PLAN OF DEVELOPMENT FOR BROAD ROCK BOULEVARD RETAIL CENTER

2100 BROAD ROCK BOULEVARD RICHMOND GATEWAY 9TH DISTRICT

CITY OF RICHMOND, VIRGINIA

SITE DATA

ERIC INVESTMENT COMPANY, LLC 4354 STATELY OAK ROAD NORTH CHESTERFIELD, VA 23234

- 4. PARCEL ACREAGE: 1.01 ACRES
- 5. DISTURBED AREA: 1.18 ACRES (INCLUDING RIGHT-OF-WAY)
- 6. IMPERVIOUS COVER: PRE-DEVELOPED = 0.66 ACRES POST-DEVELOPED = 0.92 ACRES
- 8. BOUNDARY & TOPOGRAPHIC SURVEY

EMAIL: ron.lang@halder-surveys.com

- 9. DATUM REFERENCE:
- HORIZONTAL: NAD83 VIRGINIA STATE PLANE SOUTH ZONE
- 10. FLOOD ZONE: THE REFERENCED PROPERTY LIES WITHIN "ZONE X" (AREAS DETERMINED OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) ACCORDING TO THE FEMA FLOOD INSURANCE RATE MAP NUMBER 5101290076D, EFFECTIVE DATE APRIL 2, 2009.
- 11. WETLANDS DO NOT EXIST ON THE PROPERTY AND THERE ARE NO WETLAND IMPACTS ASSOCIATED WITH LAND DISTURBANCE FOR THIS DEVELOPMENT.
- 12. RMA/RPA: THE ENTIRE SITE LIES OUTSIDE OF THE <u>CITY DESIGNATED RMA</u> AND THE <u>CITY</u> DESIGNATED RPA PER THE CITY'S CHESAPEAKE BAY PRESERVATION AREAS MAP.
- 13. COORDINATES: LAT: N 37.487472, LONG: W 77.475428

CITY OF RICHMOND PROJECT NOTES

B-2 (COMMERCIAL) & R-4 (RESIDENTIAL) ZONING:

PARCEL ID #: C0060542008, C0060542010, C0060542012, C0060542014, C0060542016

PROJECT SUMMARY: 13,520 SF COMMERCIAL RETAIL CENTER COMMERCIAL AND RESIDENTIAL **EXISTING USE:**

PROPOSED USE: COMMERCIAL 1.01

ACREAGE: **BUILDINGS**:

 EXISTING: COMMERCIAL AND RESIDENTIAL (TO BE REMOVED) PROPOSED: 13,520 SQUARE FOOT

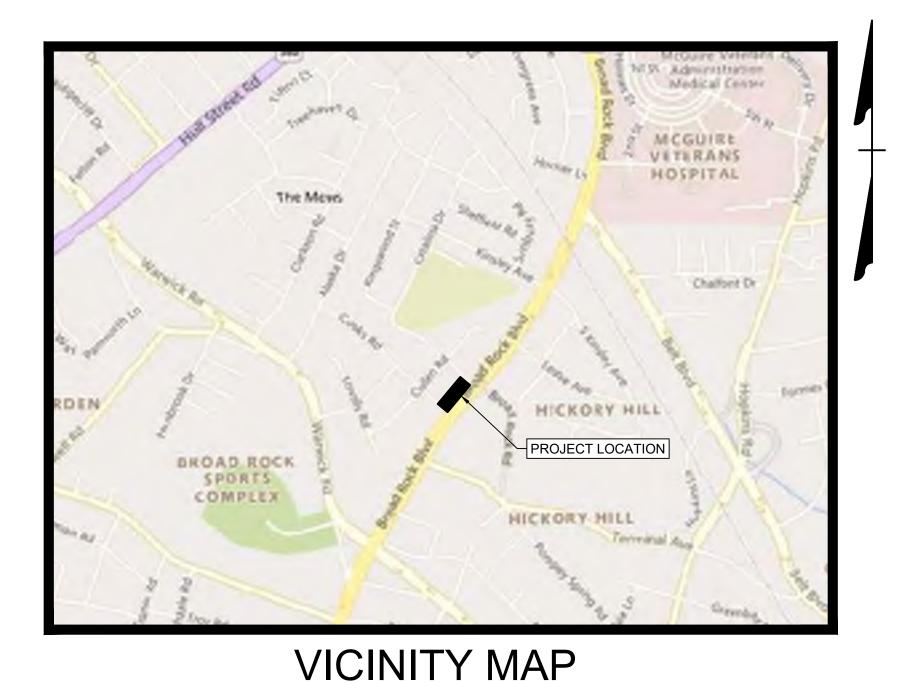
1 - STORY

PARKING SUMMARY:

REQUIRED: 1 SPACE PER 300 SF

• REQUIRED: 13,520 SF / 300 SF = 45 SPACES

PROVIDED: 45 SPACES



SCALE: 1"=1000'

| SHEET INDEX | | | | | | |
|--|---|--|--|--|--|--|
| Sheet Number | Sheet Title | | | | | |
| C1.0 | COVER SHEET | | | | | |
| C2.0 | EXISTING CONDITIONS PLAN | | | | | |
| C2.1 | DEMOLITION AND PHASE 1 E&S PLAN | | | | | |
| C2.2 | EROSION CONTROL NOTES AND DETAILS | | | | | |
| C2.3 | EROSION CONTROL NOTES AND DETAILS | | | | | |
| C3.0 | LAYOUT PLAN | | | | | |
| C3.1 | SITE NOTES AND DETAILS | | | | | |
| C3.2 | SITE NOTES AND DETAILS | | | | | |
| C4.0 | UTILITY PLAN | | | | | |
| C4.1 | UTILITY NOTES AND DETAILS | | | | | |
| C4.2 | UTILITY NOTES AND DETAILS | | | | | |
| C5.0 | GRADING AND DRAINAGE PLAN | | | | | |
| C6.0 | PROFILES | | | | | |
| C7.0 | HYDROLOGY AND PHASE 2 E&S PLAN | | | | | |
| C8.0 | STORMWATER QUALITY ANALYSIS | | | | | |
| C8.1 | STORMWATER QUANTITY ANALYSIS | | | | | |
| C8.2 STORMWATER MANAGEMENT NOTES AND DETAILS | | | | | | |
| C8.3 | STORMWATER MANAGEMENT NOTES AND DETAILS | | | | | |
| C8.4 | STORMWATER MANAGEMENT NOTES AND DETAILS | | | | | |
| C9.0 | STORMWATER POLLUTION PREVENTION PLAN | | | | | |
| C9.1 | STORMWATER POLLUTION PREVENTION NOTES AND DETAILS | | | | | |
| L1.0 | LANDSCAPE PLAN | | | | | |
| L1.1 | L1.1 LANDSCAPE SPECIFICATIONS | | | | | |
| L1.2 | LANDSCAPE SPECIFICATIONS | | | | | |
| L2.0 | SITE LIGHTING PLAN | | | | | |
| L2.1 | SITE LIGHTING NOTES AND DETAILS | | | | | |
| L2.2 | SITE LIGHTING NOTES AND DETAILS | | | | | |
| L2.3 | SITE LIGHTING NOTES AND DETAILS | | | | | |

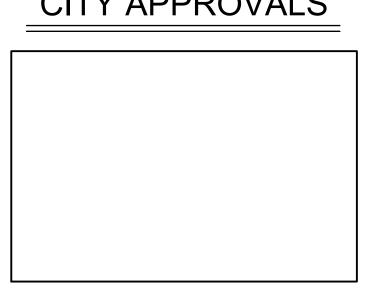
C.B.P.A. COMPLIANCE NOTE

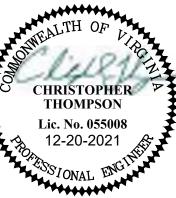
STORMWATER COMPLIANCE HAS BEEN SATISFIED THROUGH THE PURCHASE OF 0.77 LBS OF NUTRIENT CREDITS FROM A DEQ APPROVED NUTRIENT CREDIT BANK.

REQUIRED PERMITS

SPECIAL USE PERMIT **BUILDING PERMIT** MECHANICAL PERMIT **ELECTRICAL PERMIT** PLUMBING PERMIT LAND DISTURBANCE PERMIT **WORK IN STREET PERMIT**

CITY APPROVALS





DATE: FEBRUARY 5, 202

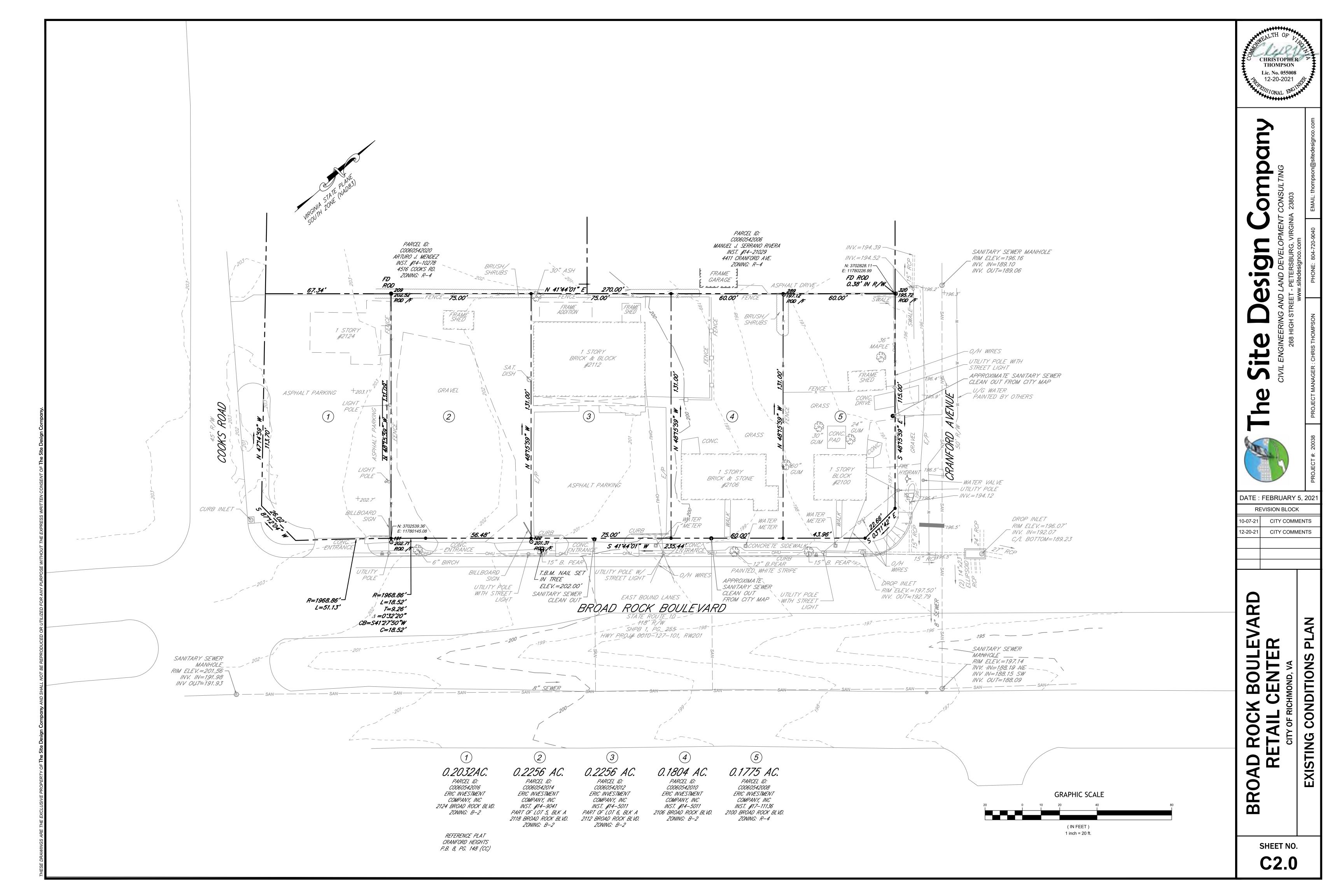
REVISION BLOCK 10-07-21 CITY COMMENTS CITY COMMENTS

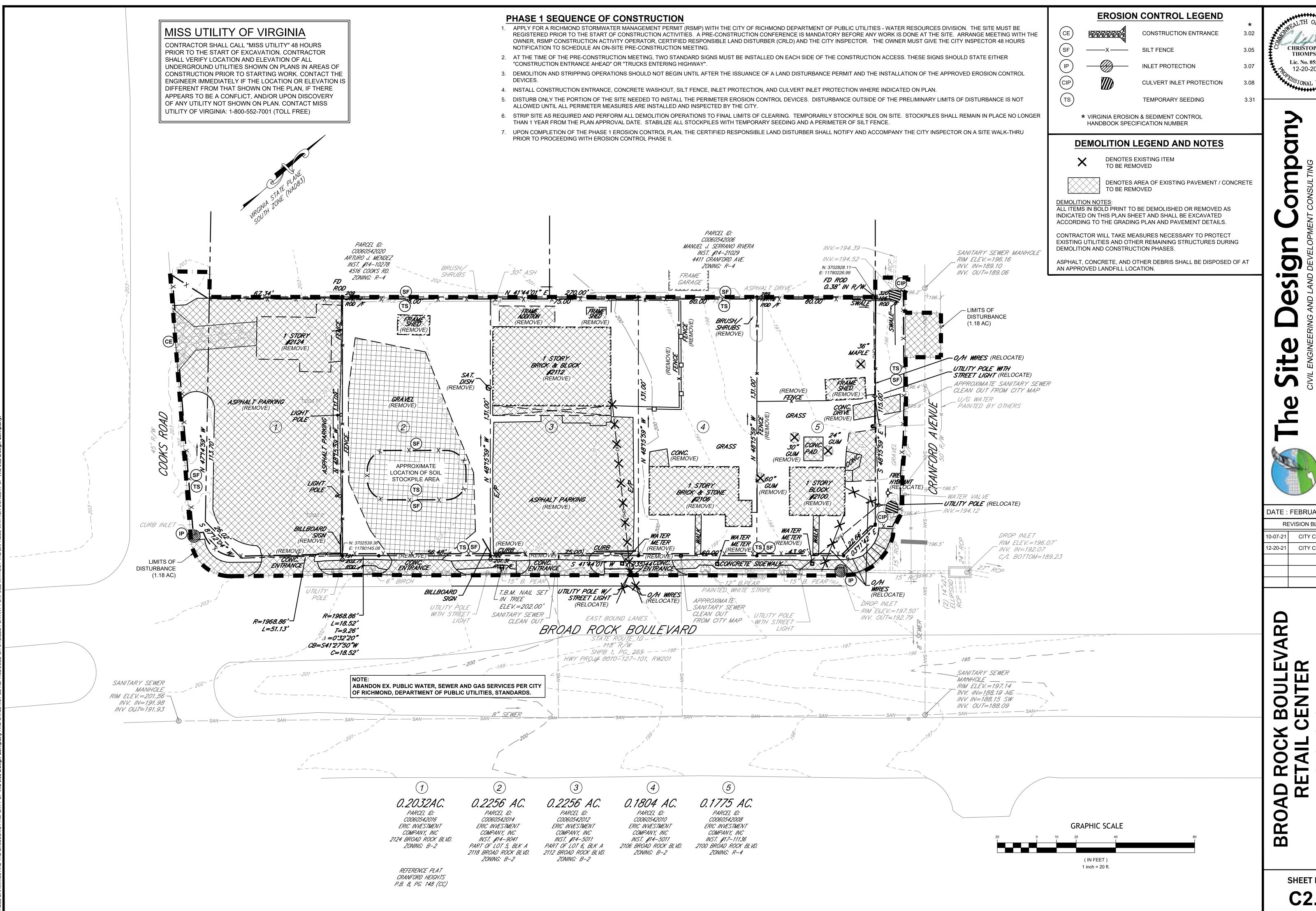
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CHRISTOPHER 12-20-2021

DATE: FEBRUARY 5, 202

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PLAN

DEMOLITION

EROSION CONTROL NARRATIVE

THE PROJECT IS LOCATED OFF OF BROAD ROCK BOULEVARD BETWEEN COOKS ROAD AND CRANFORD AVENUE. THE PURPOSE OF THIS PROJECT IS TO CREATE A COMMERCIAL RETAIL CENTER. THE LIMITS OF DISTURBANCE ASSOCIATED WITH CONSTRUCTION OF THE ACCESS ROADS IS APPROXIMATELY 1.18 +/- ACRES.

THE EXISTING SITE HAS TWO OUTFALLS, ONE TO THE NORTHEAST THAT OUTFALLS TO AN EXISTING 15" CULVERT ALONG CRANFORD AVENUE AND THE OTHER TO THE SOUTHEAST THAT OUTFALLS TO AN EXISTING PIPE SYSTEM AT THE INTERSECTION OF BROAD ROCK BOULEVARD AND CRANFORD AVENUE.

THE SITE IS BORDERED BY BROAD ROCK BOULEVARD TO THE SOUTH, COOKS ROAD TO THE WEST, RESIDENTIAL PROPERTIES TO THE NORTH AND CRANFORD AVENUE TO THE EAST.

NO OFFSITE AREAS ARE ANTICIPATED TO BE IMPACTED WITH THE CONSTRUCTION PROJECT.

SOILS REFER TO SOIL MAP ON THIS SHEET

THERE ARE NO CRITICAL EROSION AREAS WITHIN THE LIMITS OF DISTURBANCE FOR THE SITE.

OTHER POTENTIAL POLLUTION SOURCES INCLUDE THE STORAGE OF FERTILIZER ON-SITE USED IN ESTABLISHING TEMPORARY AND PERMANENT SEEDING.

NO DISCHARGES FROM INDUSTRIAL ACTIVITIES ARE ANTICIPATED ON THIS PROJECT OTHER THAN NORMAL CONSTRUCTION PRACTICES.

EROSION AND SEDIMENT CONTROL MEASURES

THE PHASE 1 EROSION AND SEDIMENT CONTROL MEASURES WILL BE DESIGNED TO RETAIN SEDIMENT ON-SITE TO THE MAXIMUM EXTENT PRACTICABLE. ALL PERIMETER EROSION CONTROL MEASURES MUST BE PROPERLY SELECTED, INSTALLED, AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURERS' SPECIFICATIONS AND GOOD ENGINEERING PRACTICES. IF PERIODIC INSPECTIONS OR OTHER INFORMATION INDICATES A CONTROL HAS BEEN USED INAPPROPRIATELY OR INCORRECTLY, THE CONTRACTOR MUST REPLACE OR MODIFY THE CONTROL FOR SITE SPECIFIC SITUATIONS. IF SEDIMENT ESCAPES THE CONSTRUCTION SITE, OFF-SITE ACCUMULATIONS OF SEDIMENT MUST BE REMOVED AT A FREQUENCY SUFFICIENT TO MINIMIZE OFF-SITE IMPACTS (E.G. CONSTRUCTION RELATED SEDIMENT COULD BE WASHED ONTO THE ADJOINING ROADWAY DURING THE NEXT RAIN AND POSE A SAFETY HAZARD). LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS EXPOSED TO STORMWATER SHALL BE PREVENTED FROM BECOMING A POLLUTANT SOURCE FOR STORMWATER DISCHARGES BY SCREENING OUTFALLS AND PICKING UP LITTER DAILY.

STRUCTURAL PRACTICES

THE FOLLOWING MEASURES MAY BE USED AS SPECIFIED IN THESE PLANS TO CONTROL EROSION AND SEDIMENT-LADEN RUNOFF ON THIS PROJECT. SEE THE EROSION & SEDIMENT CONTROL PLAN FOR LOCATIONS OF SPECIFIC EROSION CONTROL MEASURES.

PERMANENT STABILIZATION

AFTER CONSTRUCTION IS COMPLETED, OR IN ROUGH-GRADED AREAS WHICH WILL NOT BE BROUGHT TO FINAL GRADE FOR A YEAR OF MORE, PERMANENT SEEDING WILL BE USED TO STABILIZE DISTURBED AREAS. PERMANENT SEEDING INCLUDES LIME FERTILIZER, SEEDING, AND MULCH. SEE SEEDING SPECIFICATIONS FOR PERMANENT SEEDING. PROVIDE SOIL TEST TO DETERMINE THE SOIL AMENDMENTS REQUIRED FOR THIS PROJECT. SEE STANDARD AND SPECIFICATION 3.32 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK FOR ADDITIONAL INFORMATION AND REQUIREMENTS. ALSO REFER TO ESC TECHNICAL BULLETIN #4 - NUTRIENT MANAGEMENT FOR DEVELOPMENT SITES FOR UPDATED SEEDING SPECIFICATIONS. ALL AREAS THAT ARE NOT ASPHALT OR GRAVEL WILL BE SEEDED AS DESCRIBED ABOVE.

EROSION CONTROL MEASURES WILL BE CHECKED DAILY AND AFTER EACH RUNOFF-PRODUCING RAINFALL EVENT BY THE CONTRACTOR. THEY WILL BE REPAIRED/REINSTALLED AS NECESSARY TO PREVENT ANY SILT OR MUD FROM LEAVING THE CONSTRUCTION AREA FOR THE DURATION OF CONSTRUCTION. INSPECTIONS OF THE EROSION AND SEDIMENT CONTROL MEASURES WILL BE PERFORMED BY THE CONTRACTOR ONCE EVERY FOUR (4) BUSINESS DAYS, OR ONCE EVERY (5) BUSINESS DAYS AND WITHIN 24 HOURS FOLLOWING A RAINFALL EVENT IN EXCESS OF 0.25 INCHES.

- 1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR THE WASHING AND REWORKING OF EXISTING STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY STRUCTURES USED TO TRAP SEDIMENT 2. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST
- 3. THE USE OF WATER TRUCKS TO REMOVE MATERIALS DROPPED, WASHED, OR TRACKED ONTO ROADWAYS WILL NOT BE
- PERMITTED UNDER ANY CIRCUMSTANCES

- 1. SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL.
- ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY. 2. CLOSE ATTENTION SHALL BE PAID TO THE REPAIR OF DAMAGED SILT FENCE RESULTING FROM END RUNS AND UNDERCUTTING.
- 3. SHOULD THE FABRIC ON A SILT FENCE DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL BE NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY.
- 4. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH
- APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.
- 5. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE, PREPARED AND SEEDED.

3.07 STORM DRAIN INLET PROTECTION

- 1. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED
- 2. SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE HALF THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE
- AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE. 3. STRUCTURES SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

- 1. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.
- 2. AGGREGATE SHALL BE REPLACED OR CLEANED WHEN INSPECTION REVEALS THAT CLOGGED VOIDS ARE CAUSING PONDING PROBLEMS WHICH INTERFERE WITH ON-SITE CONSTRUCTION.
- 3. SEDIMENT SHALL BE REMOVED AND THE IMPOUNDMENT RESTORED TO ITS ORIGINAL DIMENSIONS WHEN SEDIMENT HAS
- ACCUMULATED TO ONE-HALF THE DESIGN DEPTH. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE AND CAUSE SEDIMENTATION PROBLEMS.

NEW SEEDLINGS SHALL BE SUPPLIED WITH ADEQUATE MOISTURE. OVER-SEEDING AND FERTILIZING IF COVER IS INADEQUATE TO PREVENT EROSION. TEST THE SOIL AND REEVALUATE PLAT MATERIALS AND QUANTITIES OF LIME AND FERTILIZER IF STAND HAS LESS THAN 40% COVER. RE-SEED AREAS THAT FAIL TO ESTABLISH ADEQUATE VEGETATIVE COVER.

MULCHING

SHOULD BE INSPECTED AFTER RAINSTORMS, AND ADDITIONAL MULCH SHOULD BE APPLIED WHEN EROSION IS OBSERVED. NETS AND MATS SHOULD BE INSPECTED FOR DISLOCATION AFTER RAINSTORMS AND SHOULD BE RE-INSTALLED AS NECESSARY. INSPECTIONS SHOULD TABLE PLACE UNTIL GRASSES AREA ESTABLISHED.

IF SEDIMENT TRACKING ONTO STAGE ROAD BECOMES A PROBLEM THROUGHOUT CONSTRUCTION, CONTRACTOR SHALL INSTALL A WASH RACK IN THE CONSTRUCTION ENTRANCES WITH AN ADJACENT SETTLING AREA.

THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK WAS USED TO DETERMINE THE SIZE AND STORAGE REQUIREMENTS FOR THE EROSION CONTROL MEASURES.

STORMWATER MANAGEMENT CONSIDERATIONS

REFER TO SHEETS C7.1 AND C7.3 FOR STORMWATER QUANTITY AND QUALITY NARRATIVES.

GENERAL EROSION CONTROL NOTES

MATERIALS, GARBAGE, AND DEBRIS

NO SOLID MATERIAL (WHICH INCLUDES BUILDING MATERIALS, GARBAGE, AND OTHER MISCELLANEOUS DEBRIS) SHALL BE DISCHARGED TO SURFACE WATERS OF THE STATE. DEMOLITION MATERIALS THAT MAY BE CARRIED OFF-SITE BY STORMWATER SHALL BE PICKED UP DAILY AND REMOVED FROM THE SITE. ALL WASTE MATERIALS WILL BE COLLECTED IN A SECURELY SEALED DUMPSTER. THE DUMPSTER SHALL MEET ALL SOLID WASTE MANAGEMENT REQUIREMENTS, AND ALL TRASH AND DEMOLITION DEBRIS FROM THE SITE SHALL BE DEPOSITED IN THE DUMPSTER. THE DUMPSTER SHOULD BE EMPTIED A MINIMUM OF ONCE PER WEEK OR MORE OFTEN IF NECESSARY, AND TRASH WILL BE HAULED AS REQUIRED BY LOCAL REGULATIONS. NO DEMOLITION WASTE WILL BE BURIED ON-SITE. ALL PERSONNEL WILL BE INSTRUCTED ON PROPER PROCEDURES FOR WASTE DISPOSAL.

EXPECTED DEMOLITION AND WASTE MATERIALS MATERIALS COULD POTENTIALLY BE TEMPORARILY STORED ON-SITE TOPSOIL. FILL DIRT. EXCAVATED MATERIAL, LUMBER, FORMS FOR CONCRETE WORK, SEED, FERTILIZER, HERBICIDES, STONE, CONCRETE PRODUCTS, ASPHALT, PETROLEUM BASED FUELS AND LUBRICANTS FOR EQUIPMENT, AND PVC AND DUCTILE IRON PIPE.

ANY STOCKPILES OF TOPSOIL, EXCAVATED MATERIAL OR FILL DIRT THAT ARE NEEDED SHALL BE SURROUNDED ON THE DOWNSLOPE SIDE BY SILT FENCE. FERTILIZER AND HERBICIDES MUST BE KEPT IN WATERTIGHT CONTAINERS. PREFERABLY IN PORTABLE STORAGE UNITS AND OUT FROM EXPOSURE TO THE WEATHER DURING STORAGE ON-SITE. CARE MUST BE TAKEN TO MINIMIZE SPILLAGE OF FERTILIZER IF MIXING OPERATIONS ARE REQUIRED TO PREPARE THE FERTILIZER FOR APPLICATION. THESE PRODUCTS WILL BE APPLIED AT RATES THAT DO NOT EXCEED THE MANUFACTURER'S SPECIFICATIONS.

COMPLIANCE WITH STATE & LOCAL WASTE, SANITARY, AND/OR SEPTIC REGULATIONS

A MINIMUM OF ONE PORTABLE SANITARY UNIT SHOULD BE PROVIDED FOR EVERY TEN (10) WORKERS ON THE SITE. ALL SANITARY WASTE WILL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF ONE TIME PER WEEK BY A LICENSED PORTABLE FACILITY PROVIDER IN COMPLIANCE WITH LOCAL AND STATE REGULATIONS. ALL SANITARY WASTE UNITS WILL BE LOCATED IN AN AREA WHERE THE CHANCES OF THE UNIT CONTRIBUTING TO STORMWATER DISCHARGE IS NEGLIGIBLE. THE LOCATION OF THE SANITARY WASTE UNITS SHALL BE IDENTIFIED ON THE SWPPP PREPARED BY THE CONTRACTOR ONCE THE LOCATIONS HAVE BEEN DETERMINED.

HOUSEKEEPING AND HANDLING OF PRODUCTS

PRACTICES SUCH AS GOOD HOUSEKEEPING, PROPER HANDLING OF HAZARDOUS PRODUCTS, AND PROPER SPILL CONTROL PRACTICES SHALL BE FOLLOWED TO REDUCE THE RISK OF SPILLS AND DISCHARGING INTO THE STORMWATER RUNOFF. TO MINIMIZE THE AFFECT OF ANY POTENTIAL SPILLS, MAINTAIN ALL ON-SITE FUELING OPERATIONS AS FAR AWAY FROM SURROUNDING SURFACE WATERS AND DRAINAGE FACILITIES AS IS PRACTICAL. QUANTITIES OF PRODUCTS STORED ON-SITE WILL BE LIMITED TO THE AMOUNT NEEDED FOR THE JOB. PRODUCTS AND MATERIALS WILL BE STORED IN A NEAT AND ORDERLY MANNER, AND IN APPROPRIATE CONTAINERS WILL BE ACCORDING TO THE MANUFACTURE'S RECOMMENDATIONS. THE DISPOSAL OF PRODUCT CONTAINERS SHALL ALSO BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

IF OVERNIGHT STORAGE OF FUEL IS REQUIRED, THE FUEL STORAGE CONTAINER MUST BE EQUIPPED WITH A FUELING MECHANISM DISABLE DEVICE. DAILY INSPECTIONS OF THE FUEL STORAGE CONTAINER MUST BE IMPLEMENTED TO DETECT THE PRESENCE OF LEAKS. THE FUELING OPERATOR SHALL HAVE A SAFE FILL, SHUTDOWN, AND TRANSFER PROCEDURE IN PLACE TO MINIMIZE SPILLAGE DURING FUELING ACTIVITIES. THE OPERATOR MUST MAINTAIN A FULLY EQUIPPED SPILL KIT ON SITE AT ALL TIMES WITH THE STORED FUEL. THE KIT MUST AT LEAST INCLUDE ABSORBENT MATS OR MATERIAL TO CLEANUP ANY SPILLED FUEL. FOR ANY FUEL SPILL ON SITE EQUAL TO OR EXCEEDING 25 GALLONS, IMMEDIATELY CREATE AN APPROPRIATELY SIZED BERM AROUND THE AREA OF SPILLAGE TO MINIMIZE SURFACE MOVEMENT OF THE FUEL. CONTACT THE LOCAL HAZMAT AUTHORITIES, THE ENGINEER, AND OTHER AUTHORITIES HAVING JURISDICTION AS QUICKLY AS POSSIBLE TO REPORT THE SPILL AND TO SEEK FURTHER ASSISTANCE WITH SPILL CLEANUP.

CONTAINERS FOR PETROLEUM BASED PRODUCTS SUCH AS FUELS, LUBRICANTS AND TARS WILL BE INSPECTED DAILY FOR LEAKS AND SPILLS. THIS INCLUDES ON-SITE VEHICLE AND MACHINERY DAILY INSPECTIONS AND REGULAR PREVENTIVE MAINTENANCE OF SUCH EQUIPMENT. EQUIPMENT MAINTENANCE AREAS WILL BE LOCATED AWAY FROM STATE WATERS, NATURAL DRAINAGE AND STORMWATER DRAINAGE INLETS. IN ADDITION, TEMPORARY FUELING TANKS SHALL HAVE A SECONDARY CONTAINMENT LINER TO PREVENT OR MINIMIZE SITE CONTAINMENT. DISCHARGE OF OILS, FUELS, AND LUBRICANTS IS PROHIBITED. PROPER DISPOSAL METHODS WILL BE COLLECTION IN A SUITABLE CONTAINER AND DISPOSAL AS REQUIRED BY LOCAL AND STATE REGULATIONS.

ALL PAINTS, FINISHES AND SOLVENTS PRODUCTS WILL BE STORED IN TIGHTLY SEALED ORIGINAL CONTAINERS WHEN NOT IN USE. EXCESS PRODUCT WILL NOT BE DISCHARGED TO THE STORMWATER COLLECTION SYSTEM. EXCESS PRODUCT, MATERIALS USED WITH THESE PRODUCTS, AND PRODUCT CONTAINERS WILL BE DISPOSED OF ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.

NO CONCRETE TRUCK WILL BE PERMITTED TO BE WASHED OUT. OR BE ALLOWED TO DISCHARGE SURPLUS CONCRETE OR DRUM WASH-WATER ON-SITE WITHOUT PROPER CONTAINMENT MEASURES AND PROTECTION TO ADJACENT UNDISTURBED



| Map unit symbol | Мар ини лате | Rating |
|-----------------|---|--------|
| 7B | Bourne-Urban land complex, 2 to 6 percent slopes | С |
| 278 | Norfolk-Urban land complex, 0 to 6 percent slopes | 8 |
| 31A | Rosnoke siit loam, 0 to 2 percent slopes | 8/0 |
| 34B | Tetotum-Urban land complex, clayey substratum, 2 to 6 percent stopes | С |

SOILS MAP

| PS TABLE 3.32-D | |
|---|--|
| SITE SPECIFIC SEEDING MEASURES FOR PIEDMONT Minimum Care Lawn | AREA Total Lbs. Per Acre |
| Commercial or Residential Kentucky 31 or Turf—Type Tall Fescue Improved Perennial Ryegrass Kentucky Bluegrass | 175-200 lbs. 95-100% 0-5% 0-5% |
| <u>High Maintenance Lawn</u> | 200-250 lbs. |
| Kentucky 31 or Turf-Type Tall Fescue | 100% |
| General Slope (3:1 or Less) | |
| Kentucky 31 FescueRed Top GrassSeasonal Nurse Crop * | 128 lbs. 2 lbs. +20 lbs. 150 lbs. |
| Low-Maintenance Slope (Steeper than 3:1) | |
| Kentucky 31 Tall Fescue Red Top Grass Seasonal Nurse Crop * Crownvetch ** | 108 lbs. 2 lbs. 20 lbs. +20 lbs. 150 lbs. |
| * Use seasonal nurse crop in accordance with seeding dates February 16th thru April | Annual Rye Foxtail Millet Annual Rye |
| ** Substitute Sericea Lespedeza for Crownvetch east of Farmv thru September use hulled Sericea, all other periods, use unhulf Flatpea is used in lieu of Crownvetch, increase rate to 30 lbs/seed must be properly inoculated. Weeping Lovegrass may be accordiow—maintenance mix during warmer seeding periods; add 1 | ulled Sericea). Zcre. All legume dded to any slope |

| TABLE 3.31-B ACCEPTABLE TEMPORARY SEEDING PLANT MATERIALS QUICK REFERENCE FOR ALL REGIONS | | | | | | | |
|---|---|--------------|--|--|--|--|--|
| PLANTING DATES | <u>SPECIES</u> | RATE (lb/ac) | | | | | |
| Sept. 1-Feb. 15 | 50/50 Mix of Annual Ryegrass (Lolium multi—florum) & Cereal (Winter) Rye (Secale cereale) | 50–100 | | | | | |
| Feb. 16-Apr. 30 | Annual Ryegrass (Lolium multi-florum) | 60–100 | | | | | |
| May 1—Aug. 31 | German Millet (Setaria italica) | 50 | | | | | |

SEEDING NOTES NO SCALE

EROSION CONTROL (ONLY) SEEDING & FERTILIZING

- 1. SEEDING SHALL BE DONE IN CONFORMANCE WITH SECTION 603.01 THROUGH 603.04 OF V.D.O.T.
- 2 THE AREA TO BE SEEDED SHALL FIRST BE FERTILIZED WITH COMMERCIAL 10-10-10 FERTILIZER AT THE RATE OF 30 LBS. PER THOUSAND SQUARE FEET AND TREATED WITH AGRICULTURAL LIME AT THE RATE OF 100 LBS. PER THOUSAND SQUARE FEET. THESE SHALL BE UNIFORMLY WORKED INTO SURFACE TO A MINIMUM
- 3. SEEDING SHALL BE DONE ONLY BETWEEN THE DATES OF FEB. 15 AND APRIL 15 OR BETWEEN SEPT. 15 AND NOV. 15, EXCEPT AS MAY BE OTHERWISE DIRECTED BY THE ENGINEER.
- 4. SURFACE SHALL BE RAKED AND SMOOTHED TO ELIMINATE RIDGES AND DEPRESSIONS.
- 5. AFTER PRELIMINARY RAKING, THE SEED SHALL BE SOWN AT THE RATE OF FOUR LBS. PER THOUSAND SQUARE FEET AS FOLLOWS:
- 20% PERENNIAL RYE 35% KENTUCKY 31 FESCUE
- 30% CREEPING RED FESCUE 15% REDTOP (ALL PERCENTAGES ARE BY WEIGHT)
- 6. SURFACE SHALL THEN BE LIGHTLY RAKED IN ORDER TO COVER SEED NO DEEPER THAN 1/4 INCH AND THEN SPRINKLE WITH WATER. THE SEEDED SURFACE SHALL BE COVERED WITH STRAW OR HAY TO PREVENT EROSION AND TO PROTECT SEEDING. THE ENTIRE SEEDED SURFACE SHALL BE ROLLED WITH A CORRUGATED ROLLER AFTER SEEDING AND BEFORE COVERING WITH STRAW. CONTRACTOR SHALL PROTECT SEEDED
- SURFACES UNTIL A GOOD STAND OF GRASS IS OBTAINED. 7. THE "HYDRO-SEEDING" METHOD OF SEED APPLICATION MAY BE USED, PRO- VIDED THE SEED RATE PER SQUARE FOOT IS THE SAME AS HEREIN BEFORE SPECIFIED. THE MULCH RATE SHALL BE SUCH AS TO PROVIDE PROPER SEED PROTECTION AND PREVENT EROSION. IF. IN THE OPINION OF THE INSPECTOR OR ENGINEER. THE MULCH RATE USED (AS EVIDENCED BY SLOPES AFTER SPRAYING) IS NOT SUFFICIENT, THE CONTRACTOR SHALL BE REQUIRED TO IN- CREASE THE AMOUNT OF MULCH IN THE MIX. NO EXTRA WILL BE ALLOWED FOR ANY REQUESTED INCREASE

THOMPSON Lic. No. 055008 12-20-2021

DATE: FEBRUARY 5, 202 REVISION BLOCK

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- PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 14 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE
- 1.1. ADDRESSED BY CONTRACTOR PROVIDING TEMPORARY AND PERMANENT SEEDING PER PLAN
- DURING CONSTRUCTION OF THE PROJECT. SOIL STOCK PILES AND BORROW AREAS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE APPLICANT IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL SOIL STOCKPILES ON SITE AS WELL AS BORROW AREAS AND SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE.
- ADDRESSED BY CONTRACTOR PROVIDING A STOCKPILE AREA IF NECESSARY THAT IS WRAPPED IN SILT FENCE. ALL SOIL REMOVED FROM THE SITE MUST BE DISPOSED OF IN A PERMITTED LOCATION BY THE CONTRACTOR
- A PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED ON DENUDED AREAS NOT OTHERWISE PERMANENTLY STABILIZED. PERMANENT VEGETATION SHALL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED THAT IS UNIFORM. MATURE ENOUGH TO SURVIVE AND WILL INHIBIT EROSION.
- ADDRESSED BY CONTRACTOR PROVIDING PERMANENT SEEDING INCLUDING MULCHING, FERTILIZING, AND ESTABLISHING GROWTH PER THE PLAN AND
- RE-SEEDING AS NECESSARY TO ESTABLISH GROUND COVER. SEDIMENT BASINS AND TRAPS, PERIMETER DIKES, SEDIMENT BARRIERS AND OTHER MEASURES INTENDED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A
- 4.1. ADDRESSED BY CONTRACTOR FOLLOWING SEQUENCE OF CONSTRUCTION THAT REQUIRES APPROPRIATE EROSION MEASURES BE INSTALLED AS A FIRST
- STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.

FIRST STEP IN ANY LAND-DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCE TAKES PLACE.

- 5.1. NOT APPLICABLE AS NO DAMS, DIKES AND DIVERSIONS ARE PROPOSED FOR THIS PROJECT.
- SEDIMENT TRAPS AND SEDIMENT BASINS SHALL BE DESIGNED AND CONSTRUCTED BASED UPON THE TOTAL DRAINAGE AREA TO BE SERVED BY THE TRAP OR
- DRAINAGE AREAS LESS THAN THREE ACRES. b. SURFACE RUNOFF FROM DISTURBED AREAS THAT IS COMPRISED OF FLOW FROM DRAINAGE AREAS GREATER THAN OR EQUAL TO THREE ACRES SHALL BE

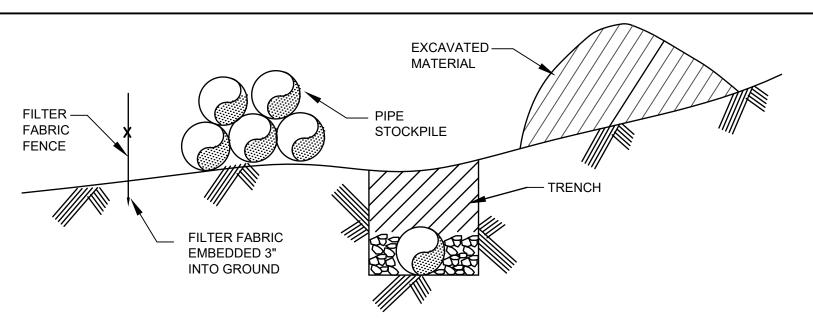
a. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT TRAP SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA AND THE TRAP SHALL ONLY CONTROL

- CONTROLLED BY A SEDIMENT BASIN. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT BASIN SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA. THE OUTFALL SYSTEM SHALL, AT A MINIMUM, MAINTAIN THE STRUCTURAL INTEGRITY OF THE BASIN DURING A 25-YEAR STORM OF 24-HOUR DURATION. RUNOFF COEFFICIENTS USED IN RUNOFF CALCULATIONS SHALL CORRESPOND TO A BARE EARTH CONDITION OR THOSE CONDITIONS EXPECTED TO EXIST WHILE THE SEDIMENT BASIN IS UTILIZED.
- 6.1 NOT APPLICABLE AS NO SEDIMENT TRAPS OF BASINS ARE PROPOSED DUE TO THE MINOR NATURE OF THE CONSTRUCTION ACTIVITY.
- CUT AND FILL SLOPES SHALL BE DESIGNED AND CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. SLOPES THAT ARE FOUND TO BE ERODING EXCESSIVELY WITHIN ONE YEAR OF PERMANENT STABILIZATION SHALL BE PROVIDED WITH ADDITIONAL SLOPE STABILIZING MEASURES UNTIL THE PROBLEM IS
- 7.1. ADDRESSED BY CONTRACTOR PROVIDING TEMPORARY AND PERMANENT SEEDING AS THE CONSTRUCTION WILL BE AT EXISTING GRADE SO NO SIGNIFICANT CUT OR FILL SLOPES ARE PROPOSED.
- 8. CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME OR SLOPE DRAIN STRUCTURE.
- ADDRESSED BY THE PROJECT LIMITING THE CUT AND FILL SLOPES BY BUILDING ALONG EXISTING GRADE AND MAINTAINING SHEET FLOW ACROSS THE
- WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED.
- 9.1. NOT APPLICABLE AS THE PROJECT LACKS STEEP SLOPES AND THERE IS NO INDICATION OF HIGH GROUND WATER TABLE.
- 10. ALL STORM SEWER INLETS THAT ARE MADE OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED SO THAT SEDIMENT-LADEN WATER CANNOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT.
- 10.1. ADDRESSED WITH THE USE OF INLET PROTECTION.
- BEFORE NEWLY CONSTRUCTED STORMWATER CONVEYANCE CHANNELS OR PIPES ARE MADE OPERATIONAL, ADEQUATE OUTLET PROTECTION AND ANY REQUIRED TEMPORARY OR PERMANENT CHANNEL LINING SHALL BE INSTALLED IN BOTH THE CONVEYANCE CHANNEL AND RECEIVING CHANNEL.
- 11.1. ALL PROPOSED PIPE SYSTEMS AND STORMWATER CONVEYANCE CHANNELS OUTFALL TO EXISTING STORM SEWER PIPES.
- . WHEN WORK IN A LIVE WATERCOURSE IS PERFORMED. PRECAUTIONS SHALL BE TAKEN TO MINIMIZE ENCROACHMENT, CONTROL SEDIMENT TRANSPORT AND STABILIZE THE WORK AREA TO THE GREATEST EXTENT POSSIBLE DURING CONSTRUCTION. NONERODIBLE MATERIAL SHALL BE USED FOR THE CONSTRUCTION OF CAUSEWAYS AND COFFERDAMS. EARTHEN FILL MAY BE USED FOR THESE STRUCTURES IF ARMORED BY NONERODIBLE COVER MATERIALS.
- 12.1. NOT APPLICABLE AS NO WORK IS BEING PERFORMED IN A LIVE WATERCOURSE
- 13. WHEN A LIVE WATERCOURSE MUST BE CROSSED BY CONSTRUCTION VEHICLES MORE THAN TWICE IN ANY SIX-MONTH PERIOD. A TEMPORARY VEHICULAR STREAM CROSSING CONSTRUCTED OF NONERODIBLE MATERIAL SHALL BE PROVIDED.
- 13.1. NOT APPLICABLE AS NO WORK IS BEING PERFORMED IN A LIVE WATERCOURSE
- 14. ALL APPLICABLE FEDERAL, STATE AND LOCAL REQUIREMENTS PERTAINING TO WORKING IN OR CROSSING LIVE WATERCOURSES SHALL BE MET.
- 14.1. NOT APPLICABLE AS NO WORK IN A LIVE WATERCOURSE IS PROPOSED.
- THE BED AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETED.
- 15.1. NOT APPLICABLE AS NO WORK IN A LIVE WATERCOURSE IS PROPOSED.
- 16. UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA:
- a. NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME.
- b. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES.
- c. EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND
- DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR OFF-SITE PROPERTY.
- d. MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION.
- e. RESTABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THIS CHAPTER
- f. APPLICABLE SAFETY REQUIREMENTS SHALL BE COMPLIED WITH.
- 16.1 ADDRESSED BY CONTRACTOR FOLLOWING LOCAL DPU STANDARDS AND SPECIFICATIONS ON THESE DRAWINGS
- . WHERE CONSTRUCTION VEHICLE ACCESS ROUTES INTERSECT PAVED OR PUBLIC ROADS, PROVISIONS SHALL BE MADE TO MINIMIZE THE TRANSPORT OF SEDIMENT BY VEHICULAR TRACKING ONTO THE PAVED SURFACE. WHERE SEDIMENT IS TRANSPORTED ONTO A PAVED OR PUBLIC ROAD SURFACE, THE ROAD SURFACE SHALL BE CLEANED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM THE ROADS BY SHOVELING OR SWEEPING AND TRANSPORTED TO A SEDIMENT CONTROL DISPOSAL AREA. STREET WASHING SHALL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS MANNER. THIS PROVISION SHALL APPLY TO INDIVIDUAL DEVELOPMENT LOTS AS WELL AS TO LARGER LAND-DISTURBING ACTIVITIES.
- 17.1. ADDRESSED BY CONTRACTOR INSTALLING A CONSTRUCTION ENTRANCE AND GENERAL NOTES STATING THAT IF SEDIMENT ON ROADWAYS BECOMES AN ISSUE A WASHRACK WILL NEED TO BE INSTALLED.
- 18. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED, UNLESS OTHERWISE AUTHORIZED BY THE VESCP AUTHORITY. TRAPPED SEDIMENT AND THE DISTURBED SOIL AREAS RESULTING FROM THE DISPOSITION OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND
- 18.1. ADDRESSED IN THE REQUIREMENTS OF THE CONTRACTOR IN THE CONSTRUCTION SEQUENCE.
- 19. PROPERTIES AND WATERWAYS DOWNSTREAM FROM DEVELOPMENT SITES SHALL BE PROTECTED FROM SEDIMENT DEPOSITION, EROSION AND DAMAGE DUE TO INCREASES IN VOLUME, VELOCITY AND PEAK FLOW RATE OF STORMWATER RUNOFF FOR THE STATED FREQUENCY STORM OF 24-HOUR DURATION IN ACCORDANCE WITH THE FOLLOWING STANDARDS AND CRITERIA. STREAM RESTORATION AND RELOCATION PROJECTS THAT INCORPORATE NATURAL CHANNEL DESIGN CONCEPTS ARE NOT MAN-MADE CHANNELS AND SHALL BE EXEMPT FROM ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS:
- a. CONCENTRATED STORMWATER RUNOFF LEAVING A DEVELOPMENT SITE SHALL BE DISCHARGED DIRECTLY INTO AN ADEQUATE NATURAL OR MAN-MADE RECEIVING CHANNEL, PIPE OR STORM SEWER SYSTEM. FOR THOSE SITES WHERE RUNOFF IS DISCHARGED INTO A PIPE OR PIPE SYSTEM, DOWNSTREAM STABILITY ANALYSES AT THE OUTFALL OF THE PIPE OR PIPE SYSTEM SHALL BE PERFORMED.
- a.a. STORMWATER DISCHARGES THE SITE TO ADEQUATE MAN-MADE STORM SEWER CONVEYANCE SYSTEMS.
- b. ADEQUACY OF ALL CHANNELS AND PIPES SHALL BE VERIFIED IN THE FOLLOWING MANNER:
- (1) THE APPLICANT SHALL DEMONSTRATE THAT THE TOTAL DRAINAGE AREA TO THE POINT OF ANALYSIS WITHIN THE CHANNEL IS 100 TIMES GREATER THAN THE CONTRIBUTING DRAINAGE AREA OF THE PROJECT IN QUESTION;
- (a) NATURAL CHANNELS SHALL BE ANALYZED BY THE USE OF A TWO-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP CHANNEL BANKS NOR CAUSE EROSION OF CHANNEL BED OR BANKS
- NOT OVERTOP ITS BANKS AND BY THE USE OF A TWO-YEAR STORM TO DEMONSTRATE THAT STORMWATER WILL NOT CAUSE EROSION OF CHANNEL (c) PIPES AND STORM SEWER SYSTEMS SHALL BE ANALYZED BY THE USE OF A 10-YEAR STORM TO VERIFY THAT STORMWATER WILL BE CONTAINED

(b) ALL PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS SHALL BE ANALYZED BY THE USE OF A 10-YEAR STORM TO VERIFY THAT STORMWATER WILL

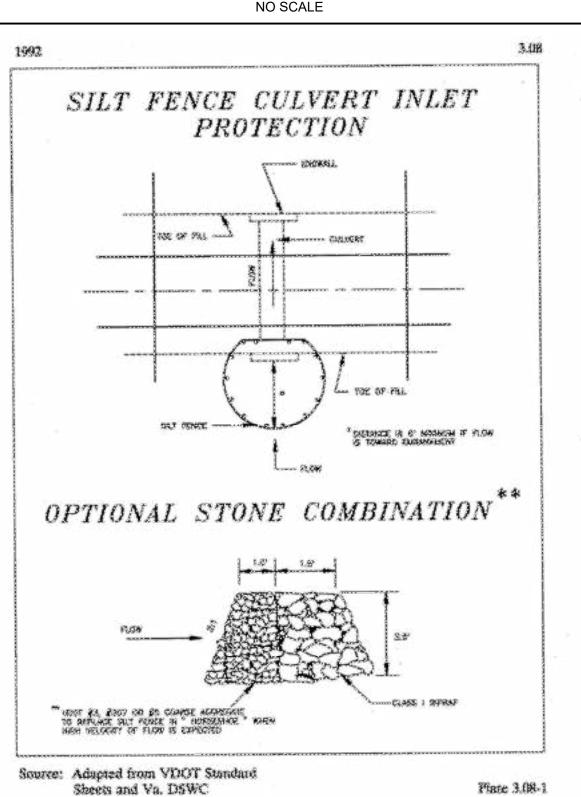
- WITHIN THE PIPE OR SYSTEM.
- b.a. REFER TO STORM SEWER ROUTINGS ON THE PLAN FOR ANALYSIS.
- c. IF EXISTING NATURAL RECEIVING CHANNELS OR PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS OR PIPES ARE NOT ADEQUATE, THE APPLICANT SHALL: (1) IMPROVE THE CHANNELS TO A CONDITION WHERE A 10-YEAR STORM WILL NOT OVERTOP THE BANKS AND A TWO-YEAR STORM WILL NOT CAUSE EROSION TO THE CHANNEL, THE BED, OR THE BANKS;
- (2) IMPROVE THE PIPE OR PIPE SYSTEM TO A CONDITION WHERE THE 10-YEAR STORM IS CONTAINED WITHIN THE APPURTENANCES;
- (3) DEVELOP A SITE DESIGN THAT WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUNOFF RATE FROM A TWO-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A NATURAL CHANNEL OR WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUNOFF RATE FROM A 10-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A MAN-MADE CHANNEL; OR
- (4) PROVIDE A COMBINATION OF CHANNEL IMPROVEMENT, STORMWATER DETENTION OR OTHER MEASURES WHICH IS SATISFACTORY TO THE VESCP AUTHORITY TO PREVENT DOWNSTREAM EROSION.
- c.a. STORMWATER DETENTION AND A REDUCTION IN IMPERVIOUS AREA HAS BEEN UTILIZED TO PREVENT DOWNSTREAM EROSION. d. THE APPLICANT SHALL PROVIDE EVIDENCE OF PERMISSION TO MAKE THE IMPROVEMENTS.

- d.a. ADDRESSED BY THE APPLICANT BEING THE OWNER OF THE PROPERTY
- e. ALL HYDROLOGIC ANALYSES SHALL BE BASED ON THE EXISTING WATERSHED CHARACTERISTICS AND THE ULTIMATE DEVELOPMENT CONDITION OF THE
- e.a. UNDERSTOOD
- f. IF THE APPLICANT CHOOSES AN OPTION THAT INCLUDES STORMWATER DETENTION, HE SHALL OBTAIN APPROVAL FROM THE VESCP OF A PLAN FOR MAINTENANCE OF THE DETENTION FACILITIES. THE PLAN SHALL SET FORTH THE MAINTENANCE REQUIREMENTS OF THE FACILITY AND THE PERSON RESPONSIBLE FOR PERFORMING THE MAINTENANCE.
- f.a. ACKNOWLEDGED. REFER TO THIS PLAN FOR MAINTENANCE REQUIREMENTS.
- a. OUTFALL FROM A DETENTION FACILITY SHALL BE DISCHARGED TO A RECEIVING CHANNEL. AND ENERGY DISSIPATORS SHALL BE PLACED AT THE OUTFALL OF
- ALL DETENTION FACILITIES AS NECESSARY TO PROVIDE A STABILIZED TRANSITION FROM THE FACILITY TO THE RECEIVING CHANNEL. g.a. DETENTION FACILITY OUTFALLS TO AN EXISTING PIPE SYSTEM.
- h. ALL ON-SITE CHANNELS MUST BE VERIFIED TO BE ADEQUATE.
- h.a. REFER TO STORM SEWER ROUTINGS ON THIS PLAN FOR ADEQUACY.
- i. INCREASED VOLUMES OF SHEET FLOWS THAT MAY CAUSE EROSION OR SEDIMENTATION ON ADJACENT PROPERTY SHALL BE DIVERTED TO A STABLE OUTLET, ADEQUATE CHANNEL, PIPE OR PIPE SYSTEM, OR TO A DETENTION FACILITY.
- i.a. REFER TO DETENTION ROUTINGS ON THIS PLAN FOR ADEQUACY.
- i. IN APPLYING THESE STORMWATER MANAGEMENT CRITERIA. INDIVIDUAL LOTS OR PARCELS IN A RESIDENTIAL. COMMERCIAL OR INDUSTRIAL DEVELOPMENT SHALL NOT BE CONSIDERED TO BE SEPARATE DEVELOPMENT PROJECTS. INSTEAD, THE DEVELOPMENT, AS A WHOLE, SHALL BE CONSIDERED TO BE A SINGLE DEVELOPMENT PROJECT. HYDROLOGIC PARAMETERS THAT REFLECT THE ULTIMATE DEVELOPMENT CONDITION SHALL BE USED IN ALL ENGINEERING
- j.a. ACKNOWLEDGED.
- k. ALL MEASURES USED TO PROTECT PROPERTIES AND WATERWAYS SHALL BE EMPLOYED IN A MANNER WHICH MINIMIZES IMPACTS ON THE PHYSICAL, CHEMICAL AND BIOLOGICAL INTEGRITY OF RIVERS, STREAMS AND OTHER WATERS OF THE STATE
- k.a. ADDRESSED BY AN EROSION CONTROL PLAN THAT MEETS VIRGINIA REGULATIONS
- I. ANY PLAN APPROVED PRIOR TO JULY 1. 2014. THAT PROVIDES FOR STORMWATER MANAGEMENT THAT ADDRESSES ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS SHALL SATISFY THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS IF THE PRACTICES ARE DESIGNED TO (I) DETAIN THE WATER QUALITY VOLUME AND TO RELEASE IT OVER 48 HOURS: (II) DETAIN AND RELEASE OVER A 24-HOUR PERIOD THE EXPECTED RAINFALL RESULTING FROM THE ONE YEAR, 24-HOUR STORM; AND (III) REDUCE THE ALLOWABLE PEAK FLOW RATE RESULTING FROM THE 1.5, 2, AND 10-YEAR, 24-HOUR STORMS TO A LEVEL THAT IS LESS THAN OR EQUAL TO THE PEAK FLOW RATE FROM THE SITE ASSUMING IT WAS IN A GOOD FORESTED CONDITION, ACHIEVED THROUGH MULTIPLICATION OF THE FORESTED PEAK FLOW RATE BY A REDUCTION FACTOR THAT IS EQUAL TO THE RUNOFF VOLUME FROM THE SITE WHEN IT WAS IN A GOOD FORESTED CONDITION DIVIDED BY THE RUNOFF VOLUME FROM THE SITE IN ITS PROPOSED CONDITION, AND SHALL BE EXEMPT FROM ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS AS DEFINED IN ANY REGULATIONS PROMULGATED PURSUANT TO § 62.1-44.15:54 OR 62.1-44.15:65 OF THE ACT.
- I.a. NOT APPLICABLE AS SITE SITE IS BEING APPROVED FOLLOWING JULY 1, 2014
- m. FOR PLANS APPROVED ON AND AFTER JULY 1, 2014, THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS OF § 62.1-44.15:52 A OF THE ACT AND THIS SUBSECTION SHALL BE SATISFIED BY COMPLIANCE WITH WATER QUANTITY REQUIREMENTS IN THE STORMWATER MANAGEMENT ACT (§ 62.1-44.15:24 ET SEQ. OF THE CODE OF VIRGINIA) AND ATTENDANT REGULATIONS. UNLESS SUCH LAND-DISTURBING ACTIVITIES (I) ARE IN ACCORDANCE WITH PROVISIONS FOR TIME LIMITS ON APPLICABILITY OF APPROVED DESIGN CRITERIA IN 9VAC25-870-47 OR GRANDFATHERING IN 9VAC25-870-48 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) REGULATION, IN WHICH CASE THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS OF § 62.1-44.15:52 A OF THE ACT SHALL APPLY, OR (II) ARE EXEMPT PURSUANT TO § 62.1-44.15:34 C 7 OF THE ACT.
- m.a. ACKNOWLEDGED.
- n. COMPLIANCE WITH THE WATER QUANTITY MINIMUM STANDARDS SET OUT IN 9VAC25-870-66 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) REGULATION SHALL BE DEEMED TO SATISFY THE REQUIREMENTS OF THIS SUBDIVISION 19.
- n.a. ACKNOWLEDGED.

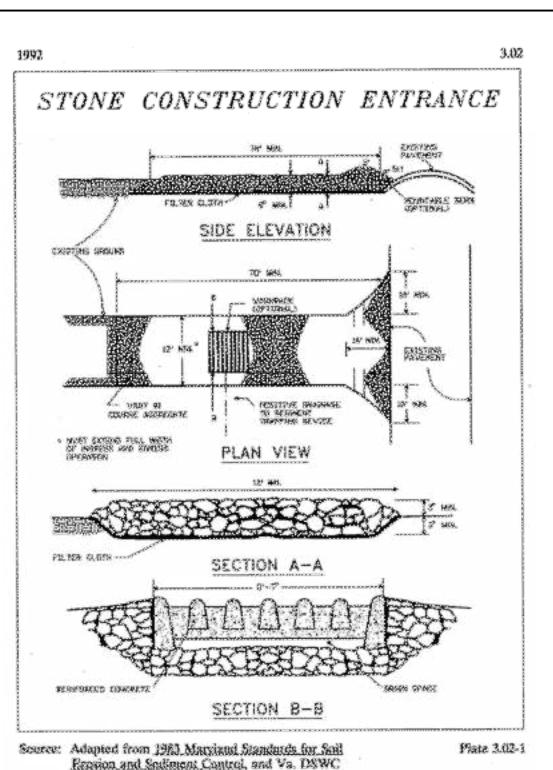


NOTE: AN ACCEPTABLE ALTERNATE TO FILTER FABRIC FENCE IS A LINE OF STAKED STRAW BALES

EROSION CONTROL PROTECTION FOR PIPE TRENCHING TYPICAL DETAIL



CULVERT INLET PROTECTION DETAIL



BLOCK & GRAVEL CURB INLET

SEDIMENT FILTER

SPECIAL APPLICATION

THIS METRICO OF INLEY PROTECTION IS APPLICABLE AT

CURE INLETS WHERE AN OVERFLOW CAPABILITY IS NECESSARY

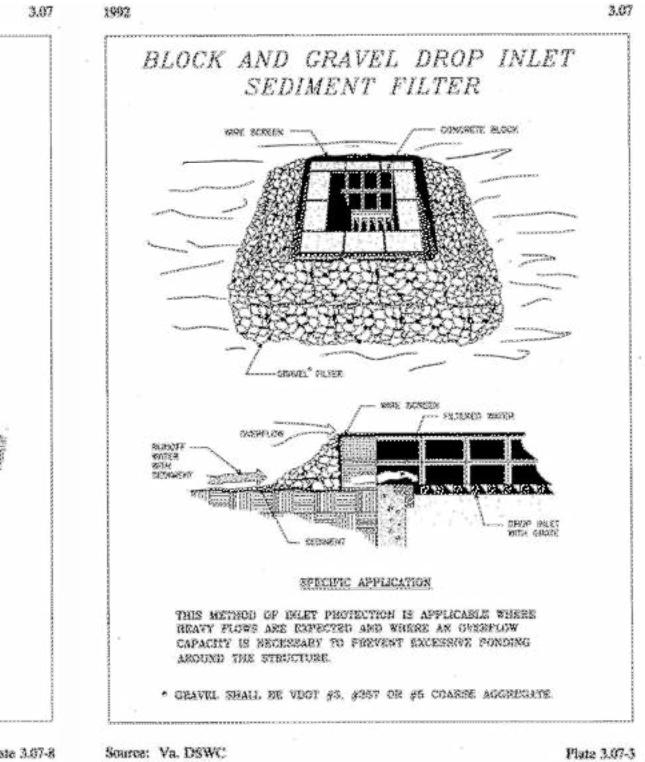
TO PREVENT EXCESSIVE POSDING IN FRONT OF THE STRUCTURE.

· CRAVEL SHALL BE VOOT #3, #357 OR #8 COARSE AGGREGATE

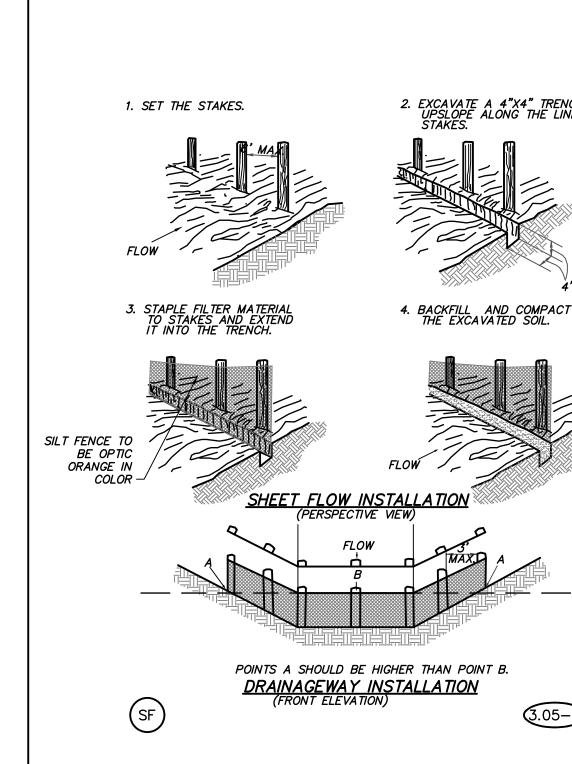
Source: Va. DSWC

- FELTERED DESTRICT

Reasion and Sediment Control, and Va. DSWC **CONSTRUCTION ENTRANCE DETAIL**



INLET PROTECTION DETAILS



SILT FENCE DETAIL

NO SCALE

THOMPSON 12-20-2021

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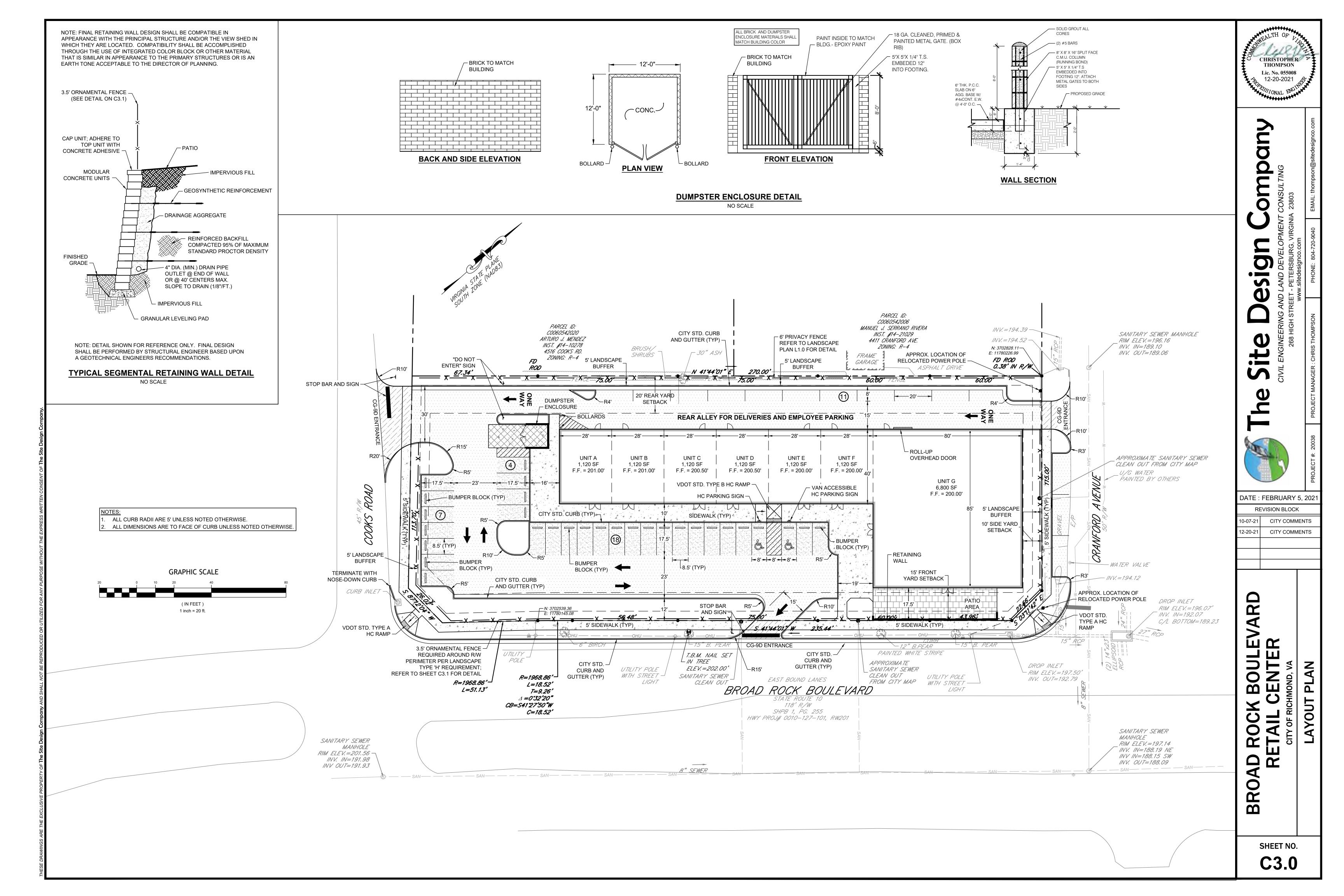
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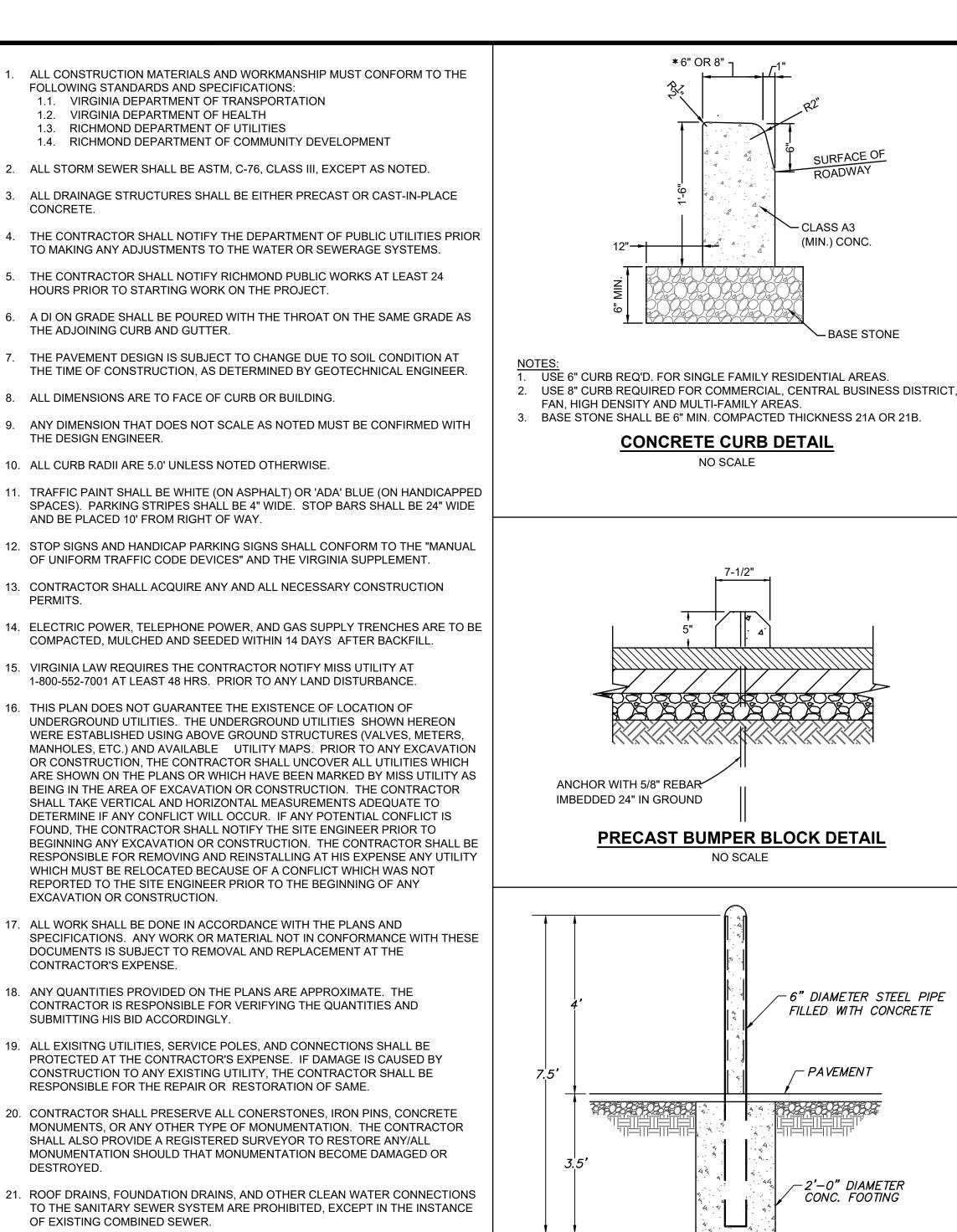
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DATE: FEBRUARY 5, 202

REVISION BLOCK CITY COMMENTS CITY COMMENTS





THE PROPERTY OF THE CONTRACTOR UNLESS NOTED ON PLANS.

RADIUS ON MATURITY OF THE LANDSCAPING.

THE CITY OF RICHMOND.

OTHERWISE ON THE PLAN.

PROVIDE POSITIVE DRAINAGE AT ALL TIMES.

AS TO PROVIDE THE BEST POSSIBLE SIGHT DISTANCE.

GENERAL NOTES

EXCESS PROPERLY DISPOSED OF.

SUBGRADE

26. GRADING:

24. CLEARING AND GRUBBING:

THE PLANS.

23. NO LANDSCAPING OF ANY TYPE SHALL BE PLACED WITHIN A THREE FOOT

24.1. ALL GROWTH OF TREES, OTHER VEGETATION AND OBJECTIONABLE

24.2. ALL CLEARING AND GRUBBING WITHIN THE UTILITY EASEMENTS AND

24.3. ALL TREES, BRANCHES, VEGETATION AND DEBRIS SHALL BE DISPOSED

25. CONTRACTOR SHALL REMOVE TOPSOIL TO ITS ENTIRE DEPTH FROM ALL AREAS

TO BE GRADED AND/OR FILLED. STOCKPILE OR REMOVE THE TOPSOIL FROM

THE SITE SUCH THAT TOPSOIL FOR FINAL GRADING SHALL BE PROVIDED AND

26.1. IF UNSUITABLE MATERIAL IS ENCOUNTERED WITHIN THE BUILDING AREA,

THE ENTIRE PROPOSED PAVED AREA OR FILL AREA EFFECTED AND

REPLACED WITH SELECT BACKFILL TO PROVIDE ADEQUATE STABLE

PROCTOR DENSITY AT OPTIMUM MOISTURE ±2% UNLESS SPECIFIED

26.3. ALL GRADING OPERATION SHALL BE DONE IN SUCH A MANNER SO AS TO

26.4. AT ALL ROAD INTERSECTIONS IN A CUT SECTION, THE BACK SLOPES AND VEGETATION SHALL BE CUT BACK WITH AT LEAST 3:1 BACK SLOPES SO

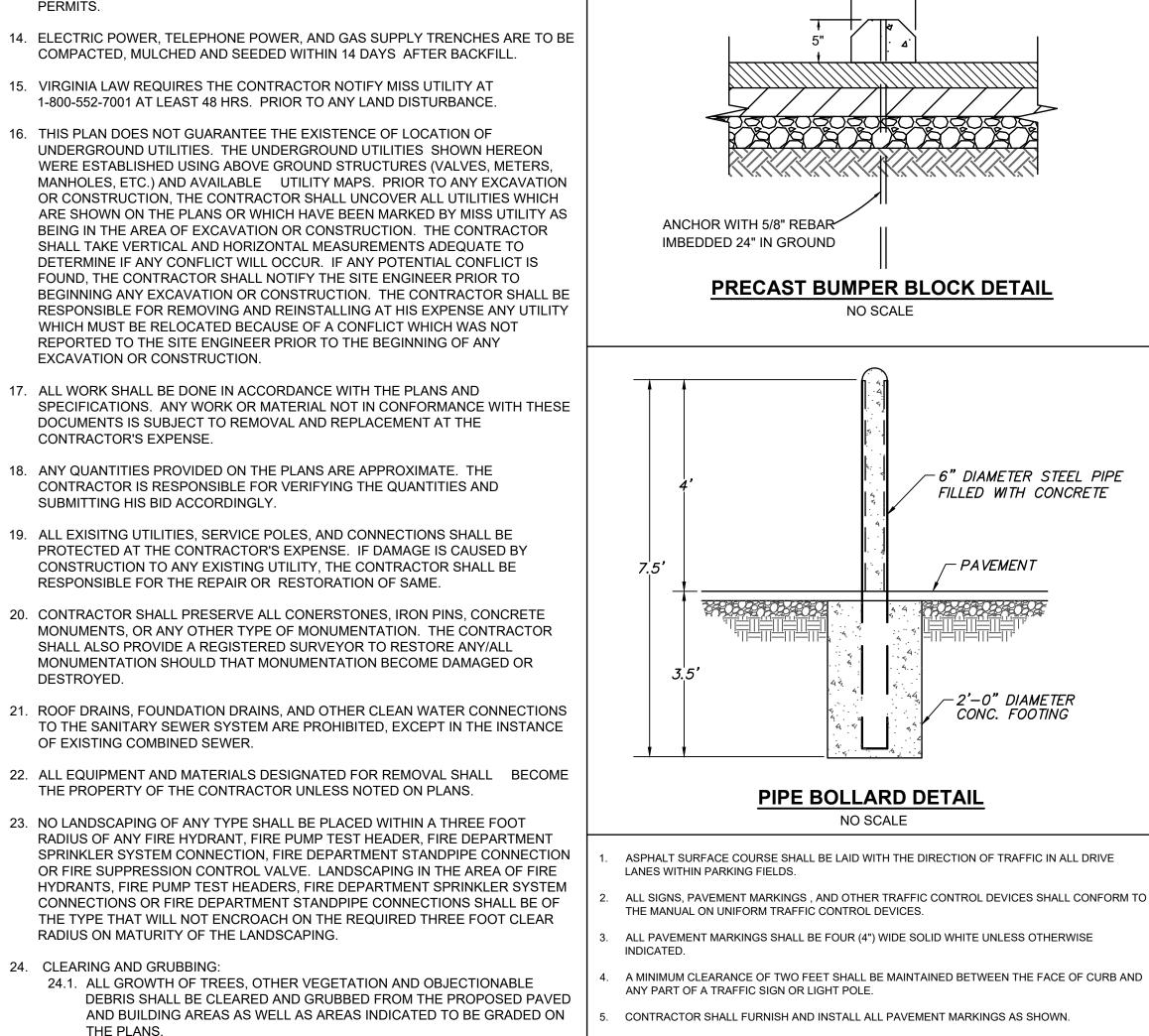
26.2. FILL AND BACKFILL MATERIAL SHALL BE COMPACTED TO 95% STD.

PAVED AREA OR ANY SPECIAL FILL AREA, IT SHALL BE REMOVED FROM

TO CONSTRUCT THE IMPROVEMENTS SHOWN ON PLANS

SPECIAL FILL AREAS SHALL BE TO THE LENGTH AND WIDTH NECESSARY

OF IN A LEGAL MANNER ACCEPTABLE TO THE OWNER, ENGINEER AND



EDGES OF PAVEMENT AND AT COLD JOINTS OF RECENTLY PAVED ASPHALT.

STANDARDS IMPOSED BY LOCAL COUNTY AND STATE.

LINES ARE EXTENDED ACROSS EXISTING ASPHALT.

NECESSARY.

12. ALL RAMPS CONSTRUCTED ARE NOT TO EXCEED A SLOPE OF 1:12.

ALL WORK SHALL COMPLY WITH ALL APPLICABLE CODES, REGULATIONS, AND/OR LOCAL

AS REQUIRED TO INSURE A STRAIGHT, FULL-DEPTH JOINT FACE IMMEDIATELY PRIOR TO

CONCRETE BEFORE FORMS ARE INSPECTED AND APPROVED BY THE INSPECTOR.

PAVING CONTRACTOR SHALL INSTALL PAPER BREAKAWAY EDGES AT COLD JOINTS OR SAWCUT

ALL CONCRETE SHALL BE CLASS A 4000 P.S.I. UNLESS OTHERWISE NOTED. DO NOT POUR ANY

3. CONTRACTOR SHALL BE RESPONSIBLE FOR COST OF PAVEMENT REPLACEMENT WHERE UTILITY

4. CONTRACTOR SHALL PROVIDE ALL NECESSARY BARRICADES, SUFFICIENT LIGHTS, SIGNS AND

OTHER TRAFFIC CONTROL METHODS AS MAY BE NECESSARY FOR THE PROTECTION AND SAFETY

OF THE PUBLIC THROUGHOUT THE CONSTRUCTION OF CONNECTIONS TO EXISTING ROADWAYS.

CONTRACTOR SHALL SUBMIT TRAFFIC CONTROL PLAN TO CITY AND STATE FOR APPROVAL AS

5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING, WITH MATCHING MATERIALS, ANY

EXISTING PAVEMENT, DRIVEWAYS, WALKS, CURBS, ETC., THAT MUST BE CUT OR THAT ARE

PARKING AND PAVING NOTES

NO SCALE

*6" OR 8"

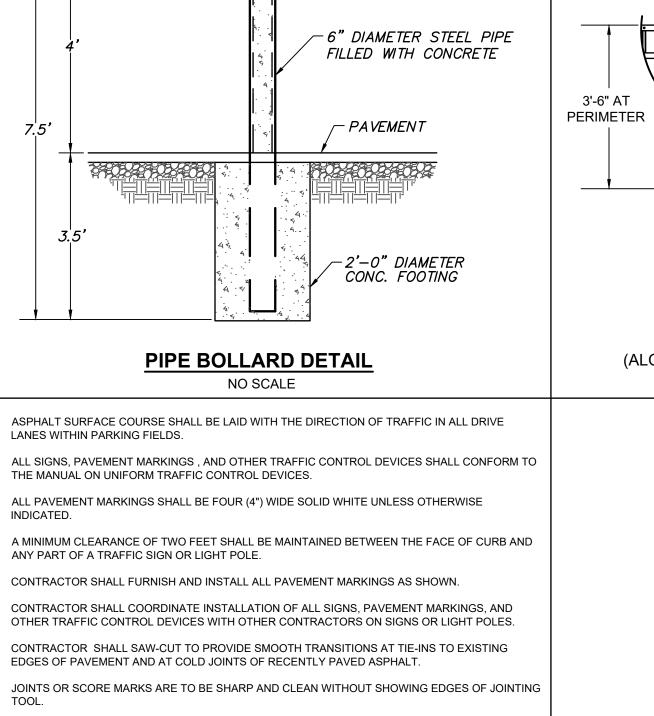
CONCRETE CURB DETAIL

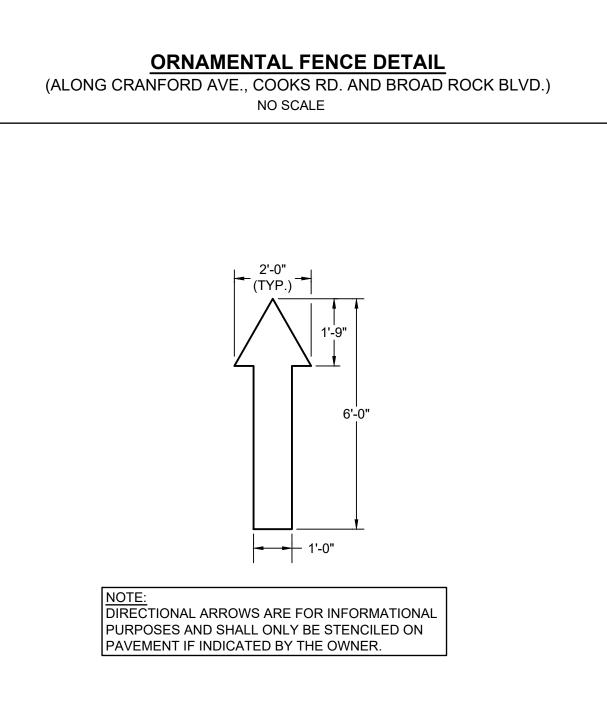
NO SCALE

- CLASS A3

(MIN.) CONC.

BASE STONE





PAINTED DIRECTIONAL ARROW DETAIL

NO SCALE

SLOPE 3/16"

THE BOTTOM OF THE CURB AND GUTTER MAY BE -

2. USE 8" CURB REQUIRED FOR COMMERCIAL, CENTRAL BUSINESS DISTRICT,

MONOLITHIC CURB AND GUTTER DETAIL

NO SCALE

NOTE: NEW PAVEMENT MUST TIE

REFER TO PAVEMENT

DESIGN DETAIL ON

- SECTION

THIS DRAWING FOR

2-1/2" SQUARE

-Steél post with STANDARD TOP

-18 GUAGE

INDUSTRIAL

PICKET

IN WITH EXISTING PAVEMENT

CONSTRUCTED PARALLEL TO THE SLOPE OF SUBBASE

USE 6" CURB REQ'D. FOR SINGLE FAMILY RESIDENTIAL AREAS.

3. BASE STONE SHALL BE 6" MIN. COMPACTED THICKNESS 21A OR 21B.

COURSE

BASE COURSE-

LAP JOINT DETAIL

NO SCALE

RAIL FLUSH

WITH PICKET

AGGR. BASE

COURSES PROVIDED A MINIMUM DEPTH OF 7" IS MAINTAINED.

FAN, HIGH DENSITY AND MULTI-FAMILY AREAS.

EXISTING PAVEMENT | NEW PAVEMENT

BASE STONE

SAWCUT THROUGH

1-3/8" X 1-1/2" , U-CHANNEL RAIL

RETAINING —

EX. SURFACE

COURSE

FXISTING

SURFACE COURSE -

EDGE OF PAVEMENT -

SAWCUT EX.

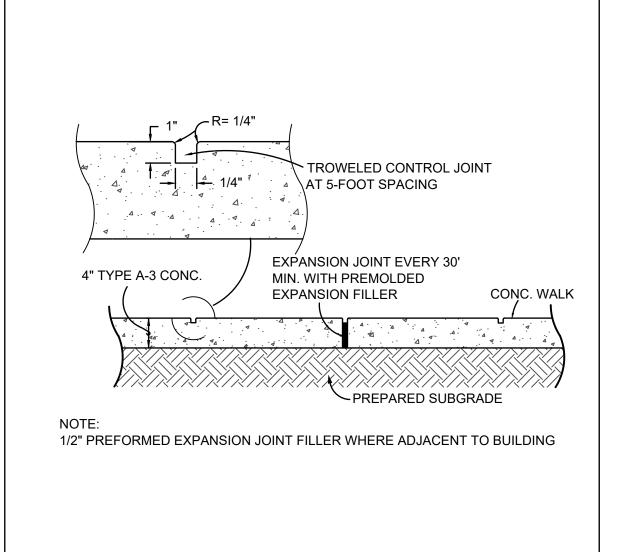
MILL EX.

& REMOVE

PAVEMENT

– CLASS A-3 CONC

18(H):1(V)



6' ABOVE FINISH GRADE -

NO SCALE SIGN FACE TO BE ATTACHED TO FENCE W/ GALVANIZED —— CARRIAGE BOLTS. DUMPSTER SIGN TO BE MOUNTED ON GATE OF SERVICE FENCING SURROUNDING DUMPSTER AT LEAST 4 FEET ABOVE FINISH GRADE. BETWEEN SIGN WILL BE ALUMINUM WITH PAINTED WHITE BACKGROUND 9 P.M. AND 7:30 A. **SERVICE IS LIMITED BECAUSE **DUMPSTER IS LOCATED WITHIN** 1000' OF RESIDENTIAL PROPERTY

RESERVED

PARKING

VAN

ACCESSIBLE

PENALTY, \$100-\$500 FINE

TOW-AWAY ZONE

DUMPSTER SERVICE SIGN DETAIL

IDENTIFY SPACES BY ABOVE

GRADE SIGNS AS RESERVED

PERSONS. PROVIDE ONE (1)

STD. R7-8 SIGN AT EACH

PARKING SPACE INDICATED

ON SITE PLAN. SIGN SHALL

WHITE) WITH GREEN LETTERS

SYMBOL. SECURE SIGN ON

PARKING SIGNS FOR THE DISABLED

BE ALUMINUM (PAINTED

AND INTERNATIONAL

STEEL POST 1-1/2"

2' OF CONCRETE.

PAINTED BLACK SET IN

RESERVED FOR PHYSICALLY DISABLED

) WHEELCHAIR

MINIMUM

PARKING

PENALTY,

—6' ABOVE

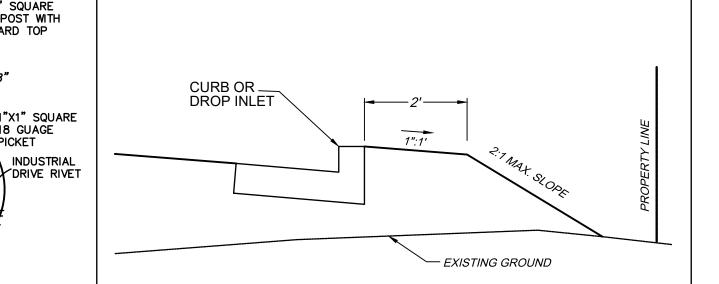
FINISH

GRADE

TOW-AWAY ZONE

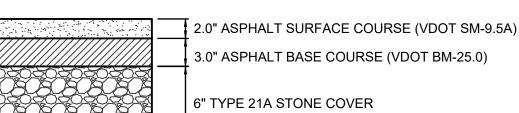
AND RED LETTERING.

\$100-\$500 FINE, | DIAMETER



CURB & DROP INLET BACKFILL DETAIL

SIDEWALK CONTROL JOINT DETAIL



— STABLE AND COMPACTED TO A DRY

DENSITY OF AT LEAST 95% ASTM D698

DENSITY OF AT LEAST 95% ASTM D698

NOTE: PAVEMENT DESIGN IS BASED ON AN ASSUMED CBR VALUE OF 10. IF CBR OF 10 IS NOT ACHIEVED DURING PREPARATION OF SUBGRADE. NOTIFY ENGINEER IMMEDIATELY FOR A REVISED PAVEMENT SECTION.

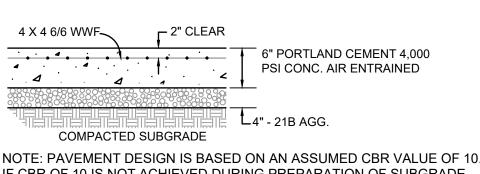
DENOTES HEAVY DUTY ASPHALT PAVEMENT ON PLANS

HEAVY DUTY ASPHALT PAVEMENT SECTION

2.0" ASPHALT SURFACE COURSE (VDOT SM-9.5) 6" TYPE 21A STONE COVER STABLE AND COMPACTED TO A DRY

DENOTES LIGHT DUTY ASPHALT PAVEMENT ON PLANS

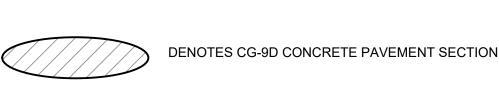
LIGHT DUTY ASPHALT PAVEMENT SECTION

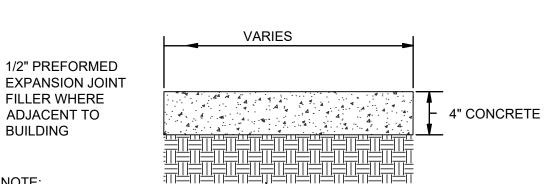


NOTE: PAVEMENT DESIGN IS BASED ON AN ASSUMED CBR VALUE OF 10. IF CBR OF 10 IS NOT ACHIEVED DURING PREPARATION OF SUBGRADE. NOTIFY ENGINEER IMMEDIATELY FOR A REVISED PAVEMENT SECTION.

DENOTES HEAVY DUTY CONCRETE PAVEMENT ON PLANS

HEAVY DUTY CONCRETE PAVEMENT SECTION





CG-9D ENTRANCE PAVEMENT

FINISH - TROWELED EDGES, **BROOM FINISH SCORING EVERY 6'** EXPANSION JOINTS EVERY 30' MIN.

DENOTES CONCRETE SIDEWALK ON PLANS

CONCRETE SIDEWALK DETAIL



DENOTES DECORATIVE CONCRETE PATIO; COORDINATE FINAL DESIGN WITH OWNER DENOTES DECORATIVE CONCRETE PATIO;

STRUCTURAL BACKFILL

—(WHERE FILL IS NEEDED)

DECORATIVE CONCRETE DETAIL

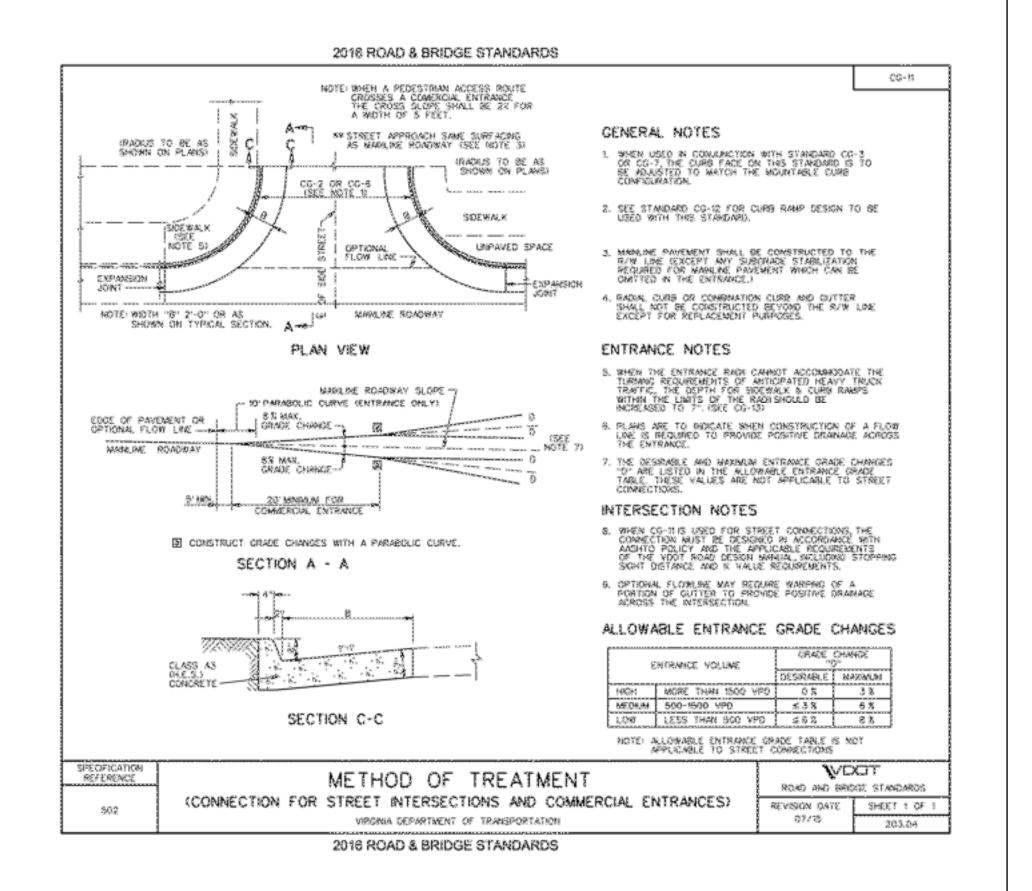
PAVEMENT SECTION DETAILS

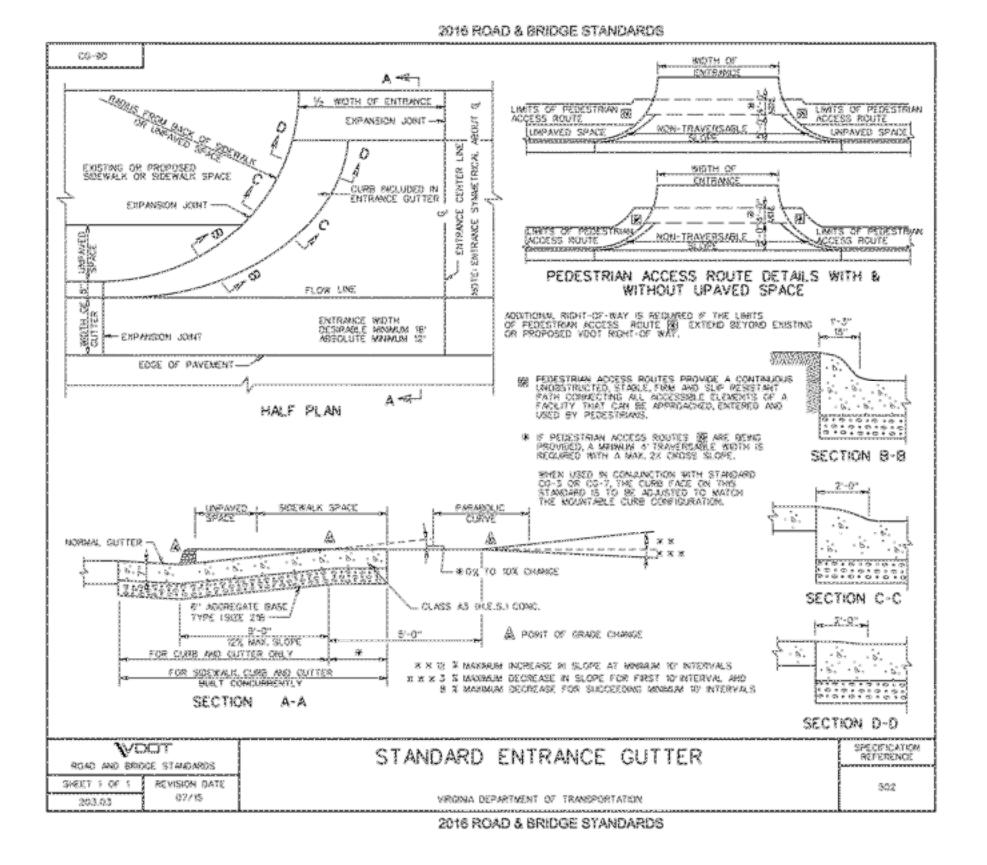
CHRISTOPHER THOMPSON Lic. No. 055008 12-20-2021

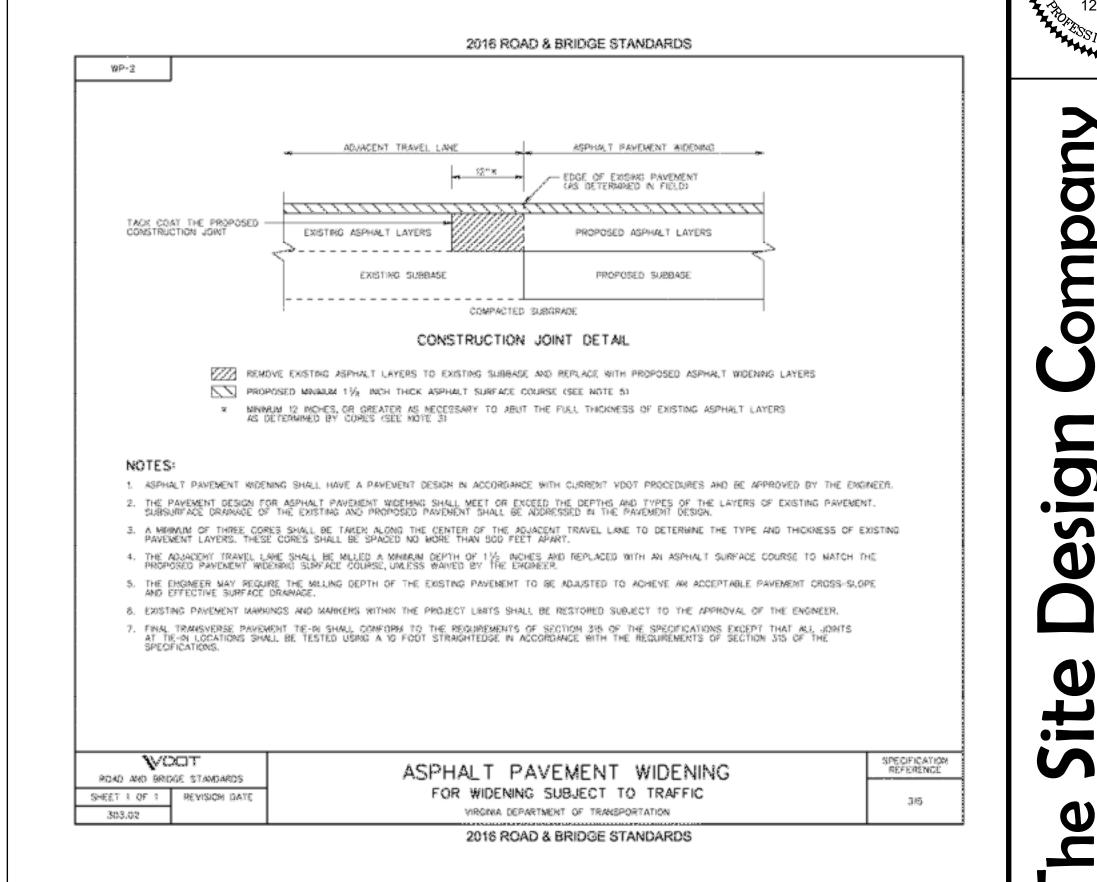
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DATE: FEBRUARY 5, 202 REVISION BLOCK 10-07-21 CITY COMMENTS 12-20-21 CITY COMMENTS

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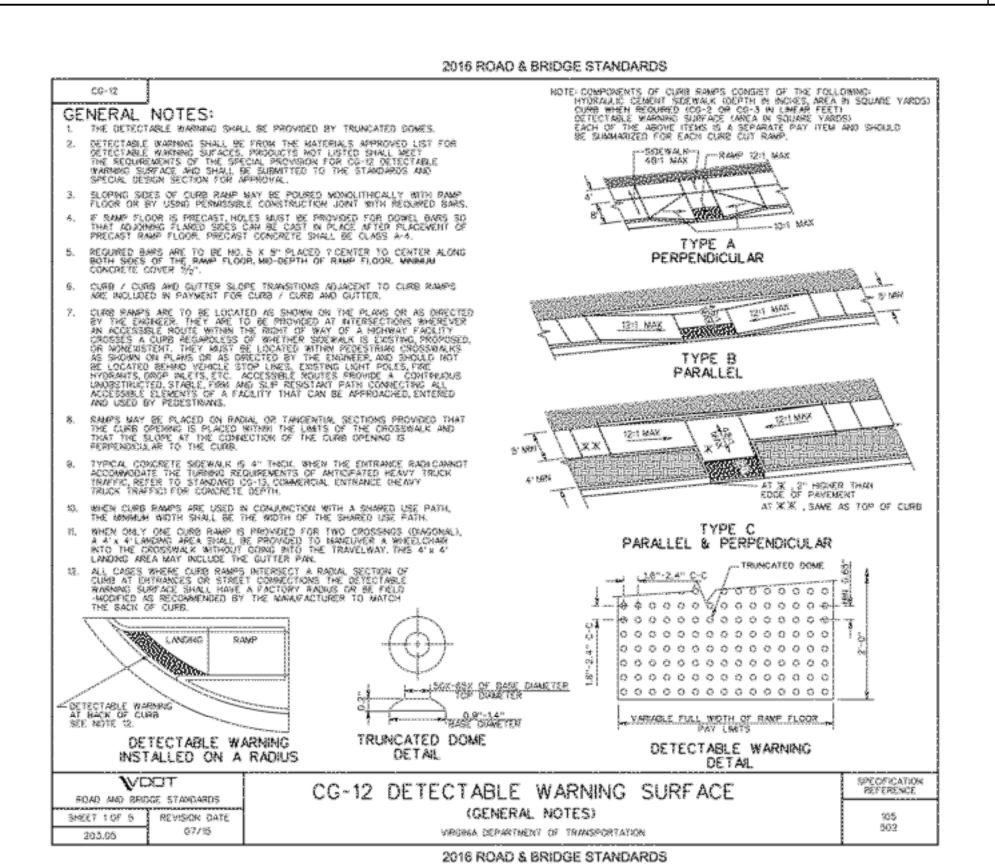


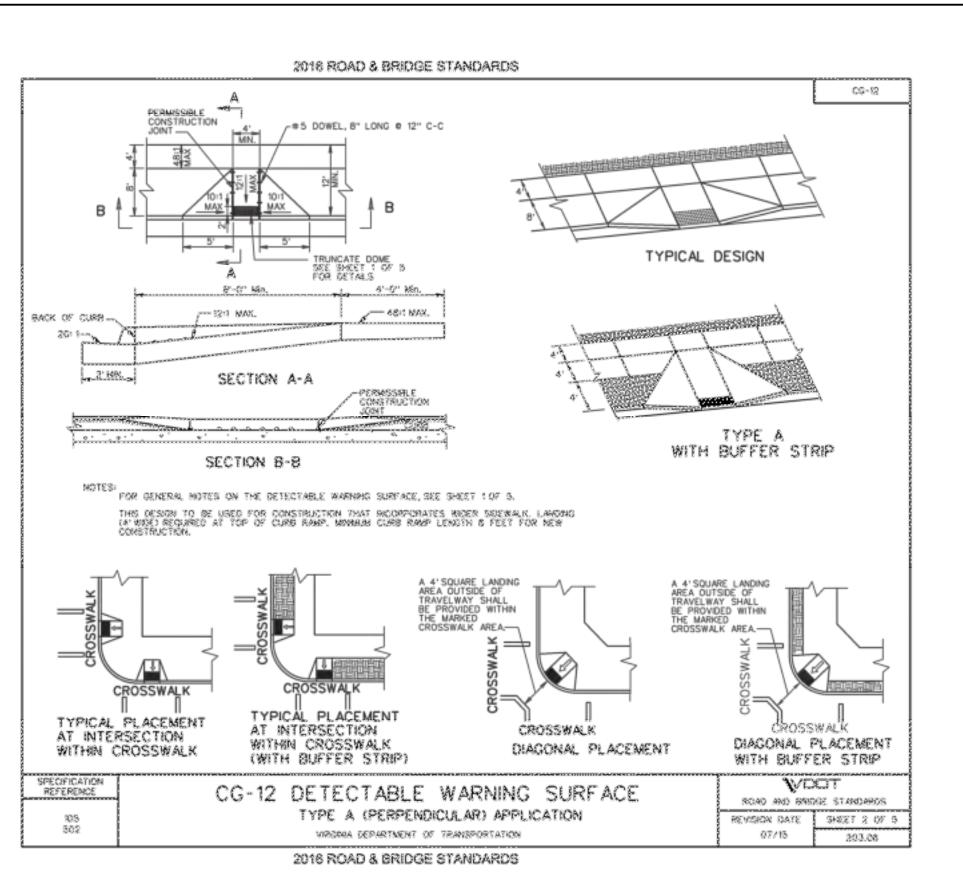


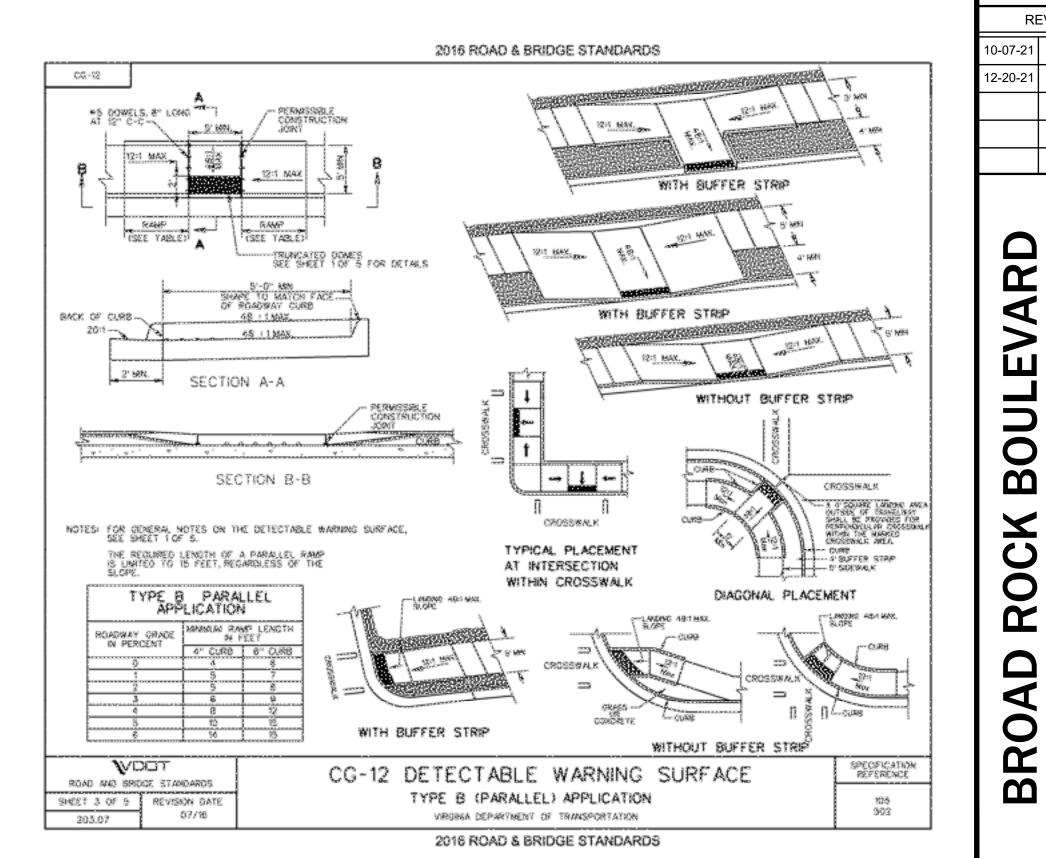


VDOT STANDARD CG-11 COMMERCIAL ENTRANCE DETAIL NO SCALE

VDOT STANDARD CG-9D ENTRANCE DETAIL NO SCALE







VDOT ASPHALT WIDENING DETAIL

NO SCALE

CHRISTOPHER THOMPSON Lic. No. 055008 12-20-2021

DATE: FEBRUARY 5, 202 REVISION BLOCK CITY COMMENTS CITY COMMENTS ETAIL

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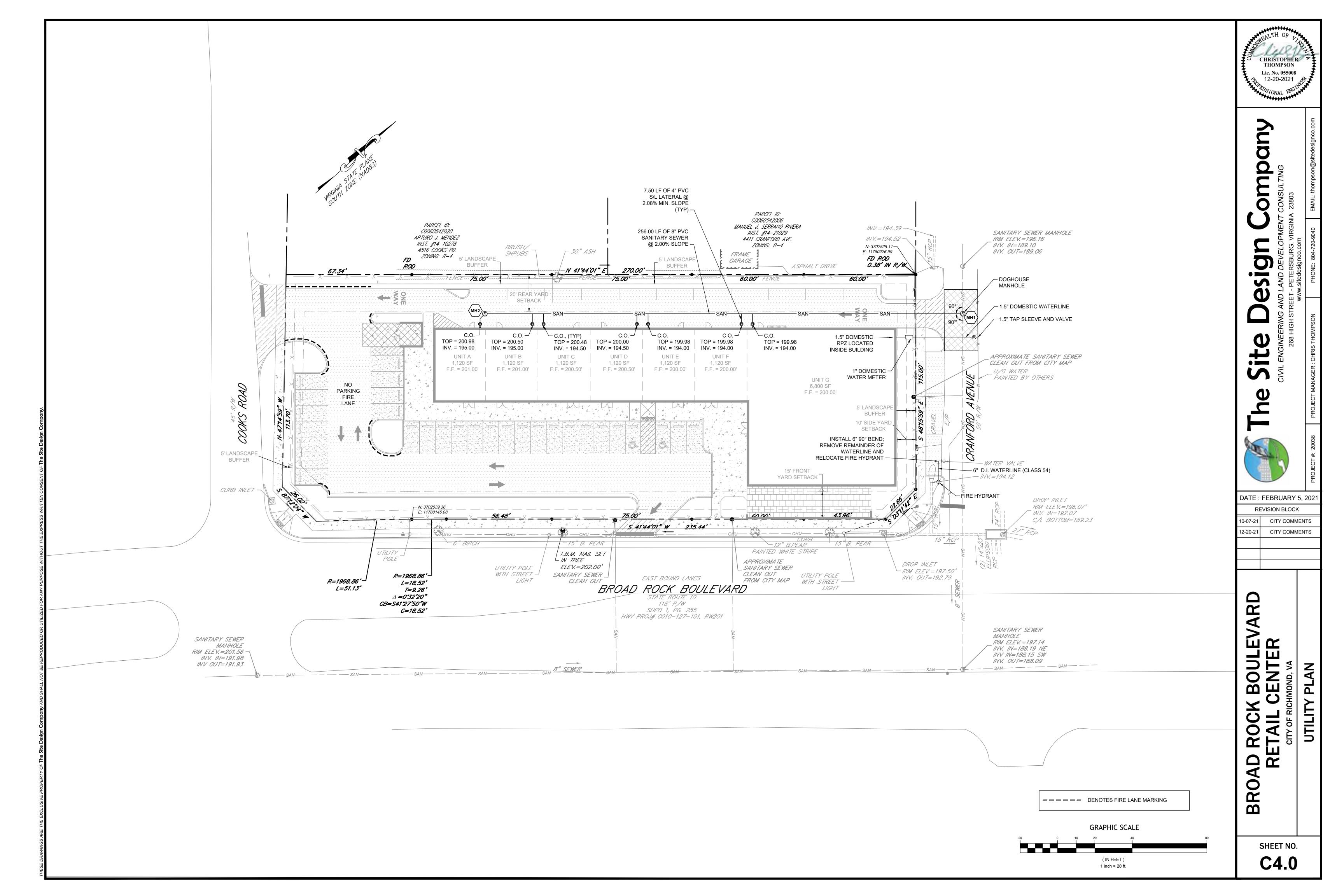
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SITI

SHEET NO. C3.2

NO SCALE



- ALL MATERIALS FOR WATER SHOWN SHALL BE SUPPLIED AND INSTALLED IN ACCORDANCE WITH THE LATEST APPLICABLE CODES AND SPECIFICATIONS OF THE CITY OF RICHMOND. DEPARTMENT OF PUBLIC UTILITIES REQUIREMENTS ARE: STANDARD SPECIFICATIONS FOR GAS AND WATER AND WATER SYSTEM CONSTRUCTION & MAINTENANCE (DPU NO. 192
 - RULES AND REGULATIONS FOR THE MUNICIPAL WATER SUPPLY OF RICHMOND, VIRGINIA, LATEST EDITION. CITY OF RICHMOND SPECIFICATIONS FOR DUCTILE IRON WATER PIPE AND FITTINGS, LATEST EDITION. CITY OF RICHMOND STANDARD DETAIL DRAWINGS FOR METERS AND FIRELINES.
- 2. ALL WORK SHALL BE SUBJECT TO INSPECTION BY UTILITY DEPARTMENT OFFICIALS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFICATION OF APPROPRIATE CITY OFFICIALS 48 HOURS PRIOR TO START OF WORK.
- 3. THE UTILITY CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY HIGHWAY PERMITS AND SENDING A COPY OF THE PERMIT
- TO THE CITY PRIOR STARTING ANY CONSTRUCTION WORK. 4. MINIMUM CLEAR COVER FOR ALL WATER PIPE, FIRE SERVICE LATERALS AND SERVICES SHALL BE 3.5 FEET, INCLUDING DITCH
- 5. ALL WATER SERVICES ARE TO BE COPPER, TYPE K DRAWN TUBING. SERVICE 3/4" TO 1" SHALL BE TYPE K SOFT COPPER AND
- SERVICE 1-1/2" TO 2" SHALL BE TYPE K HARD COPPER. 6. ON WATER MAINS INSTALLED BY THE CONTRACTOR, THE CONTRACTOR SHALL INSTALL ALL WATER SERVICE CONNECTIONS,
- BACKFILL FOR ALL UTILITIES WITHIN CITY STREETS SHALL BE PLACED GENERALLY IN ACCORDANCE WITH CITY
- SPECIFICATIONS, AND THE FOLLOWING CRITERIA (A) NO TRENCH SHALL BE BACKFILLED UNTIL AUTHORIZED BY THE CITY. MATERIAL USED FOR BACKFILL FROM THE BOTTOM OF THE TRENCH TO 12" (TWELVE INCHES) ABOVE THE PIPE SHALL BE SELECT MATERIAL, FREE FROM
- FROST, LARGE CLODS, STONES AND DEBRIS, AND SHALL BE THOROUGHLY AND CAREFULLY COMPACTED. (B) BACKFILL SHALL BE COMPACTED BY MECHANICAL TAMPERING THROUGHOUT THE DEPTH OF THE TRENCH TO INSURE A SUITABLE SUBBASE, ACCEPTABLE TO THE ROAD ENGINEER, IF THE MATERIAL TAKEN FROM THE TRENCH IS NOT A SUITABLE SUBBASE, IT SHALL BE REMOVED AND ACCEPTABLE MATERIAL USED FOR BACKFILLING THE
- 8. THE ENGINEER WILL CERTIFY THAT THE ROADS AND DITCHES ARE WITHIN 6" OF SUBGRADE BEFORE WATERLINE
- 9. FOR WATER INSTALLATION WITHIN EXISTING RIGHT-OF-WAY, THE UTILITY CONTRACTOR MUST NOTIFY THE CITY INSPECTOR WHEN INSTALLATION BEGINS SO THAT DENSITY CAN BE TESTED (95% @ OPTIMUM MOISTURE +20%).
- 10. THE CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF ALL UNDERGROUND UTILITIES IN AREAS OF CONSTRUCTION PRIOR TO STARTING WORK. CONTACT ENGINEER IMMEDIATELY IF LOCATION OR ELEVATION IS DIFFERENT FROM THAT SHOWN ON THE PLAN. OR IF THERE APPEARS TO BE A CONFLICT OR IF ANY UTILITY NOT SHOWN ON THE PLAN IS DISCOVERED. TO LOCATE UTILITIES, CALL "MISS UTILITY" OF CENTRAL VIRGINIA: 1-800-552-7001 (TOLL FREE).
- 11. ALL PLUMBING DIAGRAMS SHALL BE REVIEWED BY THE CROSS-CONNECTION SPECIALIST FOR CROSS-CONNECTION CONTROL AND BACKFLOW PREVENTION PRIOR TO ANY WATER PERMIT REQUEST. THE INSTALLATION OF BACKFLOW DEVICES IS REQUIRED IN ALL BUILDINGS WHERE THE FINISHED GRADE IS BELOW THE TOP ELEVATION OF NEAREST MANHOLE. THIS DEVICE WILL BE INSPECTED BY THE CITY PLUMBING INSPECTOR AT TELEPHONE NUMBER 646-6981 AND THE CROSS-CONNECTION SPECIALIST AT TELEPHONE NUMBER 646-8534.
- 12. ALL FUTURE BUILDINGS BELOW THE CONTOUR WILL REQUIRE INDIVIDUAL PRESSURE REGULATORS.
- 13. ALL UTILITIES SHALL BE IN PLACE PRIOR TO PLACEMENT OF BASE MATERIAL.

EXCEPT FIRELINE SERVICES AND METER BOXES.

14. THE CONTRACTOR SHALL OPEN AND PREPARE ALL TRENCHES FOR THE CITY TO MAKE ANY CONNECTIONS TO THE EXISTING WATER MAIN FOR THE PROJECT WATER MAINS OR SERVICES TO CONNECT TO.

GENERAL WATER NOTES

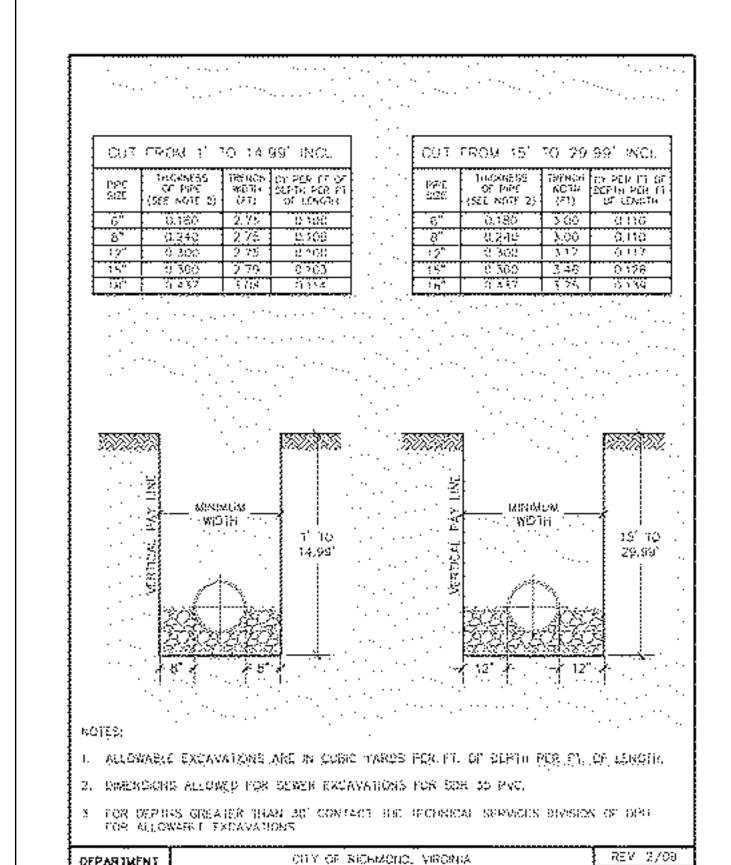
NO SCALE

- THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE CITY DEPARTMENT PRIOR TO MAKING ANY UTILITY ADJUSTMENTS OR PERFORMING OTHER WORK WITHIN THE RIGHT-OF-WAY.
- 2. THE SEQUENCE OF UTILITY CONSTRUCTION SHALL BE DEVELOPED IN SUCH A MANNER THAT WATER AND SANITARY SEWER SERVICE IS MAINTAINED AT ALL TIMES DURING CONSTRUCTION EXCEPT DURING TIE-INS AND CONNECTIONS. WHEN SERVICE IS INTERRUPTED, THE CONTRACTOR SHALL PROVIDE THE CITY WITH 72 HOURS NOTICE PRIOR TO THE INTERRUPTION. THE AFFECTED PROPERTY OWNER SHALL BE NOTIFIED WITHIN 48 HOURS PRIOR TO SERVICE INTERRUPTIONS. CONTRACTORS SHALL PROVIDE THE CITY WITH A DETAILED PLAN AND SCHEDULE FIVE (5) WORKING DAYS IN ADVANCE TO PERFORMING WORK WHICH REQUIRES INTERRUPTION TO CUSTOMER UTILITY SERVICE. SERIVCE INTERRUPTIONS SHALL BE KEPT TO A MINIMUM.
- UNLESS OTHERWISE NOTED. ALL GAS AND WATER UTILITY MATERIALS AND CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATION FOR GAS AND WATER SYSTEM-CONSTRUCTION AND MAINTENANCE DPU NO. 1-92, LATEST EDITION. THE CITY OF RICHMOND'S SEWER SPECIFICATIONS AND THE LATEST EDITIONS OF THE VIRGINIA DEPARTMENT OF HEALTH WATERWORKS REGULATIONS AND PROPOSED SEWAGE COLLECTION AND TREATMENT REGULATIONS.
- 4. LOCATIONS OF EXISTING UTILITIES ACROSS OR ALONG THE LINE OF THE PROPOSED WORK ARE SHOWN ONLY IN AN APPROXIMATE LOCATION ON THE PLANS. CONTRACTOR SHALL LOCATE ALL UNDERGROUND LINES AND STRUCTURES AS NECESSARY. CONTRACTOR SHALL CALL "MISS UTILITY 1-800-552-7001 PRIOR TO CONSTRUCTION AND IS RESPONSIBLE FOR ANY DAMAGE TO UNDERGROUND LINES OR STRUCTURES.
- GATE VALVES SHALL BE U.S. PIPE, METROSEAL 250, OPEN RIGHT (CLOCKWISE), WITH MECHANICAL JOINT END FITTINGS, NON-RISING STEM.
- 6. FIRE HYDRANTS SHALL BE U.S. PIPE, METROPOLITAN 250, OPEN RIGHT (CLOCKWISE), WITH A 4 1/2 " VALVE OPENING.
- ALL FIRE HYDRANTS AND VALVE BOXES DESIGNATED TO BE REMOVED SHALL BE SALVAGED AND DELIVERED TO THE DEPARTMENT OF UTILITIES AT 400 JEFFERSON DAVIS HIGHWAY.
- ALL GAS AND WATER SERVICES AND SEWER CONNECTIONS SHALL BE RENEWED AS DIRECTED BY THE CITY OF RICHMOND, DEPARTMENT OF PUBLIC UTILITIES ENGINEER.
- 9. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS.
- 10. DATUM FOR ALL ELEVATIONS SHOWN IS NATIONAL GEODETIC SURVEY.
- 11. MINIMUM DEPTH OF COVER FOR GAS AND WATER MAINS IS 42 INCHES
- 12. WATER MAINS SHALL BE DUCTILE IRON, DOUBLE COAT CEMENT LINED AS MANUFACTURED BY U.S. PIPE OR EQUAL. PIPE CLASS SHALL BE AS FOLLOWS:

| DE / IO I OLLOWO. | |
|-------------------|--------------|
| DIAMETER (INCHES) | SPECIAL CLAS |
| (3) | 52 |
| (4) | 53 |
| (6) | 54 |
| (8) | 54 |
| (12) & LARGER | 51 |

- 13. THE CITY WILL INSPECT ALL GAS, WATER AND SANITARY SEWER MAINS, CONNECTIONS AND APPURTENANCES TO INSURE THAT THE MATERIALS AND CONSTRUCTION METHODS ARE IN ACCORDANCE WITH THE APPROVED PLANS, SPECIFICATION AND STANDARDS. ALL OTHER LINES AND CONNECTIONS WILL BE INSPECTED AND APPROVED BY THE DEPARTMENT OF BUILDING INSPECTIONS.
- 14. THE CONTRACTOR SHALL REQUEST VALVE OPERATION BY THE OWNER'S FORCES NO LESS THAN 48 HOURS IN ADVANCE. THE CONTRACTOR SHALL NOT OPERATE ANY EXISTING VALVES UNLESS DIRECTED BY THE OWNER 15. THE CITY DOES NOT GUARANTEE A 100 PERCENT SHUTDOWN OF ITS EXISTING WATER MAINS. THE CONTRACTOR SHALL
- PROVIDE ALL PLUGS AND DE WATERING EQUIPMENT NECESSARY TO PERFORM THE WORK.
- 16. MECHANICAL JOINT LONG SOLID SLEEVES SHALL BE USED FOR ALL CONNECTION TO EXISTING WATER MAINS.
- 17. COUPLINGS FOR CONNECTIONS TO EXISTING SANITARY SEWER LATERALS SHALL BE FERNCO OR EQUAL.
- 18. BASED ON CITY RECORDS, EXISTING SANITARY SEWER LATERALS ARE ASSUMED TO BE 6-INCHES WITHIN THE RIGHT-OF-WAY AND 18. 4-INCHES ON PRIVATE PROPERTY.
- 19. FOR WATERLINE CONSTRUCTION, RESTRAINED JOINT PIPE SHALL BE USED AT ALL FITTINGS IN ACCORDANCE WITH DETAIL M5A ON DRAWING C1.2.

UTILITY NOTES NO SCALE



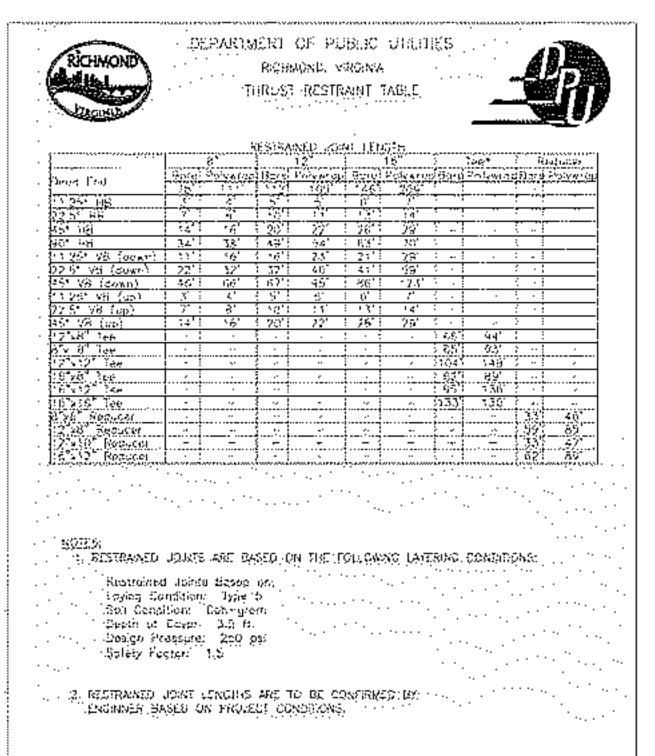
PIPELINE EXCAVATION

2001 TO SCOTE

DEPARTMENT

OF PUBLIC

UTILITIES



CITY OF RICHMOND, VIRGINA

RESTRAINED DON'T HABLE.

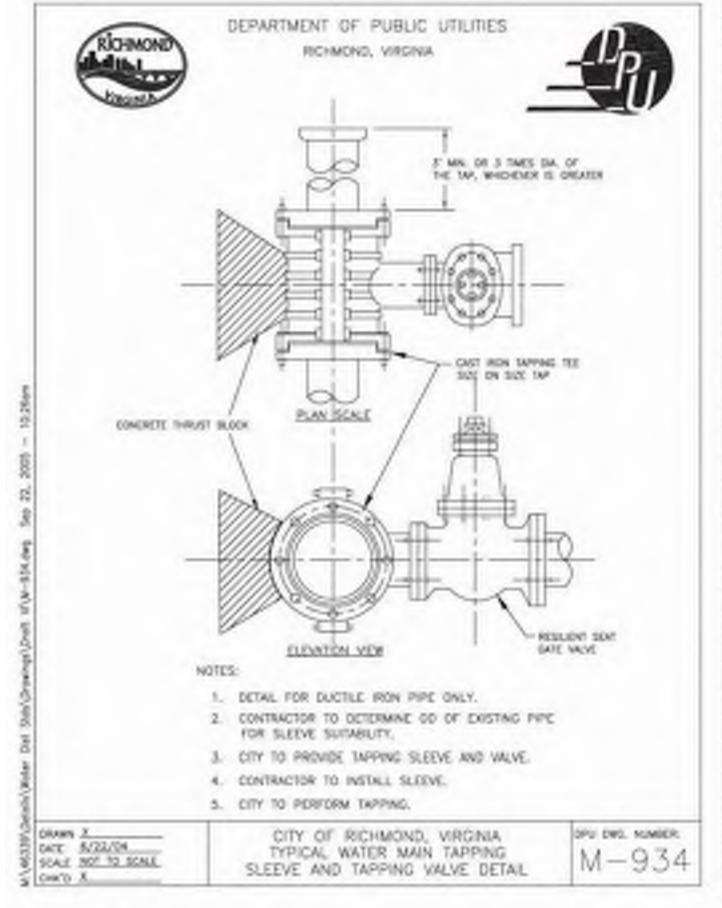
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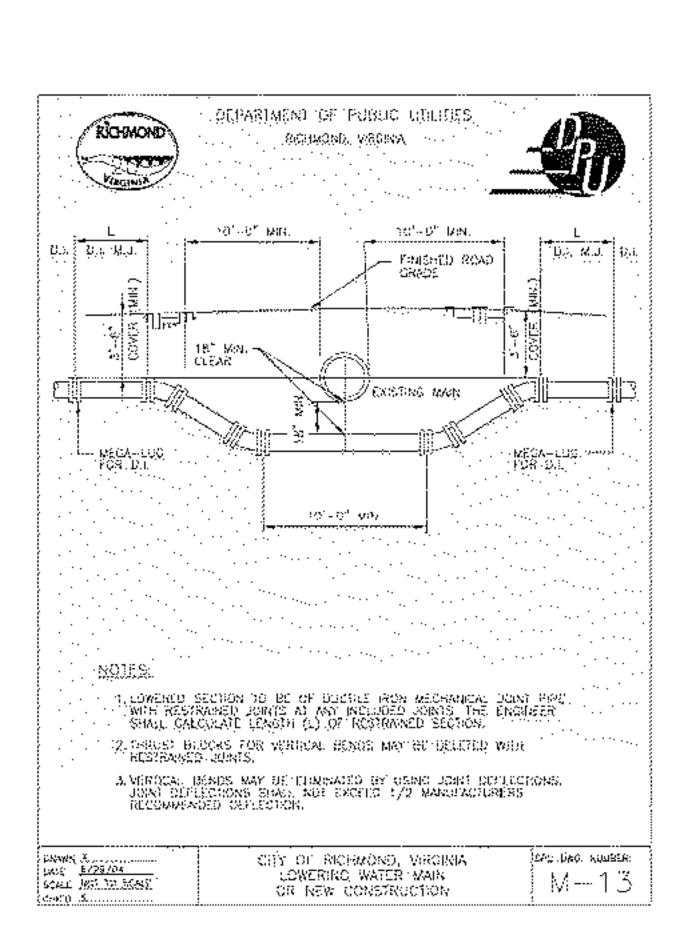
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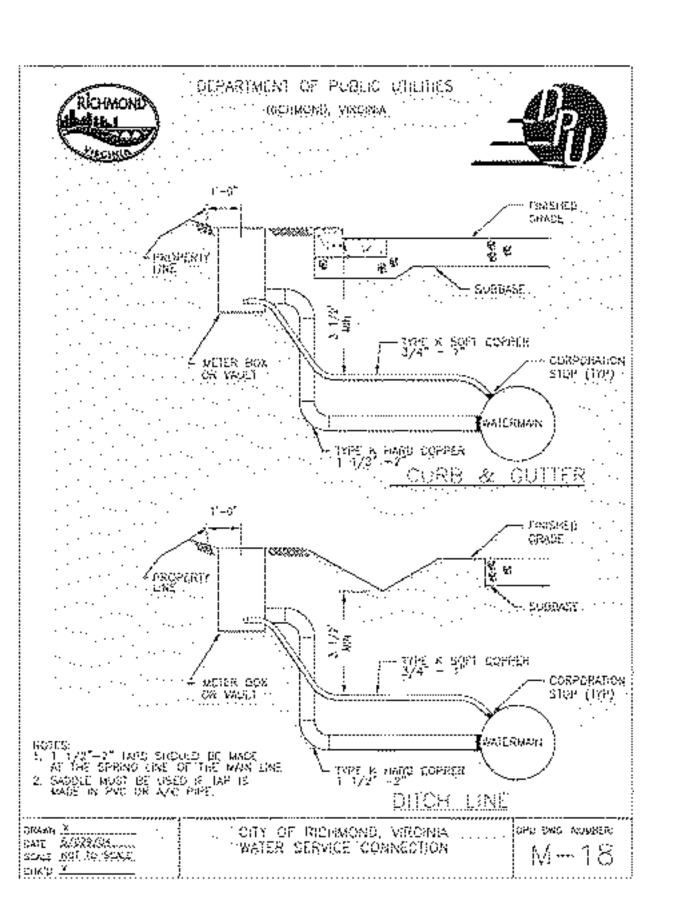
SCALE TASLICULARELL

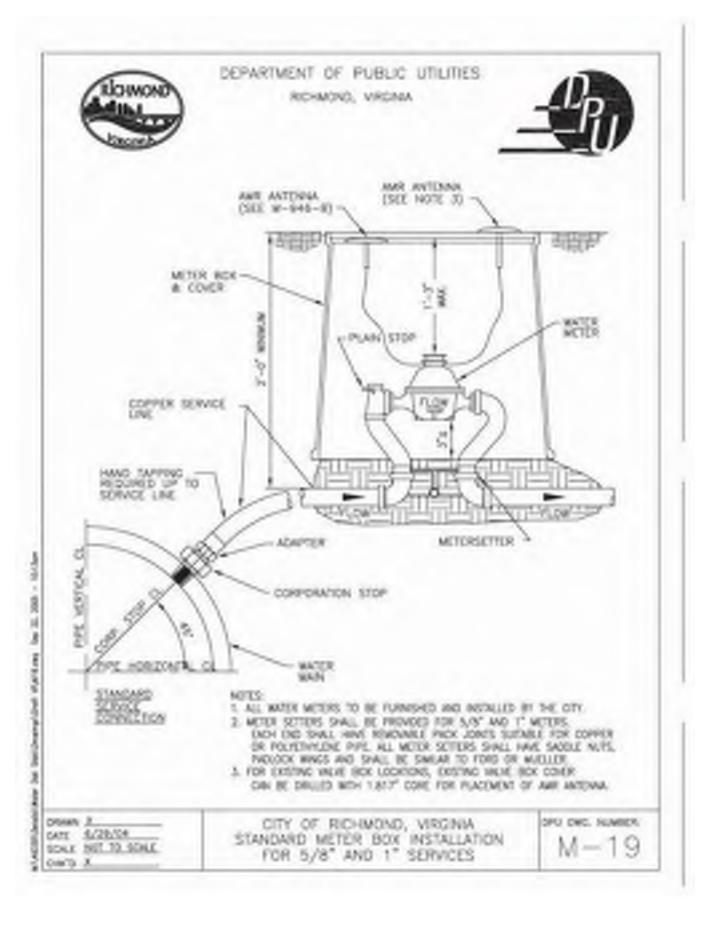
C-6870 X

27 1 A









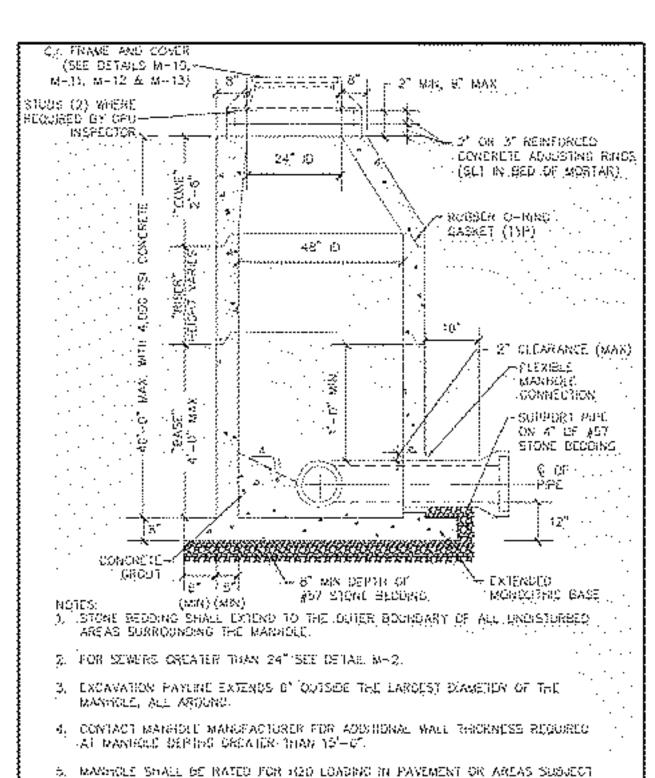


DATE: FEBRUARY 5, 202 REVISION BLOCK CITY COMMENTS CITY COMMENTS

10-07-21 12-20-21

TAIL

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-6. LATERAS, INVERTS SHALL BE NO MOVIE THAN 3"-OF ABOVE INVERT OLD TWO MORE

STANDARD PRECAST CONCRETE MANHOLE SEWERS 8 10 24

5,6

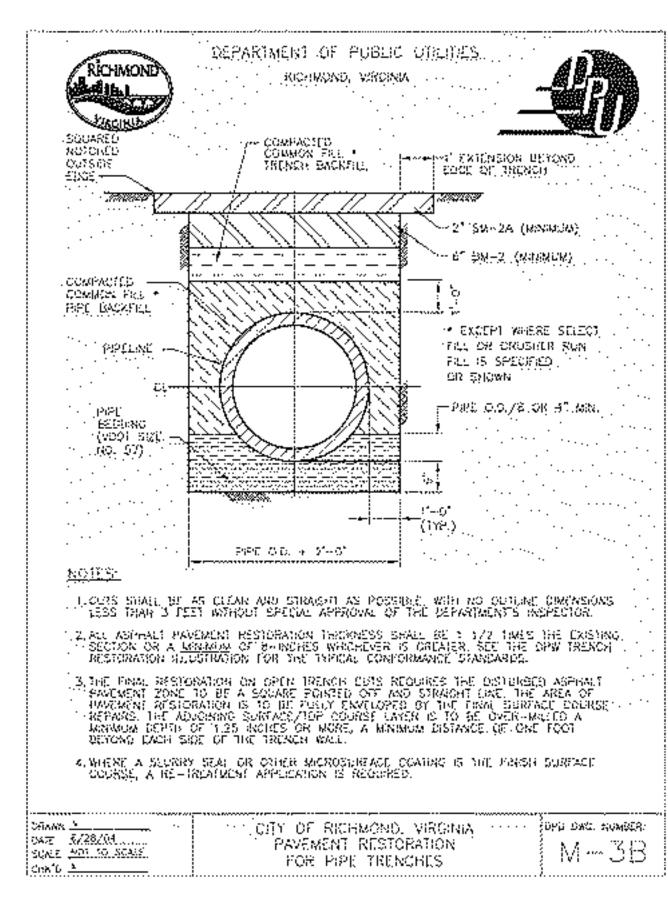
TO ASHIODEAR RRAIFIC.

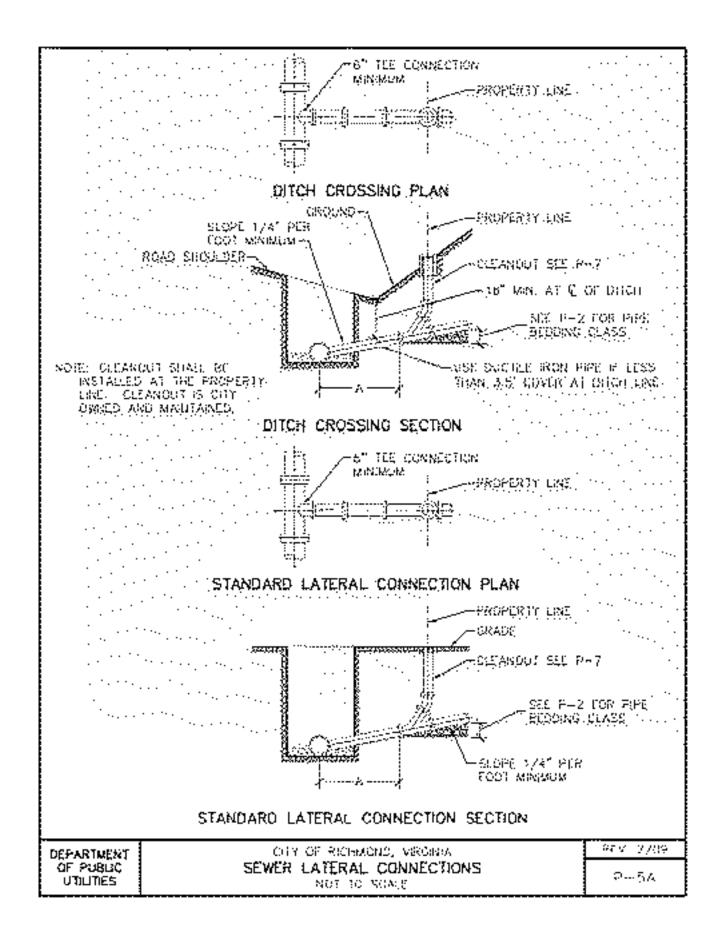
DEPARTMENT

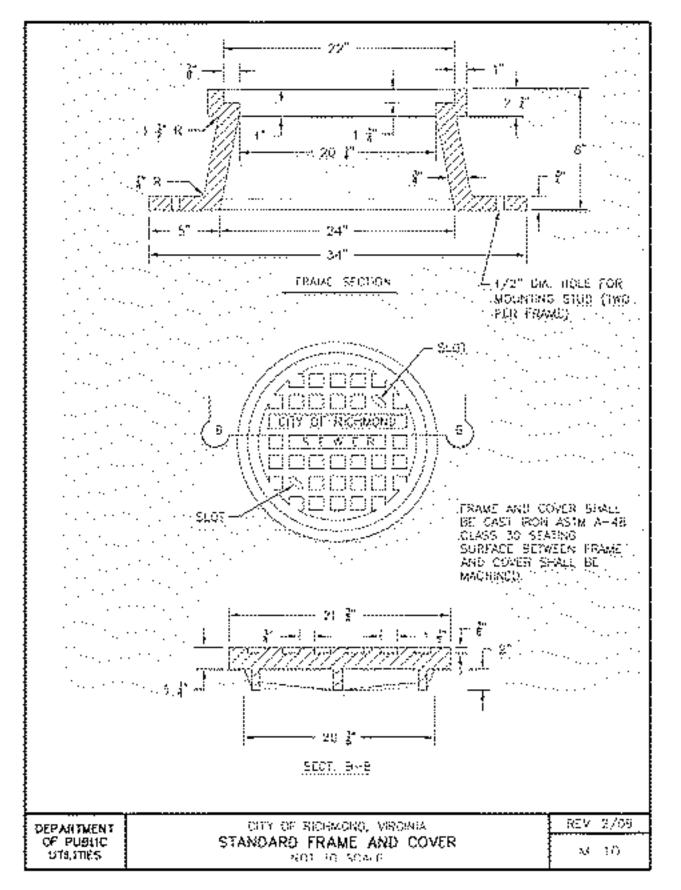
OF PUBLIC

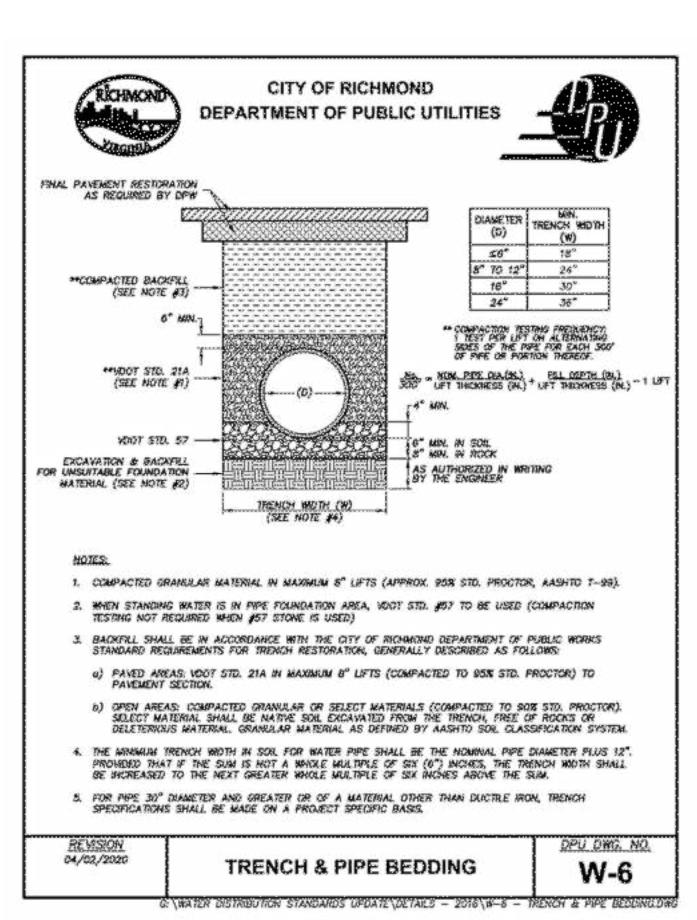
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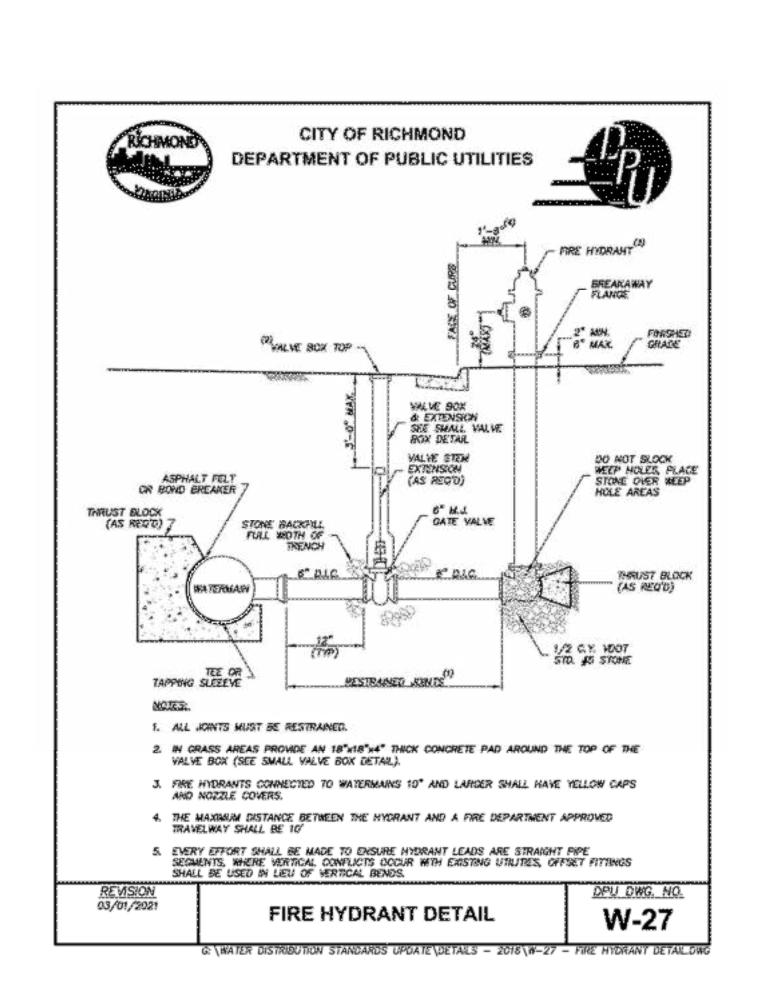
SHAM NICASERA(S. PER MANHO) F



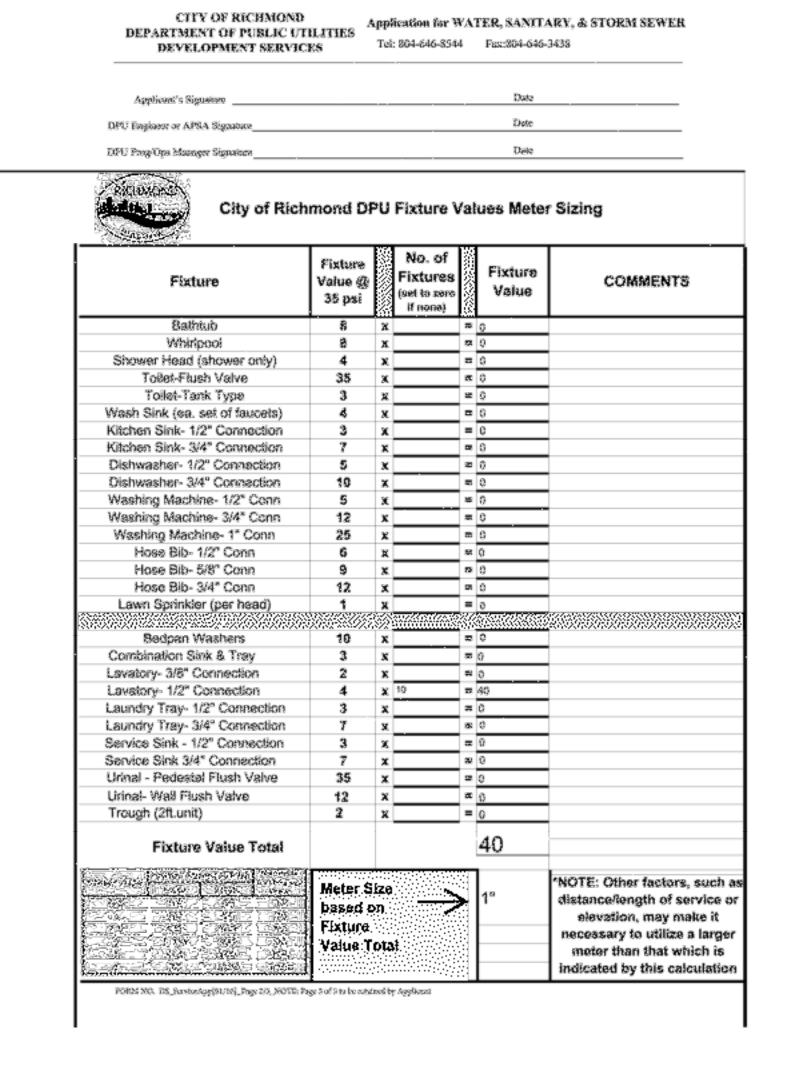








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CHRISTOPHER **THOMPSON** Lic. No. 055008 12-20-2021

DATE: FEBRUARY 5, 202

REVISION BLOCK

CITY COMMENTS

CITY COMMENTS

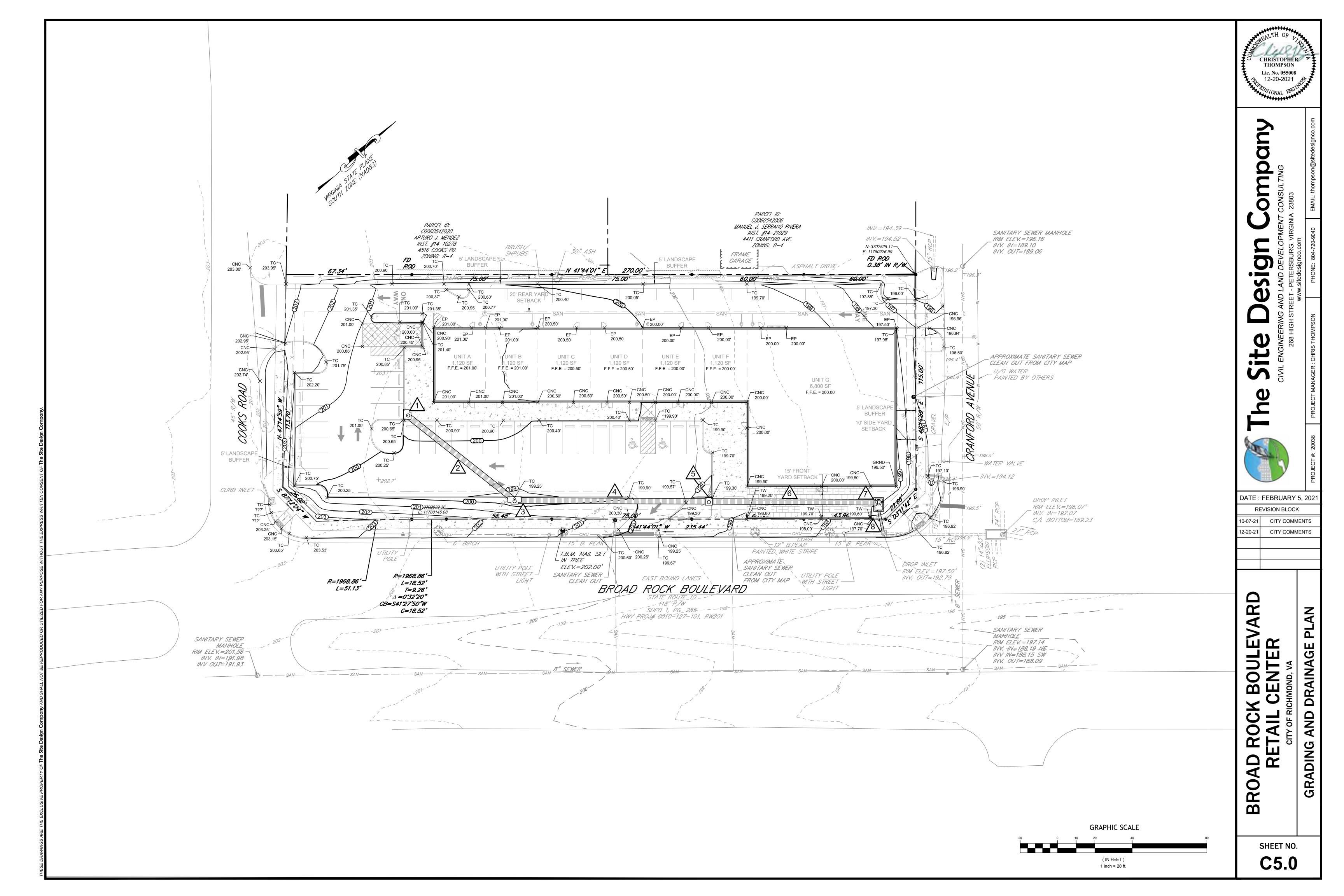
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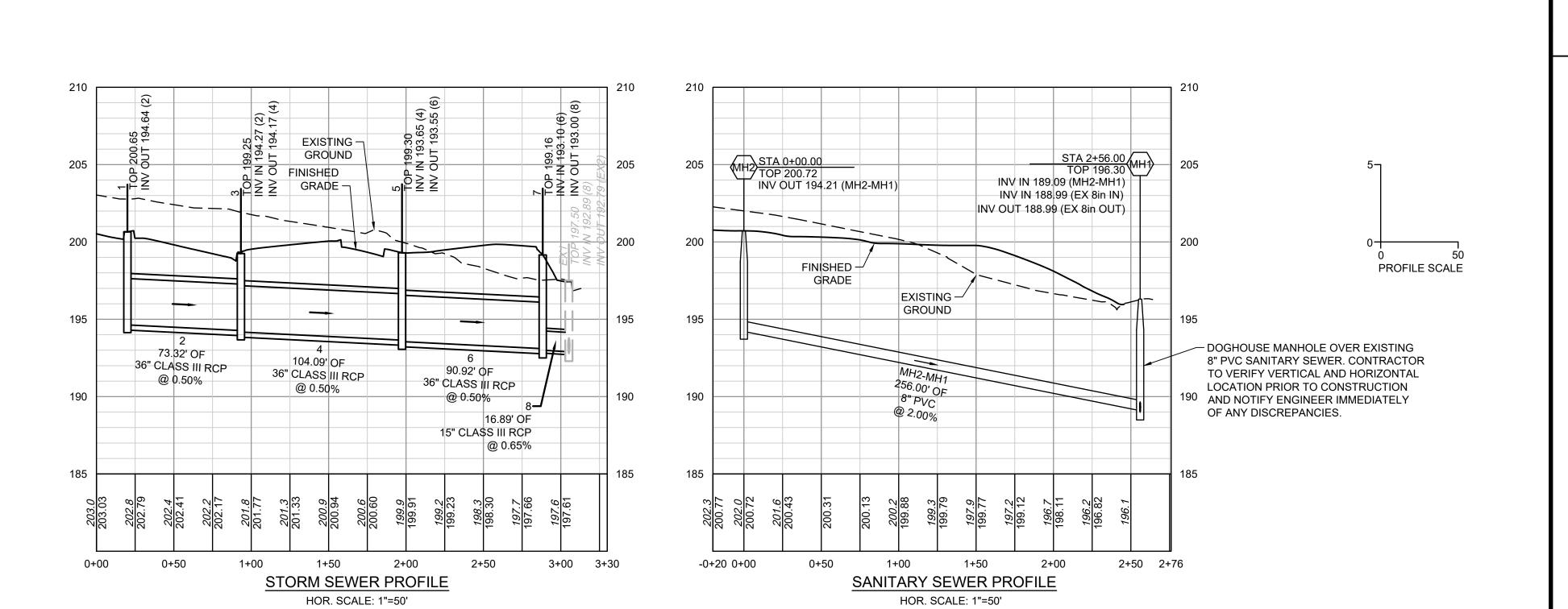
10-07-21

12-20-21

SHEET NO.

C4.2





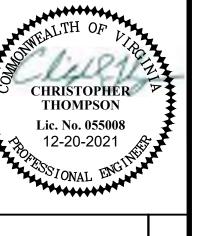
VERT. SCALE: 1"=5'

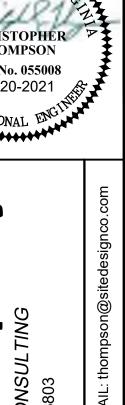
INLET SHAPING - SLOPE TO DRAIN

TOWARD OPENING FROM ALL

DIRECTIONS

VERT. SCALE: 1"=5'





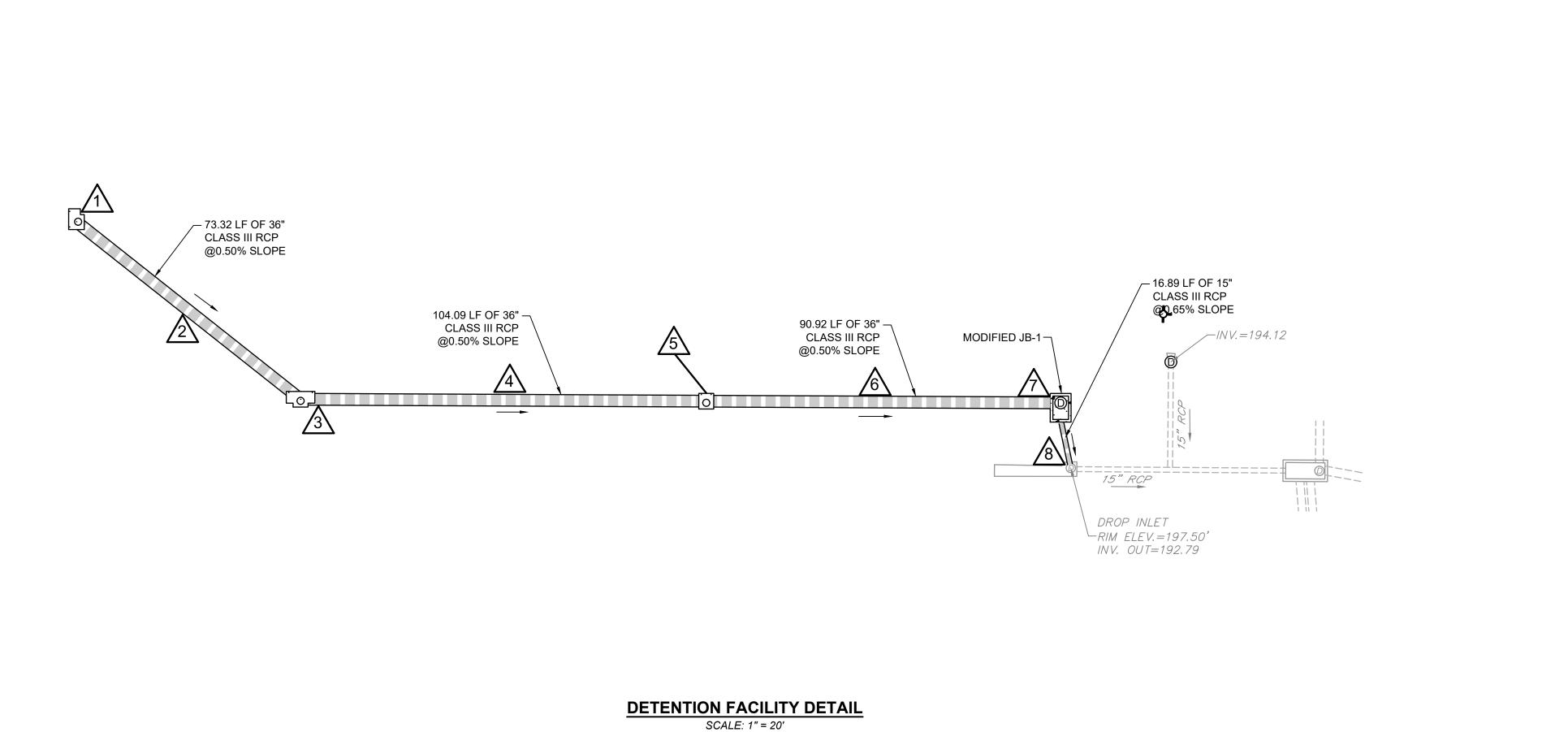
DATE: FEBRUARY 5, 2021 REVISION BLOCK 10-07-21 CITY COMMENTS

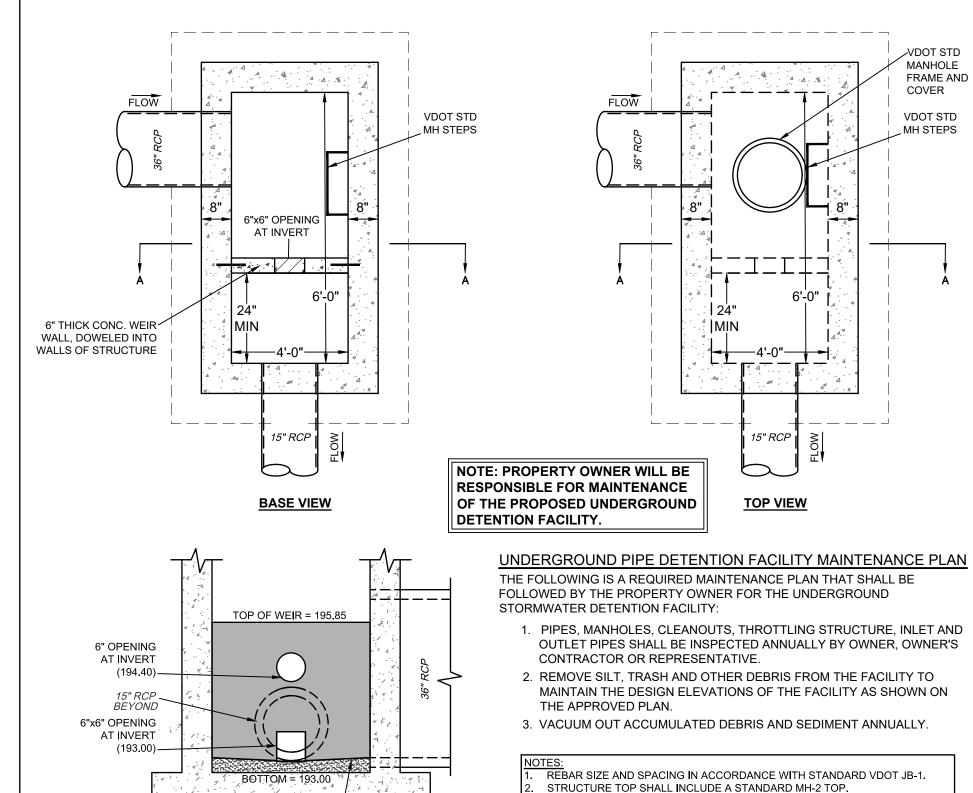
CITY COMMENTS

12-20-21

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SHEET NO.





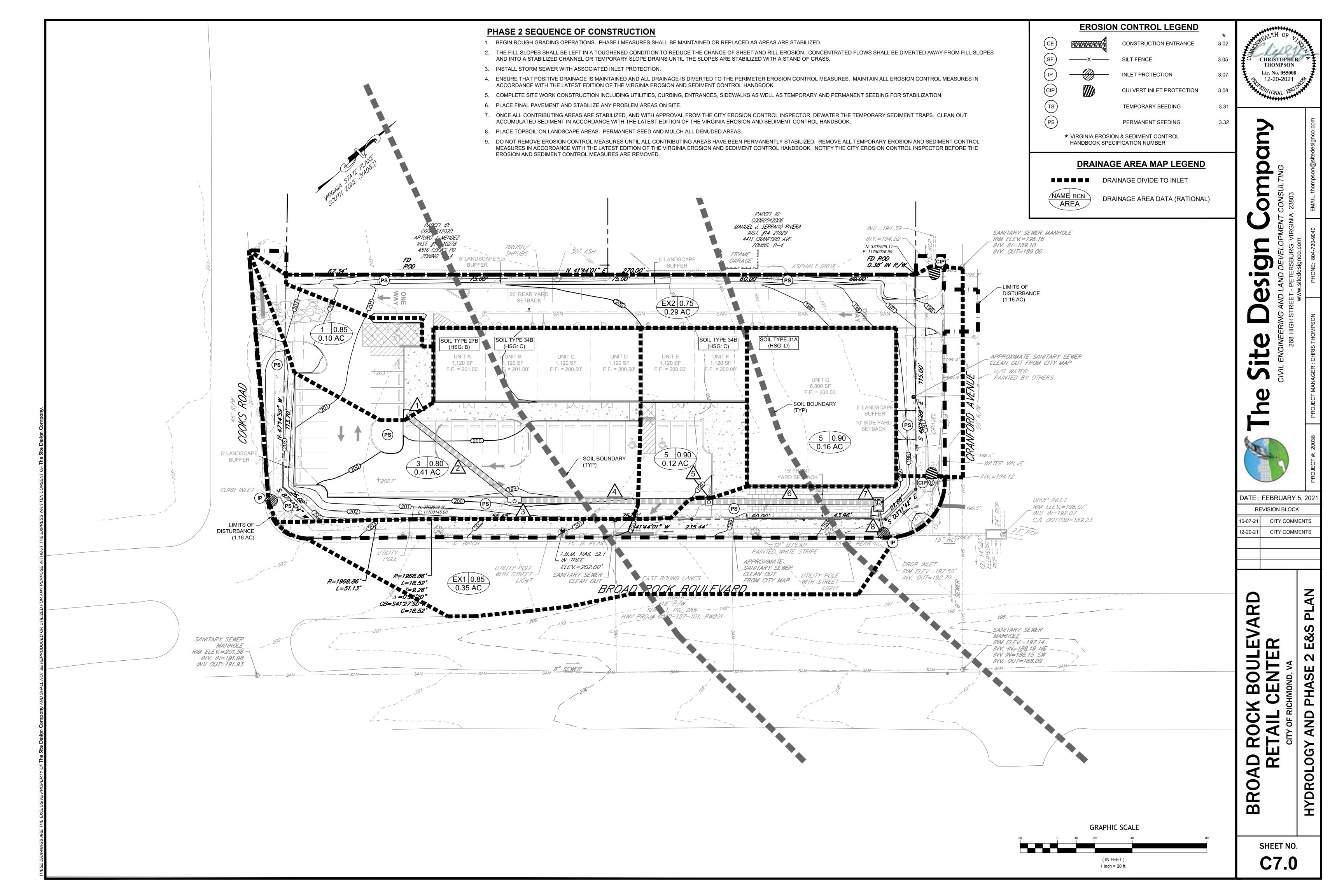
INSTALL IS-1 (INLET SHAPING), IN ACCORDANCE WITH VDOT STANDARDS.

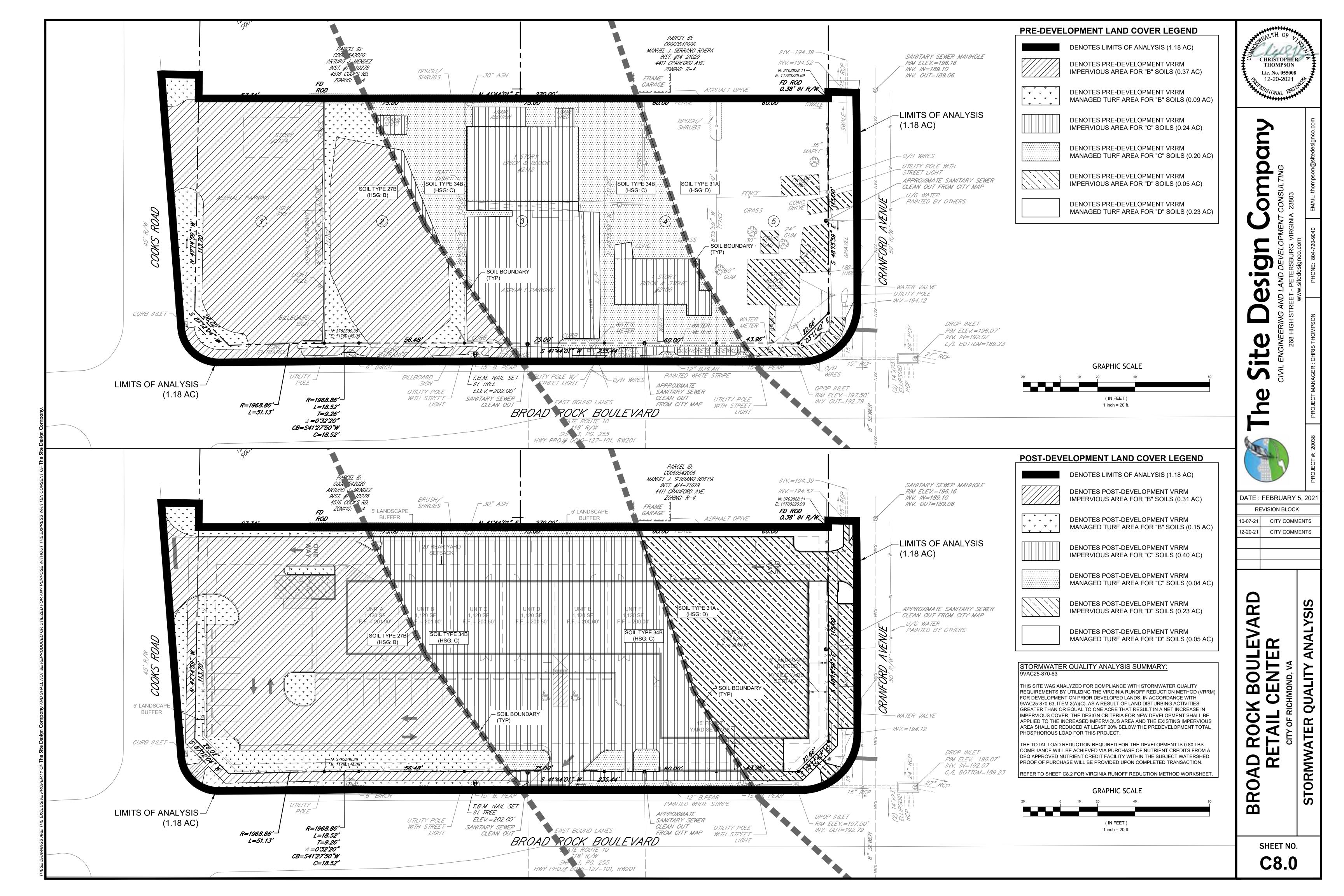
CONCRETE WEIR WALL TO INCLUDE HORIZONTAL AND VERTICAL NO. 4
REBAR 12" ON CENTER, DOWELED INTO VERTICAL WALLS OF JUNCTION BOX.

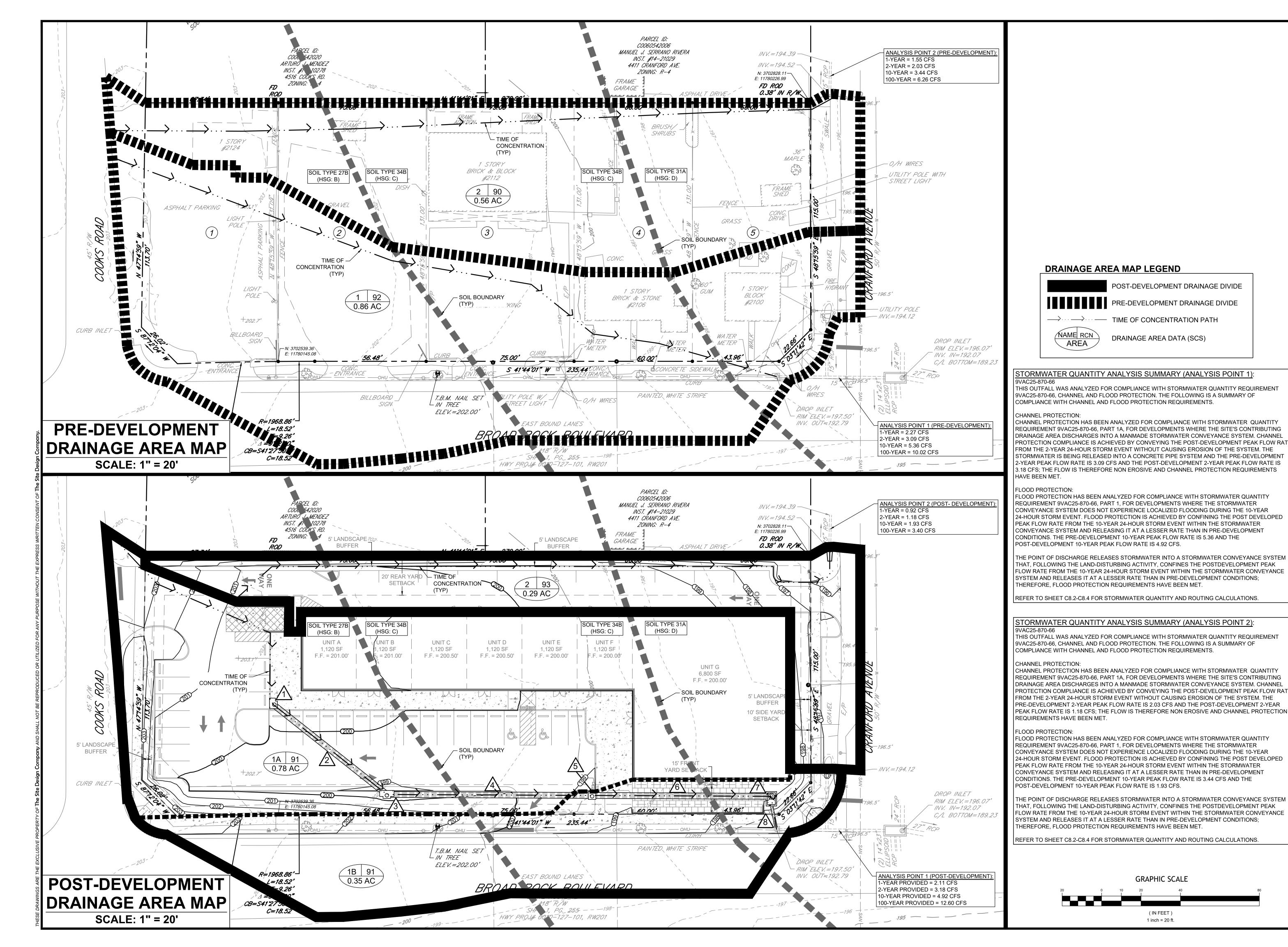
INSTALL MH STEPS IN ACCORDANCE WITH VDOT STANDARDS.

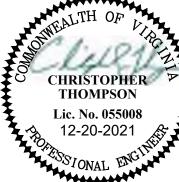
MODIFIED JB-1 DETAIL

SCALE: NONE









POST-DEVELOPMENT DRAINAGE DIVIDE

TIME OF CONCENTRATION PATH

DRAINAGE AREA DATA (SCS)

1 inch = 20 ft.

S

DATE: FEBRUARY 5, 202° REVISION BLOCK

CITY COMMENTS CITY COMMENTS

12-20-21

SHEET NO.

C8.1

WORKSHEET FOR SCS HYDROLOGIC PARAMETERS

| | х | Existing | Project: Broad Rock Rolail |
|--------------------|---|-----------|----------------------------|
| Site Conditions: | | Proposed | Şubares Number: AREA 1 |
| | | | |
| | Х | L xistino | By: Chris Thompson |
| Off-Site Land Use: | | Proposed | Date: |

RUNOFF CURVE NUMBER

| Soil Group | | Land Use or Zoning | Area (acres) | RCN . | RCN x Area |
|---------------|---------|--------------------|-----------------|-------|---------------|
| В | On-Site | Managed Turf | 0.07 | 61 ' | 4.0 |
| н | On Site | Imperanus | 0.40 | 98 | 39/2 |
| С | On-Site | Managed Turf | 0.05 | 74 | 3.7 |
| C | On Site | Imper Jous | 0.21 | 98 | 20 6 |
| D | On-Sife | Managed Turl | 0.07 | 80 | 5.0 |
| L) | On Site | Impervious | 0.06 | 98 | 5 O |

| Total Area | 0.80 | ac | 0.001 s ₀ . mi | Weighted RCN = | 92 | |
|------------|------|----|---------------------------|----------------|----|---|
| | | | - | - , | | J |

TIME OF CONCENTRATION

| ll) | Type of Llow | П | L ength | Slope | Area | Wet P | Velocity | Ic |
|-------------|-----------------|------|---------|---------|------|---|-----------------------|-------------|
| | | | (ft) | (ft/ft) | (st) | (ft) | (fps) | (lus) |
| Sheet | . Flow (P₂= 3.4 | in) | | | | | | |
| | Crass | 0.15 | 100 | 0.01 | | 0.007 (nL) | | 0.21 |
| | | | | |] | (P ₂) ^{3,3} S ^{3,4} | | |
| | | | | | | | | |
| Shallow Cor | centrated Flow | • | | | | Fig. | 0.1. TR-55 | T;=L/0600V) |
| | Paved | | 250 | 0.02 | | | 2.0 | 0.02 |
| Çh | annel fino | | | | | | | T;:1/3600V) |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | - | - | - | - | Total T _{ii} | 0.23 |

WORKSHEET FOR SCS HYDROLOGIC PARAMETERS

| | х | Exierng | Project: Brase Rock Retail |
|--------------------|---|----------|----------------------------|
| Site Conditions: | | Proposed | Subarea Numbar: AREA 1 |
| | | | |
| | X | Existing | By: Chris Thompsor |
| Off-Site Land Use: | | Proposed | Date: |

RUNOFF CURVE NUMBER

| Scil | | Land Use or Zoning | Area | RCN | RCN x |
|-------|---------|--------------------|---------|-----|-------|
| Group | ı | | (Bores) | | Area |
| В | On-Site | Managed Turf | 0.12 | 61 | 7.3 |
| В | On-Site | Impervious | 0.42 | 98 | 41.2 |
| С | On-Site | Managed Turf | 0.02 | 74 | 1.5 |
| С | On-Site | Impervious | 0.41 | 98 | 40.2 |
| 0 | On-Site | Managed Turf | 0.01 | 89 | 9.0 |
| | On-Site | Impervious | 0.15 | 98 | 14.7 |

Weighted RCN = 93

| Total Ares | 1.13 | 90 | 0.002 sq. mi |
|------------|------|-----|--------------|
| TIME OF C | ONCE | NTR | ATION |

| ID | Type of Flow | n | Length (fl) | Slope (fi/ft) | Area (sf) | Wet P (fl) | Velocity (fps) | T0 (hrs) |
|-------------|---------------------------|-------|----------------|------------------|--------------|---------------------------------|----------------------|--------------------|
| Sheet | t Fow (P. = 3.4 | In ; | | | | | | |
| | Grass | 0.15 | 25 | 3.C1 | - | 0.007 (nL) | t | 0.07 |
| | | | | | , | $(P_2)^{0.5} \mathbb{S}^{0.5}$ | | , |
| | | | | | | | | |
| Shallow Co. | Shallow Concentrated Flow | | | | | Fig. | 3.1, TR-55 | T;=L/3800V) |
| | Peved | | 50 | 3.06 | | | 5 | 0.00 |
| | Paved | | 90 | 3.01 | | | 2 | 0.01 |
| CH | annel Flow | | | | | | | $T_{j}{=}L/3600V)$ |
| 38" RCP | Pips | 0.011 | 268 | 0.005 | 7,069 | 9.4248 | 7.91 | 0.009 |
| | | | | | | | | |
| | | | | | | | | |
| - | | | | | | | Total T _c | 0.10 |

WORKSHEET FOR SCS GRAPHICAL PEAK DISCHARGE

| Project: | Broad Rock Retail |
|-----------------|-------------------|
| Subarea Number: | AREA 1 |
| Ву: | Chris Thompson |

Existing Conditions

| 0.86 acres | 0.001 square mi |
|------------|-----------------|
| 92 | |
| 0.23 hours | |
| | |
| | |
| | 92 |

| | | Storm 1 | S1am 2 | S1am 3 | Storm 4 |
|------------------------|--------|---------|--------|--------|---------|
| Frequency | yτ | 1 | 2 | 10 | 100 |
| P, 24-hour raintall | יחי | 2.8 | 3,4 | 5.1 | 8.4 |
| hitia Abstraction. L | iı1 | 0.171 | 0.171 | 0.171 | 0.171 |
| Compute "/P | | 0.06 | 0.05 | 0.03 | 0.02 |
| Unit Peak Discharge, q | csm/in | B50 | 900 | 950 | 1000 |
| Runoff, q | in | 1.98 | 2.56 | 4.20 | 7.46 |
| Peak Discharge G | c1s | 2.27 | 3.09 | 5,36 | 10.02 |
| RV (Runoff Volume) | | 0.142 | | | |

WORKSHEET FOR SCS HYDROLOGIC PARAMETERS

| | x Existing | Project: Broad Rouk Relail |
|--------------------|------------|----------------------------|
| Site Conditions: | Proposed | Subares Number: AREA 2 |
| | x Existing | By- Chris Thompson |
| Off-Site Land Use: | Proposed | Data: |

RUNOFF CURVE NUMBER

| Spil Group | | Land Lise ur Zoning | Area racres) | RON | RCN x Area |
|---------------|---------|---------------------|-----------------|----------------|---------------|
| B | On-Site | Managed Turf | 0.02 | 61 | 1.2 |
| В | On-Site | lm parviuus | 0.09 | 98 | 5.8 |
| С | Dn-Site | Managed Turt | C.15 | 74 | 11.1 |
| Ċ | On-Site | impenicus | C.11 | 5 6 | 10.8 |
| D | On-Site | Managed Turf | 0.02 | 80 | 1.8 |
| D | Dn-Site | Impervicus | C. 17 | 56 | 10.7 |

| Aiss | 0.58 | ac | 0.001 sq. mi | Weighted RCN = | 50 |
|------|------|----|--------------|----------------|----|
| | | | | • | |

TIME OF CONCENTRATION

| ID Type of Flow | п | Langth | Slope | Area | Wet P | Ve ouity | Tu |
|---------------------------|------|--------|---------|------|---------------------------|----------------------|--------------------------|
| | | (ft) | (fl/ft) | (81) | (ft) | (lps) | (118) |
| Sheet Flow (Py= 3.4 | in.) | | | | | | |
| Grass | 0.15 | 100 | 0.1 | ١. | 0.007 (nL) | 3 | 0.08 |
| • | | | | | (P2)*** \$ ^{0.4} | | |
| | | | | | | | |
| Shallow Curreenhated Fluw | ı | | | | Fig. | 3.1, TR-55 | T _t =L/3600V) |
| Devedu | | 267 | 0.028 | | | 2.7 | 0.03 |
| Channul Flow | | | | | | | T ₁ =L/3600V) |
| Chainn -low | | | | | | | 11-10360007 |
| | | | | | | | |
| • | | | | | | | |
| | | | | | | | |
| | | | | | | Total T _c | 0.11 |

WORKSHEET FOR SCS HYDROLOGIC PARAMETERS

| Site Conditions: | Ι | Existing Proposad | Project: Broad Rock Retail Subarea Number: AREA 2 |
|-------------------|---|----------------------|--|
| Οπ-Site Land Use: | - | Existing Proposed | By: Chris Thompson Date: |

RUNOFF CURVE NUMBER

| | · · | (acres) | | Area |
|---------|--------------------------------------|--|---|--|
| Ch-Site | Manugari Turf | 0 C1 | 61 | 0.6 |
| On-Site | mpervious | 0.03 | 98 | 2.9 |
| Ch-Site | Managed Turf | 0 C2 | 74 | 1,5 |
| Ch-Site | mpervious | 0.09 | 98 | 88 |
| Cr-Site | Managed Turf | 0.04 | 80 | 3.2 |
| On-Site | mpervious | 0.10 | 98 | 9.8 |
| | OnSite OnSite OnSite OnSite | On-Site mpenious On-Site Managed Turf On-Site mpervious On-Site Managed Turf | Ch-Site Managed Turf 0.01 Ch-Site mpenious 0.03 Ch-Site Managed Turf 0.02 Ch-Site mpenious 0.09 Ch-Site Managed Turf 0.04 | Ch-Site Managed Turf 0.01 61 Ch-Site mpenious 0.03 98 Ch-Site Managed Turf 0.02 74 Ch-Site mpenious 0.09 98 Ch-Site Managed Turf 0.04 80 |

| real | 3.29 | ac | 0.000 sa. mi | Weighted RCN = | 93 |
|------|------|----|--------------|----------------|----|

TIME OF CONCENTRATION

| ID | Type of Flow | ŋ | Length (f.) | Slope (fb/ft) | Area (sf) | Wet P (ft) | Velocity (fps) | To (hrs) |
|--------------|-------------------------------|-----|----------------|------------------|--------------|--|-------------------------|-------------------------|
| She | et Finw (P ₂ = 0.4 | in) | | | | | | |
| | Gresa 0.01 | | | 0.02 | | 0.007 (nL) ² (P ₂) ^{6,5} S ^{3,4} | | 0.01 |
| | | | | | | <u> </u> | | |
| Shallow C | oncentrated Flow | | | | | Fig. | 3.1. TR-£5 | T _I =L+3000V |
| | Paved | | 295 | 0.037 | | | 17 | 0.05 |
| Channel Flow | | | | | | | T _I =L'3000V | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | Total T _i | 0.10 |

WORKSHEET FOR SCS GRAPHICAL PEAK DISCHARGE

| Project: Subarea Number: | Brose Rock Reta |
|-----------------------------|-----------------|
| Subsiea Nulliusi. | AREA 2 |
| Ву: | Chis Thempson |

Existing Conditions

| Proposed Project Data Summary | | |
|---------------------------------------|------------|-----------------|
| Drainage Aree | 0.58 arres | 3.001 square mi |
| Runoff Curve Number | 90 | |
| Time of Concentration | 0.11 hours | |
| Reinfell Distribution Assumed Type II | | |
| | | |

| | | Storm 1 | Storm 2 | Storm ? | Storm 4 |
|----------------------------|--------|---------|---------|---------|---------|
| Frequency | уг | 1 | 2 | 10 | 100 |
| F. 24-hour rainfall | in | 2.8 | 3.4 | 5.1 | 6.4 |
| Initia Abstrection. I, | in | 0 232 | 0.232 | 0.232 | 0.232 |
| Compute _# /P | | 0.08 | 0.07 | 0.05 | 0.03 |
| Unit ⊇eak Discharge, c., | esm/in | 1000 | .000 | 1000 | .000 |
| Runoff q | in | 1.77 | 2.32 | 3.93 | 7.15 |
| Foak Dischargo, G | ofs | 1.55 | 2.03 | 3.44 | 6.28 |
| RV (Runaff Volume) AC*FT | | 3.083 | | | |

Proposed Conditions

| Proposed Project Data Summary | | |
|---------------------------------------|------------|-----------------|
| Drainage Area | 0.29 agres | 3,000 square mi |
| Runoff Curve Number | 93 | |
| Time of Concentration | C 10 haurs | |
| Reinfell Distribution Assumed Type II | | |

| | | Storm 1 | Storm 2 | Storm 3 | Storm 4 |
|-------------------------------------|--------|---------|---------|---------|---------|
| Frequency | уг | 1 | 2 | 10 | 100 |
| P, 24-hour rainfall | in | 2.8 | 34 | 5.1 | 84 |
| Initia Abstraction I _a | ın | 0 160 | 0 160 | 0 160 | 0 160 |
| Compute _a /P | | 0.06 | 0.05 | 0.03 | 0.02 |
| Unit ⊇eak Discharge, c _t | csm/in | 1000 | .000 | 1000 | .000 |
| Runoff q | ın | 2.03 | 2.60 | 4.25 | 7,51 |
| Peak Discharge Q | ofs | 0.92 | 1.*B | 1.93 | 3.40 |
| RV (Ruhoff Volume) ACIFT | | 3,049 | | | |

DEQ Virginia Runoff Reduction Method Re-Development Compliance Spreadsheet - Version 3.0 © 2013 Draft BMP Standards and Specifications © 2011 BMP Standards and Specifications data input cells CLEAR ALL Broad Rock Retail Project Name: constant values. 9/30/2021 ealculation cells Linear Development Project? No Site Information final results

Post-Development Project (Treatment Volume and Loads)

| Enter Total Disturbed Area (ocres) → | 1.18 |
|---|------|
| Maximum reduction required: | 20% |
| The site's net increase in impervious cover (acres) is: | 0.28 |
| Post-Development TP Load Reduction for Site (lb/yr): | 0.80 |

| Check: | |
|-------------------------------------|-------------------------|
| BMP Design Specifications List: | 2013 Draft Stds & Specs |
| Linear project? | No |
| Land cover areas entered correctly? | V |
| Total disturbed area entered? | ~ |

| | A Softs | 8 Salb | CSolis | D Sells | Totals |
|---|---------|--------|--------|---------|--------|
| Forest/Open Space (acres) — undisturbed, protected forest/open space or reforested | | | | | 0.00 |
| Managed Turf (acres) disturbed, graded for yords or other turf to be | | 0.09 | 0.20 | 0.23 | 0.52 |
| Impervious Cover (scres) | | 0.37 | 0.24 | 0.05 | 0.66 |
| | | | | | 1.18 |

| | A Softs | 8 Seils | CSolls | D Solls | Tetals |
|--|---------|---------|--------|---------|--------|
| Forest/Open Space (acres) — undisturbed, protested forest/open space or reforested. | | | | | 0.00 |
| Managed Forf (scren) disturbed, graded for yants or other turf to be | | 0.15 | 0.04 | 0.05 | 0.24 |
| impervious Cover (acres) | | 0.11 | 0.40 | 0.23 | 0.94 |
| Area Check | OK. | OK. | OK. | OK. | 1.18 |

| Constants | |
|----------------------------------|------|
| Annual Rainfall (inches) | 43 |
| Target Rainfall Event (inches) | 1.00 |
| Total Phosphorus (TP) EMC (mg/L) | 0.26 |
| Total Norogen (TN) EMC (mg/L) | 1.86 |
| Target TP Load ((b/scm/yr) | 0.41 |
| Pl (unitiess correction factor) | 0.90 |

| | A Sods | B. Soile | CSode | D Seils |
|-------------------|--------|----------|-------|---------|
| Forest/Open Space | 0.02 | 0.03 | 0.04 | 0.05 |
| Managed Furf | 0.15 | 0.20 | 0.22 | 0.25 |
| Impenéous Cover | 0.95 | 0.95 | 0.95 | 0.95 |

| Land Cover Summary-Pre | | | | |
|---------------------------------|-------|----------|--|--|
| Pre-ReDevelopment | Dated | Adjusted | | |
| Forest/Open Space Cover (Acres) | 0.00 | 0.00 | | |
| Weighted Bylforest) | 0.00 | 0.00 | | |
| %Forest | DN | 0% | | |
| Managed Turf Cover (acres) | 0.52 | 0.34 | | |
| Weighted Rv(turf) | 0.23 | 0.21 | | |
| % Managed Forf | 44% | 27% | | |
| Impervious Cover (acres) | 0.66 | 0.66 | | |
| Rijmpervisus) | 0.95 | 0.95 | | |
| % Impervious | 50% | 73% | | |
| Total Site Area (scres) | 1.18 | 0.90 | | |
| Site Nr | 0.68 | 0.75 | | |

| Treatment Volume and | d Nutrient L | oad |
|---|--------------|--------|
| re-ReCevelopment Treatment Volume (scre-ft) | 0.0622 | 0.0545 |
| ne-ReDevelopment Treatment Volume (cubic feet) | 2,790 | 2,452 |
| Pre-ReDevelopment TP Load (Ib/yr) | 1.70 | 1.55 |
| Fire ReClavel spinsers! This could per a prie (Stufe credys) | 144 | 130 |
| Raseline TP Lead (10/yr) E.41 Be/wee/proposed to revision species pervises land proposed for new impersion | | 0.37 |

| Pre-ReClevelopment Treatment Volume (scre-fd) | 0.0622 | 0.0545 |
|---|--------|--------|
| Pre-ReDevelopment Treatment Volume (cubic feet) | 2,790 | 2,462 |
| Pre-ReDevelopment TP Load (R/yr) | 1.70 | 1.55 |
| Fre ReDevelopment TP Load per agre (Rulecrefyt) | 144 | 130 |
| Sessione TP Lead (18/yr) (6.41 Be/wee/yr applied to pre-redeal operation pervious land proposed for neuroperation | | 0.37 |

| Adjusted Lond Cover Summary: |
|--|
| PVE Redevelopment land cover minus pervious land cover florest/open space or |
| managed turf) acreage proposed for new impensious cover. |
| |

| Adjusted total acreage is a | Afrill Introduction | Past-ReDevelope | riekt abreage fimirio |
|-----------------------------|---------------------|-----------------|-----------------------|
| acreage of new impension | | | |
| | | | |

| | Rigimient Jobs | at the second | and the said | San San and Mills | | | |
|-------------------|-----------------|---------------|--------------|-------------------|--------|--|--|
| NAME AND ADDRESS. | 20/20/00/P 20/2 | SERVICE IN | all lines | | 400000 | | |

| Land Cover Summary | Fort (Doof) | Land Cover Summ | one-Post | Land Cover Summe | no-Post |
|---|-------------|--|----------|---|---------|
| Post ReDev. & New | | Pest ReDevelo | | Post-Development New | - |
| Forest/Open Space Cover (scres) | 0.00 | Forest/Open Space Cover (sores) | 0.00 | | |
| Weighted Rufforest) | 0.00 | Weighted Rv(forest) | 0.00 | | |
| % Forest | 0% | % Foresz | 0% | | |
| Managed Turf Cover (acres) | 0.24 | Managed Turf Cover (acres) | 0.24 | | |
| treighted for (burt) | 0.21 | streighted by (surf) | 0.21 | | |
| % Managed Turf | 20% | % Managed furf | 27% | | |
| Impervious Cover (acres) | 0.94 | ReDev, Impervious Cover (acres) | 0.66 | New Impervious Cover (acres) | 0.28 |
| Re(Impervious) | 0.95 | (b)(impenious) | 0.95 | (N/mpervious) | 0.95 |
| % Impensious | 80% | % impervious | 73% | | |
| Final Site Area (scres) | 1.18 | Total ReDev. Site Area (sores) | 0.90 | | |
| Final Post Dev Site By | 0.80 | ReCevisite Re | 0.7% | | |
| Pinel Pest- Deve logment Treatment Volume (acre-ft) | 0.0767 | Font-ReDevelopment Treatment Volume (sere-ht) | 0.0565 | Post-Development Treatment Volume (acre-ft) | 0.0222 |
| Final Post- Deve logment Treatment Volume (cubic feet) | 3,428 | Post-ReDevelopment Treatment Volume (nable feet) | 2,462 | Post-Development Treatment Volume (outsic feet) | 966 |
| Final Post- Development TP Load (By'yr) | 2.15 | Fout-ReDevelopment load (TP) (Relyr)* | 1.55 | Pest-Development TP Load (fb/yr) | 0.61 |
| Final Past Development 19 Load per acre (No'erra/p) | 180 | Foot-Bidbevelopment TP tood per sore (Bidwenter) | 130 | | |
| | | Max. Reduction Required States Fre- | 20% | | |

TP Load Reduction Required for

Referenced Area

TP Load Reduction

Required for New

Impervious Area

Post-Development Requirement for Site Area

TP Load Reduction Required (Ib/yr)

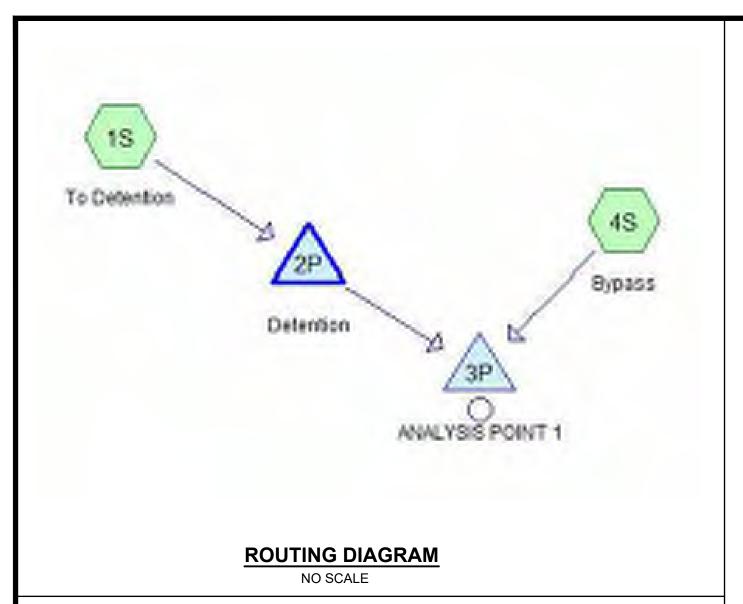


DATE: FEBRUARY 5, 2021 REVISION BLOCK

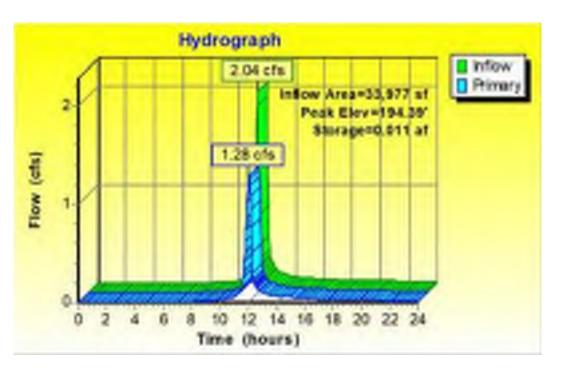
10-07-21 CITY COMMENTS 12-20-21 CITY COMMENTS

AND DETAILS

STORMWATER MANAGEMENT NOTES



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Summary for Pond 2P: Detention

[44] Hirt Outlet device #2 is below defined sibrage

Infox Aves = 35,977 st. 6,00% impervious, inflow Depth = 1,52° for 1 Year event. 2.04 dk @ 11.97 hrs. 16/umen 4,298 cf 1.29 cfs (E) 12:05 lvs. Valumen 4,297 ct. Abunn 37%; Lagn 4.6 min 128 ds @ 1205 hrs. Warren 4.297 ct Primary T

Routing by Stor Ind method, Time Spann 0:00-24:00 hrs, dtr 0:04 hrs / 9. Peak Berr 154.30' @ 12.05 hrs. SurfAsear 0.017 ac. Storagen 0.011 af

Plug-Flow detention times 1.9 min osiculated for 4,250 of (100% of inflow) Contract Mass del Smot 18 min (8117 - 800.0)

| Volume | ineri | Anii Storage | Storage Description | |
|--------|--------|--------------|---|--|
| #1 | 193.10 | 0030 M | 36.0" Round Pipe Storage ±2 L=91.0" (S=0.0050.7" | |
| 1/2 | 193.65 | 0017# | 34.0" Round Pipe Storage L= 104.0" S= 0.0050.7 | |
| 45 | 19427 | 0012# | 34.0" Round Pipe Storage L=73.0" S=0.00507 | |
| | | 0.058 af | Total Available Storage | |

| 0.058 af Total Available Storage | | | | | |
|----------------------------------|----------|--------|---|--|--|
| Device | Routing | inet | Outlet Devices | | |
| 81 | Primary | 169.00 | 15.3" Round Culvert Lin 16.0" Ken 0.500 | | |
| | | | Intel / Outlet Invests 193.007 / 192.807 Sir 0.0065 7 Col-0.900 no 0.013, Play Areas 1.23 of | | |
| 82 | Device 1 | 199.00 | 6.0"W x 6.0" Hillert, Orffice/Grate CH0.600 | | |
| | | | Limited to weir flow at low heads | | |
| #3 | Device 1 | 194.40 | 6.0" Vert. Or Rice/Grate C= 0.000 Limited to wait flow at low? | | |
| 64 | Device 1 | 195.85 | 4.0' kmg x 9.5' breedth Broad-Creeted Rectangular Weir Head (Net) 0.20 0.40 0.60 0.80 1.00 | | |

Coef (English) 2.80 2.92 3.08 5.30 5.32

Primary Outflow Mont 28 ob (\$1235 for HAR154.38" (Free Discharge) -5+Culvert (Passes 128 dis of 438 dispotential flow)

-2x-Orifice/Grate (Orifice Controls 128 ds (\$5.11 tw) -3+Critica/Grate (Controls 0.00 (%)

0.02

0.02

24.00

- 4-Broad Crested Restangular Weir (Controls 0:00 ds)

Hydrograph for Pond 2P: Detention

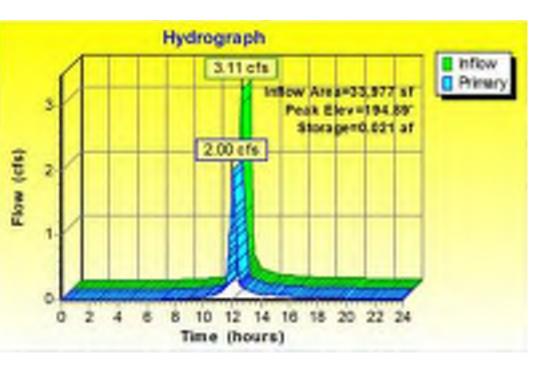
| Time | Inflow | Storage | Elevation | Primary | |
|--------|--------|-------------|-----------|---------|---|
| hours) | (cfs) | (acre-feet) | (feet) | (cfs) | 0 |
| 0.00 | 0.00 | 0.000 | 193.10 | 0.00 | 7 |
| 0.80 | 0.00 | 0.000 | 193.10 | 0.00 | |
| 1.60 | 0.00 | 0.000 | 193.10 | 0.00 | |
| 2.40 | 0.00 | 0.000 | 193.10 | 0.00 | |
| 3.20 | 0.00 | 0.000 | 193.10 | 0.00 | |
| 4.00 | 0.00 | 0.000 | 193.10 | 0.00 | |
| 4.80 | 0.00 | 0.000 | 193.10 | 0.00 | |
| 5.60 | 0.00 | 0.000 | 193.10 | 0.00 | |
| 6.40 | 0.00 | 0.000 | 193.10 | 0.00 | |
| 7.20 | 0.00 | 0.000 | 193.10 | 0.00 | |
| 8.00 | 0.01 | 0.000 | 193.10 | 0.01 | |
| 8.80 | 0.01 | 0.000 | 193.11 | 0.01 | |
| 9.60 | 0.02 | 0.000 | 193.11 | 0.02 | |
| 10.40 | 0.03 | 0.000 | 193.12 | 0.03 | |
| 11.20 | 0.08 | 0.000 | 193.14 | 0.08 | |
| 12.00 | 1.90 | 0.010 | 194.32 | 1.24 | |
| 12.80 | 0.12 | 0.000 | 193.18 | 0.12 | |
| 13.60 | 0.08 | 0.000 | 193.15 | 0.08 | |
| 14.40 | 0.06 | 0.000 | 193.13 | 0.06 | |
| 15.20 | 0.05 | 0.000 | 193.13 | 0.05 | |
| 16.00 | 0.04 | 0.000 | 193.12 | 0.04 | |
| 16.80 | 0.04 | 0.000 | 193.12 | 0.04 | |
| 17.60 | 0.03 | 0.000 | 193.12 | 0.03 | |
| 18.40 | 0.03 | 0.000 | 193.12 | 0.03 | |
| 19.20 | 0.03 | 0.000 | 193.12 | 0.03 | |
| 20.00 | 0.02 | 0.000 | 193.11 | 0.02 | |
| 20.80 | 0.02 | 0.000 | 193.11 | 0.02 | |
| 21.60 | 0.02 | 0.000 | 193,11 | 0.02 | |
| 22.40 | 0.02 | 0.000 | 193.11 | 0.02 | |

0.000

0.000

193.11

193.11



Summary for Fond 2P: Detention

[44] Hint Outlet device #2 is below defined storage

20,977 at, 0.00% impervious, Inflow Depth > 2,37° for 2 Year event 3.11 of @ 11.67 hrs. Volumen 8,707 of Atlant 35%, Lagr 4.6 min 200-ch @ 12.06 hrs. Volumen 200 oh @ 12.06 hrs. Volumen 8,707 cF

Routing by Stirr Ind-method, Time Span=100-24.00 hrs. dt=0.04 hrs / 9 Peak Elev- 194.89' @ 12.04 hrs : Surf.Ansa+ E.023 ac : Storage+ E.021 af

Plug-Flow deterrition famors (not palculated; outflow precedes inflow). Center-children det Erner 2.7 min (800.0-797.3)

| Voorse | inet | And Strage | Storage Description |
|--------|--------|------------|---|
| #1 | 193.10 | 0.000 ur | 16.0" Round Pipe Storage x2 L+ 91.0" S+ 0.0050 " |
| 10 | 193.60 | 0.017 at | 36.0" Round Pipe Storage Lin 104.0" Sind 00507 |
| 1/3 | 19427 | | 26.0" Round Pipe Stinage L=73.0" (5+0.0050.7 |
| | | | Total Available Storage |

| Device | Routing | Invert | Outlet Devices |
|--------|----------|---------|---|
| - 81 | Primary | 193.00 | 15.0" Reset Calvert (= 16.0" Ker 0.500 Intel "Outlet Inset = 160.00" 152.80" S+ 0.0005 T Car 0.900 o+ 0.213, Flore Armen 1.23 of |
| 42 | Device 1 | 193.00 | 6.9" W x 6.0" HWest, Orlifox/Grate C= 0.000 Limited to weir flow of low heads |
| 80 | Device 1 | 194.40* | 6.9" Vert. Orlfice/Grate C=0.000 Limited to weinflow acids head 4.9" long x 9.5" breedth Broad-Creeted Rectangular Wein |

Head feet; 0.20 0.40 0.83 0.80 1.00

Coef (linglish) 2.80 2.92 3.08 3.30 3.32

Hydrograph for Pond 2P: Detention

0.000

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Primary QuiPlow Start 2.00 ofs @ 12.04 hrs HW-194.80* (Free Discharge) -5+Duhert (Passes 2:00 ofs of 6:18 ofs potential flow) -2-Ordina/Grate (Order Controls 1.54 ob (£6.15-ba) -9=Onlife w/Grater (Onlice Controls 0.46 ch @ 2.37 bo) 44Broad-Created Rectangular Well (Controls 000 cts)

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.01

0.03

0.04

0.13

2.88

0.18

0.11

0.08

0.07

0.06

0.05

0.04

0.04

0.03

0.03

0.03

0.03

0.03

Time

0.00

0.80

1.60

4.80

5.60

6.40

8.00

11.20

12.00

12.80

13.60

15.20

16.80

19.20

20.00

20.80

21.60

22.40

23.20

24.00

0.02

0.02

Hydrograph Inflow 5.06 cfs Primary Inflow Area = 33,977 at Peak Elev=195.81 Storagenti, 042 at 2.94 cfs 0 2 4 6 8 10 12 14 16 18 20 22 24 Time (hours)

Summary for Pond 27: Detention

[44] Hint: Outlet-denics #2 is below defined storage

| Inflow Av | 10.4 | 33,877 ut | 0.00% Impensious. | Inflow Depth > 3.96" for 15 Year event |
|-----------|------|-----------|---------------------|--|
| Inflow | | | 11.97 hrs. Volumen | 11,291 d |
| Cuttow | | | 12.05 hrs. Volument | 11,290 cf, Atmon-42%, Lag=5.1 min |
| Dimon | | | 12.05 bys. Malument | 11.260 at |

Routing by Size Indirection, Time Spanin 0.00 36.00 hrs., dtri 0.04 hrs. / B. Peak Bevil 195.811-@ 12.05 hrs. Surf.Arean 0.021 ac. Strager 0.002 af

Plug-Flow detention time = 3.0 min saloulated for 11,290 of (100% of inflow) Center-of-Mass det time=3.9 min (786.7 - 762.8)

| Volume | Inier | Anii Strage | Storage Description |
|--------|---------|-------------|---|
| #1 | 193,10" | | 36.6" Round Pipe Storage x2 L=91.0" 5=6.0050.7 |
| #2 | 193.65 | 0.917 af | 34.5" Round Pipe Storage L= 104.0 S=0.0055.7 |
| #3 | 194.27 | 0.012 at | 36.6" Round Pipe Storage L=750" S=0.0000 7 |
| | | 0.058 at | Total Available Storage |

| - | 10121 | - | L=75@ S=0.0007 |
|--------|----------|--------|--|
| | | 0.05 | 8 of Total Available Storage |
| Device | Routing | load | Outlet Devices |
| * | Primary | 190.00 | Inlet / Outlet Inverte 193.007 / 192.897 S=3.00857 Cc=3.900 |
| 82 | Device 1 | 193.00 | n=0013, Flow Assa=1,25 sf 6.8" M x 6.8" H.Wert, Orlfice/Grate C+0.003 |

Limited to year flow at low heads. #3 Device 1 194.67 6.0" Vert. Orlfice/Grate C+0.500 Limited to see flow at low heads 195.85" 4.8" long x 8.9" breadth Broad-Greated Rectangular Web Head fleet 0:20 0:40 0:80 0:80 1:00 Coef (English) 280 282 3.06 3.30 3.32

Hydrograph for Pond 2P: Detention

0.000

0.000

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Storage Elevation

193.10

193.10

193,10

193.10

193.10

193.11

193.11

193.11

193,12

193.14

193.15

193.19

193.28

195,64

193,32

193.23

193.19

193.17

193,15

193,14

193.14

193.13

193.13

193.13

193.13

Primary Outflow Navi 282 ds @ 12.05 hrs. HW-195.79* (Free Discharge) 1-5-Culture (Flasses 2:92 db of 6:59 db potential flow) -2-Griffew/Grate (Onfox Controls 1.92 cts @ 7.66 tps) -3=Griffee/Grete (Onfice Controls 1.01 ch (\$5.13 bs) -6-Broad-Created Rectangular Weir (Contols 0.00 ch)

0.00

0.00

0.00

0.00

0.00

0.01

0.03

0.06

0.13

0.29

0.18

0.13

0.11

0.09

0.08

0.07

0.07

0.06

0.05

0.05

0.05

0.04

Time

0.00

0.80

1.60

2.40

3.20

4.00

5.60

6.40

7.20

8.80

9.60

10.40

11.20

12.00

12.80

13.60

14.40

15.20

16.00

16.80

17.60

18.40

19.20

20.00

20.80

21.60

22.40

23.20

24.00

(hours)

Primary

193.10

193.10

193.10

193.10

193,10

193.10

193,10

193.10

193.10

193.11

193.11

193,12

193,12

193,14

193.19

194.82

193.23

193.18

193.15

193,14

193.13

193.13

193.13

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193.12

193.12

193.12

193.12

193,12

193.12

193.12

0.00

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0.00

0.01

0.03

0.04

1.89

0.11

0.07

0.06

0.05

0.05

0.04

0.03

0.03

0.03

0.03

0.03

Summary for Pond 2P: Detection

Inflow Areav33,977 sf

Peak Elev-196.43"

Shorage=0.053 at

[44] Hirz Outenderice #2 is below defined storage (66) Warning: Qout-Qin may require smaller ct or Finer Routing.

33,977 st. 4,00% impervous, inflow Depth > 7,13° for 100 Year event Inflow # 871 of @ 1106 hrs. Volumen 20.175-st 875 ch @ 11.98 hrs. Volume 1 20,183 of, Allert 0%, Lagit 0.5 min 873 ob @ 11.98 hrs. Volume v 20.183 ef Drimary a

0 2 4 6 8 10 12 14 16 18 20 22 24

Time (hours)

Hydrograph

Inflow

Primary

Routing by Sibr-Ind method, Time Span= 0.00-24.00 hrs. d= 0.04 hrs / 9 Peak Elev-198.40' @ 11.98 hrs. Surf Amon 0.011 ac. Storage: 0.853 at

Plug Flow detention timer (not calculated; outflow precedes inflow)

Center-of Mass del. Smen 3.6 rein (771.3 - 767.7)

| Volume . | Invest | Avail Disrape | Storage Cestrolion | |
|----------|--------|---------------|--|--|
| #1 | | | 36.0" Round Pipe Storage x2 L+91.0" 8+0.00507 | |
| 1/2 | 193-65 | 0.017 at | 36.0" Round Pipe Storage L= 104.0" S=0.0050.7 | |
| 43 | 194.27 | 0.012.wf | SEO* Roand Pipe Storage | |

| 43 | 194.27 | 0.01 | L= 104.0" S=0.0050.7 12.at 36.0" Round Pipe Storage L=73.0" S=0.0050.7 |
|--------|---------|--------|---|
| | | 0.05 | SE af Total Available Storage |
| Device | Routing | inet | Outer Devices |
| ** | Primary | 193.00 | 15.0" Reund Culturi. L= 15.9" Ka= 0.500 Inlet / Outlet Invert= 190.007 / 152.89" S= 0.00657 Cc= 0.50 |

| | Primary | 193.00 | 15.9" Reunif Galvert. L= 95.9" Fa= 0.500 |
|----|----------|---|--|
| | | | Inlet / Outlet Inverte 190,007 / 192,897 (5=0,00657) Oc=0,900 |
| | | | n=0.013, Flow Awar 1.23 of |
| #2 | Device 1 | 193.00* | 6.6" Wix 6.0" Hillert, Orlfice/Grate C+0.500 |
| | | | Limited to wer flow at low heads |
| 83 | Denie 1 | 194.40* | 6.6" West OrthonGrate Cr 0,000 Limited to see flow at low he |
| 84 | Deme 1 | 195.85 | 4.5' long a 0.5' broadh Broad Crested Restangular Web |
| | | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | Head (Red) 0.20 0.40 0.60 0.80 1.00 |
| | | | Coef (English) 2.80 2.92 3.06 3.30 3.32 |
| | | | Control for the second control of the second |

Primary Outflow Marris 24 ch (\$11.95 hrs HVH-196.30' (Free Discharge) 5+Duhert (Passes 6:34-ch or 9:50-ch potential flow) -- 2+Orifice/Grate (Orifice Controls 2.13 ds (@ 8.53 fbs) -3+Orifice/Grate (Orifice Controls 1,25 sh (§ 0,36 fax) -- drifferend-Greented Restangular Well: (Weir Controls 4.00 ds @ 2.34 fpc)

Hydrograph for Pond 2P: Detention

| | | .,, | | | | | | |
|------------------|---------|--------|-------------|-----------|---------|--|--|--|
| Primary (cfs) | Time | Inflow | Storage | Elevation | Primary | | | |
| 0.00 | (hours) | (cfs) | (acre-feet) | (feet) | (cfs) | | | |
| 0.00 | 0.00 | 0.00 | 0.000 | 193.10 | 0.00 | | | |
| 0.00 | 0.80 | 0.00 | 0.000 | 193.10 | 0.00 | | | |
| 0.00 | 1.60 | 0.00 | 0.000 | 193.10 | 0.00 | | | |
| 0.00 | 2.40 | 0.00 | 0.000 | 193.10 | 0.00 | | | |
| 0.00 | 3.20 | 0.01 | 0.000 | 193.11 | 0.01 | | | |
| 0.01 | 4.00 | 0.03 | 0.000 | 193.12 | 0.03 | | | |
| 0.02 | 4.80 | 0.04 | 0.000 | 193.12 | 0.04 | | | |
| 0.03 | 5.60 | 0.05 | 0.000 | 193.13 | 0.05 | | | |
| 0.03 | 6.40 | 0.07 | 0.000 | 193.14 | 0.07 | | | |
| 0.04 | 7.20 | 0.08 | 0.000 | 193.15 | 0.08 | | | |
| 0.06 | 8.00 | 0.10 | 0.000 | 193.16 | 0.10 | | | |
| 0.08 | 8.80 | 0.14 | 0.000 | 193.20 | 0.14 | | | |
| 0.13 | 9.60 | 0.16 | 0.000 | 193.22 | 0.16 | | | |
| 0.24 | 10.40 | 0.25 | 0.000 | 193.29 | 0.25 | | | |
| 2.80 | 11.20 | 0.46 | 0.001 | 193.43 | 0.45 | | | |
| 0.29 | 12.00 | 7.98 | 0.052 | 196.39 | 8.14 | | | |
| 0.18 | 12.80 | 0.48 | 0.001 | 193.51 | 0.58 | | | |
| 0.13 | 13.60 | 0.30 | 0.000 | 193.33 | 0.30 | | | |
| 0.11 | 14.40 | 0.22 | 0.000 | 193.27 | 0.22 | | | |
| 0.09 | 15.20 | 0.19 | 0.000 | 193.24 | 0.19 | | | |
| 0.08 | 16.00 | 0.15 | 0.000 | 193.21 | 0.15 | | | |
| 0.07 | 16.80 | 0.14 | 0.000 | 193.19 | 0.14 | | | |
| 0.07 | 17.60 | 0.12 | 0.000 | 193.18 | 0.12 | | | |
| 0.06 | 18.40 | 0.11 | 0.000 | 193.17 | 0.11 | | | |
| 0.05 | 19.20 | 0.10 | 0.000 | 193.16 | 0.10 | | | |
| 0.05 | 20.00 | 0.08 | 0.000 | 193.15 | 0.08 | | | |
| 0.05 | 20.80 | 0.08 | 0.000 | 193.15 | 0.08 | | | |
| 0.05 | 21.60 | 0.08 | 0.000 | 193.15 | 0.08 | | | |
| 0.04 | 22.40 | 0.08 | 0.000 | 193.14 | 0.08 | | | |
| 0.04 | 23.20 | 0.07 | 0.000 | 193.14 | 0.07 | | | |
| 0.04 | 24.00 | 0.07 | 0.000 | 103 14 | 0.07 | | | |

0.000

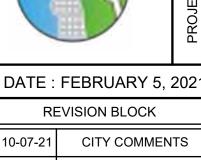
100-YEAR

193.14

0.07

24.00

2-YEAR **10-YEAR** 1-YEAR



CHRISTOPHER

THOMPSON

Lic. No. 055008

12-20-2021

CITY COMMENTS

DETAILS AND

NOTES

MANAGI

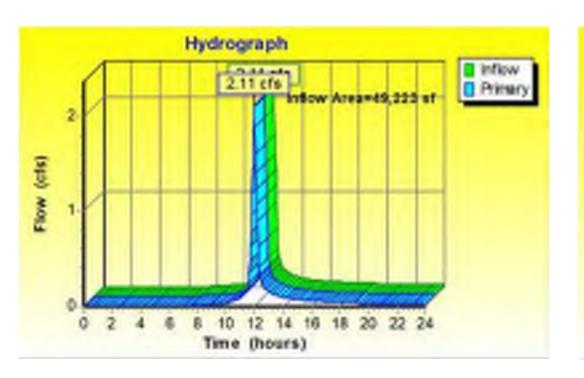
STORMWATER

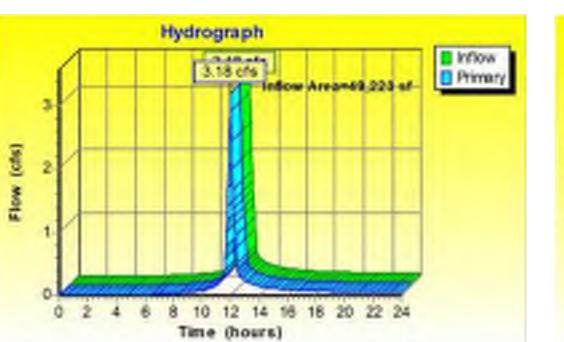
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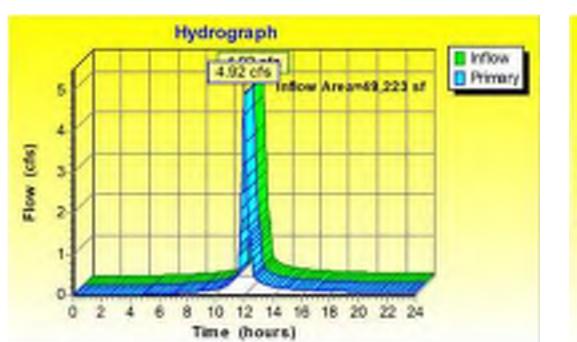
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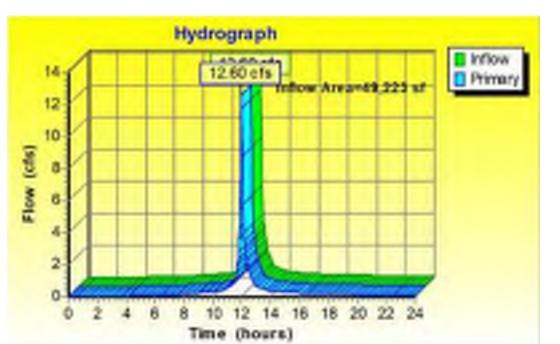
SHEET NO.

C8.3









Hydrograph for Pond 3P: ANALYSIS POINT 1 Hydrograph for Pond 3P: ANALYSIS POINT 1 Hydrograph for Pond 3P: ANALYSIS POINT 1 Hydrograph for Pond 3P: ANALYSIS POINT 1

| Time | Inflow | Elevation | Primary | Time | Inflow | Elevation | Primary | Time | Inflow | Elevation | Primary | Time | Inflow | Elevation | Primary |
|---------|-------------|-----------|---------|---------|--------|-----------|---------|---------|----------|-----------|---------|---------|------------|-----------|---------|
| (hours) | (cfs) | (feet) | (cfs) | (hours) | (cfs) | (feet) | (cfs) | (hours) | (cfs) | (feet) | (cfs) | (hours) | (cfs) | (feet) | (cfs) |
| 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 | | 0.00 |
| 0.80 | 0.00 | | 0.00 | 0.80 | 0.00 | | 0.00 | 0.80 | 0.00 | | 0.00 | 0.80 | 0.00 | | 0.00 |
| 1.60 | 0.00 | | 0.00 | 1.60 | 0.00 | | 0.00 | 1.60 | 0.00 | | 0.00 | 1.60 | 0.00 | | 0.00 |
| 2.40 | 0.00 | | 0.00 | 2.40 | 0.00 | | 0.00 | 2.40 | 0.00 | | 0.00 | 2.40 | 0.00 | | 0.00 |
| 3.20 | 0.00 | | 0.00 | 3.20 | 0.00 | | 0.00 | 3.20 | 0.00 | | 0.00 | 3.20 | 0.02 | | 0.02 |
| 4.00 | 0.00 | | 0.00 | 4.00 | 0.00 | | 0.00 | 4.00 | 0.01 | | 0.01 | 4.00 | 0.04 | | 0.04 |
| 4.80 | 0.00 | | 0.00 | 4.80 | 0.00 | | 0.00 | 4.80 | 0.01 | | 0.01 | 4.80 | 0.06 | | 0.06 |
| 5.60 | 0.00 | | 0.00 | 5.60 | 0.00 | | 0.00 | 5.60 | 0.03 | | 0.03 | 5.60 | 0.08 | | 0.08 |
| 6.40 | 0.00 | | 0.00 | 6.40 | 0.01 | | 0.01 | 6.40 | 0.04 | | 0.04 | 6.40 | 0.10 | | 0.10 |
| 7.20 | 0.00 | | 0.00 | 7.20 | 0.02 | | 0.02 | 7.20 | 0.05 | | 0.05 | 7.20 | 0.12 | | 0.12 |
| 8.00 | 0.01 | | 0.01 | 8.00 | 0.02 | | 0.02 | 8.00 | 0.06 | | 0.06 | 8.00 | 0.14 | | 0.14 |
| 8.80 | 0.02 | | 0.02 | 8.80 | 0.04 | | 0.04 | 8.80 | 0.09 | | 0.09 | 8.80 | 0.20 | | 0.20 |
| 9.60 | 0.03 | | 0.03 | 9.60 | 0.06 | | 0.06 | 9.60 | 0.11 | | 0.11 | 9.60 | 0.24 | | 0.24 |
| 10.40 | 0.05 | | 0.05 | 10.40 | 0.09 | | 0.09 | 10.40 | 0.19 | | 0.19 | 10.40 | 0.36 | | 0.36 |
| 11.20 | 0.11 | | 0.11 | 11.20 | 0.19 | | 0.19 | 11.20 | 0.35 | | 0.35 | 11.20 | 0.66 | | 0.66 |
| 12.00 | 2.09 | | 2.09 | 12.00 | 3.18 | | 3.18 | 12.00 | 4.89 | | 4.89 | 12.00 | 11.72 | | 11.72 |
| 12.80 | 0.18 | | 0.18 | 12.80 | 0.26 | | 0.26 | 12.80 | 0.42 | | 0.42 | 12.80 | 0.80 | | 0.80 |
| 13.60 | 0.11 | | 0.11 | 13.60 | 0.16 | | 0.16 | 13.60 | 0.26 | | 0.26 | 13.60 | 0.43 | | 0.43 |
| 14.40 | 0.08 | | 80.0 | 14.40 | 0.12 | | 0.12 | 14.40 | 0.19 | | 0.19 | 14.40 | 0.32 | | 0.32 |
| 15.20 | 0.07 | | 0.07 | 15.20 | 0.10 | | 0.10 | 15.20 | 0.16 | | 0.16 | 15.20 | 0.27 | | 0.27 |
| 16.00 | 0.06 | | 0.06 | 16.00 | 0.08 | | 0.08 | 16.00 | 0.13 | | 0.13 | 16.00 | 0.22 | | 0.22 |
| 16.80 | 0.05 | | 0.05 | 16.80 | 0.07 | | 0.07 | 16.80 | 0.12 | | 0.12 | 16.80 | 0.20 | | 0.20 |
| 17.60 | 0.05 | | 0.05 | 17.60 | 0.07 | | 0.07 | 17.60 | 0.11 | | 0.11 | 17.60 | 0.18 | | 0.18 |
| 18.40 | 0.04 | | 0.04 | 18.40 | 0.06 | | 0.06 | 18.40 | 0.10 | | 0.10 | 18.40 | 0.16 | | 0.16 |
| 19.20 | 0.04 | | 0.04 | 19.20 | 0.05 | | 0.05 | 19.20 | 0.08 | | 0.08 | 19.20 | 0.14 | | 0.14 |
| 20.00 | 0.03 | | 0.03 | 20.00 | 0.05 | | 0.05 | 20.00 | 0.07 | | 0.07 | 20.00 | 0.12 | | 0.12 |
| 20.80 | 0.03 | | 0.03 | 20.80 | 0.04 | | 0.04 | 20.80 | 0.07 | | 0.07 | 20.80 | 0.12 | | 0.12 |
| 21.60 | 0.03 | | 0.03 | 21.60 | 0.04 | | 0.04 | 21.60 | 0.07 | | 0.07 | 21.60 | 0.11 | | 0.11 |
| 22.40 | 0.03 | | 0.03 | 22.40 | 0.04 | | 0.04 | 22.40 | 0.07 | | 0.07 | 22.40 | 0.11 | | 0.11 |
| 23.20 | 0.03 | | 0.03 | 23.20 | 0.04 | | 0.04 | 23.20 | 0.06 | | 0.06 | 23.20 | 0.11 | | 0.11 |
| 24.00 | 0.03 | | 0.03 | 24.00 | 0.04 | | 0.04 | 24.00 | 0.06 | | 0.06 | 24.00 | 0.10 | | 0.10 |
| | <u>1-YE</u> | EAR | | | 2 | 2-YEAR | | | <u>1</u> | 0-YEAR | | | <u>1</u> (| 00-YEAR | |

THIS SPACE INTENTIONALLY LEFT BLANK

CONSULTING

CHRISTOPHER THOMPSON

Lic. No. 055008

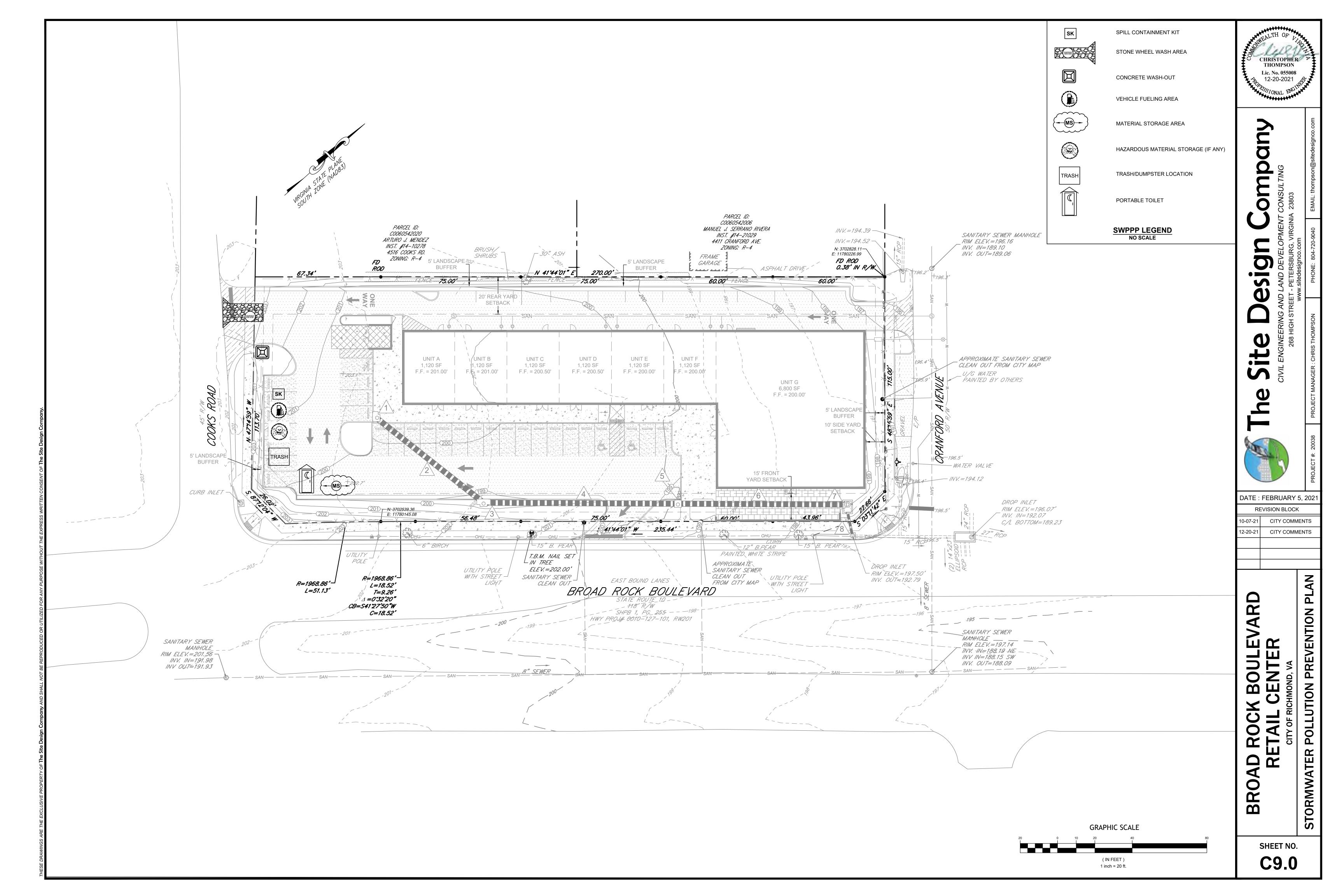
Site CIVIL ENGINEE

DATE: FEBRUARY 5, 2021 **REVISION BLOCK** 10-07-21 CITY COMMENTS 12-20-21 CITY COMMENTS

STORMWATER MANAGEMENT NOTES AND DETAILS

SHEET NO.

C8.4



PURPOSE

9VAC25-87C-54 ut the Virginia Stormwater Management Program (VSMP) Permit Regulations requires that Stormwater Pollution Prevention Plan (SWPPP) he developed for all regulated land dieturbing activities. The SWPPP must include, but not he limited the arrapproved ejesion and earliment control plant an approved stormwater management plan, and this Pollution Provention Plan (PPP) for regulated land. ildisturbing activities, and a description of any additional control measures necessary to eddreee e TMDL ee eppliceble.

The plan for implementing pullrition prevention measures during construction activities developed on this sheef must be implemented and updated as necessary. Any FFF requirements not included on this sheet must be incorporated into the GWPFP required by 9VAC25 870 54 that must be developed before fand disturbance commences. This PPP identities potential sources of pollutants that may reasonable be expected to affect the quelity eterminater diecherges from the construction eite (both on end off-eite activitice) and describes control incaeures that will be used to minimize pollutorits in stormwater discharges from the construction site.

OTHER REFERENCED PLANS

SMCPPP requirements may be fulfilled by incorporating by reference, other plans. All pans incorporated by reference bacome enforceade under the VSMP Permit. Regulations and General Permit WAS10 for Discharges of Scientifater from Construction Activities. If a plan incorporated by reference obeainch contain all of the reculred elements of the PPP, the operator must develop the missing elements and instude them in the SWPPP.

| nderbendert Plans nderberated by Reference | Date Approved |
|--|-------------------|
| Stormwater Management Flans (Regional or Master) | IN THESE PLANS |
| So Trrevention, Control, and Countermessure Hans | IN SWPPP |
| Off Site Stockpile | N/A |
| CT-3 is Borrow Area | N/A |
| | |

POTENTIAL POLLUTANT SOURCES

The following sources of potential pollutarits must be addressed in the Pollution frevention Plan - Various controls anc/or measures designed to prevent and/or minimize pollutants in stermwater discharges from the project such must be applied to the sources found on the site. Additional information concerning the following controls: and/or measures may be found in the SWPPP. Deviations from the location onterial may be approved by the City of Richmond Site Inspector ...

LEAKS, SPILLS, AND OTHER RELEASES

- artriangleright . The operator(a) shall ensure provedues and in clade, in province and respond to a leaks, spills and other releases of pollutants.
- The operator(s) shall ensure all leaks, splis and other releases of pollutant are: contained and deaned immediately upon discovery. Any containinated materials and to be dispressed in accordance with federal islant, and/or local requirements in
- ✓ The operator(s) shall ensure split confarmment kits containing appropriate materials. icial, assorbent materia and pads, brooms, gloves, sand ictelliare available at appropriate locations, including, but not limited to: designated areas for yellicle and -oquipment maintonance, vehicle and equipment fucting islenge and disposal of construction materials, products, and waste; and storage and disposal of hazardous. and toxic materials, and sanitary waste facilities.
- $ec{oldsymbol{ec{oldsymbol{ol}}}}}}}}}}}}}}}}$

| Date | Shown on Than Shoot #(s) | Location | |
|------------------|--------------------------------|-----------------------------|-----------------------|
| Approved = a- | SWPPP PLAN | ALONG WESTERN PROPERTY LINE | |
| | | REVISIONS TO LOCATIONS | |
| Date | Shown on Plan Sheet ∜(s) | Location | Operator(s) nibals |
| | | | |
| | | | |

- The operator(s) she thickly the Department of Environmental Quality of teach isplies. land other releases that discharge to or have the potential to discharge to surface waters immediately upon discovery of the discharge but in no case later than 24. lafter the discovery.
- The operator(s) shall notify the Repartment of Environmental Quality (DEQ) of leaks; spills, and other releases that discharge to or have the potential to discharge to surface waters immediately upon discovery of the discharge but in no case later than 24 offer high servery. William rules of the discharge must be sent to DEQ and the City of Richmond Department of Public Utilities within five (5) days of the discovery.

Virginia Department of En⊴iror mental **Findment Regional Office** 7979-A Cox Road Glen Allen IVA 23080 (1804) 527-5020 (prode) 1:8041627-6106 (taxii :

City of Richmond Department of Fuelie Utilities Water Rezeurees 730 Ceel Broad Street, 5T Floor -Richmond, VA 23219 (BH4) 64%+1589 (phone) :

EQUIPMENT / VEHICLE WASHING

- Washing must be conducted in a dedicated area that is located to maximize the cistance from storm drain in ets. oltones, waterbodies or weltands but no less than --50 feet from those features.
- All wash water used in vehicle wheel washing must be directed to a sediment.
- arnothing M wehicle washing activities other from wheel existing must have secondary.
- Each facility must have appropriate signage to inform users where the dedicated. awca(s) are located.

| Activity | Location of Dedicated Area(s) | Shown on Plan Shoct#(s) | Water Bou Location | |
|---------------------|--|-------------------------------|---------------------------|-----------------------|
| Whee Wish | CONSTRUCTION ENTRANCE | SWPPP PLAN | TANKER TRUCK | |
| Other Wesh Areas | NONE | N/A | N/A | |
| | <evisic< td=""><td>INS TO LOCA</td><td>U ONS</td><td></td></evisic<> | INS TO LOCA | U ONS | |
| Aquivity | Location et Detilicated Area(s) | Shown on ⊃ign Sheet#(s) | Vvater Source Localion | Operators Initials |

VEHICLE FUELING AND MAINTENANCE

- Conduct regular maintenance in a dedicated area that is located to maximize the icistance from storm drain in etsi oltones, waterbodies or wetlands but no less than i 50 feet from those features.
- If five notifier is conducted at a interferenced area, the libration must be borated to: maximize the distance from storm drain inlets, diffches, waterbodies or wetlands but incless than 50 feet from those feetines.
- The dedicared areas must be designed to climinate the discharge of spilled and reaked fuels and ohemicals from vehicle flue no and maintenance activities by providing secondary containment (so liberns ideals, spill containment pallets) coroviding cover where appropriate, and having spill kills readily available).
- Each facility must have appropriate signage to inform users where the dedicated. area(s) are located.

| Date | Shown on Plan Shoot #(s) | Location of <i>Dedicated Area(s)</i> | |
|------------------|--------------------------------|--------------------------------------|------------------------|
| Approved Plan | SWPPP PLAN | ALONG WESTERN PROPERTY LINE | |
| | | REVISIONS TO LOCATIONS | |
| Date | Shewn en Plan Sheet ∌(s) | Location of <i>Dedicated Area(s)</i> | Operator's Iniffals |
| | | | |
| | | | |

- If mobile fueling will be used, the fueling must be done in an area that located to: maximize the distance from storm drain inlets, diliches, waterbodies or wetlands but ind less than 50 feet from those features.
- Split kits must be readily available at all mobile fueling locations.

maintenance to reduce the chance of leakage.

- On-site storage tanks must have a means of secondary containment (spill perms)
- decks, so il containment pallets, etc.) and must be covered where appropriate. arphi All venicles on sile must be monitored for leaks and receive regular preventive .

DISCHARGE FROM STORAGE, HANDLING, AND DISPOSAL OF CONSTRUCTION PRODUCTS, MATERIALS, AND WASTE

- Storage of construction products, materials, and waste is to be conducted in: aterificated arreas.
- ✓ The dedicated area must be located to maximize the distance from storm drain. inlets, dilches, waterbookes or wet ands but no less than 50 feet from those features i Beparations of less than 50 feet may be approved by the Environmental Inspector.
- $ec{oldsymbol{arphi}}$ The **dedicated areas** must be designed to minimize the discharge of pollutants from (storage handing and disposal of construction products, materials and wastes. including () building products such as esphalt seglants, become fleshing incoffing i materiais, adhesives, contrete admixtures; (ii) pesticides, herbicides, insepticides : Fertilizers, and fandscape materials, and (iii) construction and domestic vestes such i as packaging materials, sarap construction materials, masonry products, timper--aipe and electrical autlings, plost as "Styrofoam, concrete and other trash or building"
- $ec{oldsymbol{ec{ec{ec{v}}}}}$ Bach facility must have appropriate signages to inform users where the **dedicated**

| area(a) a | e located | o appropriae. Ogradio is into 11 doos 5 in the s | NO TITELLY MENT |
|------------------|------------------------------------|--|-----------------------|
| Date | Shown on ran Sheet 描s) | Location(s) of Dedicated Area(s) for storage of products and materials | construction |
| Approved Plan | SWPPP PLAN | ALONG WESTERN PROPERTY LINE | |
| | | REVISIONS TO LCCATIONS | |
| Date | Shkiwii :iii Plan Sheet 描(s) | Location(s) of <i>Dedicated Area(s)</i> for storage of construction products and materials | Operator(s) notals |
| | | | |
| | | | |
| | | | |

| 7ale | Shown an Plan Shed #(s) | Location(s) of <i>Dedicated Area(s)</i> for waste from construction products and materials | | |
|------------------|-------------------------------|--|--|--|
| Approved Plan | SWPPP PLAN | ALONG WESTERN PROPERTY LINE | | |
| | | REVISIONS TO LOCATIONS | | |
| Tale | Bhown an Plan Shed #(s) | Location(s) of <i>Dedicated Area(s)</i> for waste — Diperate (s) from construction products and materials — Initials | | |
| | | | | |
| | | | | |

- $ec{s}$ Tollow all federal istate, and local requirements that apply to the use, handling and : disposal of posticions, horbidides, and fortilizons,
- Keep chemicals presite in small quantities and in closed, we'll marked containers.
- \mathscr{S} Obser up sulid waster including building materials, garbager and doors on a carrybasis and peoplait into dovered dum estera that are periodically emptied.
- $ec{s}$ Schedule waste collection to prevent expecting the capacity of onsite containers : Additional containers may be necessary depending on the chase of construction.
- (e.g., demolition, etc.)
- $^{\prime}$. Dispose of all so ic exeste at an authorized disposal site . $ec{oldsymbol{arepsilon}}$ Ensure that containers have lids or are otherwise protected from exposure to $ec{oldsymbol{arepsilon}}$

DISCHARGES FROM OTHER POTENTIAL POLLUTANT SOURCES

✓ Disprisiges from other pollutant sources (e.g., water line flushing, storm sewer.) Realing, soone ground slooge lanks, eld/ not mentioned elsewhere must be addressec.

| Other Potential Pollitant Sources | Locationts) of Patential Pollutant Sources |
|---|---|
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- Above ground bill storage tanks with a storage capacity exceeding 1 320 gallons and make a reasonable expectation of a discharge into or upon Waters of the IIIn fed. States are required to have a Sp. Frevention Control and Countermeasure (SPCC):
- ✓ The discharge of contaminated flush water and material removed during flushing. operations must be collected and disposed of in accordance with appropriate federal, state, and local reducements.

DISCHARGES FROM CONCRETE RELATED WASH ACTIVITIES

- 14° Concrete tracks are not allowed to wash but or discharge surplus concrete or drum. wash water on late except in a **declosted snee(s)** that is located to prevent. idispharge to storm drain in ets, ditches, waterbodies cowedands but no less than 50. feet from those features
- $ec{ec{ec{ec{e}}}}$ Each facility must have a stabilized access to prevent muc hacking into the street.
- Each facility must have appropriate signage to inform users where the dedicated. _**erea(s)** are located. ...

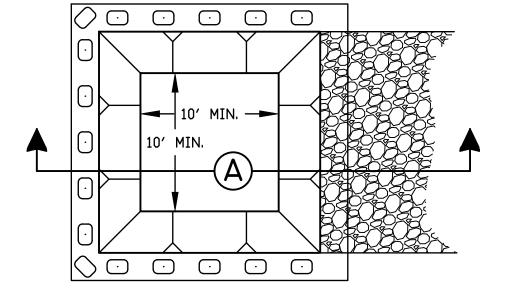
| Date | Plan Sheet #/si | Location of Dedicated Area(e) |
|------------------|--------------------|--------------------------------------|
| Approved Plan | SWPPP PLAN | ADJACENT TO CONSTRUCTION ENTRANCE |
| | | REVISIONS TO LOCATIONS |

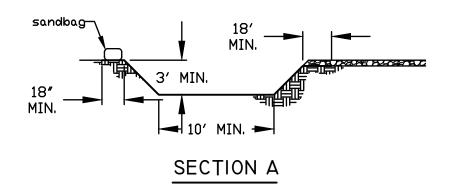
Shown on

| REVISIONS TO LOCATIONS | | | | | |
|------------------------|--------------------------------|--------------------------------------|-----------------------|--|--|
| Date | Shown on Plan Sheet #(a) | Location of <i>Dedicated Area(s)</i> | Operatoris nitiels | | |
| | | | | | |

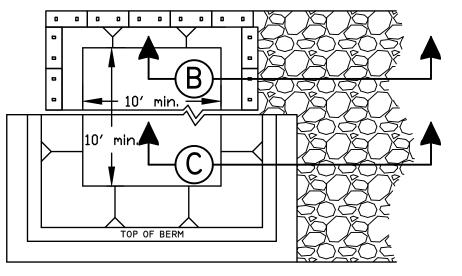
Facilities must be desired or new facilities constructed, once the washout area is two thirds (2/31 Lu

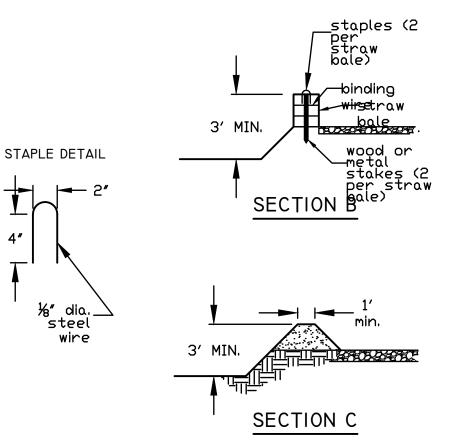
BELOW GRADE CONCRETE WASHOUT AREA





ABOVE GRADE CONCRETE WASHOUT AREA





CONCRETE WASHOUT AREA NOTES

- ✓ The Isolity must be lined with 10 m lipositio lining that is free from holes, tears, or liposition. other defects that inight compremise the material's impermeability.
- \mathbb{R}^2 . The lining impstibe anchored (afth stycles \mathbb{R}^2) scaoing jior eand dags. imes imes de shores thus the 1.1 (bit izomal vertical) or trader.
- Stone access must be provided between the street and the concrete washout area. A "Concrete Washout" sign must be installed within 30 teet of the washout tablity.
- The sign must be no smaller than 2" tall by 4" wide.

DISCHARGES OF SOAPS, DETERGENTS, SOLVENTS, AND WASH WATER FROM CONSTRUCTION ACTIVITIES SUCH AS: CLEANUP OF STUCCO, PAINT, FORM RELEASE OILS, AND CURING COMPOUNDS

- √ Washing sativities associated with construction activities other than vehicle and. redulpment washing isuch as dean up of slucco, paint form release oils, and during licompounde are to be conducted in a *dedicated* area
- $ec{ec{ec{ec{v}}}}$ The **dedicated area** must be located to maximize the distance from storm erain In ets, drighes, waterbodies or wet ands but no less than 50 feet from those features. Boparations of loss than 50 feet may be approved by the Environmental Inspector. \checkmark The **decircularies** must be designed to prevent the discharge of scape, ectorgents, solvents, and wash water

| Dale | Shown on Plan Sheet May | Location(s) of <i>Dedicated Area(s)</i> | | |
|------------------|--------------------------------|--|-------------------------|--|
| Approved Plan | N/A | NONE ANTICIPATED. MAY USE CONCRETE WASH-OUT AREA IF NEEDED | | |
| | | REVISIONS TO LOCATIONS | | |
| Date | Shown on Plan Sheet #(s) | Location(s) of Dedicated Area(s) | Operator(s) official | |
| | | | | |
| | | | | |
| | | | | |

- imes The **decircated area** must be develop (e.g., plastic shooting, temporary roof, e.g.) to : conevent contact with atomixater.
- \checkmark The containinated wastewater from the *dedicated area* must be collected for licisposal by a waste hauler or discharged to the san tary sewer.
- $ec{oldsymbol{arphi}}$ in situations where these pollutants are pricould be generated at locations ether than Lat the **designated area** (e.g., concrete pours, building washing, etc.), cover (e.g., plastic shooting, temperary roof, ofc.) must be provided to prevent contact with istormwater and the confaminated wastewater from the artivity must be collected for licisposal by a waste hauler or discharged to the sair tany sewer.

DISCHARGES OF HAZARDOUS, TOXIC, AND SANITARY WASTE

- $ec{f v}$. Storage and disposal of hazardous itoxic and sanitary wastes are to be conducted in . deflicated areas.
- The dedicated areas must be occurred to maximize the distance from sterm drain. inlets, chohes, watercookes or wet ands but no less than 50 feet from those features. Becarations of less than 50 feet may be approved by the Environmental Inspector.
- 🌱 The **declicated areas** must be designed to prevent the discharge of hazardous, toolo and santary waste by avoiding contact with procipitation.

✓ Each facility must have appropriate signage to inform users where the dedicated

| re located. | | | | | |
|--------------------------------|---|--|--|--|--|
| Shown on Plan Sheet #(s) | Tidealion(s) of thedicated Area(s) for sharinge and displace of hezerdous and toxic westes | | | | |
| SWPPP PLAN | ALONG WESTERN PROPERTY LINE | | | | |
| | REVISIONS TO LOCATIONS | | | | |
| Shown on Iflan Shee #(s) | Location(s) of Dedicated Area(s) f or storage — Operator(s) and dispose of hazardous and toxic wastes — Initials | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | Shown on Plan Sheet #(s) SWPPP PLAN PLAN Shown on Plan | | | | |

| | Shown on | |
|------------------|--------------------------------|---|
| Dalo | Plan Sheet #(s) | Location(s) of Dedicated Area(s) for cortable tailets |
| Approved Plan | SWPPP PLAN | ALONG WESTERN PROPERTY LINE |
| | | REVISIONS TO LOCATIONS |
| Date | Shown on Plan Sheet #(s) | Locstion(s) of <i>Dedicated Area(a)</i> for portable — Operator(s) utilists — Initiats |
| | | |
| | | |
| | | |

- ✓ Coneult with local waste management authorities or private firms about the requirements for disposing of hozardous materials and/or spills that may be contaminated with resendous materials.
- $ec{oldsymbol{arepsilon}}$ Never remove the original product label from the container. Follow the manufacturers recommended method of disposal. Schedule der coid cumping of portacle toilets and dispose of wastell.
- ▼ Dispuse of a lisp ic waste at an authorized dispusal site.

SWPPP MODIFICATIONS AND REVISIONS

Changes in qualified personnel idelegated authorities or other personnel required as:

- The operator(s) shall ensure the SWIPP ris modified and/or revised to reflect:
- is condition of the General Construction Pennit; Changes in site conditions;
- Changes in the design construction operation, or maintenance of the construction. aite that affect the potential for discharges of pollutants that are not addressed in the normal implementation of the plant and
- $ec{oldsymbol{arphi}}$ neTective control measures centified during hispections or investigations. conducted by the operator's qualified personnel or local, state or federal officials.

measures to accress the identified deficiencies. If the necessary modifications/revisions require approval by the Administrator or DEG.

Meditications revisions to the SWPPP shall include adoptional or modified control.

the modifications/revisions must be implemented no later than seven (7) calendar days. following approva: If the necessary modification e/revisions do not require approval by the Administrator,

the modifications/revisions must be implemented prior to the next anticipated storm event or as soon as practicable.

SWPPP UPDATES

The operator(e) shall update the SWPP rito include:

prohibited discharge

- temporary or permanently design on a portion of the larter and 3; stabilization.
- measures are initiated; Decumentation of modifications and revisions to the ISWPPP1.
- Areas that have reached find latabilization where no further SWPPP or inspection.
- A properties that are no londer under the legal control of the operator and the dates. on which the operator no longer had legal control over each property, and it The date, volume, and corrective/preventative actions implemented for any.

The operator(s) shall update the SWPPP no later than seven (7) days following any of the stustions identified above.

OPERATOR INSPECTIONS

The operator(s) identified below shall provide for inspections of the permitted land to sturbing activities by the qualified personnel identified below. The inspections will be conducted (select one the following options)

ar cest once georgic bur 21 publices days or ing east once elsely flye (5) business consultation in later manual mineralitation in ary meseurable stampevent:

Where areas are in a stabilized condition or runo I is unlikely due to winter conditions. the inspection frequency may be reduced to once every 30 days while these conditions. exist. Otherwise, the operator(s) shall resume the regular inspection frequency. contilied above.

The operatorishishal provide for inspections of the permitted land-disturbing activity to lensure implementation and continued maintenance of all requirements of the Stormwater Pollution Prevention Plan (Lipsion and Sediment Control Plan Stormwater) Management Plan, Pollution Prevention Plan. TMDL recuirements, etc.).

Records of the required inspections must be maintained and included in the SWIPPP to inder . The qualified personner are encouraged to use the Operator Inspection form: raray and in the SWPPP binder to document the required inspections. If inspections are conducted once every five (5) business days and no later than 48 hours following any incasureable atom event, the location of the rain gauge used to determine the amount. of rain must be included in the SWPPP and codumented in the inspect on report.

ACKNOWLEDGEMENTS

If certify under penalty of law that It is

- a. have been designated by the Operator to conduct inspections of the
- -permitted site, b. am knowledgeable in the principles and practices of crosion and
- sediment control and stormwater management; possess the skills to assess conditions at the permitted site for the
- Operator(s) that could impact stormwater quality and quantity: - will assess the effectiveness of any erosion and sextiment control : measures or stormwater management facilities selected to control the
- stormwater discharges from the permitted site; and will conduct inspections in accordance with the frequency noted above. In the OPERATOR INSPECTIONS section of this sheet.

| | QUALIFIED PERSONNEL |
|--------------|---------------------|
| Name (print) | |
| Phone | |

Additional information is located in Tab 6 of the SWPPP Binder

As the Operator(s), live understand that prior to initiating land disturbance the polential. pollutant sources, apprepriate control measures, and all responsible parties (coorator, cualified inspection, personnel, contractors, etc.) required as a condition of the General Construction Permit (SCP) and the Standarder Pollution Prevention Plan (SWPPP) must be identified. If also understand this information must be updated as necessary. inthroughout a liphases of construction until the GCF is reminated.

Furthermore

. Itwe certify under penalty of law that Itwe have read and understand all regulirements of the \$997.999 perceion and sediment control plan, stormwater management plan, pollution provention plan, TMDL provisions, acministrative requirements, etc.) and CCF and that The information berein is, to the pest of my knowledge and pelief in .e., are urate, and complete. If am aware that there are algorificant penalties for submitting false. information including the possibility of fine or imprisonment for knowing violations.

. IAve understand that "We are ultimately responsible for compliance with all conditions." and requirements of the SWPPP and CCP and for ensuring a contractors and isubcontractors on the permitted site are aware of the conditions and requirements of The SWITT and GCIT

I live shall comply with all conditions and requirements of the SWPPP and shall at a times properly operate and maintain all measures and control (and reider). sopurtenances) which are installed or used to achieve compliance with the conditions of the SCP. Proper opration and maintenance also includes accounte funding and adequate staffing

 the SWPPF and/or SCP. . IAwe underscand that if it determined by the Department of I invironmental Quality (DLQ).

Have shall take all reasonable steps to min mize or prevent any discharge in violation of

in ponsuitation with the State Water Control Board at any time that stormwater noischarges are causing, have reasonable potential to cause, or contribute to and exputsion above any applicable water quality standard, the DLQ may in consultation. with the Administrator, take appropriate enforcement action and require:

- Vodification of control measures to adequately address water quality.
- b Submission of valid and verifiable data and information that are representative of auchieut conditions and indicate that the receivms water is attaining water quality standards; or
- Cossation of discharges of politicants from construction activity and submit and individual permit application according to 9VAC25 87C 410 ii

OPERATOR(8) / DELECATED AUTHORITY

Additional contact information can be found in the SWPPP Dindon.

Name (print)

CHRISTOPHER THOMPSON Lic. No. 055008 12-20-2021

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DATE: FEBRUARY 5, 2021 REVISION BLOCK

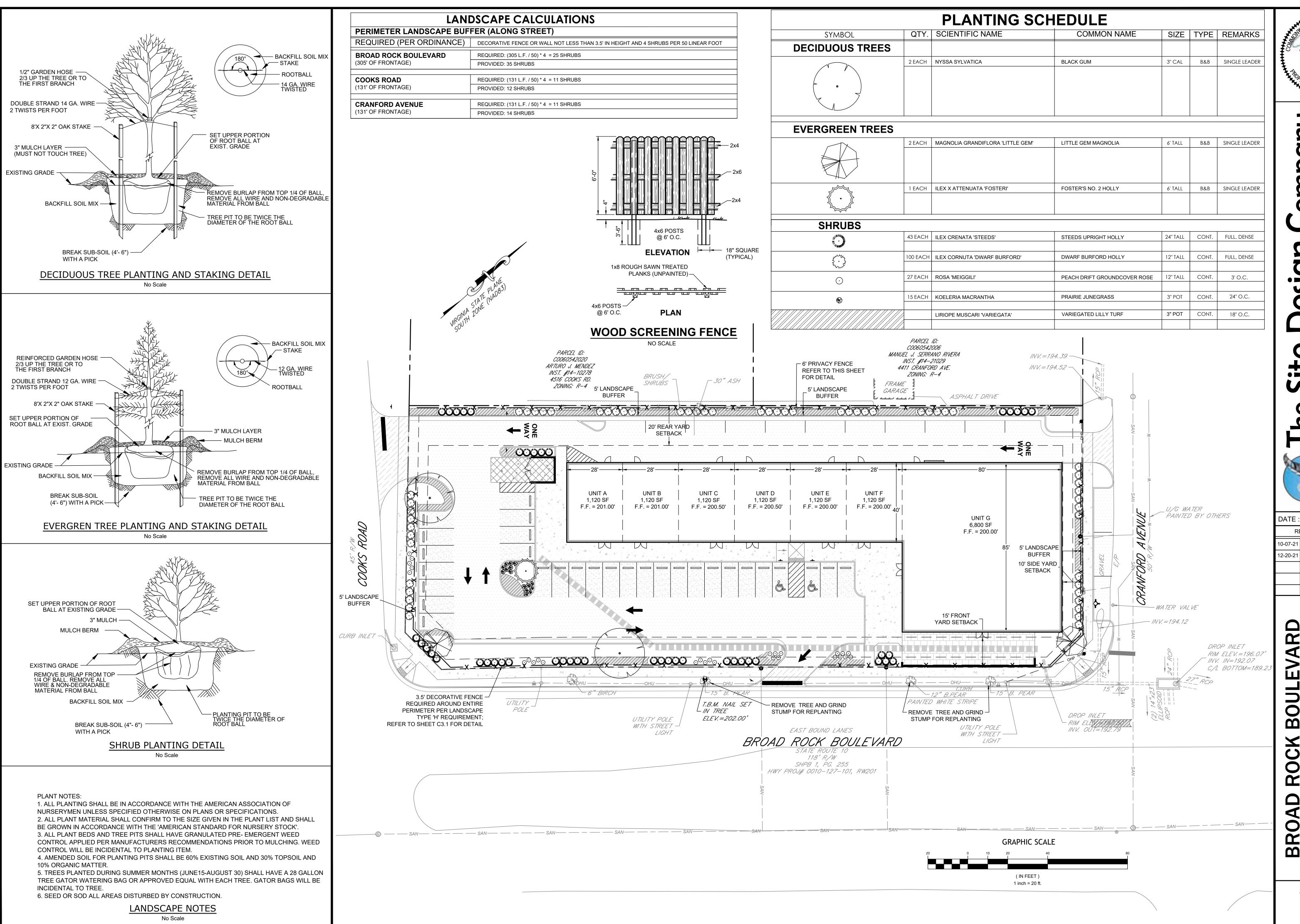
10-07-21 CITY COMMENTS 12-20-21 CITY COMMENTS

DETAI AND

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Date

STORMWATER



CHRISTOPHER THOMPSON 12-20-2021

DATE: FEBRUARY 5, 2021 REVISION BLOCK CITY COMMENTS

10-07-21 CITY COMMENTS 12-20-21

0

LAND

Kentucky bluegrass (Poa ____

Tall Fescue (Festuca

prantensis

arundinacea

0.50

0.50

3.8 CLEANUP AND PROTECTION

onto surface of roads, walks, or other paved areas.

10%

90%

| 2 Conoral Slope | (3:1 or loss) Pofor | to Erosion Control Requirements | s for location 150 | lhs /acro | | |
|--|---|--|--|--|---|--|
| 2. General Slope Proportiol Weigh | n by | Grass Species | Min. % Germination | Min. % Pure Seed | Max. % Weed Seed | |
| 2% 85% | | Red Top Grass Tall Fescue (Festuca arundinac | 85 ea) 85 | 85 98 | 0.50 0.50 | |
| | | · | • | | | |
| 13% | | Tall Fescue (Festuca arundinac | • | 85 | 0.50 | |
| Proportio Weigh | n by it | r than 3:1)-Refer to Erosion Cont Grass Species | Min. % Germination | Min. % Pure Seed | Max. % Weed Seed | |
| 72% 2% | | Kentucky 31 Fescue Red Top Grass | 85 85 | 98 85 | 0.50 0.50 | |
| 13% 13% | | Seasonal Nurse Crop* Sericea lespedeza** | 85 85 | 85 85 | 0.50 0.50 | |
| C. Varieties | shall be selected fr | om the 2005-2006 lists of recom | | | | |
| 2.7 TURFGRAS A. Turf grass Sod: Certific Comply with ASPA specific grasses. Provide viable so the following turf grass specification of the following and following a water-absorband specification of the following and following a water-absorband specification of the following as water-absorband specification of the following turf grass specification of the following | SS SOD ed sod, complying vecations for machine od of uniform densecies: (Festuca arundinate ag certified by the vector) air-dry, clean, milded ded or granular textoning capacity of 110 | • | f grass Sod Materioisture content an ooted, and capable (Poa pratensis) reciation. | als" in its "Guideline d mowed height an e of vigorous growth mix. neat, rye, oats, or ba ly decomposed mos | e Specifications to Turf grad free of weeds and under and development when parley. | ass Sodding." esirable native blanted. Provide ed-sedge peat |
| passing through 1-inch (25 1. Organic Matter | 5-mm)exceeding 0. Content: 50 perce | | d free of substance | es toxic to plantings | ; and as follows: | |
| 15 percent and a pH range 2.9 EROSION-0 | e of 4.5 to 6.5. | cellulose-fiber mulch; nontoxic; f | ree of plant-growth | n or germination inn | ibitors; with maximum mo | isture content of |
| area. Include manufacture | r's recommended | egradable twisted jute or spun-co steel wire staples, 6 inches (150 | | ım of 0.92 lb/sq. yd | . (0.5 kg/sq.m) with 50 to 6 | 35 percent open |
| PART 3 - EXECU 3.1 EXAMINAT A. Examine areas with installation until unsat | ION to receive lawns a | nd grass for compliance with req s have been corrected. | uirements and for | conditions affecting | performance of the Work | a. Do not proceed |
| | es, sidewalks, pav measures to preve | ements, and other facilities, treesent erosion or displacement of so | • | • | | |
| 3.3 TOPSOIL F A. Limit subgrade prepara B. Loosen subgrade to a r fields. Completely remove C. Have topsoil tested by D. Sift topsoil to remove si dimension in all playing fie E. Mix soil amendments a | PLACEMENT FO tion to areas that we ninimum depth of 4 te trash and other exacertified soil testing cones and other ob- elds. Maximum objected. Maximum objected in the fertilizers with to soil before spreading for to mixing fertilizers. | DR LAWNS vill be planted in the immediate full inches. Remove stones, sticks extraneous debris from subgrade. Inglaboratory to determine the typicate larger than 1" in any dimensect size for topsoil shall be achieved by soil at rates required by soil testing or apply soil amendments on the contract of the contract o | and roots larger the pe and quantity of sion. Sift topsoil to red by sifting not be sting. Delay mixin | soil amendments no remove stones and stones and removal or greatilizer if planting | necessary. d other objects larger than raking following placemer g does not follow placing o | n ½" in any nt of topsoil. of planting soil |
| Evenly distribute seed by s | er or a seeding ma owing equal quant seed that is moldy | nchine. Do not broadcast or drop ities in 2 directions at right angle or otherwise damaged in transit | s to each other. | velocity exceeds 5 I | mph (8 km/h). | |
| E. Hydroseed all slopes 3: | p 1/4 inch of topso I or steeper. | il, roll lightly, and water with fine | . , | | | |
| recommendations. | . 0 | eeper against erosion by providi | | | | |
| minimum rate of 2 tons per blower, or other suitable ed | acre (45 kg per 10 Juipment. | grade against erosion by spreading sq. m) to form a continuous black by suitable mechanical equipments. | anket 1-1/2 inches | | - · | = |
| B. Lay sod to form a solid nadjacent courses. Avoid da | of stripping. Do no nass with tightly fitt mage to subgrade | t lay sod if dormant or if ground i ed joints. Butt ends and sides of or sod during installation. Tamp s sand into minor cracks betweer | sod; do not stretch and roll lightly to e | ensure contact with | subgrade, eliminate air po | ockets, and |
| C. Lay sod across angle of D. Anchor sod on slopes ex slippage. | | 3:1. /ood pegs spaced as recommend | ded by sod manuf | acturer but not less | than two anchors per sod | strip to prevent |
| · · · · · | • • | hours of planting. During first we | ek, water daily or | more frequently as | necessary to maintain mo | ist soil to a |
| Substantial Completion. Ma | wns immediately af aintain all grassed a wns by watering, fo ce a uniformly smo as with same matel | ter each area is planted and con areas as necessary to ensure a s ertilizing, weeding, mowing, trimr both lawn. | satisfactory lawn is | s achieved at Subst | antial Completion. | |
| · | | hoses, and lawn-watering equip | ment to convey wa | ater from a water so | urce to keep lawns unifor | mly moist to a |
| 2. Water seeded are | eas as necessary to | on. Utilize temporary irrigation mononical promote vigorous growth of graments of the grower. Maintain m | ass but at the mini | mum rate of 1 inch | per week. | |
| without cutting more than 40 subsequent mowings. Do r subsequent mowings to ma | D percent of the grant not delay mowing user intain following grant | _ | gs). Remove no m | nore than 40 percen | it of grass-leaf growth in ir | nitial or |
| | icide to lawns area | o 3 inches high. s. Apply 60 - 90 days after plant | ting. | | | |
| stand of grass is established B. Sodded lawns shall be considered, viable lawn is C. Replant lawns that do not D. Substantial Completion of | onsidered satisfact d, of weeds, bare s onsidered satisfacto established, free of t meet requirement of the building and | ory/acceptable provided requirer pots exceeding 5 by 5 inches (12 ory/acceptable provided requirent of weeds, open joints, bare areasts and continue maintenance unter the remainder of the project may lant and maintain unsatisfactory | 25 by 125 mm), ar nents, including m s exceeding 5 by 5 il lawns are satisf v be achieved (per | nd surface irregulari naintenance, have b inches (125 by 125 actory/acceptable. nding prior Architect | ties. been met and a healthy, el 5 mm), and surface irregul and Owner approval) bef | II-rooted, larities., ore achieving a |
| lawns shall begin at the time | • | | | | | |

A. Promptly remove soil and debris created by lawn work from sidewalks and paved areas. Clean wheel of vehicles before leaving site to avoid tracking soil

B. Erect barricades and warning signs as required to protect newly planted areas from traffic. Maintain barricades throughout maintenance period until lawn is

Lic. No. 055008 12-20-2021

DATE: FEBRUARY 5, 202 REVISION BLOCK 10-07-21 CITY COMMENTS

12-20-21 CITY COMMENTS

TION

LAND

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02930-SPECIFICATIONS - EXTERIOR PLANTS
  PART 1 - GENERAL
         1.1 RELATED DOCUMENTS
 A. The provisions of the Contract Documents apply to the work of this Section.
          1.2 SUMMARY
 A. This Section includes the following:
1. Trees
2. Shrubs
3. Groundcovers
4. Other Plant Materials
5. Stakes & Guys
         1.3 SUBMITTALS
 A. Installers Qualifications: Provide a list, with references, of the past three projects of similar scope.
 B. Product Data: For each type of product indicated.
 C. Plant Material Certifications:
1. Certificates of inspection as required by governmental authorities.
2. Label data substantiating that plant materials comply with specified requirements.
 D. Planting Schedule:
1. Typewritten planting schedule.
2. Once accepted, revise dates only as approved in writing and submitted to Architect.
 E. Maintenance Schedules: Typewritten instructions recommending procedures for maintenance of
 landscape work for one full year. Submit prior to completion of project.
          1.4 QUALITY ASSURANCE
 A. Installer Qualifications: Engage an experienced installer, who has successfully completed planting projects similar in size
 and complexity to this project. The installer's primary business (defined as a minimum of 60% of total billings) shall be
 exterior plant installation.
 B. Installer's Field Supervision: Installer to maintain an experienced full-time supervisor on the project site when exterior
 planting is in progress.
 C. Exterior Plant Materials:
1. Provide plant materials of quantity, size, genus, species, and variety indicated on the drawings.
2. All plant materials and work shall comply with recommendations and requirements of ANSI Z60.1 "American
Standard for Nursery Stock."
3. Do not make substitutions. If specified landscape material is not obtainable, submit proof of nonavailability to
Architect, together with proposal for use of equivalent material.
4. The Architect may inspect plant materials either at place of growth or on site before planting, for compliance with
requirements for genus, species, variety, size, and quality. Architect retains right to further inspect trees for size and
condition of balls and root systems, insects, injuries and latent defects, and to reject unsatisfactory or defective
material at any time during progress of work. Remove rejected trees immediately from project site.
 D. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project
 Management and Coordination.'
         1.5 DELIVERY, STORAGE AND HANDLING
 A. Packaged Materials:
1. Deliver packaged materials in containers showing weight, analysis, and name of manufacturer or grower.
2. Protect materials from deterioration during delivery, and while stored at site.
 B. Exterior Plant Materials
1. Protect bark, branches, and root systems from sun scald, drying, sweating, whipping, and other handling and tying
damage. Do not bend or bind-tie trees or shrubs in such a manner as to destroy their natural shape. Provide
protective covering of exterior plants during delivery. Do not drop exterior plants during delivery.
2. Deliver exterior plant materials after preparations for planting have been completed and plant immediately. If
planting is delayed more than 6 hours after delivery, set plant materials in shade, protect from weather and
mechanical damage, and keep roots moist and free from frost.
3. Do not remove container-grown stock from containers until planting time.
4. Balled and burlapped material shall be freshly dug.
5. Handle planting stock by root ball.
          1.6 PROJECT CONDITIONS
 A. Examine the subgrade, verify the elevations, and observe the conditions under which work is to be performed.
 B. Determine location of underground utilities and perform work in a manner which will avoid possible damage. Hand
  C. When conditions detrimental to plant growth are encountered, such as rubble fill, adverse drainage conditions, or
  obstructions, notify Architect before planting.
 D. Provide all necessary safeguards for the protection of all planted areas until provisional inspection/acceptance is
  E. Planting Restrictions: Plant during one of the following periods.
         1. Spring Planting: Unfrozen soil conditions March 1-June 1st.
        2. Fall Planting: September 1-November 1st or until frozen soil conditions prevent work.
        3. Summer Planting: June 1 - September 1 with approved irrigation system.
  F. Coordination with Lawns: Install plant materials after finish grades are established and before planting lawns, unless
         1. When planting exterior plants after lawns, protect lawn areas and promptly repair damage caused by planting
         operations.
         1.7 WARRANTY
  A. Warranty exterior plant materials for a period of one year after date of Final Completion against defects including death
  and unsatisfactory growth, except for defects resulting from neglect by Owner, abuse or damage by others, or unusual
  phenomena or incidents which are beyond Contractor's control.
        1. The Contractor shall provide written notice to the Architect of any practice which will affect the warranty if not
         remedied promptly. The Architect will render an opinion of the conflict if necessary.
        2. Make replacements of all dead plants or plants in impaired condition (more than 25% dead or dying) condition in
         early spring/fall following installation. Replacements of dead or rejected plants should again be made prior to the
         expiration of the warranty period.
         1.8 MAINTENANCE
  A. The Owner is responsible for maintaining all exterior plant material throughout the warranty period according to the
  submitted Maintenance Schedule.
 B. Remove all stakes and guy wires at the end of the 12 month guarantee period.
 PART 2 - PRODUCTS
         2.1 EXTERIOR PLANT MATERIALS
  A. General: Provide nursery-grown plant materials complying with ANSI Z60.1, with healthy root systems developed by
  transplanting or root pruning. Provide well-shaped, fully branched, healthy, vigorous stock free of disease, insects, eggs,
  larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.
 B. Label at least one tree and one shrub of each variety and caliper with a securely attached, waterproof tag bearing legible
  esignation of botanical and common name.
        2.2 PLANTS
  A. Annuals: Provide healthy, disease-free plants of species and variety indicated. Provide only plants that are acclimated to
  outdoor conditions before delivery and that are in bud but not yet in bloom
 B. Perennials: Provide healthy, field-grown plants from a commercial nursery of species and variety shown or listed.
  C. Vines: Provide plants with heavy, well-branched tops, with not less than three runners and a vigorous welldeveloped root
        2.3 FERTILIZER
  A. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast and slowrelease
  nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium. Revise
  fertilizer mix to remedy deficiencies found in soil.
        1. Composition: 1 lb/1000 sq. ft. (0.45 kg/92.9 sq. m. of actual nitrogen, 4 percent phosphorous, and 2 percent
         2. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified
  B. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and
  potassium. Revise fertilizer mix to remedy deficiencies found in soil.
         1. Composition: 20 percent nitrogen, 10 percent phosphorous, and 10 percent potassium, by weight.
```

2. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified

oil-testing agency.

2.4 MULCHES A. Organic Mulch: Six (6) month old well rotted double shredded native hardwood bark mulch not larger than 4" in length and 1/2" in width, free of woodchips and sawdust. 2.5 WATER A. Free of substances harmful to plant growth. 2.6 TOPSOIL A. Topsoil: ASTM D 5268, pH range of 5.5 to 7, a minimum of 4 percent organic material content. Topsoil shall be fertile, friable, natural topsoil of loamy character, without admixture of subsoil material, obtained from a welldrained arable site, reasonably free from clay, lumps, coarse sands, stones, plants, roots, sticks and other foreign materials. 1. Reuse surface soil stockpiled on-site. Verify suitability of stockpiled surface soil to produce topsoil. Clean surface soil of roots, plants, sod, stones, clay lumps, and other extraneous materials harmful to plant growth. a) Supplement with imported or manufactured topsoil from off-site sources when quantities are insufficient. Obtain topsoil displaced from naturally well-drained sites where topsoil occurs at least 4 inches (100 mm) deep; do not obtain from agricultural land, bogs or marshes. 2. Import topsoil or manufactured topsoil from off-site sources. Obtain topsoil displaced from naturally welldrained sites where topsoil occurs at least 4 inches (100 mm) deep; do not obtain from agricultural land. 3. Amend existing in-place surface soil to produce topsoil. Verify suitability of surface soil to produce topsoil. Clean surface soil of roots, plants, sod, stones, clay lumps, and other extraneous materials harmful to plant growth. a) Surface soil may be supplemented with imported or manufactured topsoil from off-site sources. Obtain topsoil displaced from naturally well-drained sites where topsoil occurs at least 4 inches (100 mm) deep; do not obtain from agricultural land, bogs or marshes. 2.7 INORGANIC SOIL AMENDMENTS A. Lime: ASTM C 602, agricultural limestone containing a minimum 80 percent calcium carbonate equivalent and as follows: 1. Class: Class T, with a minimum 99 percent passing through No. 8 (2.36-mm) sieve and a minimum 75 percent passing through No. 60 (0.25-mm) sieve. 2. Class: Class O, with a minimum 95 percent passing through No. 8 (2.36-mm) sieve and a minimum 55 percent passing through No. 60 (0.25-mm) sieve. 3. Provide lime in form of dolomitic limestone. B. Sulfur: Granular, biodegradable, containing a minimum of 90 percent sulfur, with a minimum 99 percent passing through No. 6 (3.35-mm) sieve and a maximum 10 percent passing through No. 40 (0.425-mm) sieve. C. Iron Sulfate: Granulated ferrous sulfate containing a minimum of 20 percent iron and 10 percent sulfur. D. Aluminum Sulfate: Commercial grade, unadulterated. E. Perlite: Horticultural perlite, soil amendment grade. F. Agricultural Gypsum: Finely ground, containing a minimum of 90 percent calcium sulfate. G. Sand: Clean, washed, natural or manufactured, free of toxic materials. H. Diatomaceous Earth: Calcined, diatomaceous earth, 90 percent silica, with approximately 140 percent apsorption water I. Zeolites: Mineral clinoptilolite with at least 60 percent water absorption by weight. 2.8 ORGANIC SOIL AMENDMENTS A. Compost: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 3/4-inch (19-mm) sieve; soluble salt content of 5 to 10 decisiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows: 1. Organic Matter Content: 50 to 60 percent of dry weight. 2. Feedstock: Agricultural, food, or industrial residuals; bio-solids; yard trimmings; or source-separated or compostable mixed solid waste. B. Sphagnum peat moss: Sphagnum peat moss shall be partially decomposed, finely divided or granular texture, with a pH range of 3.4 to 4.8. C. Peat: Finely divided or granular texture, with a pH range of 6 to 7.5, containing partially decomposed moss peat, native peat, or reed-sedge peat and having a water-absorbing capacity of 1100 to 2000 percent. D. Wood Derivatives: Decomposed, nitrogen-treated sawdust, ground bark, or wood waste; of uniform texture, free of chips, stones, sticks, soil, or toxic materials. 1. In lieu of decomposed wood derivatives, mix partially decomposed wood derivatives with at least 0.15 lb (2.4 kg) of ammonium nitrate or 0.25 lb (4 kg) of ammonium sulfate per cubic foot (cubic meter) of loose sawdust or ground E. Manure: Well-rotted, unleached, poultry, stable or cattle manure containing not more than 25 percent by volume of straw, sawdust, or other bedding materials; free of toxic substances, stones, sticks, soil, weed seed, and material harmful to plant 2.9 MISCELLANEOUS PRODUCTS A. Antidesiccant: Water-insoluble emulsion, permeable moisture retarder, film forming, for trees and shrubs. Deliver in original, sealed, and fully labeled containers and mix according to manufacturer's written instructions. PART 3 - EXECUTION 3.1 EXAMINATION A. Examine areas to receive exterior plants for compliance with requirements and conditions affecting installation and performance. Proceed with installation only after unsatisfactory conditions have been corrected. 3.2 PREPARATION A. Tree save areas as indicated shall be tagged and approved by the Architect prior to any clearing and/or thinning. B. Protect structures, utilities, sidewalks, pavements, and other facilities, and lawns and existing exterior plants from damage caused by planting operations. C. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways. D. Lay out individual tree and shrub locations and areas for multiple exterior plantings. Stake locations, outline areas, adjust locations when requested, and obtain Landscape Architect's acceptance of layout before planting. Make minor adjustments E. Lay out exterior plants at locations indicated. Stake locations of individual trees and shrubs and outline areas for multiple F. Apply antidesiccant to trees and shrubs using power spray to provide an adequate film over trunks, branches, stems, twigs, and foliage to protect during digging, handling, and transportation. 1. If deciduous trees or shrubs are moved in full leaf, spray with antidesiccant at nursery before moving and again 3.3 PLANTING BED ESTABLISHMENT A. Loosen subgrade of planting beds to a minimum depth of 4 inches (100 mm). Remove stones larger than 1 inch (25 mm) in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off of Owner's property. 1. Apply fertilizer directly to subgrade before loosening. 2. Spread topsoil, apply soil amendments and fertilizer on surface, and thoroughly blend planting soil mix. a) Delay mixing fertilizer with planting soil if planting will not proceed within a few days. b) Mix lime with dry soil before mixing fertilizer. B. Finish Grading: Grade planting beds to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades. C. Restore planting beds if eroded or otherwise disturbed after finish grading and before planting. 3.4 TREE AND SHRUB PLANTING A. Set all plant materials plumb and in center of pit or trench as per detail. 1. Remove burlap and wire baskets from tops of root balls and partially from sides, but do not remove from under root balls. Remove pallets, if any, before setting. Do not use planting stock if root ball is cracked or broken before or during planting operation. 2. Carefully remove root ball from container without damaging root ball or plant. 3. Place planting soil mix around root ball in layers, tamping to settle mix and eliminate voids and air pockets. When pit is approximately one-half backfilled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed. Water again after placing and tamping final layer of planting soil mix. 4. Spread roots without tangling or turning toward surface, and carefully work backfill around roots by hand. Puddle with water until backfill layers are completely saturated. Plumb before backfilling and maintain plumb while working backfill around roots and placing layers above roots. Tamp final layer of backfill. Remove injured roots by cutting

cleanly, do not break.

5. Dish top of backfill to allow for mulching. B. Organic Mulching: Apply 3 -inch (75-mm.) average thickness of organic mulch extending 12 inches (300 mm) beyond edge of planting pit or trench. Do not place mulch within 3 inches (75 mm) of trunks or stems. 3.5 TREE AND SHRUB PRUNING A. Prune, thin, and shape trees and shrubs as indicated. 3.6 GROUND COVER AND PLANT PLANTING A. Set out and space ground cover and plants as indicated in details. B. Water thoroughly after planting, taking care not to cover plant crowns with wet soil. 3.7 CLEANUP AND PROTECTION A. During exterior planting, keep adjacent pavings and construction clean and work area in an orderly condition. B. Protect exterior plants from damage due to landscape operations, operations by other contractors and trades, and others. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged exterior planting. A. Disposal: Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of them off Owner's property. END OF SECTION 02930

CHRISTOPHER THOMPSON Lic. No. 055008 12-20-2021

DATE: FEBRUARY 5, 202

REVISION BLOCK

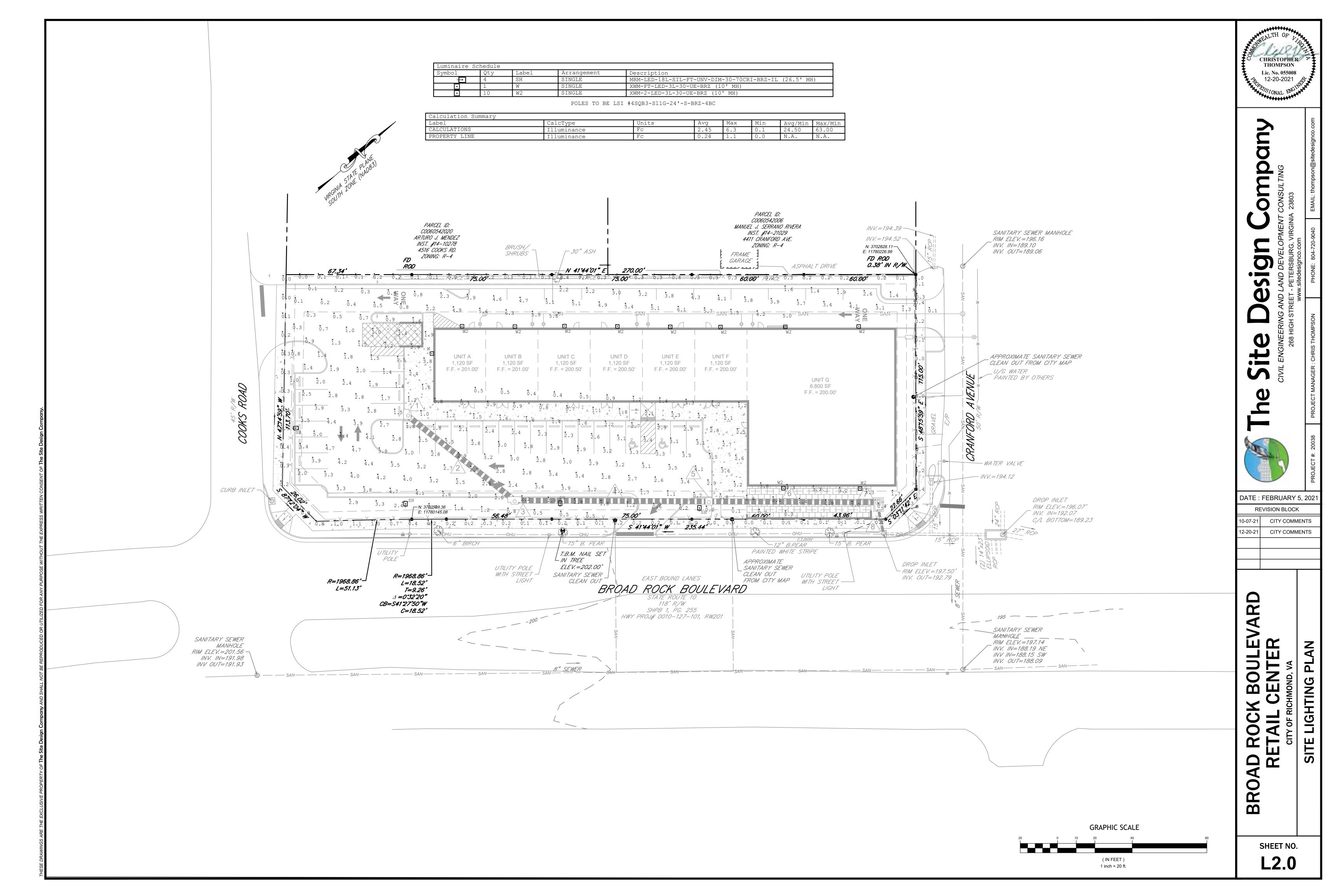
10-07-21 CITY COMMENTS 12-20-21 CITY COMMENTS

FICATION

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SHEET NO.

LAND





Thomas Harris & Co., Inc. 8505 Bell Creek Road, Suite B Mechanicsville, VA 23116

| OVERV | | |
|----------------------|----------------|-----------------|
| Lumon Package | 7,000 - 48,000 | |
| Wattage Range | 53 - 401 | QUICK LINKS |
| Efficacy Range (LPW) | 93 - 148 | GOICK LINKS |
| Weight lbs(kg): | 30 (13.6) | Circlating Cold |

FEATURES & SPECIFICATIONS

Construction

- Rugged die-cast aluminum housing contains factory prewired driver and optical unit. Cast aluminum wiring access door located underweath.
- Designed to mount to square or round · Pixtures are finished with LSi's OuraGrig' polyester powder cost finishing process. The DuraGrip finish withstands extreme weather changes without crecking or peoling. Other standard LSI finishes

available. Consult factory. · Shipping weight: 30 the in carton. Optical System

- · State-of-the-Art one piece silicane optic
- contro! with an integrated gasket to provide iP66 rated sealed optical chamber in 1 Proprietary silicane refractor optics provide
 High-efficacy LEDs mounted to metal-core exceptional coverage and uniformity in IES

sheet delivers industry leading optical

- Types 2, 3, 5W, FT, FTA and AM. Silicone optical material does not yellow or crack with age and provides a typical light transmittance of 93%.
- Zero uplight. Available in 5000K, 4000K, and 3000K color temperatures per ANSI C78.377. Also Available in Phosphor Converted Amber
- with Peak intensity at 610nm. Minimum CRi of 70. Integral louver (IL) and house-side shield (IH) options available for improved backlight control without sacrificing street side performance. See page 3 for more

LSt Industries Inc. 10000 Alliance Rd. Cincinnati, OH 45242 • www.hicorp.com (533) 372-3200 • 627220 i St Industries Inc. 48 State Co.

Electrical High-performance programmable driver features over-voltage, under-voltage, shortcircuit and over temperature protection.

- ustom lumen and wattage packages 0-90V dimming (10% - 100%) standard. compartment. Standard Universal Voltage (120-277 Vac) Input 50/60 Hz or optional High Voltage
- LSO Calculated Life: >100k Hours (See Luman Maintenance on Page S) Total harmonic distortion: <20% Operating temperature: -40°C to +50°C (-40°F to +122°F), 42L and 48L lumen

 Inout sower stays constant over life. Field replaceable 10kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2). circuit board to maximize heat dissipation

Power factor: >.90

accessed.

(\$13) 372-3200 • 02020 LSI Industries Inc. All Rights Reserved. Specifications subject to change without notice.

configuration app

· Optional integral passive infrared

Bluetooth™ motion and photocell

sensor (see page 9 for more details).

be commissioned via iOS or Android

LSI's AirLink^{to} wireless control system

Fixtures operate independently and can

options reduce energy and maintenance

Controls

- Components are fully encased in potting material for moisture resistance. Driver IP66 rated Luminaire per IEC 60598. complies with FCC standards. Driver and 3G rated for ANSI Cl36.31 high vibration key electronic components can easily be applications are qualified.

PHOTOMETRICS

LUMINAIRE DATA Type 2 Distribution Description

Delivered Lumons

BUG Rating

Low (0-30)*

High (60-80)*

Total Flux

Medium (30-60)*

Zonal Lumen Summary

Very High (80-90)* 250 Uplight (90-180)* 0

LUMINAIRE DATA

MRM-LED-30L-SIL-2-40-70CRI

4000 Kelvin, 70 CRI

30,905

B4-U0-G3

7359

30905

MRM-LED-30L-SIL-3-40-70CRI

ORDERING GUIDE

Mirada Medium Outdoor LED Area Light

| Luminaire Pretx | Light Source | Lamen Package | Light Distput | Distribution | Drientstar* | Veltege | Driver |
|---|-----------------|--|------------------|---|--|--|-------------------|
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| ٥ | olor Tump | | alor Rendering | , | midt - | Opto | ns |
| 58-5,000 CCT 48-4,000 CCT 9-1,000 ECT AMS - Phosphor | Converted Ami | ber ⁱ | | BLK - Black GPT - Graphile MSV - Metallic Silver WHT - White PLP - Publisher Plate | | (Mark) - Nove M. a Integral Masseside Shield* | Conft |

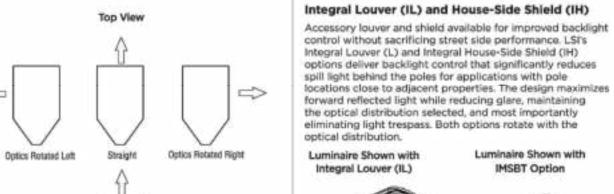
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| Accessory Ordering information ⁷ | | | | | |
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| Fasing Assessments* | 2042775-17 | 7 | | | |
| Esserption | Dider Kumber | Miscellaneous Accessories | 25/34/2010 | | |
| Single Fairing (120V) | FICUR | Description | Brday Humber | | |
| Single Fusing (120V) | P077 | Ebriegnal Louver@rield* | 690981 | | |
| Daulite Fusing (ISBN: 240V) | DN040 | PI - Integral House Side Share? | 749415 | | |
| Deuter Fusing (480K) | 0/4480 | 10" Linear Bred Spike Kit (3" Rossmansaded per Luminalno) | 736766 | | |
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- FOOTNOTES:

 1. Castom lamon and wettage puckages available, consult fectory. Values are within industry. Fusing must be located in hend hole of pole.
 Only available in St. and St. Lumen Packages. Consult featury for lead time and availability.

Mirada Medium Outdoor LED Area Light ACCESSORIES/OPTIONS OPTICS ROTATION

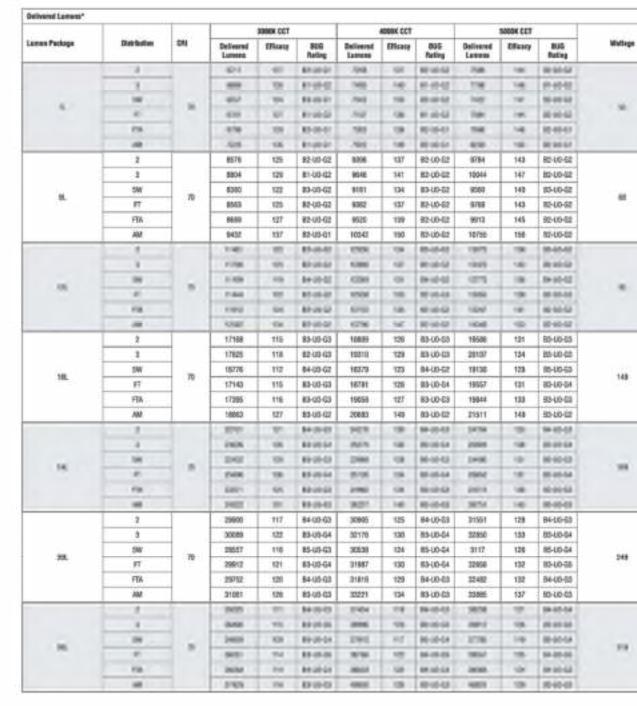




7 Pin Photoelectric Control 7-pin ANSI C136.41-2013 control receptacle option available for twist lock photocontrols or wireless control modules. Control accessories sold separately. Dimming leads from the receptacle will be connected to the driver dimming leads (Consult factory for alternate wiring).



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|-----|------|---|------|
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| | -10) | | 339) |



Mirada Medium Outdoor LED Area Light

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Page 4/10 Rev. 12/15/20 SFSC.1045.A.0620

PERFORMANCE (CONT.)

Mirada Medium Outdoor LED Area Light

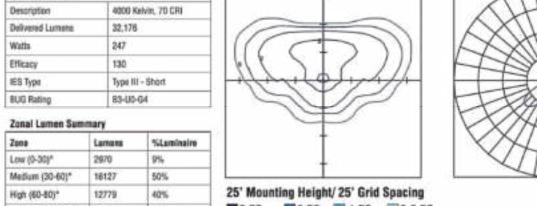
| Delivered Lamers* | | | | | | | | | | | | | |
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| Lamen Package | Distribution | 584 | Dullivered Lumens | History | 800 Rating | Delivered Lumens | Efficacy | RATING | Delivered Lamons | Efficiency | BUG Reting | Wattege | |
| | | | 3994 | 103 | 85-00-64 | 42798 | 110 | 85-00-04 | 42963 | 112 | 86-10-64 | | |
| | | 70 | 41540 | 107 | 84-U9-Q5 | 44528 | - 114 | 84-00-05 | 45460 | 117 | B6-00-08 | | |
| 43. | DW. | | 39620 | 101 | \$5-U0-G4 | 42281 | 100 | 85-00-04 | 43148 | 111 | 85-00-04 | 290 | |
| | 17 | | 41395 | 136 | \$4-03-65 | 84295 | 114 | 84-00-68 | 45192 | 116 | B4-UD-G8 | | |
| | | FTA | | 41174 | 106 | 84-00-64 | 64630 | 113 | 88-00-08 | 64951 | 115 | 84-10-64 | |
| | AM | | 49021 | 109 | 89-00-63 | 40612 | 117 | 84-00-63 | 46932 | 119 | 8440-63 | | |
| | | | 490 | 5.76 | Emisside | 4000 | 19 | \$5-05-ba | 4676 | 100 | 50-20-5a | | |
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| | - 19 | | 47500 | 401 | EH-01-04 | C100. | OF. | 80-00-04 | 1786 | 18" | R-6104 | 1 | |
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| | - 4 | | 4800 | .794 | \$4-00-03 | - 6015 | 1100 | 36 00-05 | 491 | 390 | 19-10-12 | | |

| LECTRICAL DATA (AMPS)* | | | | | | | DELIVERED LUMENS* | | | | | | |
|------------------------|-------------|--|-------------|--------------|---------|-------|-------------------|---------|------------|------------------|------------------|---------------------------|---------|
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| 74 | - | -5.68 | 1.81 | 0.04 | 6.80 | 904 | 15 | Pestage | Districtor | Delivered Lumana | Efficacy | Efficacy BUG Rating Water | Wattage |
| 94. | 69 | 0.64 | 0.3A | 0.34 | 0.24 | 0.24 | 0.1A | | 1.0 | 94 | | M-9492 | |
| 0. | * | 0.84 | 128 | 0.00 | 18 | 454 | 636 | | 2 - R. | 3644 | 50 | 89-10-01 | |
| 181 | 150 | 1.25 | 0.7A | 0.64 | 0.5A | 0.48 | 0.3A | | 9. | .00 | | E-(H) | |
| 36 | 107 | 1.68 | 126 | 44x | 6.34 | -0.0A | 0.60 | | 5+B. | 4466 | 61 | 80-U0-GE | |
| 30. | 247 | 2.18 | 1.2A | 1.94 | 0.BA | 0.7A | 0.5A | R. | 10 | 901 | - 1 | may. | 74 |
| - 26 | 203 | 254 | 196 | 1.34 | 5.86 | 444 | 6.76 | | .)11 | 5801 | 79 | \$1-10-02 | |
| 421. | 390 | 3.28 | 1.9A | 1.64 | 1.44 | 1:1A | AAS | | 18.A. | 846 | | \$1000 | |
| 48L | 401 | 3.48 | 1.3A | 1.78 | 1.5A | 1.ZA | AB.0 | | F/A | 9854 | 11 | 8140-01 | |
| | | | | | | | | | Ph-9. | 490 | 14. | Triplet : | |
| ELECTRICA | NL DATA - I | PHOSPHOR | CONVERT | ED AMBER | (AMPS)* | | | | 1 | 7600 | .74 | 10-U0-GE | |
| Lament | Witte | 120V | 298Y | 200Y | 2779 | 3479 | 480V | | 0.0 | 460 | 4 | mani . | |
| K | 742 | 188 | 5.60 | 0.0A | 126 | 808 | 8.24 | | | 7749 | 76 | B1-610-G2 | |
| 125. | 102.9 | 0.94 | 0.5A | 0.44 | 0.48 | 0.3A | 0.2A | | 100 | 650 | | BUAGE. | 102 |
| Electrical da | to at 25°C | FFF1 Add | of worthage | mey differ b | y 4/10% | | | tm. | : W | 7946 | M | 10-U0-G2 | |
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| RECOMME | - | the state of the s | | - | - | - | | | FT-E | 4609 | - 4 | 80-60-03 | |
| Ambient | _ | leff: | 259 | 58h/ | _ | 245 | 100h/ | | The | 701 | - | Street, | |
| 1501 | - 4 | Ph - | 80% | 10% | | n | 10. | | FDe-E | 5464 | 34 | D-40-01 | |

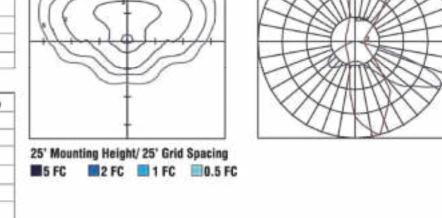
- 1. Lumen maintenance values at 25C are calculated per TM-25 based on LM-90 data and

device under testing. 3. In accordance with IESNA TM-21-11, Calculated Values represent time durations that accord six times the ESNA LM-80-08 total test duration for the device under testing.



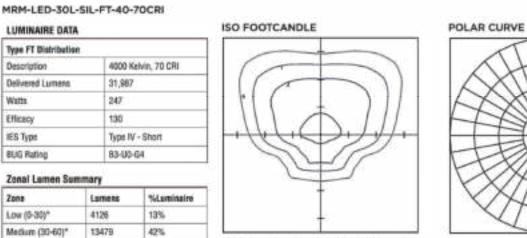


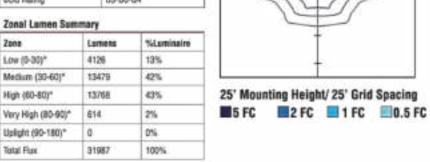
ISO FOOTCANDLE

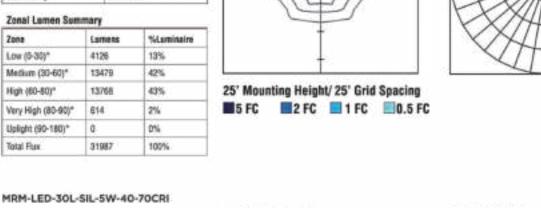


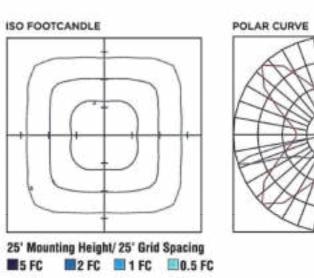


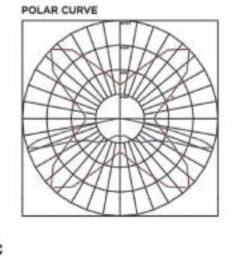
Mirada Medium Outdoor LED Area Light PHOTOMETRICS (CONT)

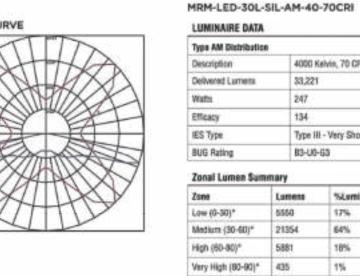


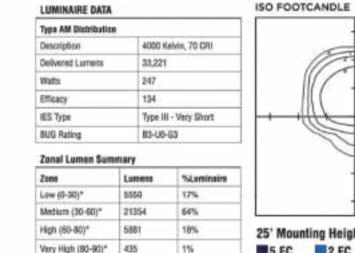


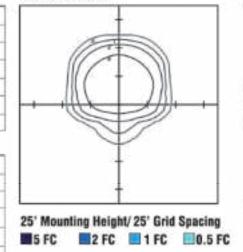


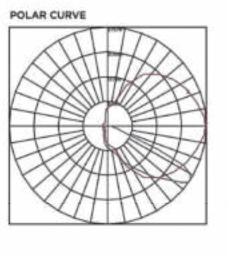












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SPEC.1045.A.0620

SHEET NO.

DATE: FEBRUARY 5, 202

REVISION BLOCK

10-07-21 CITY COMMENTS

CITY COMMENTS

ETAIL

AN

LIGHTIN

SITE

CHRISTOPHER THOMPSON Lic. No. 055008 12-20-2021



Mirada Medium (MRM) Outdoor LED Area Light

oring Guide Performance Prodometros Dimensions

costs while optimizing light quality 24/7.

· A single featener secures the hinged door, underneeth the housing and provides quick & easy access to the electrical Included terminal block accepts up to 12 ga.

(see page 9 for more details.

 Utilizes LSI's traditional 3" drill pattern 83 for easy fastening of LSI products. (See drawing on page 9) LSi LSD Fixtures carry a 5-year warranty.

 Listed to UL 1598 and UL 8750. · Meets Buy American Act requirements. IDA compliant; with 3000K color temperature selection.

 Title 24 Compliant see local ordinance for qualification information.

> 5. IMSST is field configurable via the LSI app that can be downloaded from your smartphone's netive app sions
>
> 6. Control device or shorting cap must be ordered appendisty. See Accessory Ordering

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Luminaire photometry has been conducted by a NVLAP accredited testing laboratory in accordance with IESNA LM-79-08. As specified by

25' Mounting Height/ 25' Grid Spacing

■5 FC ■2 FC ■1 FC ■0.5 FC

IESNA LM-79-08 the entire luminaire is tested as the source resulting in a luminaire efficiency of 100%.

ISO FOOTCANDLE

See http://www.lsicorp.com/products/led-lighting-solutions.aspx for detailed photometric data.

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Mirada Medium Outdoor LED Area Light

POLAR CURVE

POLAR CURVE

Rago 3/10 Rov. 12/18/20 SFEC.1045.A.0620

Use Type

EXAMPLE

Use Type

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PHOTOMETRICS (CONT)

LUMINAIRE DATA

Type FTA Distribution

Delivered Lumens

Medium (30-60)*

Very High (80-90)* 341

Uplight (90-180)* 0

High (60-80)°

Total Flux

MRM-LED-30L-SIL-FTA-40-70CRI

4000 Kelvin, 70 CRI

Type II - Short.

100%

B4-U0-G3

6758

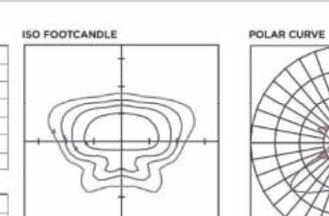
18845

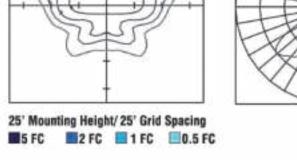
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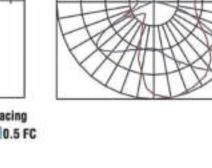
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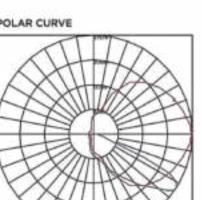
PERFORMANCE

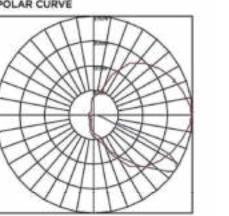












Very High (80-90)* 315 Medium (30-60)* Uplight (90-180)* Uplight (90-180)* High (60-80)* 100% Total Flux 30538 100% Total Flux 33221 Very High (80-90)* 301 Uplight (90-180)* 0 32176

LUMINAIRE DATA

Type 5W Distribution

Medium (30-60)*

High (60-80)*

4000 Kelvin, 70 CR1

Type VS - Shart

50%

85-U0-G4

15328

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"LEDs are frequently updated therefore values are nominal.

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SPEC.1045.A.0620

The AirLink integrated controller is a California Title 24 compliant lighting controller that provides real-time light monitoring and control with utility-grade power monitoring. It includes a 24V sensor input and power supply to connect a sensor into the outdoor AirLink wireless lighting system. The wireless integrated controller is compatible with this fixture. Click the link below to learn more details about AirLink.

https://www.lsicorp.com/wp-content/uploads/documents/products/airlink-outdoor-specsheet.pdf

Slim low profile sensor provides multi-level control based on motion and/or daylight. Sensor controls 0-10 VDC LED drivers and is rated for cold and wet locations (-30° C to 70° C). Two unique PIR lenses are available and used based on fixture mounting height. All control parameters are adjustable via an iOS or Android App capable of storing and transmitting sensor profiles. Click the link below to learn more details about IMSBT.

https://www.lsicorp.com/wp-content/uploads/documents/products/imsbit-specsheet.pdf

Wireless Bluetooth Mesh Outdoor Lighting Control System that provides energy savings, code compliance and enhanced safety/security for parking lots and parking garages. Three key components; Bluetooth wireless radio/sensor controller, Time Keeper and an iOS App. Capable of grouping multiple fixtures and sensors as well as scheduling time-based events by zone. Radio/Sensor Controller is factory integrated into Area/Site, Wall Mounted, Parking Garage and Canopy luminaires. Click the link below to learn more details about AirLink Blue.

https://www.lsicorp.com/product/airlink-blue/

DRILLING LOCATIONS

FIXTURE CONFIGURATIONS

4" (102mm) square

10-1/8" (257mm) sq.

11" (27Sexe) Die. Boll Circle

10-10" sq. x 3/4" fla.

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Note: Base plute illustrations may change without notice. Do not use for setting anchor boits. Consult factory for the appropriate uncher boit temprate.

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BOLT CIRCLE

Bolf Circle

Ancher Bolt

Base Plate Opening for Wineway Entry

Spoa Plate Oknersions

Pole Gauge

LSI Industries Inc. 10000 Alliance Rd. Cincinnati, OH 45042 + www.isicorp.com



Ground Fault Circuit Interrupter Self-testing Ground fault circuit interrupter

Pole Shaft Straight poles are 4", 5", or 6" square. Pole shaft is electro-welded ASTM-ASOO Grade C steel tubing with a minimum yield

strength of 50,000 psi. . Every pole is provided with the DuraGrip* On Tenon Mount steel poles, tenon is 2-3/8" Protection System and a 5-year limited O.D. high-strength pipe. Tenon is 4-3/4" in resuptify.

Kond-Hole

 Standard hand-hole location is 12" above chain thosa. Poles 22' and above have a 3" x 8" reinforced hand-hole. Shorter goles have a 2" x 4" non-reinforced hand-halo.

. Poin base is ASTM-A36 hot-rolled steel plate with a minimum yield strength of

38,000 ptl. Two-piece square beca cover is optional.

Anchor Bolts . Poles are furnished with anchor botts featuring zinc-plated double nuits and

washers. Galvanized anchor boits are Anchor bolts conform to ASTM F 1554-07a

Grade 55 with a minimum yield strength of \$5,000 psi. Ground Lug

. Ground lug is standard. **Duplex Receptacle**

· Weatherproof duplex receptacle is optional.

Pole Vibration Damper + A pole vibration damper is recommended in

poles are more susceptible to destructive

vibration if a damper is not installed.

open terrain areas of the country where low steady state winds are common. Non-tapered poles and lightly loaded

Protection System is selected, in addition to ... + U. Listed BAA/YAA Compliant percus, automotive-grade corresion costing

Strifted warranty to 7 years. Determining The Luminaira/Pole Combination For Your Application:

from arerrogion. This cation extends the

When the top-of-the line DuraGrip* Plus

the Duratiries Protection System, a non-

is applied to the lower portion of the pole

interior, soaling and further protecting it

- Select luminaire from luminaire ordering information Salect bracket configuration if required
- . Determine EPA value from luminairs/ Isractual ERA chart
- Select pale haight
- . Select MPH to match wind speed in the application area (See windspeed maps).
- . Confirm pole EPA equal to or exceeding value of luminaire/bracket EPA
- requirements and banner brackets

Pole heights will have +/- 1/2" tolerance.

Accessory Ordering Information

ABCS - prounting Hole Plage for use with \$7 tend liberal drill pattern \$2 set of 3 plage

IM-Q - Mounting Hote Plugs for use with 3" reduced this pattern (3 sets of 3 plugs)

MHS - mounting Hole Plugs for use with 3" reduced \$10 pattern (3 set of 3 plugs)

- See Area Light Brackets - 3" Reduced Drill Pattern and Area Light Brackets

See Flood Lighting Brackets section for choice of FBO brackets.
 CR selection must indicate required height and side of pole mounting location. Mounting template required at time of order.

RC - V Square Read Sover

68C - 6" Square Base Cover

SFG - Weatherproof Deplex Receptable

CP1 - Ground Fault Chical Interruptor

Side "A" (Hand-hole Side)

11" (Z7Smm) Sia. Bell Circle

3/4" x 30" (19mm x 762mm)

(\$3(100)

10-18" sta. x 34" this

Back to Quick Links

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WIND SPEED

Steel Poles - Square Straight

Back to Quick Links

All LSI industries' poles are guaranteed to meet the EPA requirements listed, LSI industries is not responsible if a pole order has a lower EPA rating than the indicated wind-loading zone where the pole will be located. CAUTION. This quarantee does not apply if the pole/bracket/fixture combination is used to support any other items such as flags, pennants, or signs, which would add stress to the pole. LSI industries cannot accept responsibility for harm or damage caused in these situations.

NOTE: Pole calculations include a 1.3 gust factor over steady wind velocity. Example: poles designed to withstand 60 MPH steady wind will withstand gusts to 104 MPH. EPAs are: for locations \$50 miles away from humicane ocean lines. Comult LSI for other areas. Note: Humicane ocean lines are the Atlantic and Gulf of Mexico-coastal areas. For applications in Florida or Canada, consult factory.

Use ONLY with "Wind Speed Map for ASCE 7-10

| | Mig. tringet | Wed Titch | MOLFOROLE | | | 84 | | | | | | | | |
|-----------------|---------------|-----------|------------|------------|-------------------------|------|--------|----------|-------|---------|---------|---------|----------|---------|
| POLI | Length (K) | tpat | Designatur | Na. Del | Anabor belt Div (in) | - | 10 101 | 120 107% | TOURN | 140 MPH | 138 889 | 100 MPH | 179.0094 | 100 007 |
| Cologoid | 1 4 | - 0 | - 4 | 4-11 | 48 | 4.0 | 6.1 | 343 | 4.5 | - 3 | 11 | 14 | - 0 | 14 |
| PERMITTE | 14 | - 11 | | 85.10 | 6.79 | 167 | 85 | 85 | 6.6 | 5.4 | 6.6 | 35 | 2.7 | 23 |
| format in | - | | - 4 | 4 | 68 | - 64 | 14 | | - 63 | - 10 | 11 | 125 | - | 16 |
| 6"x11-gcx18" | 18. | - 11 | W | West | 0.75 | 63 | 14. | 47 | -34 | - 24 | 3.0 | 18 | 0.6 | 101 |
| Committee of | | | | 100 | 9.5 | - 61 | 100 | - 11 | - 0 | - 4 | 14 | - 14 | | |
| Extigax22 | 22 | 77 | 1 | 8-17 | 6.75 | 7.6 | 8.6 | 17 | 42 | 3.0 | 2.0 | 12 | 95 | 69. |
| Follower - | 1111 | - 6 | - 1 | 9.00 | 115 | 91 | 100 | 45 | - 01 | 19 | 15 | - 10 | | 146 |
| Callys W | 28 | 11 | . 8 | 8-17 | 675 | 48 | 17 | 3.0 | 17 | 0.7 | 78 | 198 | Nà. | N/S |
| forgard. | | - 1 | | 4- | - 6h | 1.0 | 9.1 | 19.6 | 99 | 9.6 | 4.0 | - 11 | | 1.0 |
| 4°17g1116 | 100 | 7. | 1 1 | PHT. | 0.75 | 147 | 13.2 | 718 | 181 | 7.8 | 6.3 | 52 | 42 | 24 |
| Corpora | | | - 2 | | 1675 | 7.5 | 1161 | 1.0 | - 14 | - 00 | 14 | - (4 | - 0 | 1.0 |
| distinguish. | 20 | T. | | #HT | 8.75 | 16 | 8.4 | 7.4 | 17 | :0 | 32 | 2.3 | 18. | 69. |
| Colyns . | 9 | | - 4 | 400 | 9.5 | 1.7 | 1.0 | 1.7 | 43 | 10. | - 11 | U | - 10 | - 10 |
| 6"x7-gxx56" | 24 | 7 | | #-11 | 9.75 | 60 | 6.5 | 43 | 2.9 | 13 | 8.9 | 198 | 10 | - 69 |
| Fallpoin. | | -1- | - 4 | 400 | - 65 | - 84 | - 0 | - 14 | 4,3 | - 00 | | - 0 | | - 10 |
| 47x7-gcx201 | 25 | - 1 | 1. | 8.10 | 9.75 | 13 | 18 | 1.8 | 67 | 748 | irk | 100 | 19 | . 69. |
| Forgott - | | - 1 | - 1 | 9.00 | 45 | 37 | 11.58 | 10 | - 44 | - | 14 | - 4 | | - 10 |
| (Cx11-jpx14) | 16 | 11 | - t | 8-10 | 0.75 | TÜA | 167 | 161 | 11.5 | 6.3 | 7.7 | 6.5 | 52 | 42 |
| Colonest | 1 4 | 100 | 1.4 | F-10 | 1.10% | 58. | 10.64 | 194 | 41 | 1.40 | 5.6 | - 52 | 10 | 18 |
| S'x fl-gax lif | 18: | - 11 | 0 | 8,-31, | 8.75 | 10.6 | 1.6 | 24 | 6.5 | 43 | 37 | 2.8 | 18 | 12 |
| Compail | - 4 | | -4 | 0.00 | - 65 | - 64 | 116 | 1.0 | - 84 | - 40 | - 11 | - 13 | - 66 | 10 |
| fris Higsx82 | 22 | - 11 | -01 | 8-11 | 0.75 | 10.9 | 4.5 | 13 | 12 | -43 | 32 | R4 | -12- | 65 |
| Full-good - | | | - 4 | F-0 | 65 | - 61 | 1.75 | 14 | -:40 | | 14 | 1.0 | | - 10 |
| S'x Si-ga x 20° | 26 | 23 | 6. | B-07 | 8.75 | 18 | 1.7 | 40 | 3.5 | 1.6 | 26 | 100. | 10 | NS: |
| forgall - | | | | 9.40 | 424 | 4.5 | 1.00 | 1.0 | 14 | - 90 | - 14 | - | | 11.00 |
| 5"x (1)gax38" | - 10 | 11 | | 8.14 | 629 | 38 | 12 | 18 | 0.4 | | 10 | - 101 | 19 | NI |
| College City | | | | P.M. | 11/40 | - 24 | 54 | - 172 | 100 | 1.4 | - 14 | - 14 | | 14 |
| 8"x7-pxx88". | 22 | 7 | 0.5 | W-91" | 1.00 | 26.7 | 16.6 | 168 | 103 | 19,7 | 15 | 64 | 54 | 42 |
| forget. | | | | P.0 | - | 41 | 110 | - 100 | 14 | - | - 11 | - 14 | - 10 | - 19 |
| Fafquill. | 26 | 1 | | 11.44 | 1,00 | 143 | 10.1 | 71.4 | 1.1 | 6.6 | 40 | 35 | 23 | 13 |
| Fiducial . | | 1 | - 4 | 8-4 | 1.00 | 11 | 10 | 14 | 41 | 40 | 14 | 11 | | |
| 8"x7-gxx20" | 30 | 1 | 8. | 8-17 | 1.00 | 10.3 | 8.6 | 78 | 6.2 | 24 | 2.0 | 0.8 | Sik . | 6/6 |
| for good | | | - | F-06 | | - 11 | - 4 | 34 | 18 | - | - 12 | | | - |
| 8"17g110" | 26 | 7. | 1 | 12" | 1.00 | 161 | 16.4 | 143 | 11.2 | .10 | 65 | 41 | 14 | 13 |
| f-CpcW | | -1 | - | - 10 | 100 | 14 | 19.4 | - 41 | ** | | 14 | 14 | | 1.5 |
| Extende. | 28 | 1 | 1 | 12" | 1.00 | 12.3 | 12.0 | 12 | 67 | -48 | 2.0 | 1.6 | 10 | 1/8 |
| Fright. | | | -4 | - 4 | | 5.8 | 16 | 18 | 54 | - | 14 | - 10 | - | 19 |
| F17612F | 30 | 7 | 4: | 12" | 1,00 | 83 | 8.6 | - 55 | 3.5 | 13 | 100 | . 33 | 10 | 109 |
| Fergust - | | - 1- | -4- | - 4 | 1.10 | -44 | 14 | 1.7 | 1.6 | - | - 0 | - 4 | - | - 10 |
| f*x7gxx数/ | 35 | T. | 1 | 127 | 1.00 | 53 | 43 | 29 | - 0.9 | 30 | ir/s | 1/6 | 19 | . 19 |
| Fidgett . | | - 1 | - 1 | - 07 | 1000 | - 71 | 14 | 4.6 | - | - | - 00 | - 69 | - | - 44 |

CAUTION: This guarantee does not apply if the pole/bracket/finduse combination is used to support any other films such as flags, permants, or signs, which would add stress to the pole. LSI inclusives cannot accept responsibility for harm or damage caused in these situations.

1- Poles shorter Dan Bess lided hers in for each gauge have EPA rating equal to or greater than what is provided in this table. To Confirm EPA ratings an shorter poles, contact LSI Industries. 2-LSI Industries recommends a vibration clamper be ordered with this length.

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Mirada Wall Sconce (XWM)

Catalog #: TYPE W-XWM-FT-LED-3L-30-UE-BRZ







Project: BROAD ROCK RETAIL

Thomas Harris & Co., Inc. 8505 Bell Creek Road, Suite B Mechanicsville, VA 23116

| OVERS | HE W | |
|-------------|----------------|------------------|
| Range | 3,000 - 12,000 | |
| Range | 28 - 102 | QUICK LINKS |
| Range (LPW) | 107 - 140 | GUICK LINKS |
| (bs(kg) | 30 (13.6) | Chrokeling Swide |
| | | |

Performance Photometrics Streetwoods

FEATURES & SPECIFICATIONS

mechanism to easily access the junction

Construction

- Rugged die-cast aluminum housing High-performance programmable driver contains factory pringred driver and optical features over-voltage, under-voltage, shortunit. Hinged die-cast aluminum wiring circuit and over temperature protection. access door located underneath. Galvanized-steel universal wall mount bracket comes standard with hinging Q-90V dámming (10% - 100%) standard.
- bax wire connections without remaving the Optional pole-mounting brackst (XPHA) permits mounting to standard poles. Fixtures are finished with LSNs DuraGrip* palyester powder coat finishing process.
- The DuraGrip finish withstands extrame weather changes without cracking or peeling. Other standard LSI finishes aweilable. Consult factory. Shipping weight: 30 lbs in corton.

Optical System

- State-of-the-Art one piece silicone optic sheet delivers industry leading optical control with an integrated gasket to provide IP65 rated sealed optical chamber in 1
- Proprietary silicone refractor optics provide exceptional coverage and uniformity in Types 2, 3, and Forward Throw (FT) Silicone optical material does not yellow or crack with age and provides a typical light.
- transmittance of 93%. Zero uplight. Available in 5000K, 4000K and 3000K color temperatures per ANSI C78.377. Minimum CRI of 70.

- the LED system, ensuring code compliance. A test switch/indicator button is installed on the housing for ease of maintenance. The fixture delivers 1500 lumers during emergency mode.

istam kimen and wattage packages

Standard Universal Voltage (320-277 Vac)

Input 50/90 Hz or optional High Voltage

Operating temporature: -40°C to +50°C.

Input power stays constant over life.

meets a minimum Category C Low

operation (per ANSI/IEEE C82.41.2).

High-officacy LEOs mounted to metal-core

Components are fully encased in potting

material for moisture resistance. Driver

complies with FCC standards. Driver and

key electronic components can easily be

Optional integral emergency battery pack

provides 90-minutes of constant power to

ccessed via hinged door.

incuit board to maximize heat dissipation

Optional 10kV surge protection device

L80 Calculated Life: >100k Hours

Total harmonic distortion: <20%

(~40°F to +132°F);

Power factor: >.90

· Optional integral passive infrared Bluetouth** motion and photocell sensor (see page 5 for more details). Fixtures operate independently and can be commissioned

applications when pole mounted (using optional XPMA bracket) or wall mounted DesignLights Consortium' (DLC) qualified product. Not all versions of this product. may be DLC qualified. Please check the DLC Qualified Products List at www.designlights. org/QPL to confirm which versions are

via IOS or Android configuration app

page 5 for more details).

Installation

+ LSI's AirLink's wireless control system op-

tions reduce energy and maintenance costs while optimizing light quality 24/7. (see

· Universal wall mounting plate easily mounts

directly to 4" octagonal or square junction

underneath the housing and provide quick

Optional terminal block accepts up to 32 ps.

LSI LEO Fixtures carry a 5-year werrenty.

Meets Buy American Act requirements.

State of California Title 24 Compliant

3G rated for ANSI C136.31 high vibration

IP65 rated luminaire per IEC 60598.

IDA compliant; with 3000K or lower color

Listed to UI, 1598 and UI, 8250.

temperature selection.

Suitable for wet Locations.

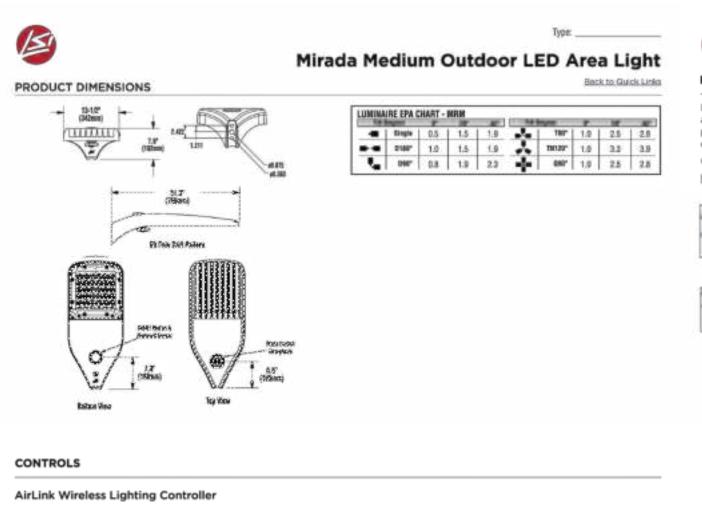
1 Year warranty on Battery Back-up option.

& assy access to the electrical compartment

2 fastoners secure the hinged deer

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Page 1/6 Rev. 18/21/26



Integral Bluetooth™ Motion and Photocell Sensor (IMSBT)

AirLink Blue

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SPEC.1045.A.0620

Steel Poles - Square Straight

I - Two locations will tie 45° to the left and right of

2 - Other two locations will be 120° to the left and

right of Side A. Two locations will be 45° to the left and right of

Side A and two locations will be 135° to the left.

Consult factory for custom variations. Standard

20' poles, Meximum height for SF and DF pole preparations on 20' poles is 13' from the base.

6" (152mm) square

12" (305mm) sq.

12" (305mm) Dia. Bell Circle

(25mm x 914mm)

15' sq. x 1-1/6' thk. (305mm x 29mm)

Page 1/5 Rev. 01/29/31

10-1/6" (257mm) sq

11" (275mm) Dix. Bult Dische

(25mm x 914mm)

SF and DF pole preparations are located 3/4 of the height of the pole from the base, except on

PRODUCT DIMENSIONS

N= 2-3/8" (60mm) 0.D. x 4-3/4" (121mm) Tenon

(3.4m - 11.9m)

Soft-On Mount 2-Bolt Pattern

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and 90" when using a vertical tenon.

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SPEC.1045.A.0620

Steel Poles - Square Straight

SHIPPING WEIGHTS

4°CR2mm0 sq. Ti Ga. is approximatel

5"(127mm) sq. Ti Ga. is approximately

19197 mmg sat, 62° Gis. le approximately.

5°78/hond no 07 da is opprovincibly

Anchor Belts (F x 86°5639cm; s 954oco)

Scholaer Globs (2)/9" v 30" (1994) v 762mm)

CG2mino as, G7 Qa. is approximately

Back to Guick Links

10.00 lbs/ft.

9.00 lbs/ft.

12:50 (95./%

19.46 lbs/H.

16 ibs. (/hgs/sec

50 tre (Wing), (mt

Page 4/5 Rev. 01/29/21

LSR Industries Inc. 10000 Allience Rd. Cincinnati. OH 45242 • www.hi-industries.com (\$55) 372-3200 • 82020 LSI Industries Inc. All Rights Reserved. Specifications subject to change without notice.

· Consult factory for special wind load.

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Height Restriction

Selection Chart er

noposite page

Visitation Gumper - 9" Square Pole (first-on recent only)

Vibration Gamper - 6" Square Pole (both on mount unity)

Consult Pole

20' poles. Modisum

height for SF and DF

pole preparations on

20' point is 13' from

+ SIGA XMESF A FINA XSSSF

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SPEC.1070.A.0920



DATE: FEBRUARY 5, 202 REVISION BLOCK

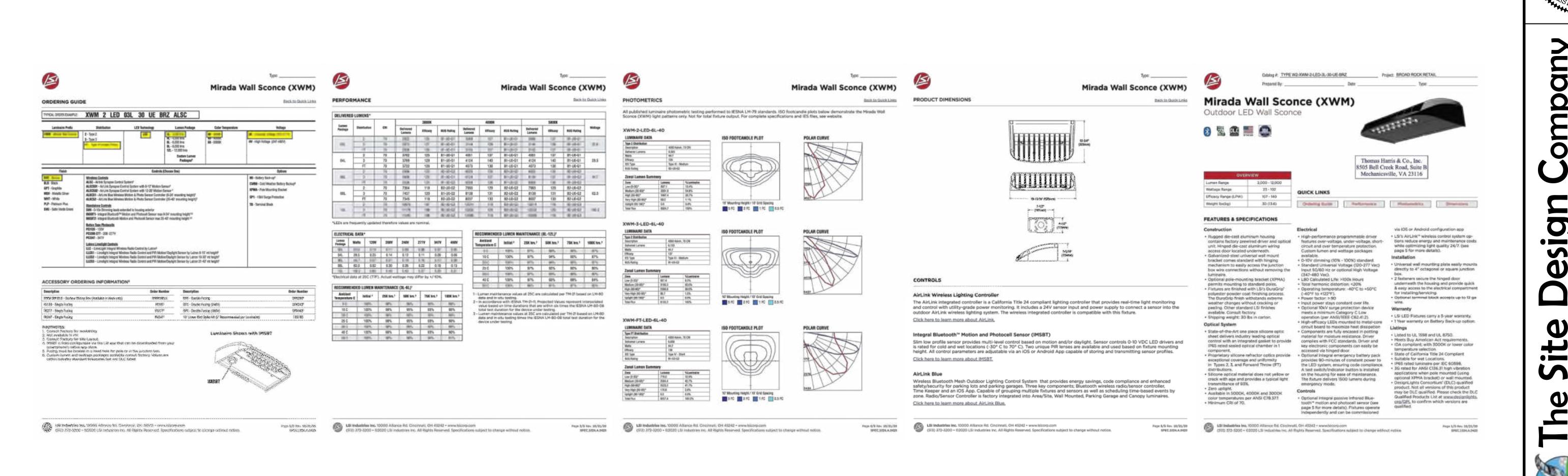
CHRISTOPHER THOMPSON Lic. No. 055008 12-20-2021

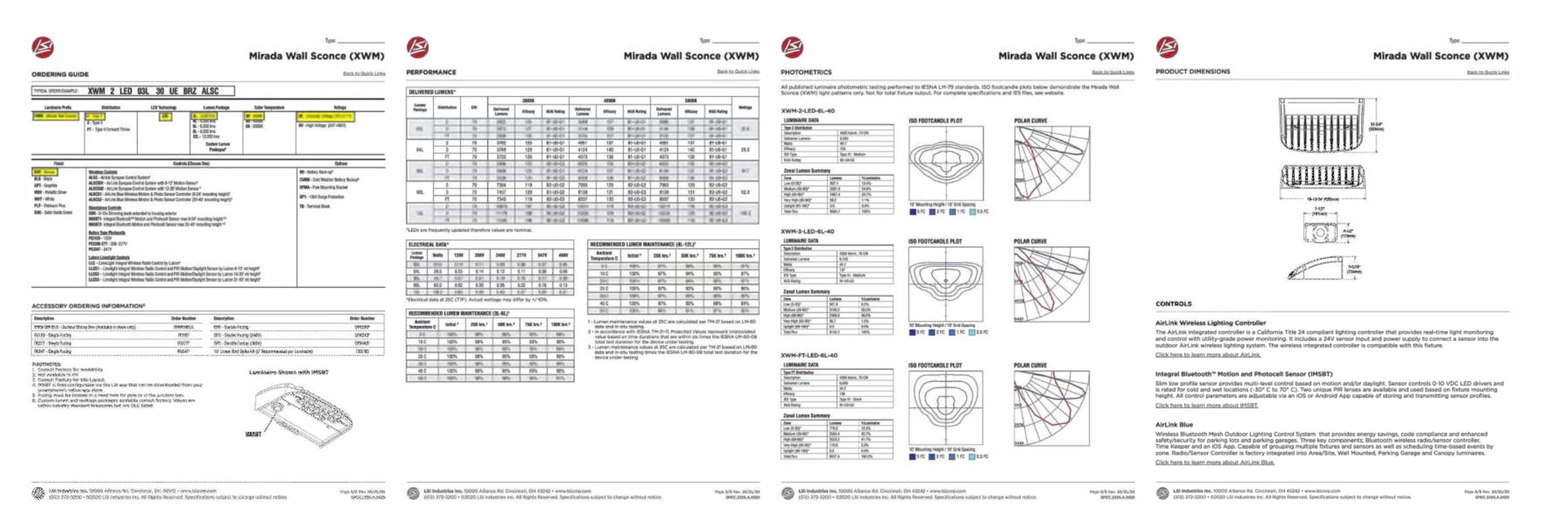
10-07-21 CITY COMMENTS 12-20-21 CITY COMMENTS

ETAIL

AN

LIGHTIN SITE





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0

DATE: FEBRUARY 5, 202 REVISION BLOCK 10-07-21 CITY COMMENTS

12-20-21 CITY COMMENTS

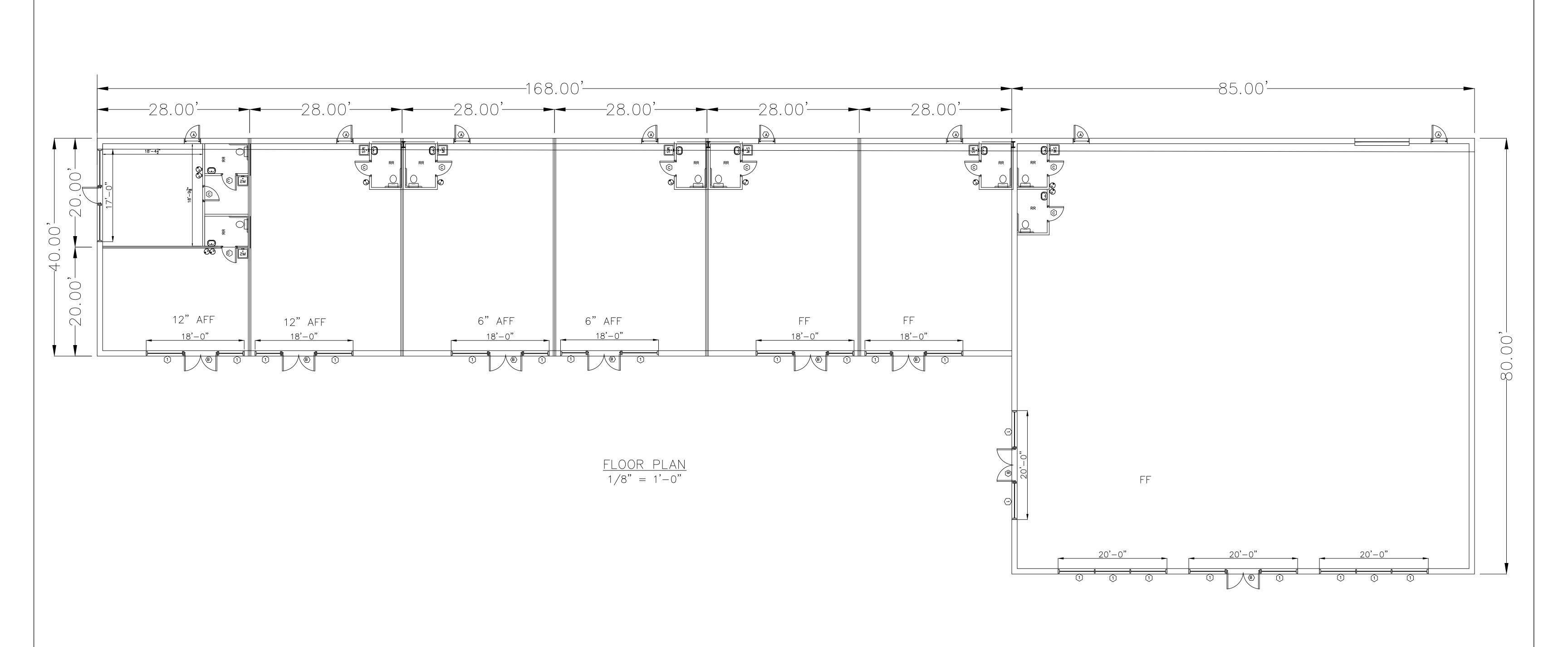
ETAIL

AN

LIGHTIN

SITE

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THE PURPOSE OF THIS PROJECT IS FOR THE CONSTRUCTION OF A SINGLE STORY 13,520 SF SHELL ONLY METAL BUILDING

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| FLOOR PLAN | SCALE AS NOTE |
| | 9/09/20 |
| SHOPPING CENTER | DRAWN BY JK |
| 2100 BROAD ROCK BLVD | CHECKED BYFJK |
| RICHMOND, VA | |
| Advanced Engineering, LLC | DRAWING NO. |
| P.O.Box 72692 | 060 |
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