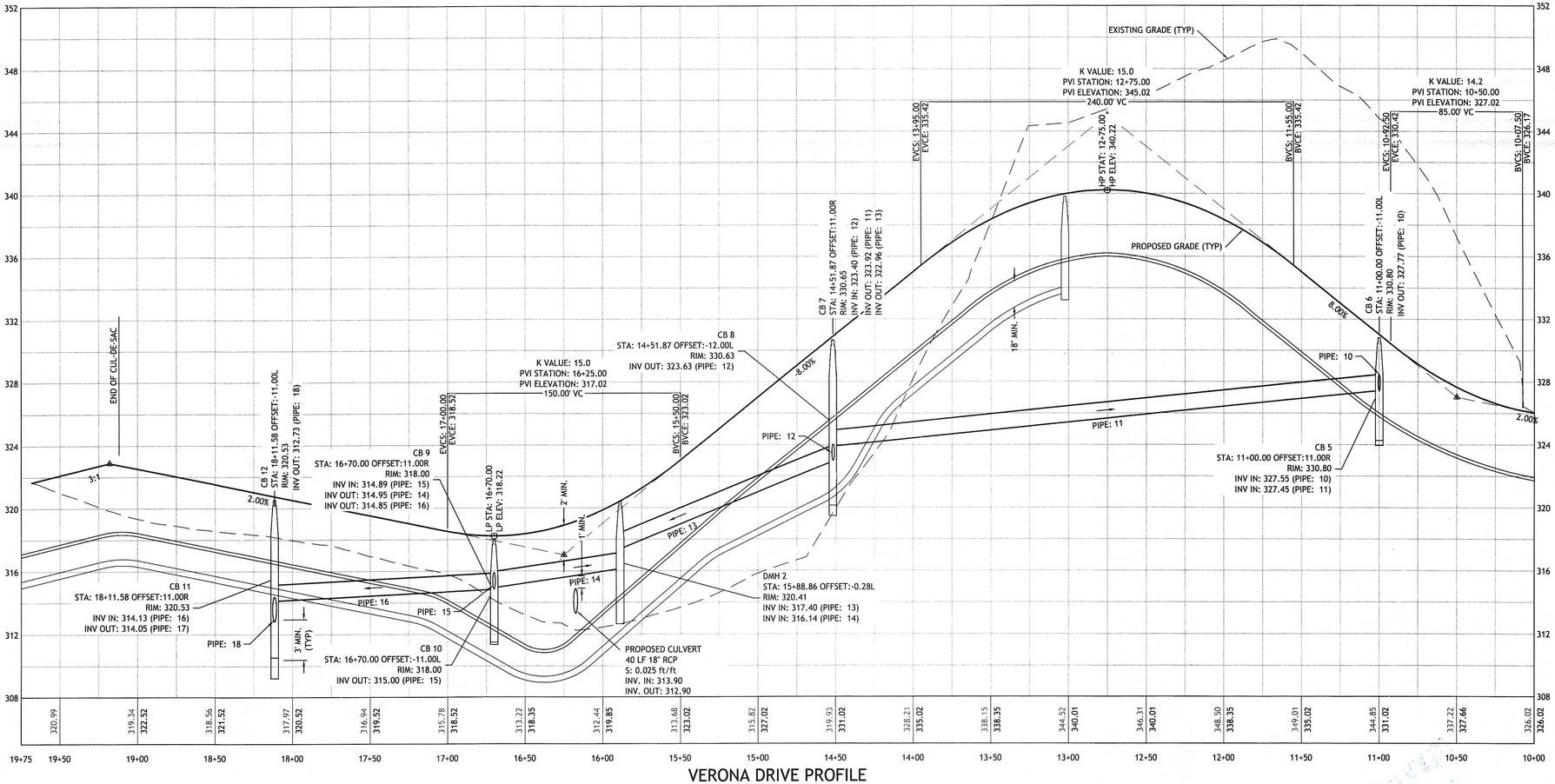
DESIGNED BY:	WA
DRAWN BY:	GAH
CHECKED BY:	DMD/ JAC
DATE:	JANUARY 07
PROJECT NO:	05-77a

PRELIMINARY, NOT FOR CONSTRUCTION

AMERICA STREET PROFILE

SHEET 9 OF 16

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VERONA DRIVE PROFILE

HORIZONTAL: 1" = 40'
VERTICAL: 1" = 4'

PIPE TABLE				
PIPE #	DIAMETER	LENGTH	MATERIAL	SLOPE
10	12"	22 LF	ADS N-12 HDPE	1.00%
11	12"	353 LF	ADS N-12 HDPE	-1.00%
12	12"	23 LF	ADS N-12 HDPE	1.00%
13	12"	134 LF	ADS N-12 HDPE	4.16%
14	12"	79 LF	ADS N-12 HDPE	-1.50%
15	12"	22 LF	ADS N-12 HDPE	0.50%
16	12"	144 LF	ADS N-12 HDPE	0.50%
17	12"	22 LF	ADS N-12 HDPE	1.00%
18	18"	41 LF	ADS N-12 HDPE	0.55%

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GRAPHIC SCALE

40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

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DAVID M. D'AMICO
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CIVIL
5/22/08

HIGHLAND ESTATES
CUMBERLAND, RHODE ISLAND
AP 52 LOTS 10, 233, 234, 307, 308, 310, 311, 313-316

REVISIONS:		
NO.	DATE.	DESCRIPTION
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2	8-2007	RIDEM COMMENTS
3	2-2008	RIDEM COMMENTS
4	5-2008	RIDEM COMMENTS

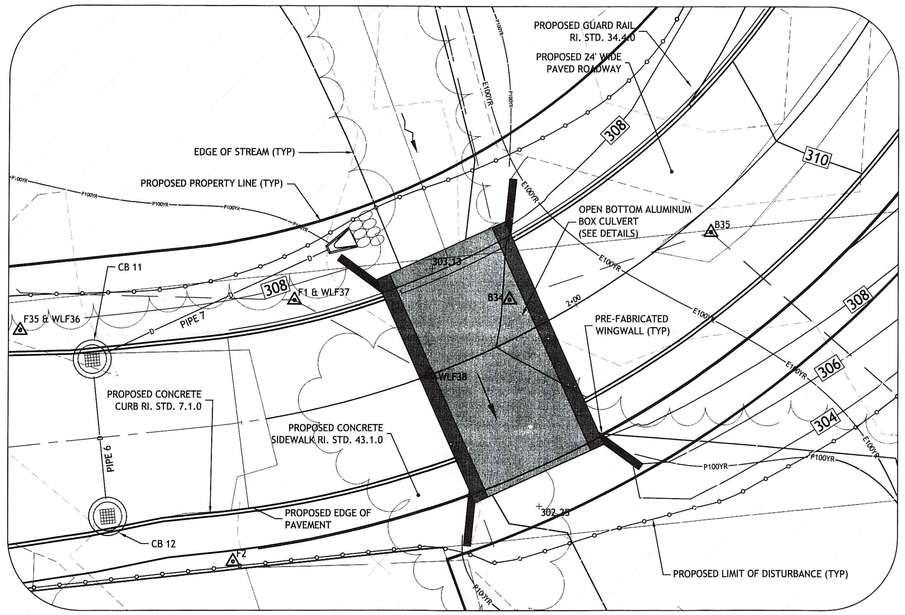
DESIGNED BY:	WA
DRAWN BY:	GAH
CHECKED BY:	DMD/ JAC
DATE:	JANUARY 07
PROJECT NO:	05-77a

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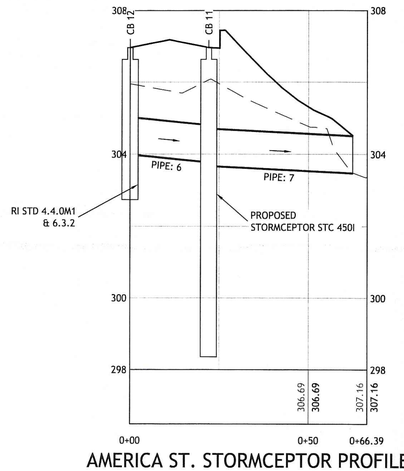
VERONA DRIVE PROFILE

SHEET 10 OF 16

Q:\05-77 Regional Finance\05-77a America St. Cumberland\ACAD\PLAN-SET\AMERICA ST CUMBERLAND (PLAN-SET).dwg May. 19, 2008 3:47pm



METAL BOX CULVERT CROSSING DETAIL STA: 1+86
SCALE: 1" = 10'



AMERICA ST. STORMCEPTOR PROFILE

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 2'

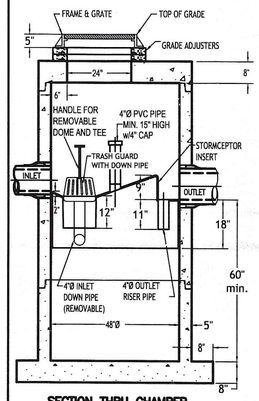
Stormceptor®

Hydro Conduit

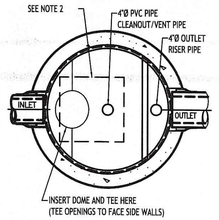
STC 4501 Precast Concrete Stormceptor (450 US Gallon Capacity)

PROJECT:
LOCATION:

DR. BY:
CK. BY:
DATE:
SCALE: N.T.S.
DWG.#

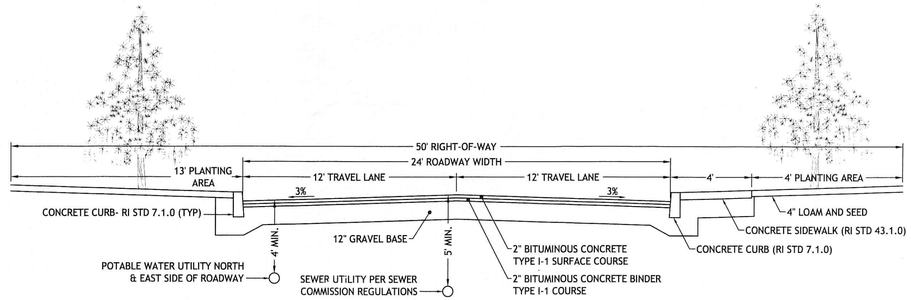


SECTION THRU CHAMBER



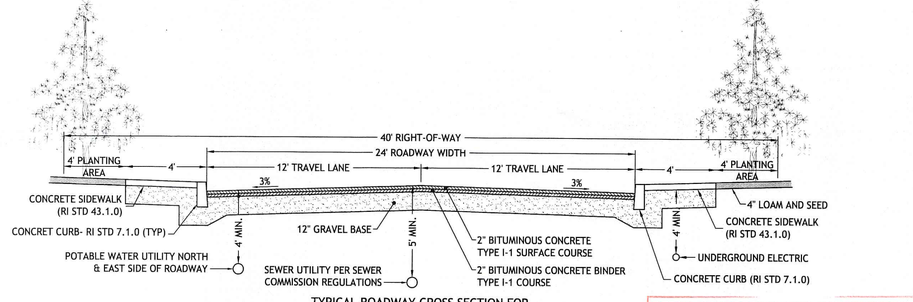
SECTION THRU PLAN VIEW

NOTE :
1. THE USE OF FLEXIBLE CONNECTIONS IS RECOMMENDED AT THE OUTLET WHERE APPLICABLE.
2. THE COVER SHOULD BE POSITIONED OVER THE 4"ø CLEANOUT/VENT PIPE AND THE 4"ø INLET DOWN PIPE.
3. THE STORMCEPTOR SYSTEM IS PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS: #4985148, #5498331, #5725760, #5753115, #5849181, #6068765, #6371690.



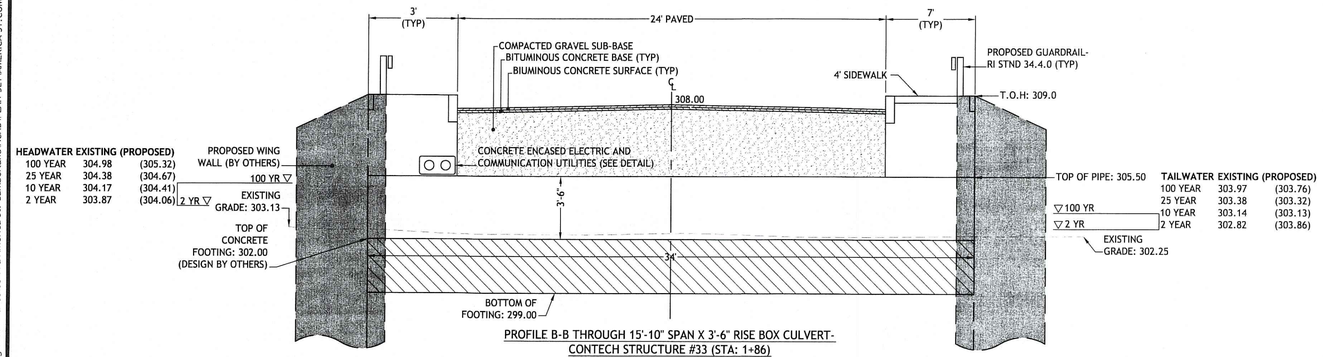
TYPICAL ROADWAY CROSS SECTION FOR
PROPOSED AMERICA STREET (50' RIGHT OF WAY)
SCALE: 1" = 4'

NOTE:
1. MATERIALS AND CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH THE TOWN LAND DEVELOPMENT AND SUBDIVISION REGULATIONS.

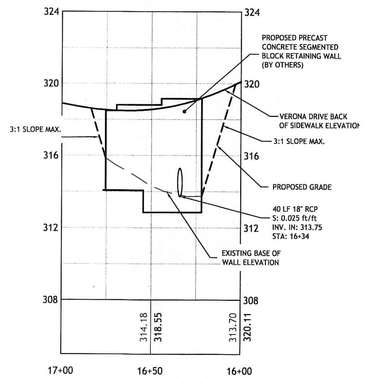


TYPICAL ROADWAY CROSS SECTION FOR
PROPOSED VERONA DRIVE (40' RIGHT OF WAY)
SCALE: 1" = 4'

NOTE:
1. MATERIALS AND CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH THE TOWN LAND DEVELOPMENT AND SUBDIVISION REGULATIONS.

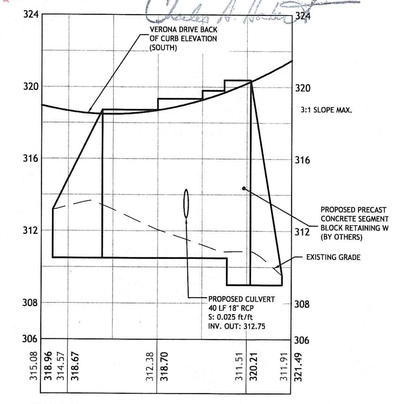


PROFILE B-B THROUGH 15'-10" SPAN X 3'-6" RISE BOX CULVERT-
CONTECH STRUCTURE #33 (STA: 1+86)
(34 LF LAID FLAT)
SCALE: 1"=4'



VERONA DRIVE WALL (NORTH) PROFILE

HORIZ. SCALE = 1" = 40'
VERT. SCALE = 1" = 4'



VERONA DRIVE WALL (SOUTH) PROFILE

HORIZ. SCALE = 1" = 40'
VERT. SCALE = 1" = 4'

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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DAVID M. D'AMICO
No. 6711
REGISTERED
PROFESSIONAL ENGINEER
CIVIL
5/22/08

HIGHLAND ESTATES
CUMBERLAND, RHODE ISLAND
AP 52 LOTS 10, 233, 234, 307, 308, 310, 311, 313-316

REVISIONS:

NO.	DATE:	DESCRIPTION
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4	5-2008	RIDEM COMMENTS

DESIGNED BY:	WA
DRAWN BY:	GAH
CHECKED BY:	DMD/ JAC
DATE:	JANUARY 07
PROJECT NO:	05-77a

PRELIMINARY, NOT FOR CONSTRUCTION

DETAILS I

SHEET 11 OF 16

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PLATE AND RIB DETAILS

TABLE 1
PLATE AND RIB COMBINATIONS WITH ALLOWABLE HEIGHT OF COVER (6,7,8)

(3) STRUCT. NUMBER	SPAN "A" (FT-IN)	RISE "B" (FT-IN)	AREA (SQ. FT)	ADDITIONAL SHELL INFORMATION: (1) CROWN ARC LENGTH "C" (N)	(1) LEG LENGTH "D" (N)	SIDE ANGLE "E" DEGMIN)	(1,3) HAUNCH PLATE LENGTH (N)	(1,3) CROWN PLATE LENGTH (N)†	MAX. BOLTS /FT. (EA.)	(9) MAX. SHELL WT./FT. (LB.)
33	15-10	3- 6	46.8	15	0.5	6:10	8	8	42.00	136
34	16- 0	4- 3	59.5		1.5		9		38.67	147
35	16- 2	5- 1	72.3		2.5		10		44.22	153
36	16- 4	5-11	85.2		3.5		11		44.67	161
37	16- 6	6- 8	98.3		4.5		12		45.11	172
38	16- 8	7- 6	111.5		5.5		13		45.56	176
39	16-10	8- 3	124.8		6.5		14		46.00	186

(*) NOTES REFER TO DRAWING 1010402

FOR CONTECH ALUMINUM BOX CULVERTS

Original Dwg. Date:	Last Revision Date:	Drawing Number:
K.M.K. 5-29-98	N/A	1010403A

TABLE 2
HS-20 LOADING (11)

(3) STRUCT. NUMBER	SPAN "A" (FT-IN)	RISE "B" (FT-IN)	AREA (SQ. FT)	A: HG\CG (GA.)	A: HRS/CRS (IN.)	A: MIN (FEET)	A: MAX (FEET)	B: HG\CG (GA.)	B: HRS/CRS (IN.)	B: MIN (FEET)	B: MAX (FEET)	C: HG\CG (GA.)	C: HRS/CRS (IN.)	C: MIN (FEET)	C: MAX (FEET)	D: HG\CG (GA.)	D: HRS/CRS (IN.)	D: MIN (FEET)	D: MAX (FEET)	E: HG\CG (GA.)	E: HRS/CRS (IN.)	E: MIN (FEET)	E: MAX (FEET)
33	15-10	3- 6	46.8	3\5	27/18	3.0	5.0	3\5	18/18	2.5	5.0	5\5	18/18	2.0	5.0	3\4	27/9	1.7		2\5	18/9	1.4	5.0
34	16- 0	4- 3	59.5	2\5	18/18			2\3	27/9			5\3	27/9			3\4		1.7		3\4			
35	16- 2	5- 1	72.3	2\5				4\5	18/18			3\3				3\5		1.7		3\4			
36	16- 4	5-11	85.2	3\4				3\2	27/9			3\3				3\5		1.7		3\5			
37	16- 6	6- 8	98.3	3\5				2\4	9/18			3\4				3\4	18/9	1.7		4\4			
38	16- 8	7- 6	111.5	3\5				3\3	27/9			3\4				3\4		1.7		2\3	9/9		
39	16-10	8- 3	124.8	3\5				2\3	18/9			2\5	18/9			3\5		1.7		4\5	18/9		

FOR CONTECH ALUMINUM BOX CULVERTS

Original Dwg. Date:	Last Revision Date:	Drawing Number:
K.M.K. 5-29-98	N/A	1010399A

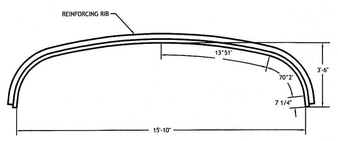
(*) NOTES REFER TO DRAWING 1010402

TABLE 4
ALUMINUM HEADWALL & WINGWALL DETAILS

STRUCT. NUMBER	SPAN "A" (FT-IN)	RISE "B" (FT-IN)	BASEWALL: WIDTH (FT-IN)	BASEWALL: (3) HEIGHT (FT-IN)	BASEWALL: NO. OF ANCHOR RODS TO STRUCTURE FROM CAP (EA.)	BASEWALL: WEIGHT (LB./EA.)	WINGWALL: CORNER PANEL (LB./EA.)	WINGWALL: WING PANEL (LB./EA.)
33	15-10	3- 6	20-10	7-10	5	434	196	159
34	16- 0	4- 3	20-10	8- 7	5	459	210	169
35	16- 2	5- 1	20-10	9- 5	5	485	224	180
36	16- 4	5-11	20-10	10- 2	5	510	238	190
37	16- 6	6- 8	20-10	11- 0	5	536	252	201
38	16- 8	7- 6	20-10	11-10	5	561	266	211
39	16-10	8- 3	20-10	12- 7	5	587	280	222

FOR CONTECH ALUMINUM BOX CULVERTS

Original Dwg. Date:	Last Revision Date:	Drawing Number:
K.M.K. 5-29-98	N/A	1010396A



SCALE: 1/2" =1'-0"
APPROX. AREA = 46.8 SQ. FT.

ALUMINUM BOX CULVERT STRUCTURE #33 15'-10" SPAN x 3'-6" RISE

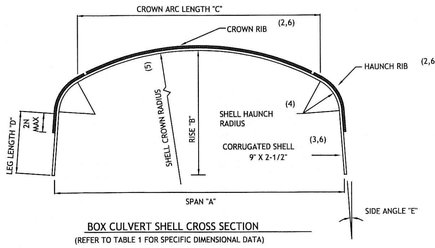
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INSTALLATION NOTES:

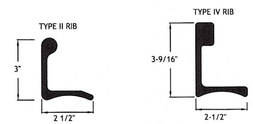
1. X = SUFFICIENT SPACE FOR COMPACTION EQUIPMENT. IF SPACE IS NARROW, SPECIAL EQUIPMENT IS REQUIRED FOR COMPACTION OR CONCRETE GROUT IS REQUIRED.
2. BACKFILL TO BE WELL GRADED GRANULAR, A-1, A-3, A-2-4, OR A-2-5, PER AASHTO M145, PLACED IN SIX- TO EIGHT- INCH LIFTS SYMMETRICALLY ON EACH SIDE COMPACTED TO MINIMUM 90% DENSITY PER AASHTO T180. D-4 OR SMALLER TO OPERATE NEAR AND ABOVE STRUCTURE DURING BACKFILLING TO FINISH GRADE. REFER TO ASTM 8789 INSTALLATION SPECIFICATION.
3. MINIMUM COVER MAY NEED TO BE INCREASED TO HANDLE TEMPORARY CONSTRUCTION VEHICLE LOADS (LARGER THAN D4) BUT NOT TO EXCEED MAXIMUM ALLOWABLE COVER FOR THE SPECIFIC BOX CULVERT DESIGN.
4. FOUNDATION TO HAVE MINIMUM 4,000 PSF BEARING BEDDING. IT SHOULD CONSIST OF STABLE, WELL GRADED GRANULAR MATERIAL.
5. STANDARD HEADWALLS SHOWN ARE FOR VERTICAL ORIENTATION ONLY. ANY DESIGN, OTHER THAN VERTICAL ORIENTATION, MUST BE REVIEWED BY THE DESIGN ENGINEER.
6. THE TYPE AND EXTENT OF END TREATMENT ON THE BOX CULVERT SHOULD BE CHOSEN AND DESIGNED SO AS TO PREVENT THE LOSS OF BACKFILL DUE TO HIGH FLOW CONDITIONS.
7. BOLT TORQUE REQUIREMENTS - PLATE LAP MUST BE PROPERLY MATED IN A TANGENT FASHION USING PROPER ALIGNMENT TECHNIQUES AND ADEQUATE BOLT TORQUE TO SEAT THE CORRUGATION. THE RECOMMENDED INSTALLATION BOLT TORQUE FOR ALUMINUM BOX CULVERTS IS 90-115 FT/LBS FOR FULL INVERTS AND 115-135 FT/LBS FOR ALL OTHER COMPONENTS. WHEN SEAM SEALANT TAPE IS USED, BOLTS SHALL BE INSTALLED AND RETIGHTENED TO THESE TORQUE LEVELS AFTER 24 HOURS. TORQUE LEVELS ARE FOR INSTALLATION, NOT RESIDUAL, IN-SERVICE REQUIREMENTS.
8. FOR ASSEMBLY INFORMATION, SEE THE MANUFACTURER'S DETAILED ASSEMBLY DRAWINGS AND INSTRUCTIONS.

FOR CONTECH ALUMINUM BOX CULVERTS

Original Dwg. Date:	Last Revision Date:	Drawing Number:
K.M.K. 5-29-98	N/A	1010401A



BOX CULVERT SHELL CROSS SECTION
(REFER TO TABLE 1 FOR SPECIFIC DIMENSIONAL DATA)



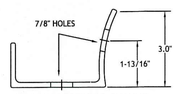
RIB GEOMETRY (2)

NOTES - SHELL

1. N = 9.625" OR 9-5/8".
2. ALL RIBS ARE TYPE IV, EXCEPT HAUNCH RIBS FOR STRUCTURES 1-39 WHICH ARE TYPE II.
3. STRUCTURE 1 IS A ONE-PLATE SHELL. STRUCTURES 2-26 ARE TWO-PLATE SHELLS. STRUCTURES 27-87 ARE THREE-PLATE SHELLS.
4. SHELL HAUNCH RADIUS FOR STRUCTURES 1-39 IS 30-1/4". SHELL HAUNCH RADIUS FOR STRUCTURES 40-87 IS 37-3/8".
5. SHELL CROWN RADIUS FOR STRUCTURES 1-39 IS 297-1/2". SHELL CROWN RADIUS FOR STRUCTURES 40-87 IS 258-3/4".
6. IN SHELL FILL HEIGHT TABLE 1, THE HG\CG DESIGNATION INDICATES THICKNESS OR GAGE OF HAUNCH (HG) AND CROWN (CG) PLATES AS FOLLOWS: 2 = .125", 3 = .150", 4 = .175", 5 = .200", 6 = .225", 7 = .250". EXAMPLE: 3\6 = .150" HAUNCH AND .225" CROWN PLATE THICKNESS. THE HRS/CRS DESIGNATION INDICATES THE RIB SPACING ON THE HAUNCH (HRS) AND CROWN (CRS) PLATES. EXAMPLE: 27/9 = 27" O.C. HAUNCH AND 9" O.C. CROWN.
7. ALLOWABLE COVER (MINIMUM AND MAXIMUM) IS MEASURED FROM THE OUTSIDE VALLEY OF CROWN PLATE TO BOTTOM OF FLEXIBLE PAVEMENT OR FROM THE OUTSIDE VALLEY OF CROWN PLATE TO TOP OF RIGID PAVEMENT. MINIMUM COVER IS MEASURED AT THE LOWEST FILL AREA SUBJECTED TO POSSIBLE WHEEL LOADS (TYPICALLY AT THE ROADWAY SHOULDER). THE ROADWAY SURFACE MUST BE MAINTAINED TO ENSURE MINIMUM COVER TO PREVENT HIGH-IMPACT LOADS BEING IMPARTED TO THE STRUCTURE. MAXIMUM COVER IS MEASURED AT THE HIGHEST FILL AND/OR PAVEMENT ELEVATION.
8. SELECT THE STRUCTURE, WITH THE LOWEST ALPHABET SUB-DESIGNATION AND COVER RANGE, THAT WILL INCLUDE THE ACTUAL MINIMUM AND MAXIMUM COVER. EXAMPLE: STRUCTURE 51-A IS MORE ECONOMICAL THAN 51-B IF THE COVER IS BETWEEN 3.0 AND 4.5 FEET.
9. SHELL WT./FT. SHOWN IS MAXIMUM HANDLING WEIGHT AND IS BASED ON HEAVIEST COMPONENT MAKEUP FOR A SPECIFIC SPAN AND RISE COMBINATION. WEIGHT PER FOOT OF SHELL INCLUDES PLATES, REINFORCING RIBS, RIB SPLICES, BOLTS AND NUTS.
10. TOTAL STRUCTURE LENGTH CAN BE ANY DIMENSION, BUT WHENEVER POSSIBLE, IT IS RECOMMENDED TO WORK WITH A MULTIPLE OF 4.5' (NET PLATE WIDTH). THIS PRACTICE USUALLY RESULTS IN LOWER TOTAL STRUCTURE COST. EXAMPLE: 50' PROPOSED STRUCTURE / 4.5' = 11.1, NEAREST WHOLE NUMBER IS 11, THEREFORE USE 11 X 4.5' = 49.5' FOR TOTAL STRUCTURE LENGTH. WHEN ORDERING A STRUCTURE WITH TOEWALLS AND/OR HEADWALLS ON EACH END, TOTAL STRUCTURE LENGTH SHOULD BE A MULTIPLE OF 9'.
11. ALUMINUM BOX CULVERTS, AS SHOWN ON THIS DRAWING, ARE DESIGNED TO MEET OR EXCEED THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES SECTION 12.8 FOR STANDARD HIGHWAY HS-20 & HS-25 WHEEL LOADS.

FOR CONTECH ALUMINUM BOX CULVERTS

Original Dwg. Date:	Last Revision Date:	Drawing Number:
K.M.K. 5-29-98	N/A	1010402A

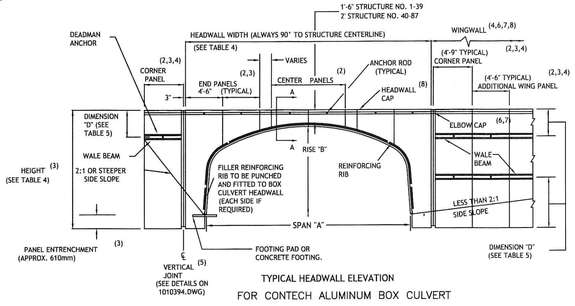


ALUMINUM RECEIVING CHANNEL

FOR CONTECH ALUMINUM BOX CULVERT
NOT TO SCALE

Original Dwg. Date:	Last Revision Date:	Drawing Number:
K.M.K. 5-29-98	N/A	1010386A

*Notes are on drawing 1010393A.dwg.

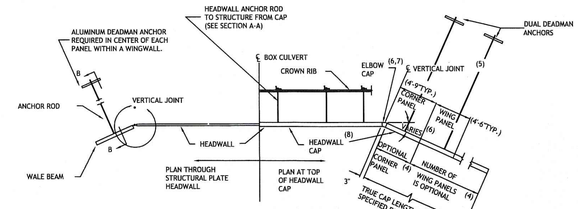


TYPICAL HEADWALL ELEVATION

FOR CONTECH ALUMINUM BOX CULVERT
NOT TO SCALE

Original Dwg. Date:	Last Revision Date:	Drawing Number:
K.M.K. 5-29-98	N/A	1010395A

*Notes are on drawing 1010393A.dwg.



PLAN VIEW

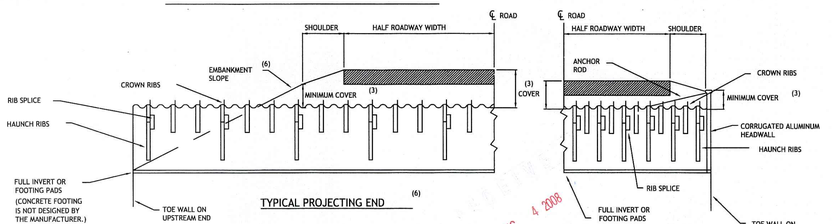
NOTES - HEADWALL

1. ALL PANELS ARE FABRICATED FROM ALUMINUM STRUCTURAL PLATE AS SPECIFIED IN ASTM B746.
2. CENTER PANELS ABOVE THE BOX CULVERT CROWN RADIUS ARE 0.100" THICKNESS FOR STRUCTURES 1-39 AND 0.125" FOR STRUCTURES 40-87. ALL OTHER PANELS ARE 0.150" THICKNESS. SEE TABLE 5 FOR PANEL THICKNESS.
3. HEIGHT OF HEADWALL LISTED IN TABLE 4 PERMITS APPROXIMATELY 24" ENTRENCHMENT DEPTH BELOW THE INVERT. ALL HEADWALL PANELS MUST BE TRENCHED INTO EXISTING GROUND. IF STABLE ROCK FOUNDATION IS ENCOUNTERED, THE PANELS MAY BE TRIMMED AND PLACED INTO A CEMENT-GROUTED KEYWAY.
4. NUMBER OF CORNER PANELS AND ADDITIONAL WING PANELS IS OPTIONAL.
5. A VERTICAL JOINT IS USED ONLY WHEN A WINGWALL IS AT AN ANGLE WITH RESPECT TO THE HEADWALL.
6. SPECIFY THE DEGREE OF HORIZONTAL ROTATION ON THE WINGWALL. THIS ANGLE SHOULD NOT EXCEED 90 DEGREES.
7. THE TOP OF A HEADWALL AND ITS WINGWALL IS ALWAYS HORIZONTAL, UNLESS BEVELED WINGWALLS ARE REQUIRED. SPECIFY THE VERTICAL DROP IN ELEVATION FOR THE WINGWALL. THIS WILL SET THE PROPER VERTICAL ANGLE FABRICATION FOR THE HEADWALL ELBOW CAP AND THE PROPER OVERALL LENGTH OF THE WINGWALL CAP.
8. HEADWALL CAP MUST BE FIELD-DRILLED AND BOLTED TO THE HEADWALL PANELS. SEE ASSEMBLY DRAWINGS FOR MORE DETAILS.
9. STANDARD HEADWALLS SHOWN ARE FOR VERTICAL AND SQUARE ORIENTATION ONLY. ANY DESIGN, OTHER THAN VERTICAL AND SQUARE ORIENTATION, MUST BE REVIEWED BY THE DESIGN ENGINEER.
10. IF SIDE SLOPE IS FLATTER THAN 2:1, A DOUBLE TIEBACK ASSEMBLY IS REQUIRED FOR EACH DEADMAN.
11. STANDARD HEADWALLS ARE SHOWN. HS-20 WHEEL LOADS MUST BE KEPT A MINIMUM OF 36" FROM THE WALL FACE. SPECIAL HEADWALL PACKAGES CAN BE FABRICATED TO MEET OTHER LOADING REQUIREMENTS.
12. CENTER OF DEADMAN ANCHOR IS PLACED 9" BELOW CENTER OF WALE BEAM.
13. THE CROWN RIB USED TO CONNECT THE HEADWALL MUST BE ORIENTED SO THAT THE FLAT SURFACE IS FACING AWAY FROM THE HEADWALL. THIS MAXIMIZES THE LOAD CARRYING CAPABILITY OF THE CONNECTION SHOWN IN SECTION A-A.
14. STRUCTURES ON CONCRETE FOOTINGS THAT USE HEADWALLS REQUIRE FIELD MODIFICATIONS OF THE HEADWALL PLATES SO THEY FIT AROUND THE FOOTINGS. THE NEED TO ATTACH THE PLATES TO THE FOOTING DEPENDS ON THE BACKFILL MATERIAL AND ITS POTENTIAL ERODIBILITY.

ALUMINUM HEADWALL DETAILS
FOR CONTECH ALUMINUM BOX CULVERT
NOT TO SCALE

Original Dwg. Date:	Last Revision Date:	Drawing Number:
K.M.K. 5-29-98	N/A	1010394A

INSTALLATION DETAILS



TYPICAL PROJECTING END (6)

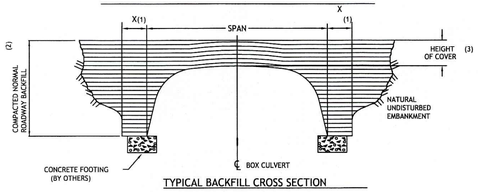
TYPICAL SQUARE END WITH ALUMINUM HEADWALL (5,6)

(*)NOTES REFER TO DRAWING 1010401

FOR CONTECH ALUMINUM BOX CULVERTS
NOT TO SCALE

Original Dwg. Date:	Last Revision Date:	Drawing Number:
K.M.K. 5-29-98	N/A	1010398A

INSTALLATION DETAILS



TYPICAL BACKFILL CROSS SECTION

FOR CONTECH ALUMINUM BOX CULVERTS
NOT TO SCALE

Original Dwg. Date:	Last Revision Date:	Drawing Number:
K.M.K. 5-29-98	N/A	1010397A

(*)NOTES REFER TO DRAWING 1010401

AUG 4 2008

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED NOV 2 4 2008 FILE # 07-0029
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Charles A. Horbert

CDE
CASALI & D'AMICO ENGINEERING, INC.
CIVIL - SITE DEVELOPMENT - TRANSPORTATION
DRAINAGE - WETLANDS - ISDS - TRAFFIC - FLOODPLAIN
300 Post Road, Warwick, RI 02888
(401) 944-1300 (401) 944-1313 fax www.casalidinc.com

DAVID M. D'AMICO
No. 8745
REGISTERED PROFESSIONAL ENGINEER
CIVIL
5/22/08

HIGHLAND ESTATES
CUMBERLAND, RHODE ISLAND
AP 52 LOTS 10, 233, 234, 307, 308, 310, 311, 313-316

REVISIONS:		
NO.	DATE.	DESCRIPTION
1	3-2007	UPDATED PLANSET
2	8-2007	RIDEM COMMENTS
3	2-2008	RIDEM COMMENTS
4	5-2008	RIDEM COMMENTS

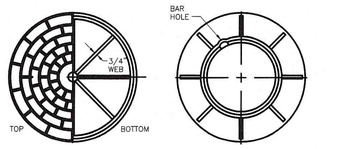
DESIGNED BY:	WA
DRAWN BY:	GAH
CHECKED BY:	DMD/ JAC
DATE:	JANUARY 07
PROJECT NO:	05-77a

PRELIMINARY, NOT FOR CONSTRUCTION

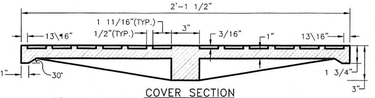
DETAILS II

SHEET 12 OF 16

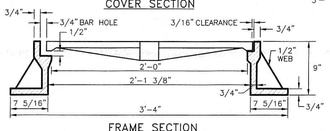
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COVER FRAME



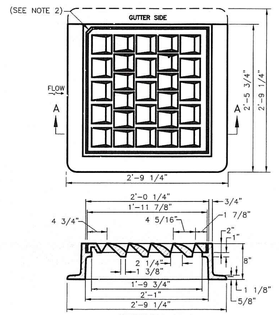
COVER SECTION



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.

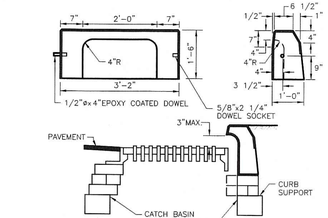
HEAVY-DUTY ROUND FRAME AND COVER R.I. STANDARD **6.2.1**



SECTION A–A

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) R.I. STANDARD **6.3.4**



NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 905 OF THE R.I. STANDARD SPECIFICATIONS.
2. EXPOSED SURFACES TO HAVE A SPONGE FLOAT FINISH.
3. EXPOSED EDGES TO HAVE A 3/4" CHAMFER.

PRECAST CONCRETE APRON STONE (FOR ROUND CATCH BASIN) R.I. STANDARD **7.1.8**

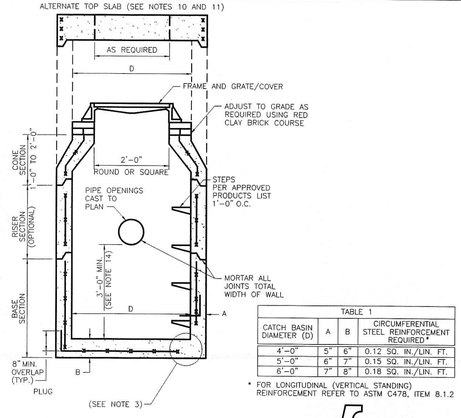
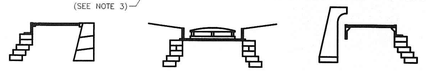


TABLE 1			
CATCH BASIN DIAMETER (D)	A	B	CIRCUMFERENTIAL STEEL REINFORCEMENT REQUIRED*
4'–0"	5"	6"	0.12 SQ. IN./LIN. FT.
5'–0"	6"	7"	0.15 SQ. IN./LIN. FT.
6'–0"	7"	8"	0.18 SQ. IN./LIN. FT.

* 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. NO SEEP HOLES SHALL BE ALLOWED IN THE BOTTOM OF THE CATCH BASIN.
14. CATCH BASINS 4 AND 10 4.4.0 SHALL HAVE A 4' SUMP AND A "SNOUT" OIL WATER SEPARATOR.

PRECAST 4'–0" ROUND CATCH BASIN R.I. STANDARD **4.4.0** **M1**

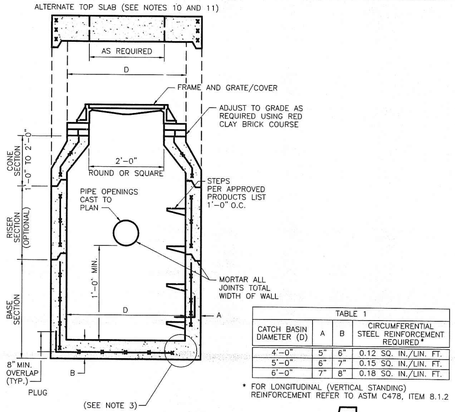
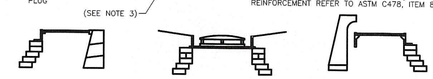


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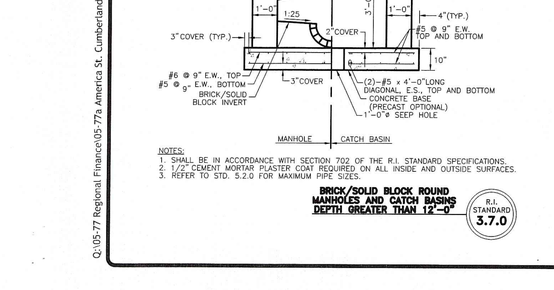
* FOR LONGITUDINAL (VERTICAL STANDING) REINFORCEMENT REFER TO ASTM C478, ITEM 8.1.2



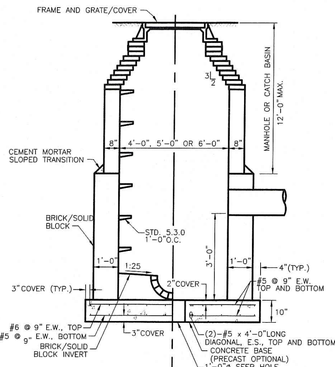
TYPE CATCH BASIN AS REQUIRED

NOTES:
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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. NO SEEP HOLES SHALL BE ALLOWED IN THE BOTTOM OF THE CATCH BASIN.

PRECAST 4'–0" ROUND CATCH BASIN R.I. STANDARD **4.4.0** **M2**

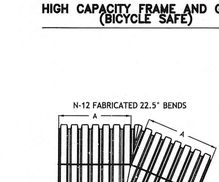


SQUARE FRAME AND GRATE (BICYCLE SAFE) R.I. STANDARD **6.3.2**

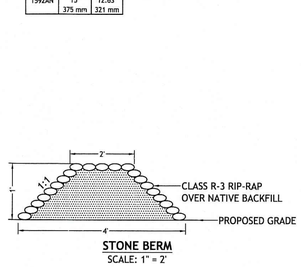


NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. 1/2" CEMENT MORTAR PLASTER COAT REQUIRED ON ALL INSIDE AND OUTSIDE SURFACES.
3. REFER TO STD. 5.2.0 FOR MAXIMUM PIPE SIZES.

BRICK/SOLID BLOCK ROUND MANHOLES AND CATCH BASINS DEPTH GREATER THAN 12'–0" R.I. STANDARD **3.7.0**



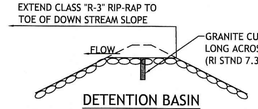
PART NO	PIPE SIZE	A	PART NO	PIPE SIZE	A
0492AN	4" 100 mm	4.5" 114 mm	1892AN	18" 450 mm	16" 406 mm
0692AN	6" 150 mm	5.38" 137 mm	2492AN	24" 600 mm	17.25" 438 mm
0892AN	8" 200 mm	7.63" 194 mm	3092AN	30" 750 mm	17.90" 455 mm
1092AN	10" 250 mm	7.75" 197 mm	3692AN	36" 900 mm	21.48" 546 mm
1292AN	12" 300 mm	9.63" 245 mm	4292AN	42" 1050 mm	24.9" 632 mm
1592AN	15" 375 mm	12.63" 321 mm			



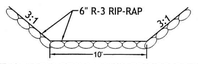
STONE BERM
SCALE: 1" = 2'

NOTES:
1. CLASS OF RIP–RAP AND BEDDING TO BE SPECIFIED IN CONTRACT DOCUMENTS.
2. DIMENSIONS MAY BE MODIFIED BY ENGINEER TO MEET FIELD CONDITIONS.
3. UNLESS OTHERWISE SPECIFIED, DUMPED RIP–RAP SHALL BE USED.

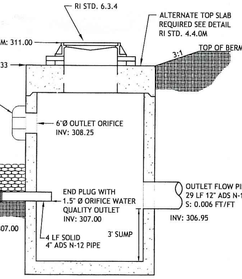
ROCK FILL RIP–RAP AT FLARED END SECTIONS



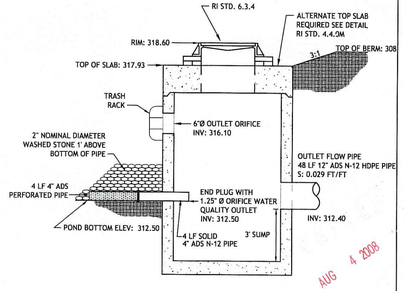
DETENTION BASIN
EMERGENCY SPILLWAY- SIDEVIEW
NOT TO SCALE



EMERGENCY SPILLWAY CROSS SECTION
NOT TO SCALE

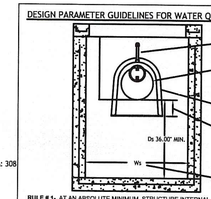


OUTLET CONTROL STRUCTURE A (POND A)
SCALE: NTS



OUTLET CONTROL STRUCTURE B (POND B)
SCALE: NTS

DESIGN PARAMETER GUIDELINES FOR WATER QUALITY IMPROVEMENT



RULE # 1- AT AN ABSOLUTE MINIMUM, STRUCTURE INTERNAL DIMENSIONS MUST BE AT LEAST LARGE ENOUGH TO ACCOMODATE EXTERNAL DIMENSIONS OF THE SNOUT, AND ALLOW FOR A PERSON TO INSTALL IT. REFER TO BMP, INC. CAD DETAILS FOR PART DIMENSIONS.

RULE #2- USE ONLY "S" SERIES SNOUTS FOR RECTANGULAR OR SQUARE STRUCTURES, AVAILABLE IN 12", 18", 24", 30", 48", AND 96" SIZES. USE ONLY "R" SERIES SNOUTS FOR ROUND STRUCTURES, AVAILABLE IN 12", 18", 24", AND, 30" SIZES.

SUMP DEPTH (Ds)- SUMP DEPTH SHOULD BE A MINIMUM OF 36" FOR ANY NEW CONSTRUCTION FOR PIPES 12" AND LESS. FOR 15"-18" PIPE MIN. DEPTH SHOULD BE 48". OPTIMAL SIZING IS AT LEAST 2.5X TO 3X OUTLET PIPE DIAMETER (Do) FOR MAXIMUM POLLUTANT REMOVAL EFFICIENCY AND MINIMAL CLEANOUT FREQUENCY.

STRUCTURE DIMENSIONS- PLAN DIMENSIONS FOR A STRUCTURE SHOULD BE APPROX. 7X AREA OF OUTLET PIPE FOR MAXIMUM POLLUTANT REMOVAL EFFICIENCY AND MINIMAL CLEANOUT FREQUENCY. (SEE MAINTENANCE FREQUENCY CALCULATION SHEET FOR MORE INFORMATION)

IMPORTANT NOTICE: *DO NOT CONFUSE PIPE O.D WITH PIPE I.D.* A SNOUT FITS OVER A PIPE, NOT IN IT. THUS, SNOUT MUST BE SIZED TO FIT OVER PIPE OPENING IN STRUCTURE. SNOUTS ARE AVAILABLE FOR ROUND STRUCTURES TO ACCOMODATE PIPES OF 30" O.D. MAX. FOR PIPES 30" O.D. AND ABOVE, USE SQUARE OR RECTANGULAR STRUCTURES.

SIZING EXAMPLES:

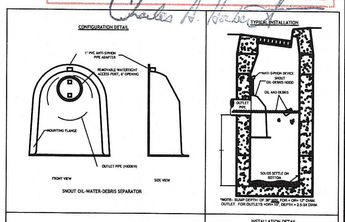
STRUCTURE OUTLET HOLE SIZE	SNOUT SIZE
11.9" O.D. OR LESS	12" For R
12.0"-17.9" O.D.	18" For R
18.0"-23.9" O.D.	24" For R
24.0"-29.9" O.D.	30" For R
30.0"-47.9" O.D.	48" For S
48.0"-95.9" O.D.	96" For S

STATE OF RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER DATED
NOT VALID UNLESS SIGNED AND DATED
NO CHANGE ALLOWED WITHOUT PRIOR APPROVAL
APPROVED AS BUILT PRIOR TO CONSTRUCTION
AUG 4 2008
FILE NO. 07-0237

BMP, INC.
53 MT. ARCHER ROAD, LYME, CT. 06371
(800) 504-8008 FAX: (860)434-2150

SNOUT SIZING CHART	MATERIAL
24"/24"/60"	NONE

DRAWING NUMBER
SP-SI



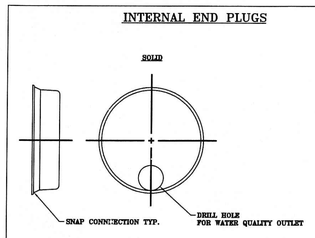
NOTES:
1. ALL HOODS AND TRAPS FOR CATCH BASINS AND WATER QUALITY STRUCTURES SHALL BE AS MANUFACTURED BY:
BEST MANAGEMENT PRODUCTS, INC.
53 MT. ARCHER RD.
LYME, CT 06371
(860) 434-0277, (860) 434 3199 FAX
(800) 504-8008 TOLL FREE, (860) 304-7585
(PRE-SALES, ENGINEERING)
OR PRE-APPROVED EQUAL
2. ALL HOODS 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, 4" MINIMUM FLANGE, AND AN ANTI-SIPHON VENT AS SHOWN. (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. "J"-BOLTS 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 ADJUSTED 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'S SUPPLIED INSTALLATION KIT SHALL INCLUDE:
A. INSTALLATION INSTRUCTIONS
B. PVC ANTI-SIPHON VENT PIPE AND ADAPTER
C. PVC BODY-TO-HOOD GASKET WITH PSA BACKING
D. 3/8" STAINLESS STEEL BOLTS
E. ANCHOR SHIELDS

US Patent # 6126817

DESCRIPTION: OIL-DEBRIS HOOD SPECIFICATION AND INSTALLATION (TYPICAL)	DATE: 09/08/00	SCALE: NONE
		DRAWING NUMBER: SP-SN

HOOD SPECIFICATION FOR CATCH BASINS AND WATER QUALITY STRUCTURES

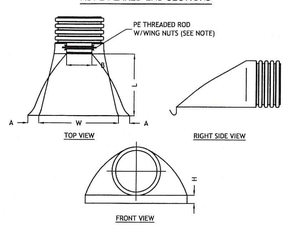
INTERNAL END PLUGS



PART NO	PIPE SIZE	TYPE
0434-AA	4" 100 mm	PERFORATED

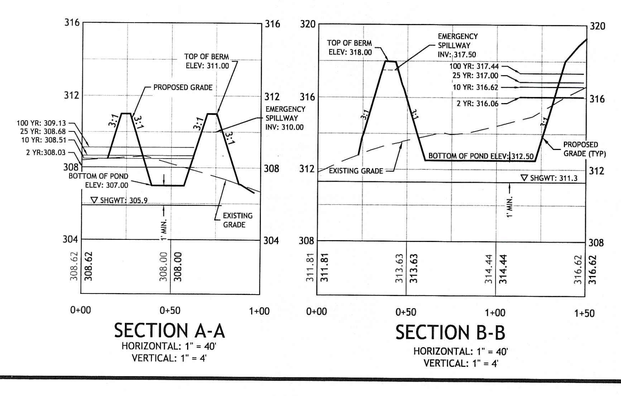
NOTE: ALL DIMENSIONS ARE NOMINAL

HDPE FLARED END SECTIONS



PART N ø	PIPE SIZE	A	B (MAX)	H	L	W
1210-NP	12" 300 mm	6.5" 165 mm	10" 254 mm	6.5" 165 mm	25" 635 mm	29" 735 mm
1210-NP	15" 375 mm	6.5" 165 mm	10" 254 mm	6.5" 165 mm	25" 635 mm	29" 735 mm
1810-NP	18" 450 mm	7.5" 190 mm	15" 380 mm	6.5" 165 mm	32" 812 mm	35" 890 mm
2410-NP	24" 600 mm	7.5" 190 mm	18" 450 mm	6.5" 165 mm	36" 900 mm	40" 1140 mm
3012-NP	30" 750 mm	10.5" 266 mm	N/A	7.0" 178 mm	53" 1345 mm	68" 1725 mm
3612-NP	36" 900 mm	10.5" 266 mm	N/A	7.0" 178 mm	53" 1345 mm	68" 1725 mm

NOTE: PE THREADED ROD W/WING NUTS PROVIDED FOR END SECTIONS 12"-24", 30" & 36" END SECTIONS TO BE WELDED TO PIPE PER MANUFACTURER'S RECOMMENDATIONS.



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DAVID M. D'AMICO
No. 6745
REGISTERED PROFESSIONAL ENGINEER
CIVIL
5/22/08

HIGHLAND ESTATES
CUMBERLAND, RHODE ISLAND
AP 52 LOTS 10, 233, 234, 307, 308, 310, 311, 313-316

REVISIONS:		
NO.	DATE.	DESCRIPTION
1	3-2007	UPDATED PLANSET
2	8-2007	RIDEM COMMENTS
3	2-2008	RIDEM COMMENTS
4	5-2008	RIDEM COMMENTS

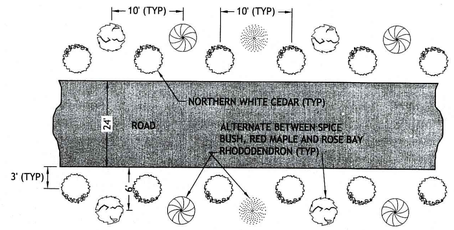
DESIGNED BY:	WA
DRAWN BY:	GAH
CHECKED BY:	DMD/ JAC
DATE:	JANUARY 07
PROJECT NO:	05-77a

PRELIMINARY, NOT FOR CONSTRUCTION

DETAILS III

SHEET 13 OF 16

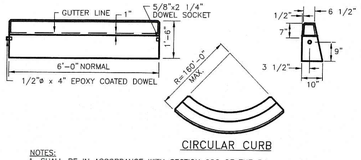
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PLANTING DETAIL: STA: 1+00-3+50
SCALE: 1" = 10'

PLANTING SCHEDULE

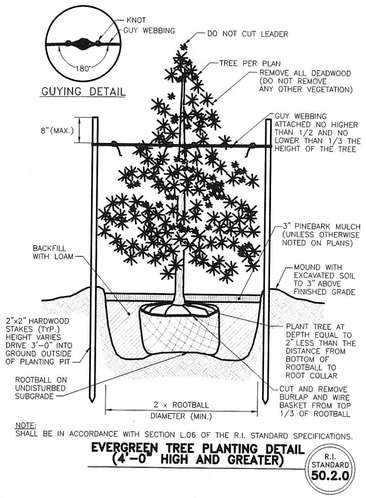
SYMBOL	QUANTITY	PLANT NAME
	111	NORTHERN WHITE CEDAR (THUJA OCCIDENTALIS) (5' HIGH)
	11	RED MAPLE (ACER RUBRUM) (5' HIGH)
	9	SPICE BUSH (LINDERA BENZOIN) (3' HIGH)
	10	ROSEBAY RHODODENDRON (RHODODENDRON MAXIMUM) (3' HIGH)



CIRCULAR CURB

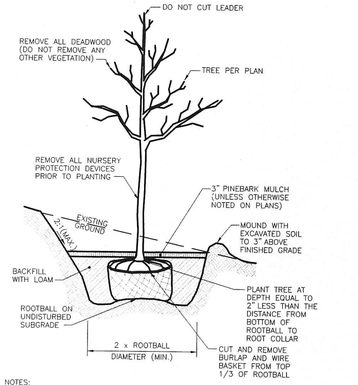
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. MINIMUM LENGTH OF STRAIGHT OR CIRCULAR FILLER PIECES TO BE 3'-0".
3. EXPOSED SURFACES TO HAVE A SPONGE FLOAT FINISH.
4. CIRCULAR CURB IS REQUIRED ON CURVES WITH RADII OF 160'-0" OR LESS. STRAIGHT CURB TO BE USED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

PRECAST CONCRETE CURB — STANDARD 7.1.0



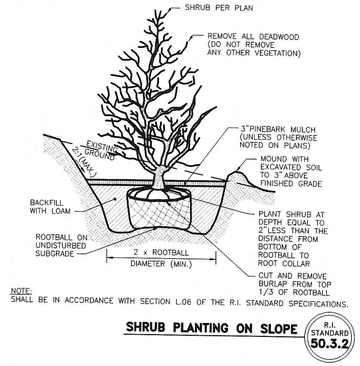
NOTE:
SHALL BE IN ACCORDANCE WITH SECTION L.06 OF THE R.I. STANDARD SPECIFICATIONS.

EVERGREEN TREE PLANTING DETAIL (4'-0" HIGH AND GREATER) — R.I. STANDARD 50.2.0



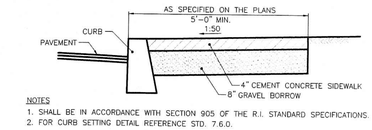
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION L.06 OF THE R.I. STANDARD SPECIFICATIONS.
2. FOR STAKING DETAIL SEE STD. 50.1.0

TREE PLANTING ON SLOPE — R.I. STANDARD 50.1.1



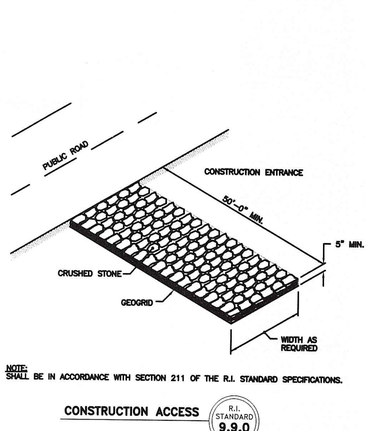
NOTE:
SHALL BE IN ACCORDANCE WITH SECTION L.06 OF THE R.I. STANDARD SPECIFICATIONS.

SHRUB PLANTING ON SLOPE — R.I. STANDARD 50.3.2

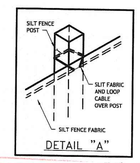


NOTES
1. SHALL BE IN ACCORDANCE WITH SECTION 905 OF THE R.I. STANDARD SPECIFICATIONS.
2. FOR CURB SETTING DETAIL REFERENCE STD. 7.6.0.

CEMENT CONCRETE SIDEWALK — R.I. STANDARD 43.1.0



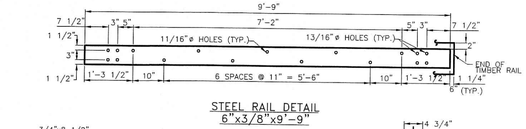
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 206 OF THE R.I. STANDARD SPECIFICATIONS.
2. 3"x2"x4'-6" (MAX.) OAK POSTS FOR SILT FENCE SHALL BE LOCATED 8'-0" (MAX.) O.C. IN WETLAND AREAS AND 4'-0" (MAX.) O.C. IN WETLAND RAVINE, GULLY OR DROP-OFF AREAS AS SHOWN ON PLANS.
3. 1"x1"x4'-6" (MIN.) POSTS PERMITTED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



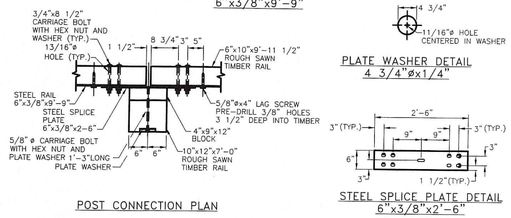
SILT FENCE DETAIL — R.I. STANDARD 9.2.0

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

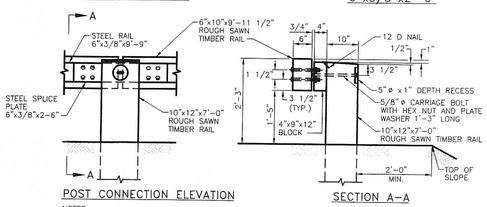
CONSTRUCTION ACCESS — R.I. STANDARD 9.9.0



STEEL RAIL DETAIL
6"x3/8"x9'-9"



POST CONNECTION PLAN



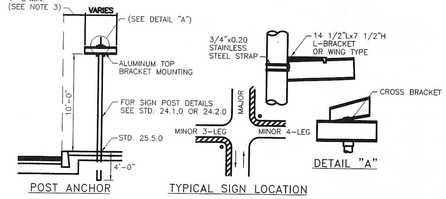
POST CONNECTION ELEVATION — SECTION A–A

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 900 OF THE R.I. STANDARD SPECIFICATIONS.
2. ALL STRUCTURAL STEEL AND FASTENER HARDWARE SHALL BE WEATHERING STEEL AS SPECIFIED.

STEEL BACKED TIMBER GUARDRAIL — R.I. STANDARD 34.4.0

PLATE WASHER DETAIL
4 3/4"ø x1/4"

STEEL SPLICE PLATE DETAIL
6"x3/8"x2'-6"



POST ANCHOR — TYPICAL SIGN LOCATION

IF SIGNS ARE ON THEIR OWN SUPPORT POST, THE POST SHALL BE LOCATED NEARER TO THE MAJOR STREET AND WITHIN 5'-0" OF THE P.T. OF THE CURVE.

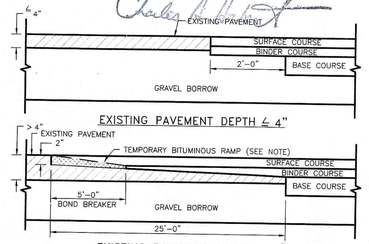
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION T.15 OF THE R.I. STANDARD SPECIFICATIONS.
2. EACH SIGN SHALL HAVE LEGEND ON BOTH SIDES.
3. POSTS SHALL BE INSTALLED AS CLOSE AS POSSIBLE TO THE BACK OF SIDEWALK, UNLESS SPACE DOES NOT PERMIT.

STREET SIGN MOUNTING DETAIL — R.I. STANDARD 24.6.1

SIGN NUMBER		R1-1			
LEGEND		STOP			
COLOR	BACKGROUND	RED			
	COPY	WHITE			
SIGN DIMENSION	WIDTH	24"	30"	36"	48"
	HEIGHT	24"	30"	36"	48"

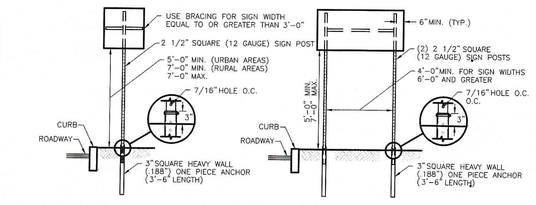
NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION T.15 OF THE R.I. STANDARD SPECIFICATIONS.
2. DENOTES TYPE III GRADE SHEETING.
3. REGULATORY SIGNS SHALL BE MOUNTED IN ACCORDANCE WITH STD. 24.1.0, 24.2.0 OR 24.6.0.
4. THICKNESS OF ALUMINUM SIGN PLATES: LESS THAN 10 SQ. FT. – 0.081 IN. 10 SQ. FT. TO 36 SQ. FT. – 0.102 IN. GREATER THAN 36 SQ. FT. – 0.125 IN.
5. FOR ADDITIONAL SIGNS SEE THE MUTCD.

REGULATORY SIGNS — R.I. STANDARD 27.1.0

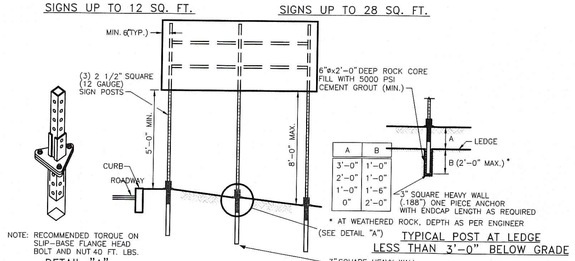


NOTE:
A BOND BREAKER (TAPERED OR EQUIVALENT) WILL BE PLACED 5'-0" FROM THE JOINT AND COVERED WITH THE BINDER COURSE AS THE TEMPORARY RAMP. PRIOR TO PLACING THE SURFACE COURSE, THE BINDER COURSE AND BOND BREAKER WILL BE REMOVED.

TRANSVERSE PAVEMENT CUT AND MATCH — R.I. STANDARD 47.1.1



SIGNS UP TO 12 SQ. FT. — SIGNS UP TO 28 SQ. FT.



A	B
3'-0"	1'-0"
2'-0"	1'-0"
1'-0"	1'-6"
0"	2'-0"

TYPICAL POST AT LEDGE LESS THAN 3'-0" BELOW GRADE

NOTE: RECOMMENDED TORQUE ON SLIP-BASE FLANGE HEAD BOLT AND NUT 40 FT. LBS.

DETAIL "A" — SIGNS UP TO 8'-0"Wx4'-0"H

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION T.15 OF THE R.I. STANDARD SPECIFICATIONS.
2. SIGN SUPPORTS HAVE BEEN DESIGNED IN ACCORDANCE WITH AASHTO SPECIFICATIONS FOR A 10-YEAR MEAN WIND RECURRENCE INTERVAL.
3. FOR INSTALLATION IN GROUND OR BITUMINOUS CONCRETE DRIVE SIGN POST ANCHOR TO REQUIRED DEPTH SO THAT THE HOLE WILL MATCH TO SIGN POST ABOVE GROUND FOR THE BOLT CONNECTION. INSERT SIGN POST AND BOLT IN PLACE.
4. FOR INSTALLATION IN CONCRETE SEE STD. 25.3.0 AND FOLLOW THE PROCEDURE IN NOTE 2.
5. FOR INSTALLATION IN LEDGE LESS THAN 3'-0" BELOW GRADE SEE DETAIL ABOVE.
6. EDGE OF SIGN SHALL BE 1'-6" (MIN.) FROM EDGE OF CURB IN URBAN AREAS AND 6'-0" (MIN.) FROM EDGE OF CURB IN EDGE OF CURB IN RURAL AREAS.
7. INSTALLATION PROCEDURES SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
8. BREAKAWAY SIGN SUPPORTS SHALL BE FABRICATED FROM STEEL AND SHALL CONFORM TO THE BREAKAWAY DESIGN SHOWN ON THIS SHEET.
9. STEEL POSTS SHALL CONFORM TO ASTM–A361, FY= 55 KSI. THE CROSS SECTION OF THE POST SHALL BE SQUARE TUBE FORMED OF 12 GAUGE (.105" U.S.S. GAUGE) COLD–ROLLED CARBON STEEL SHEETS WHICH HAVE BEEN ZINC COATED (1.25 OZ.) CONFORMING TO ASTM–A525, CAREFULLY ROLLED TO SIZE AND WELDED DIRECTLY IN THE CORNER BY HIGH FREQUENCY RESISTANCE WELDING OR EQUAL AND EXTERNALLY SCARED TO AGREE WITH CORNER RADII. STANDARD CORNER RADIUS SHALL BE 3/32" PLUS OR MINUS 1/64".
10. ALL BOLTS SHALL CONFORM TO ASTM–A307, CLASS A.
11. ALL BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AS PER ASTM–A153.
12. FOR SIGNS GREATER THAN 32 SQ. FT., REFER TO STD. 30.1.0, 30.1.1, 30.2.0, 30.2.1, 30.3.0, 30.3.1, 30.4.0, 30.4.1, 30.4.2 AND 30.4.3.

SIGN POST SELECTION AND INSTALLATION DETAILS SQUARE POST (SIGNS UP TO 8'-0"Wx4'-0"H) — R.I. STANDARD 24.1.0

AUG 4 2008

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED NOV 2 4 2008 FILE # 07-0029
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

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CASALI & D'AMICO ENGINEERING, INC.
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DAVID M. D'AMICO
No. 6740
REGISTERED PROFESSIONAL ENGINEER
CIVIL
5/22/08

HIGHLAND ESTATES
CUMBERLAND, RHODE ISLAND AND
AP 52 LOTS 10, 233, 234, 307, 308, 310, 311, 313-316

REVISIONS:		
NO.	DATE.	DESCRIPTION
1	3-2007	UPDATED PLANSET
2	8-2007	RIDEM COMMENTS
3	2-2008	RIDEM COMMENTS
4	5-2008	RIDEM COMMENTS

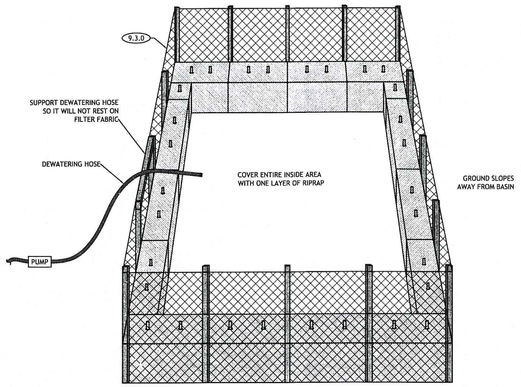
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DRAWN BY:	GAH
CHECKED BY:	DMD/ JAC
DATE:	JANUARY 07
PROJECT NO:	05-77a

PRELIMINARY, NOT FOR CONSTRUCTION

DETAILS IV

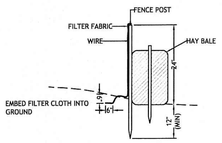
SHEET 14 OF 16

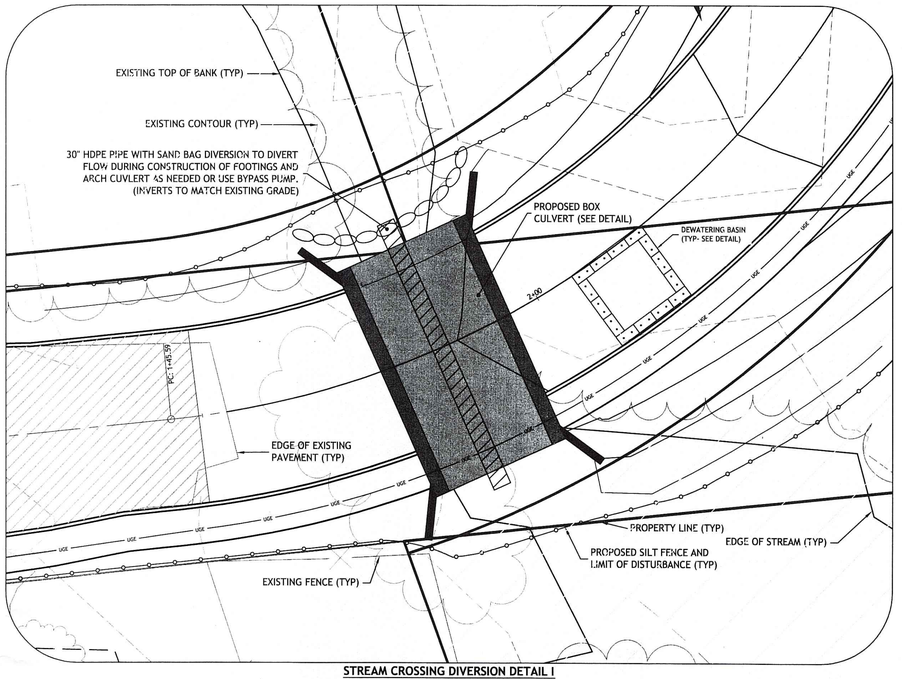
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DEWATERING BASIN DETAIL

NOT TO SCALE





STREAM CROSSING DIVERSION DETAIL I

SCALE: 1" = 10'

NOTES:

1. ALL CONSTRUCTION SHALL BE PERFORMED IN THE DRY. THE CONTRACTOR SHALL PROVIDE, OPERATE AND MAINTAIN ALL PUMPS, DRAINS, WET POINTS, SCREENS, OR OTHER FACILITIES NECESSARY TO CONTROL, COLLECT AND DISPOSE OF ALL SURFACE AND SUBSURFACE WATER ENCOUNTERED IN THE PERFORMANCE OF THE WORK.
2. THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH OSHA REQUIREMENTS INCLUDING SHORING IN TRENCHES.
3. CONSTRUCTION OF THE STREAM CROSSING SHALL BE LIMITED TO LOW FLOW CONDITIONS IN JULY-OCTOBER.
4. THE DIVERSION IS DESIGNED FOR THE 2 YEAR DESIGN STORM.
5. THE CONTRACTOR SHALL HAVE A BY-PASS PUMP AND ALL NECESSERY EQUIPMENT FOR TRENCH DEWATERING AND BY PASS PUMPING.
6. PROPOSED DIVERSION PLAN OFFERS TWO OPTIONS:
   A. INSTALL SANDBAG DAM AND UTILIZE BYPASS PUMP TO AVOID CONSTRUCTION AREA FOR CULVERT INSTALLATION.
   B. INSTALL SANDBAG DAM AND 30" HDPE PIPE TO CARRY FLOW THROUGH CONSTRUCTION AREA.

CONSTRUCTION PROCEDURE - ESTIMATED TIME ± 2-WEEKS:

1. ALL SOIL EROSION AND SEDIMENTATION CONTROLS (SILT FENCE AND DEWATERING BASIN) SHALL BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITY.
2. INSTALL THE DIVERSION AS SHOWN (1-DAY).
3. COMMENCE FOOTING EXCAVATION (1-DAY).
4. SET FORMS (1-DAY).
5. POUR FOOTINGS (1-DAY).
6. CURE FOR SEVEN (7) DAYS.
7. STRIP FORMS AND BACKFILL AROUND FOOTINGS (1/2 DAY).
8. INSTALL PRE-FABRICATED WING WALLS (1-DAY).
9. INSTALL BOX CULVERT (1-DAY).
10. RESTORE BACKFILL, GRADING, INSTALL RIP-RAP AND LOAM AND SEED THE DISTURBED AREA (1-DAY).

NEW ENGLAND EROSION CONTROL/RESTORATION MIX (FOR DETENTION BASINS AND MOIST SITES)

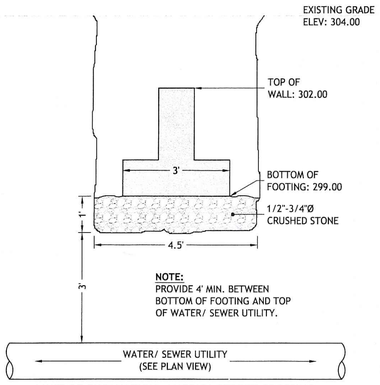
THE NEW ENGLAND EROSION CONTROL/RESTORATION MIX CONTAINS A SELECTION OF NATIVE GRASSES AND WILDFLOWERS DESIGNED TO COLONIZE GENERALLY MOIST, RECENTLY DISTURBED SITES WHERE QUICK GROWTH OF VEGETATION IS DESIRED TO STABILIZE SOIL SURFACE. IT IS AN EXCELLENT SEED MIX FOR ECOLOGICALLY APPROPRIATE RESTORATIONS ON MOIST SITES THAT REQUIRE QUICK AS WELL AS LONG TERM ESTABLISHMENT OF NATIVE VEGETATION. THIS MIX IS PARTICULARLY APPROPRIATE FOR DETENTION BASINS THAT DO NOT NORMALLY HOLD STANDING WATER. THE PLANTS IN THIS MIX CAN TOLERATE INFREQUENT INUNDATION, BUT NOT CONSTANT FLOODING. THE MIX MAY BE APPLIED BY HYDRO- SEEDING, BY MECHANICAL SPREADER, OR IN SMALL SITES IT CAN BE SPREAD BY HAND. WHEN APPLYING ON BARE SOIL, RAKE THE SOIL TO CREATE GROOVES, APPLY SEED, AND THEN LIGHTLY RAKE OVER IT. IN NEW ENGLAND, THE BEST RESULTS ARE OBTAINED WITH A SPRING OR EARLY FALL SEEDING. SUMMER AND LATE FALL SEEDING WILL BENEFIT WITH A LIGHT MULCHING OF WEED-FREE STRAW TO CONSERVE MOISTURE. LATE FALL AND WINTER DORMANT SEEDING REQUIRE A SLIGHT INCREASE IN THE SEEDING RATE. FERTILIZATION IS NOT REQUIRED UNLESS THE SOILS ARE PARTICULARLY INFERTILE.

APPLICATION RATE: 35 LBS/ACRE 1245 SQ.FT./LB

SPECIES

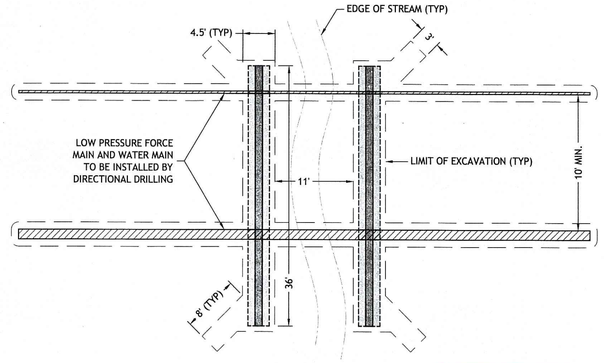
SWITCHGRASS (*PANICUM VIRGATUM*), VIRGINIA WILD RYE (*ELYMUS VIRGINICUS*), CREEPING RED FESCUE (*FESTUCA RUBRA*), FOX SEDGE (*CAREX VULPINOIDEA*), CREEPING BENTGRASS (*AGROSTIS STOLONIFERA*), SOFT RUSH (*JUNCUS EFFUSES*), NEW ENGLAND ASTE (*ASTER NOVAE-ANGLIAE*), GRASS-LEAVED GOLDENROD (*EUTHAMIA GRAMINIFOLIA*), NODDING BUR MARIGOLD (*BIDENS CERNUA*), GREEN BULRUSH (*SCIRPUS ATROVIRENS*), JOE- PYE WEED (*EUPATORIUM MACULATUM*), BONESET (*EUPATORIUM PERFOLIATUM*), BLUE VERVAIN (*VERBENA HASTATA*)

- SEED MIX CAN BE OBTAINED FROM NEW ENGLAND WETLAND PLANTS, INC. PHONE 413-548-800 AMHERST, MA 01002 OR OTHER APPROVED NURSERY.



LIMIT OF EXCAVATION- AMERICA STREET CROSSING

SCALE: 1" = 2'



LIMITS OF EXCAVATION- AMERICA STREET CROSSING

SCALE: 1" = 10'

RECEIVED AUG 4 2008

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT OFFICE OF WATER RESOURCES FRESHWATER WETLANDS PROGRAM APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL DATED NOV 24 2008 FILE # 07-0029 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Charles A. Horbert

CDE

CASALI & D'AMICO ENGINEERING, INC.
CIVIL - SITE DEVELOPMENT - TRANSPORTATION
LAND SURVEYING - PROJECT MANAGEMENT
300 POST ROAD, WARWICK, RI 02888
(401) 944-1300 (401) 944-1313 fax www.casalidamico.com

DRAINAGE - WETLANDS - FLOOD PLAIN - PERMITTING

DAVID M. D'AMICO
No. 6749
REGISTERED PROFESSIONAL ENGINEER CIVIL
5/22/08

HIGHLAND ESTATES

CUMBERLAND, RHODE ISLAND
AP 52 LOTS 10, 233, 234, 307, 308, 310, 311, 313-316

REVISIONS:		
NO.	DATE.	DESCRIPTION
1	3-2007	UPDATED PLANSET
2	8-2007	RIDEM COMMENTS
3	2-2008	RIDEM COMMENTS
4	5-2008	RIDEM COMMENTS

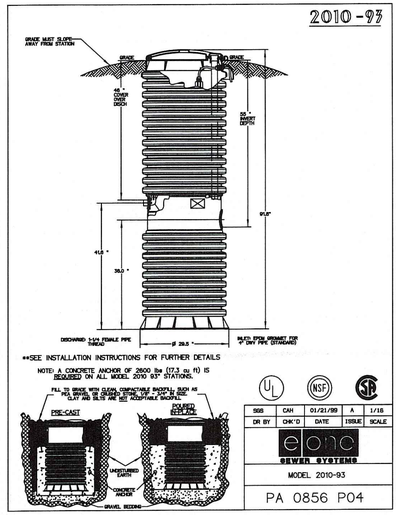
DESIGNED BY:	WA
DRAWN BY:	GAH
CHECKED BY:	DMD/ JAC
DATE:	JANUARY 07
PROJECT NO:	05-77a

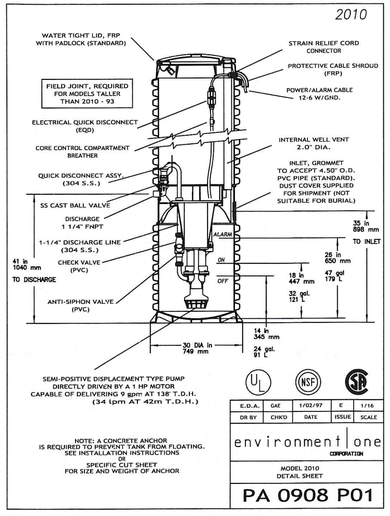
PRELIMINARY, NOT FOR CONSTRUCTION

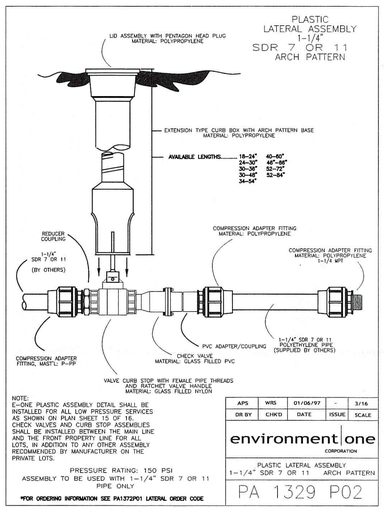
DETAILS V

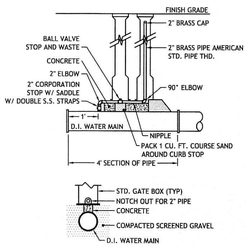
SHEET 15 OF 16

Q:\05-77 Regional Finance\05-77a America St. Cumberland\ACAD\PLAN-SET\AMERICA ST CUMBERLAND (PLAN-SET).dwg, May 19, 2008 2:23pm

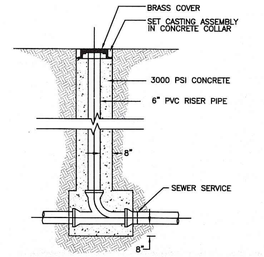




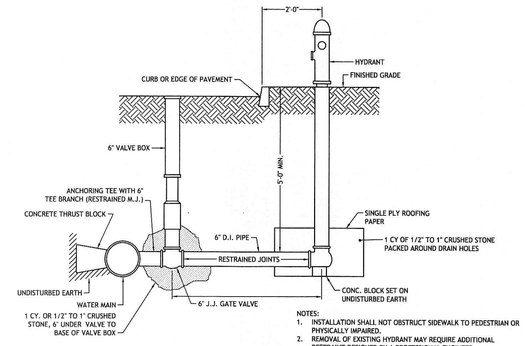




PERMANENT BLOWOFF ASSEMBLY
NOT TO SCALE

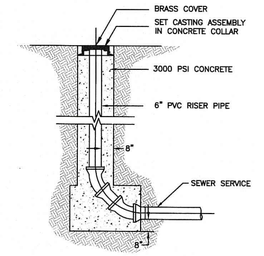


TYPICAL IN-LINE SEWER CLEANOUT DETAIL
NO SCALE

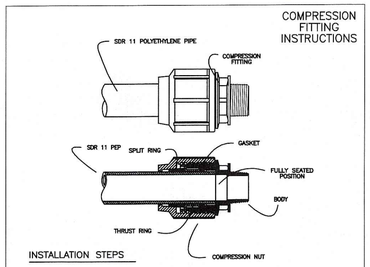


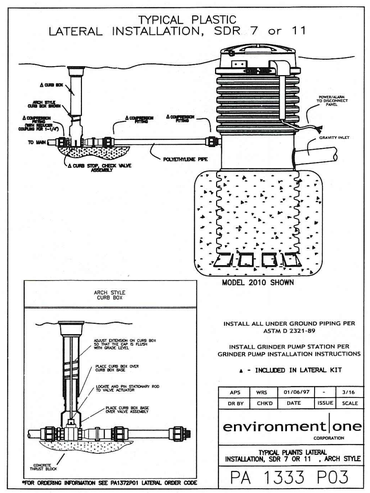
HYDRANT
NOT TO SCALE

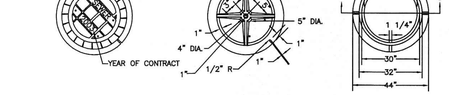
NOTES:
1. INSTALLATION SHALL NOT OBSTRUCT SIDEWALK TO PEDESTRIAN OR PHYSICALLY IMPAIRED.
2. REMOVAL OF EXISTING HYDRANT MAY REQUIRE ADDITIONAL RESTRAINT DESIGNED BY A PROFESSIONAL ENGINEER.
3. MECHANICAL JOINT PIPE W/ RESTRAINED JOINTS FOR BRANCHES OVER ONE LENGHT OF PIPE.



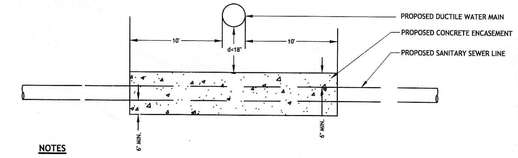
TYPICAL END-LINE SEWER CLEANOUT DETAIL
NO SCALE







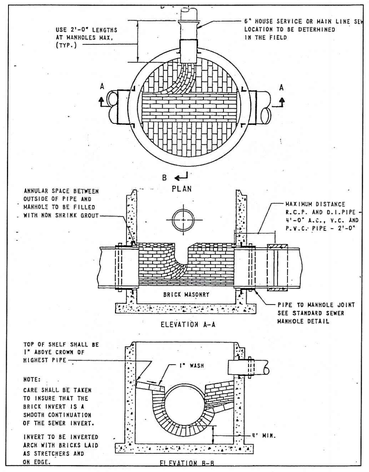
E.L. LEBARON FOUNDRY MODEL LC-324-100 (30")
NO SCALE



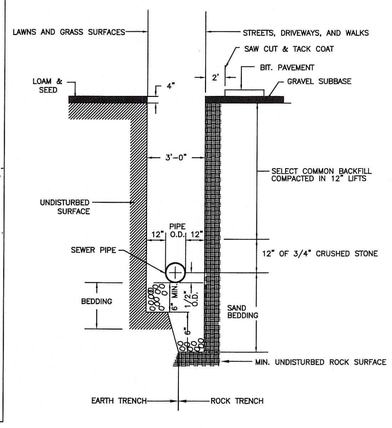
NOTES

1. IN SITUATIONS WHERE IT IS IMPOSSIPLE TO OBTAIN PROPER HORIZONTAL OR VERTICAL SEPARATION; THE SEWER MAIN SHALL BE ENCASED IN A MIN. 6" THICK CONCRETE FOR AT LEAST 10 FEET EITHER SIDE OF THE AREA NOT COMPLYING WITH THE HORIZONTAL AND VERTICAL SEPARATION.

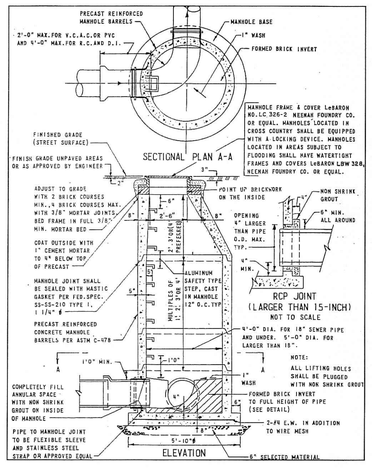
2. WHEN CONDITIONS PREVENT AN 18 INCH VERTICAL SEPARATION, THE FOLLOWING METHODS SHALL BE SPECIFIED: THE SEWER SHALL BE DESIGNED AND CONSTRUCTED EQUAL TO WATER MAIN PIPE (CEMENT-LINED DUCTILE IRON PIPE, PVC OR OTHER AWWA-APPROVED MATERIAL FOR POTABLE WATER CONVEYANCE) FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE CROSSING, MEASURED PERPENDICULAR TO THE WATER MAIN AND PRESSURE TESTED IN ACCORDANCE WITH AWWA SPECIFICATIONS; OR EITHER THE WATER MAIN OR SEWER MAIN MAY BE ENCASED IN CONCRETE (MIN. 6 INCH THICKNESS) OR A CARRIER PIPE SHALL BE DESIGNED AND CONSTRUCTED OF MATERIALS WHICH ARE SATISFACTORY TO THE DEPARTMENT OF ENVIRONMENTAL MANAGEMENT, DIVISION OF WATER RESOURCES (DWR) OR ANY OTHER METHOD IF SUPPORTED BY DATA FROM THE DESIGN ENGINEER, WHICH ENSURES ADEQUATE WATERTIGHTNESS AND ARE SATISFACTORY TO THE DWR.



TYPICAL DETAIL OF BRICK INVERT
NOT TO SCALE



TYPICAL SEWER LINE TRENCH DETAIL
NO SCALE

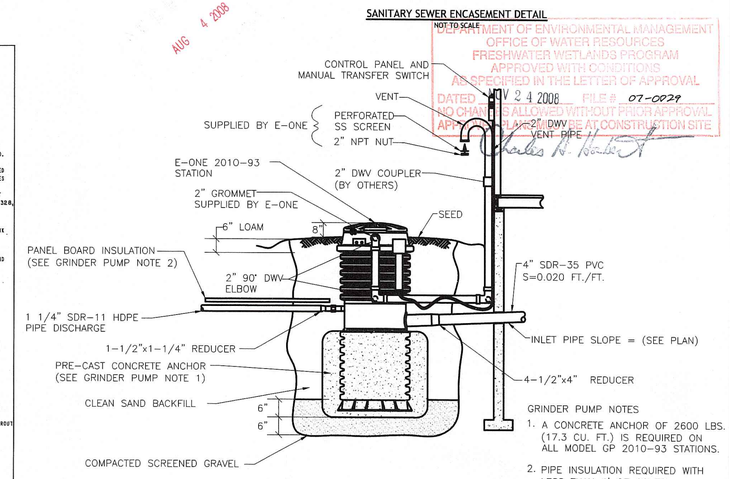


TYPICAL SEWER MANHOLE DETAIL
NOT TO SCALE

AUG 4 2008

SANITARY SEWER ENCASEMENT 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 NOV 2 4 2006 FILE # 07-0029
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVAL VALID 2 YEARS FROM DATE OF APPROVAL
SEE AT CONSTRUCTION SITE



TYPICAL GRINDER PUMP INSTALLATION
NOT TO SCALE

GRINDER PUMP NOTES
1. A CONCRETE ANCHOR OF 2600 LBS. (17.3 CU. FT.) IS REQUIRED ON ALL MODEL GP 2010-93 STATIONS.
2. PIPE INSULATION REQUIRED WITH LESS THAN 4' OF COVER.

CDE
CASALI & D'AMICO ENGINEERING, INC.
CIVIL ENGINEERS - LAND SURVEYORS
PLANNERS - WETLANDS - ISDS - TRAFFIC - FLOODPLAIN
300 POST ROAD, WARWICK, RI 02888
(401) 944-1300 (401)944-1313 fax www.casalidamico.com

DAVID M. D'AMICO
No. 6745
REGISTERED PROFESSIONAL ENGINEER
CIVIL

HIGHLAND ESTATES
CUMBERLAND, RHODE ISLAND
AP 52 LOTS 10, 233, 234, 307, 308, 310, 311, 313-316

REVISIONS:		
NO.	DATE:	DESCRIPTION
1	3-2007	UPDATED PLANSET
2	8-2007	RIDEM COMMENTS
3	2-2008	RIDEM COMMENTS
4	5-2008	RIDEM COMMENTS

DESIGNED BY:	WA
DRAWN BY:	GAH
CHECKED BY:	DMD/ JAC
DATE:	JANUARY 07
PROJECT NO:	05-77a

PRELIMINARY, NOT FOR CONSTRUCTION

UTILITY DETAILS

SHEET 16 OF 16

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